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KHRUSHCHEV AND THE DEVELOPMENT OF SOVIET AGRICULTURE

The Virgin Land Programme 1953–1964

MARTIN McCAULEY

in association with the
School of Slavonic and East European Studies
University of London

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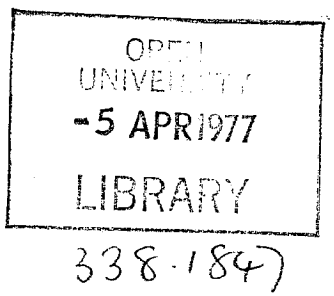

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For
My Parents
I. E. and L. McCauley

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Note on Units

1	desyatina	= 2·66 acres
1	verst	= 0·66 mile
1	pood	= 36·1 lbs
1	tonne	= 1000 kg or 10 centners or 2204·6 lbs
1	hectare	= 2·47 acres
1	centner	= 100 kg or 220·5 lbs
1	acre	= 0·4 hectare

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Preface

The Soviet Union is the leading world producer of wheat. The country is so vast that it is virtually certain that some part of the grain area will suffer drought or some other natural catastrophe every year. The size of the USSR is also an advantage in that drought never strikes uniformly throughout the country in any one year. Thus if the Ukraine suffers, Kazakhstan and Siberia may escape, and vice versa. Natural conditions play an important role in the size of the Soviet harvest. Grain growers have had long experience with the exigencies of Soviet weather. Broadly speaking the grain area, before 1954, was concentrated on terrain which promised adequate precipitation. However, the growing Soviet population and the increasing demand for animal products rendered the size of the harvest from the traditional areas inadequate. When Nikita Sergeevich Khrushchev became First Secretary of the Central Committee of the Communist Party of the Soviet Union he had two main options open to him. He could either increase agricultural inputs in the traditional areas or he could boldly go where no First Secretary had gone before, to the vast uninhabited prairies or steppes of the east. The historic February–March 1954 plenum of the Central Committee pointed the way to the virgin and idle (so called because they had previously been cultivated and then abandoned) lands of Kazakhstan, Siberia, the Urals, the Volga and the North Caucasus. Khrushchev, in order to win over the party to his line of thinking, had to defeat Georgi Maksimilianovich Malenkov, the incumbent Chairman of the Council of Ministers of the USSR. Malenkov favoured increasing inputs in the traditional agricultural areas and was unconvinced about the wisdom of spreading limited resources over wider cropped areas. Malenkov was well aware that previous excursions to the east at the beginning of this century and in the 1930s had not been successful. Once launched on the virgin land programme, Khrushchev could not draw back. He was forced politically and economically to continue his policy of extensive agriculture. He conceded before he was removed from office in October

1964 that Soviet agriculture had to concentrate on becoming more intensive. The new lands programme had its good years and its bad. Given that the new wheatlands were in areas of uncertain precipitation, harvest failures had to be countenanced. The years 1954–8, on balance, were good; those after were disappointing except for 1960. Expectations after an excellent 1958 crop were just too high.

This study is concerned with the economic and political record of the virgin lands over the years 1953–64. The decision to expand in the east is put into a historical framework. Attention is paid to the imperial and Soviet excursions into the open steppe. No study of the virgin lands is complete without assessing its impact on Soviet agricultural policy throughout the period under review. General Soviet developments are described in some detail, since Khrushchev's initiatives in the east are an integral part of his overall agricultural strategy. An effort has been made to cost the whole operation. Virgin land has been assimilated in many other countries, including the United States, Canada and Australia. In order to gain some insight into the relative performance of northern Kazakhstan, a comparison has been made with the Canadian province of Saskatchewan. Was there a viable alternative to going east in 1954? An examination is made of the available land in the traditional areas so as to assess the likely impact of concentrating resources there. On balance, given that the Soviet Union needed more grain urgently in 1954, the conclusion is that the decision to cultivate the steppes was justified. What was not justified was the pace of expansion of the cropped area. So much marginal land was ploughed up that the whole scheme was put in jeopardy. When Khrushchev departed in October 1964 many voices were raised advising the abandonment of the whole virgin land venture, so unpopular had the policy become. However, the post-Khrushchev leadership, spearheaded by L. I. Brezhnev, with personal experience of Kazakhstan, could not afford to give up millions of hectares of marginal arable land. The Soviet need for a secular rise in the supply of grain was so pressing that the virgin lands had to stay in service. The considerable successes scored by the virgin lands since 1966 underline the wisdom of the decision. Indeed, the Kazakh wheat harvest of 1972 was excellent, thus saving the USSR the embarrassment of having to import even more grain from North America.

The size of the Soviet harvest is now a matter of international significance. The more grain that is produced at home, the less the USSR needs to buy on the international market. It is likely that she will need to buy some grain, especially feed grains, abroad throughout the 1970s, but the size of the purchases depends partly on the continuing success of the virgin lands.

I wish to express my gratitude to the Central Research Fund of the University of London for providing a grant which permitted me to undertake some of the research for this study. I should like also to thank the British Council for arranging a period of study in the Soviet Union and Professor I. S. Kuvshinov of the Timiryazev Agricultural Academy, Moscow, who provided advice and research facilities during my time at the Academy. I am indebted to Professor Peter Wiles, who proved a demanding but stimulating and rewarding supervisor during my days as a research student. The present study grew out of a thesis for the degree of Doctor of Philosophy of the University of London. My thanks are also due to Professor Alec Nove for some penetrating comments on the subject. None of the above bears any responsibility for the views expressed in this book. Finally, a special word of gratitude is due to Joy Seaton who typed the manuscript with such skill and speed. The publishers and I wish to express our thanks to the American Geographical Society for permission to use the maps on pp. 36–9 which were published in the *Geographical Review*, vol. XLVI, no. 1 (Jan 1956).

MARTIN MCCAULEY

1 The Trek to the East before 1917

'Russia's history is that of a country undergoing colonisation. . . . Migration, colonisation constituted the basic feature of our history to which all other features were more or less related.'[1] V. O. Klyuchevsky, probably the greatest of Russian historians, was the first to substantiate this assertion. Other interpreters of the Russian scene have also seen colonisation as a powerful influence in Russian historical development. B. H. Sumner, at the beginning of his *Survey of Russian History*, states that 'throughout Russian history one dominating theme has been the frontier'.[2] Down through the centuries the Russians have spread over vast expanses of Europe and Asia. Sometimes the primary reason for the occupation of new tracts of land was political, to escape enserfment, later to alleviate the burdens of a serf's existence, to escape military service; sometimes economic, the infertility of the land, the stultifying effect of the *mir*, overpopulation. Given that most peasants farmed on a subsistence basis, their only answer to the demands of officials and landlords for a share of their harvest was to flee. They always hoped to find an area where they would be permitted to retain all their output. Many migrated to the southern parts of Russia and gradually migration spread to the shores of the Black Sea. There was no natural barrier to hinder this movement, the frontier was open and this in turn posed a security problem. After all it was not a bad thing if more Russians settled in the frontier zone. This movement was facilitated by the Russian acquisition of the Crimea in 1783 – Catherine II's crowning achievement in her relentless policy of territorial aggrandisement. Behind the soldier stood the ploughman. The rich, fertile chernozem yielded abundant crops.

The nineteenth century saw colonisation take another direction. Hitherto the general direction had been to the south and south-east of the Empire. Now the enterprising began to trek eastwards towards the vast, virgin expanses of Siberia. They had to contend with a natural barrier, however – that of the cold.

Russian expansion southwards was blocked by the Caucasus and the belligerent mountain peoples until the 1860s; Central Asia remained a land of nomads, burning deserts, ancient settlements and scattered oases until the 1860s; the north was inhospitably cold and offered a frugal existence to only the most determined; and the west, long settled by Poles, Lithuanians, Czechs, etc., offered limited possibilities for conquest and settlement.

Russian peasant colonisation until the nineteenth century was not economically supported by government agencies. The frontier area was seen by many officials as a region where the representatives of the Tsar found it very difficult effectively to impose their will on the ever-changing population. Most of the migrants to the new lands were trying to escape the difficulties of life in Great Russia, not least among them the capricious will of the Tsar's bureaucrats, and were consequently very enterprising in seeking out new settlements. They naturally sought out the best land, since they had neither the knowledge nor the implements to render poor land fertile.

Siberia escaped the gentry and serfdom. It never proved sufficiently attractive to lure the noblemen away from the pleasures of the city. There was no need for a large standing army to defend Russia's Asiatic frontiers from the neighbouring peoples. The Chinese caused little trouble after the boundaries had been agreed and the autochthonous peoples were numerically too weak to offer prolonged resistance to Russian rule.

Siberia attracted the discontented from west of the Urals and the local administration welcomed settlers. The peasants of the nineteenth century were by no means the first Russian settlers. The hunter and trapper, just as in Canada, had preceded the ploughman and the cattleman. Siberia could only be effectively held if settled by Russians. It also served as a penal colony for generations of dissident Russians. Often the enforced inhabitants of the region were men of high ethical and educational standards and performed valuable services during their stay there.

The government did not and could not try to dam the steady trickle of colonists, although their policy vacillated according to the mood of the moment in St Petersburg. It led sometimes but normally followed the spontaneous movement of the people. Often compulsory colonists (i.e. exiles, prisoners, etc.) fled back to Russia, meeting en route free colonists escaping from Russia.[3]

Michael Speransky was a firm advocate of the free colonisation of Siberia and maintained that it served the state in two ways: it helped to settle the vast tracts of that region and it provided the land-hungry peasants of European Russia with abundant farmland. Speransky's advice found expression in the 1822 ukaz of Alexander I

which granted permission to all state peasants to migrate to Siberia, or within Siberia, provided certain conditions were satisfied.[4]

Count P. D. Kiselev, who was the first head of the Ministry of State Domains, set up in 1837, was entrusted with the problem of formulating a new Siberian emigration policy. Prospective migrants had to be aided in their search for suitable land and a minimum area had to be agreed. Consequently a Siberian survey organisation was set up in 1837.

By the 1860s about 350,000 state peasants had resettled in Siberia. Most of them came from the central and south-eastern provinces of European Russia and went to West Siberia.[5]

Although 350,000 state peasants took the 'regular' road opened by Kiselev's policy, irregulars did not diminish at all in number, and their total remained almost equal to that of the regular migrants.[6] Kiselev made no attempt to bring back the irregular migrants. There appears to have been some attempt, in lieu of returning irregulars to European Russia, to compel them to resettle in the Kirgiz (Kazakh) steppe as enrolled Cossacks, but the extent to which this was actually done is doubtful.[7]

Up to the mid-nineteenth century the possibility in Siberia of escaping from the economic and political oppressiveness of European Russia was the main reason for the departure of the majority of migrants. At this stage, the numbers of those who were seeking in Siberia the solution to another problem – that of 'land hunger' – were growing. When, two or three decades after emancipation, it became no longer possible to find free land in the southern steppe, the unoccupied parts of Siberia became the sole hope of the land-hungry. 'With its magic charms', Lozovoi wrote fifty years later, 'Siberia has lured and irresistibly attracts the masses of people of Central Russia, all those to whom the European portion of Russia has become a stepmother.'[8]

The population of Siberia remained less than a million until the beginning of the nineteenth century, then in the period to 1921 it increased approximately ten times. Before the 1897 census the accuracy of some of the figures in Table 1.1 cannot be guaranteed. During much of the post-emancipation period annual figures are available and give the number of peasant migrants who settled and the number of those who returned. Before the emancipation the number of peasant migrants cannot be assessed with complete accuracy. The number of *starozhily*, the old settlers, in Siberia is probably more accurate. Exiles and prisoners always made up a certain proportion of the Russian population. Their numbers can be accepted as reasonably accurate allowing for the fact that some must have escaped.

TABLE 1.1 Growth of Siberian Population, 1622–1921

	Natives	*Russians and foreigners*	*Total*
1622	173,000	23,000	196,000
1796–7	363,362	575,800	939,162
1815	434,000	1,100,500	1,534,500
1858	648,000	2,288,036	2,936,036
1897	870,536	4,889,633	5,760,169
1911	972,866	8,393,469	9,366,335
1921	–	–	11,070,000

Source: A. Schultz, *Siberien: eine Landeskunde* (Breslau, 1923) p. 167.

The vastness of Siberia rendered the task of the Tsarist officials very difficult and many of the more remote settlements may have remained unknown to the agents of the Tsar.

Assessing the native population was an even more difficult task and the figures quoted, especially before the nineteenth century, must be treated with caution. The Tsarist officials levied tributes on the native peoples and this could not make the censors' task of trying to assess the exact numbers very easy.

The central agricultural region of European Russia was the area of greatest peasant suffering. The emancipation did not solve the land question and the peasants quickly came to the conclusion that it was a shortage of land which lay at the centre of this problem. They felt discontented at the meagre rewards of the Great Reforms and were driven into open rebellion against the regime at the turn of the century. A more correct analysis of the reasons attendant on their backwardness would focus attention on their primitive land tenure and land use. The three-field and multi-field rotation system was the norm, the land was divided into many strips, hampering the sowing of single crops over large areas; the agricultural implements were primitive, fertiliser was insufficiently used and little attention was paid to selection and improvement of seed grain. Those peasants living in repartitional communes were liable to lose the increased value of land achieved by their own efforts at the next repartition.

The productivity of land and labour was low so that the average peasant household enjoyed a very low standard of living. It was enveloped in the vicious circle of poverty. The rural problem was exacerbated by the rapid rise in the peasant population during the period between 1860 and 1897. Within less than four decades after the Great Reforms the peasant population of the fifty guberniyas of

European Russia increased from 50 million to 79 million.[9] The natural growth of the peasant population between 1896 and 1914 has been estimated at 30 million.[10]

Various efforts had been made to ascertain the 'land reserve' of European and Asiatic Russia. The land census of 1905 registered 74·4 million desyatinas of reserve land in European Russia as land suitable for cultivation.[11]

The centre and the south appeared to have little surplus land available for the extension of crops. One scholar has stated that 'the free land in the southern Ukrainian steppes and on the steppes of the Lower Volga was all taken up during the period 1881 to 1899 and further expansion of agricultural production was checked'.[12]

P. A. Stolypin promoted the registration of land suitable for settlement in Asiatic Russia. The work was begun in 1911 but interrupted by the war in 1914. Only one-third of Asiatic Russia had been covered but 111 million desyatinas had been registered.[13] Antsiferov concluded that 'as regards Asiatic Russia the tillage of cultivated land has only begun. In this respect Russia stands far behind all other countries in Asia, Europe and America.'[14]

The expansion of cultivated land increased rapidly except in European Russia. Whereas from 1903 to 1913 the area under crops increased more than 50 per cent in the North Caucasus, 59 per cent in the Central Asian steppe and 81·5 per cent in Siberia, the increase in 42 provinces of European Russia averaged a mere 8·2 per cent.[15]

After the annexation of the Amur in 1860 extensive privileges were promised to those who were willing to migrate to the Far East. The Altai mountain region proved attractive to regular and irregular migrants alike. The rich lands of the Altai proved one of the most popular settling places in Siberia. In 1892, 69 per cent of all migrants went to that region, some settling in the old-settler villages but many occupying virgin land.

Towards the end of the 1870s a severe agricultural depression manifested itself over most of the country as the frontier of continuous settlement was nearing the boundaries of European Russia. The Minister of State Domains, from 1872 to 1879, had been Count P. A. Valuev, a conservative opposed to large-scale direction of migration, including the granting of free land. The new situation rendered a change of front imperative. One observer stated : 'So long as the migrants did not venture beyond the south-east of European Russia, the Caucasus and Transcaucasia, their migration could proceed without external help. But in the 1880s, the stream of migrants reached the Ural Mountains beyond which lay the vast expanse of Siberia, where state assistance and organisation were absolutely essential.'[16]

Count M. T. Loris-Melikov, who became Minister of the Interior in August 1880, favoured immediately a new migration policy. However, he lost office after the accession of Alexander III, but his successor, Count N. P. Ignatiev, was generally in favour of aiding migrants. Legislation in 1881 and 1884 listed 'temporary rules' for migration and set up agencies to assist those wishing to migrate. These agencies were set up at points on the most travelled routes towards the new frontier.

A law, promulgated in July 1889, finally clarified the migration policy and the areas of state-aided settlement were designated and extended in 1891–2. They included many provinces in Siberia but also the Semireche, Akmolinsk and Semipalatinsk regions of present-day Kazakhstan.

From the emancipation until 1892 migration policy failed to bring resettlement under state control.[17] The government never decided on a firm policy for very long and bowed to the inevitable violation of its laws.

The building of the Trans-Siberian railway began in 1891 and the setting-up of a Resettlement Administration in December 1896, together with the legalisation of the activity of scouts who went on ahead of the main migration and marked out areas of settlement, rendered the process of emigration much easier.

Count Sergei Witte, after a journey through Siberia in 1902, was convinced that too little was being done to settle and develop that vast region. He advocated freedom of migration and stable settlement in the new lands. Permanent settlement was very important if the great economic potential of the region was to be realised. His proposals were incorporated in the law of June 1904 and it remained in effect until the end of the regime.

In the fourteen years between 1895 and 1908, 3,930,000 migrants and scouts moved across the Urals. Out of every 1,000 migrants and scouts, 485 went to West Siberia, 259 to the steppe region and Turkestan, 134 to East Siberia, 81 to the Russian Far East, 38 to the Ural provinces and 3 to unspecified places.[18]

P. A. Stolypin knew Siberia from first-hand experience and fully endorsed the free migration policy. His agrarian reforms, abolishing the commune and consolidating holdings, gave many peasants the opportunity of moving to the new world beyond the Urals.

Stolypin toured Siberia in 1910 with A. V. Krivoshein, the head of the Chief Administration of Land Settlement and Agriculture, and in their report stated: 'One may take a calm attitude towards all the melancholy prophecies that the land for colonisation in Siberia is exhausted and that migration in two or three years will run up against a stone wall.'[19]

Stolypin realised that the most fertile land had been claimed and settled. One of the migrants' main problems was lack of information about the availability of plots, and he stated that on 1 July 1910, for example, there were 344,000 male migrants who had not found land and yet there were 314,000 migrant plots available in Siberia. The migrants were mainly concentrated in Tomsk and Akmolinsk, while the lots were in Yenisei, Irkutsk and the Far East.[20] Stolypin's eyes fell on the steppe region and he thought that the native Kirgiz and Kazakh, the great majority of whom were nomads, were making poor use of the potentially valuable land under their control.

All this land was not suitable for grain production. Out of 27 million desyatinas of land reserves in Akmolinsk and Semipalatinsk regions, only 7 million were entirely suited for agriculture; on the remaining 20 million desyatinas more animal husbandry was possible.

The migrants had begun to change the population balance between Russians and non-Russians. Akmolinsk, formerly a Kirgiz (Kazakh) area, now had a Russian majority in its three northern districts.

Estimates of the land available for settlement varied greatly. In Akmolinsk region in 1908 the land reserve was estimated at 6·5 million desyatinas or 600,000 plots. In 1910 it was shown that there was a reserve not merely of 6 million desyatinas but of approximately 12 million desyatinas.[21]

Stolypin was shrewd enough not to give the impression that the Kirgiz (Kazakh) steppes were a Russian Eldorado. He warned that:

> there are huge areas of virgin land fit for cultivation. . . . The salt steppes require only understanding in cultivating, irrigating them, etc. . . . Australian stock-raising (the best in the world) has developed primarily on salt steppes. Many salty soils are suitable for valuable crops, sugar beet, cotton, etc.
>
> A more important question for the steppe region is the supply of water. . . . Sometimes the settler is faced with droughts and poor harvests. The greatest threat, however, is posed by the opinion which is sometimes expressed, that in future water [reserves] will fail in the steppe region.[22]

'The southern part of the Kirgiz steppe', reported Stolypin, 'has an abundance of plots but is relatively lacking in water.' He visited Pavlodar *krai* in the Semipalatinsk region, which had been hit by drought and two bad harvests, and found it to be in poor circumstances, perhaps the most miserable of the whole steppe region.[23]

Nevertheless, Stolypin and Krivoshein in their report were on the whole optimistic about land reserves in Siberia. They point to the encouraging evidence of the Kirgiz (Kazakh) nomads going over to

settled agriculture and the introduction of American dry farming methods by some of the Russian settlers.

The report is a defence of Stolypin's agricultural and settlement policy and is intended to vindicate the government's actions. It is also an answer to the many sharp critics of the government's land policy. One of the most persistent critics, on technical and political grounds, was the well-known specialist on Russian migration, A. A. Kaufman. Years of study, research and travel in the 'new lands' had convinced him that the whole venture was perilous. He was especially sceptical about the steppe region. 'And I do not risk being proved wrong, if I say that these *oblasti* (Akmolinsk, Turgai and Semipalatinsk) under no circumstances . . . will be able to provide land suitable for peasant colonisation.'[24] Kaufman quotes another specialist on colonisation, Yadrintsev, who points to the lack of water and the expanses of salty soil on the steppe. Perhaps the most telling evidence is then produced by Yadrintsev, who points to the extremely unsuccessful experience of the Russian steppe settlements promoted by the local administration in 1878.[25]

One of the promoters of Siberian migration, A. N. Kulomzin, warned that extreme care was to be exercised owing to the lack of drinking water in the Omsk and especially in the Petropavlovsk *uezdy*.

Kaufman noticed that in Akmolinsk *oblast* Russian settlers were concentrated in a comparatively small number of places. A survey carried out in 1903 in the south-west part of Omsk *uezd*, covering some 800,000 desyatinas, showed that only one plot of land suitable for settlement was discovered.[26] In the southern *uezdy* of Akmolinsk *oblast* a survey, also carried out in 1903, produced almost without exception negative results.[27] Kaufman saw very little hope for settled agriculture covering the Kirgiz steppe where 'many tens of millions of desyatinas will always remain unsuitable for settlement'.[28]

The number of returning migrants is always a guide to conditions on the new frontiers. Between 1894 and 1898, 13·8 per cent of the colonists returned from Siberia to European Russia and between 1899 and 1903, 18·8 per cent returned.[29]

Depite his melancholic conclusions, Kaufman admitted that Kustanai and Kokchetav *uezdy* were very popular with migrants and appeared to afford them better prospects for the future than their inadequate plots in European Russia. Kaufman at this time believed, as did many others, that land was the main solution to the peasant problem. If only more arable land could be found and distributed among the peasants, the solution would be within the government's grasp. However, in 1908 he revised his earlier conclusions. He

came to believe that always having the possibility of adding to one's holding would not inspire more developed agricultural techniques. He thought that the peasant should concentrate on his available area and raise its productivity.

The radicals opposed Stolypin's migration policy partly because they believed he was avoiding the issue of a more equitable distribution of land to the peasants in European Russia. Doubtless the peasants were less than generously endowed with land by the emancipation, but the main problem was the low productivity of the peasant plot. The peasant population greatly increased over the half-century between the emancipation and the outbreak of the First World War. The responsibility for feeding the extra mouths was taken out of the hands of the head of the household and transferred to the *mir*, until the Stolypin reforms in the decade before 1914.

It was natural that the most fertile land in Siberia was occupied first; the 'Cabinet' lands in the Altai mountain region were considered the best and attracted a great number of settlers. On fertile land even an average peasant will be successful, but marginal land demands a high reserve of skill. Skilled dry farmers, such as those in Canada and the United States, have proved that relatively poor soils, comparable to those in the steppe regions, can, by applying certain techniques, be made to produce good yields. These skills can only be acquired through experience and then carefully applied over a period of time. Was the average Russian farmer of the pre-1914 days capable of acquiring such skills rapidly? Since the productivity of the relatively good soils of European Russia was low (the average grain yield in 1913 was 7 centners/ha) this would make one pessimistic about the prospects of the successful exploitation of the more difficult soils found in many regions east of the Urals.

Stolypin's optimistic view was based on his belief in the sturdy, independent, enterprising elements among the Russian peasantry. He hoped that the best would emulate the achievements of the American farmers. He was promoting the dissolution of the *mir* with its collectivist spirit and was trying to foster the individualistic outlook of the farmer who lives on enclosed land. The gamble was great but the rewards were high. The new class in the countryside could give stability to rural life and prove the ally of a conservative government in St Petersburg.

Kaufman was perhaps too pessimistic in his judgements in his 1905 book. Many of the more enterprising elements would migrate and find themselves living under more liberal socio-economic conditions than existed in European Russia. They would expend more energy and enterprise in their new homes and some would learn new methods of soil cultivation and moisture conservation. Stolypin re-

ports instances of Russian peasants adopting dry farming techniques in the steppes.

By 1911 only about one-tenth of Siberia was inhabited by a settled population and in that zone the density was from 8 to 10 per square verst. This was the fertile strip, about 600 versts wide in West and Central Siberia. Much of this area was near the railway. Kurgan *uezd* in Tobolsk guberniya had a density of 16, Omsk *uezd* in Akmolinsk *oblast* had 9·8, Krasnoyarsk *uezd* in Yenisei guberniya had 9·5. Some of it, however, which was on rivers, like Barnaul *uezd*, Tomsk, had a density of 11·5.

The proportion of Russians in Akmolinsk *oblast* rose from 33 per cent in 1897 to 58 per cent in 1911. In the Steppe Administrative Area the increase was from approximately 19 per cent in 1897 to 40 per cent in 1911.

In the year before the First World War, in accordance with Stolypin's plan to settle Russian peasants in the steppe regions of Central Asia, the Tsarist government endeavoured to introduce the native nomads to a more settled existence so as to reduce their need for space. This was not the first time the Russians had appeared in the steppe, attracted by the possibilities of finding land. The Russian naturally sought out the best land for himself and this meant that the nomad was forced to move to more marginal land. By 1915–16 there were established on the Kazakh–Kirgiz territories 530 Cossack and peasant colonist settlements with 144,000 inhabitants.[30] By 1914 the Tsarist government had distributed in Semireche province, in Turkestan, alone, 4·24 million ha out of a total of 31·3 million ha available in that province, including most of the land of agricultural value. Great damage was done to the traditional nomad economy. The pent-up resentment of the nomad exploded in 1916. The original reason for the uprising was the attempt of the Tsarist government in July 1916 to call up the Kazakh–Kirgiz, who had traditionally been exempt from military service, for non-combatant rear-line duty. The natives attacked Russian and Cossack settlements and murdered large numbers of officials connected with the colonial administration. The greatest number of fatalities occurred in Semireche province; of nearly 2,500 Russians and Cossacks who lost their lives in the revolt, almost 2,000 were settled in Semireche.[31]

The government, using many garrison and colonist detachments, had suppressed the rebellion by the end of September 1916, with dire results for the natives. Some 300,000 Kazakh–Kirgiz were expelled from their habitations and forced either to take refuge in the mountains or to flee across the border to Chinese Sinkiang. Some Turkmen families emigrated to Iran. Most of their animal stock, including 60 per cent of the cattle and their immovable belongings, were appropriated by the colonists.[32] The Russian settlers were determined to defend themselves against a recurrence of the revolt and decided to take all necessary measures to pacify the natives, including expulsion. In the summer of 1917, groups of Kazakh–Kirgiz began to recross the Sino–Russian border and return to Russian Central Asia. The Russian settlers, with the 1916 rebellion still fresh in their minds, had no intention of allowing the natives to resettle. They reacted violently and thus revealed the bitterness of the conflict in 1916. The victims numbered, according to a contemporary source, 83,000 dead.[33] In September 1917, when the violence had reached its peak, the entire Semireche province was placed under martial law by the Provisional Government.

Enemy action on Russian territory on the western front resulted in a huge, ill-planned and poorly executed transfer of the civilian population to the interior. By the middle of 1915, the movement of refugees from the western front had reached Siberia; more than 170,000 persons had then crossed the Urals. Part of these refugees settled on land allocated to them.[34]

The frontier had a powerful fascination for the Russian mind. There was always at the back of the mind of the peasant, if things went awry in the densely populated areas, the thought that flight to the ill-defined borders might provide a solution to all his problems. The very length of the frontier meant a spread of resources. Officials as well as peasants had large areas to look after. Investment always had to be spread thinly. There was no pressing need to improve techniques in the available area, there was always the landlord's land or free land on the frontier to whet the appetite. This approach to farming, which may be called extensive, was endemic in Russia. It is noteworthy that many of the migrants to Siberia after 1900 were from south-east Russia where land holdings were larger. This may indicate that breaking away from the tradition of the three-field system to more intensive cropping patterns was a very difficult process indeed.

NOTES

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2 The Eastward Movement, 1917–53

The February revolution of 1917 swept away the incompetent, indecisive Tsarist government and brought to the fore men with some belief in the advisability of social change. Stolypin was dead but his agrarian policy had lingered on during wartime. The years of peace, necessary for the implementation of his reforms, had been denied him. The forces which had fought him now gained the ascendancy and set about the task of solving Russia's perennial agrarian problems in quite a different manner.

A. I. Shingarev, a Constitutional Democrat, became Minister of Agriculture and piloted through an act which abolished the Land Settlement Commission and suspended the Stolypin legislation. The Provisional Government officially stated that 'private ownership of land must cease'.[1]

During the fateful summer and autumn of 1917 confiscation of land grew with the Provisional Government powerless to stop the process. Their unimaginative reply was always to state that the agrarian question could only be resolved by a constituent assembly. The date for the meeting of such an assembly was constantly changed; procrastination was judged to be the better part of valour. All opposition parties agreed that 'lack of land' was at the root of the agrarian problem rather than backward methods of land tenure and use.

Lenin adopted the slogan of 'All land to the peasants' and thus recognised a state of affairs which he was powerless to change in 1917. The gentry land was divided among the peasants, but many quickly reached the conclusion that the problem of 'land hunger' had not been solved. Once again the frontier offered possibilities which did not exist in European Russia.

Had Lenin by 1917 reached any firm conclusion on the agrarian problem? Over 80 per cent of the population of Russia lived on the land; there was serious overpopulation in the central area; the war had inflicted enormous casualties, both of men and draught animals;

food production was dropping and the cities were being abandoned by industrial workers seeking sustenance in the countryside. How did Lenin plan to meet the great difficulties on the land which faced him on the morrow of the Bolshevik victory?

In common with many members of the intelligentsia, Lenin had opposed Stolypin's reforms and maintained several times that Stolypin had failed. He recognised the interdependence of migration and land settlement. His task was to convince his readers that the Tsarist government was quite incapable of solving the agrarian question, both economically and politically.

Lenin's writings on migration and resettlement can be seen as falling into two categories. One group consistently attacks the Tsarist government and its attempt to solve the land problem. The gist of the argument went as follows :

> As long as large latifundia continue to exist in European Russia there will be no lasting solution to the problem. Since the Russian peasant has been oppressed by feudal latifundia, the free spreading of the population throughout Russia and the rational utilisation of the lands on the borders of European Russia has been hindered to an incredible extent. Since feudal latifundia keep the Russian peasantry in an oppressed state and perpetuate the very backward ways and methods of agriculture, by means of payment by work and servitude, both technical progress and the raising of the intellectual level of the peasant mass, the promotion of independence of action, the raising of the level of education and initiative necessary for the economic exploitation of a far greater area of land than is being utilised by them at present, are being rendered more difficult.[2]

Lenin seized on every piece of evidence which would add credence to his point of view. Kaufman was read and quoted, but one of his conclusions, that so long as there was sufficient land for settlement, there would be no need to take the land from the landowners, could not be allowed to stand and was duly attacked.

The Bolshevik leader did not contest the fact that land was available for migration. He pointed out that resettlement required much organisation and the co-ordination of various bodies. He held to his view that the Tsarist bureaucracy was incapable of providing the necessary advice and organisation. The social relations existing under Tsardom retarded the advance of agricultural techniques and the technical education of the peasantry.

The other point of view persistently projected by Lenin was his belief that in Russia there existed a potentially enormous area of land which could in time be added to the cultivated area of the

nation. It was plain to anyone who journeyed across the country that there appeared to be an enormous area of land capable of cultivation. What was hindering the exploitation of the great reserves? Lenin blamed the feudal attitude of the Tsarist government and the landowners. Such was their restraint that the great creative powers of the Russian peasantry were atrophying in the narrow confines of the landlord–peasant relationship.

This argument might have convinced some before the 1905 revolution. Were not the reforms of Stolypin aimed at exploiting the large land fund available in the non-traditional farming areas of Russia? After all he actively promoted migration and resettlement. Lenin's answer to this question went as follows :

> The condition for the extensive utilisation of the huge colonisation fund in Russia is the creation of a really free peasantry, completely liberated from the yoke of serf relations, in European Russia. A significant part of this fund is unsuitable for exploitation at the present time, not only because of the natural qualities of this or that area of land on the frontier, but as the result of social conditions prevailing in the economy of Great Russia, conditions condemning technique to stagnation, population to lack of rights, oppression, ignorance and helplessness.[3]

Was there no immediate hope for an amelioration of the techniques applied in peasant agriculture? If the liberated peasant continued applying the old methods, progress would indeed be slow. Lenin, however, believed he saw the basis for a rapid rise in peasant efficiency : 'At the present time it is beyond doubt that a huge increase of productive forces, a tremendous rise in the level of technique and culture will be the inevitable concomitants of the collapse of the *feudal latifundia in European Russia*.'[4]

Lenin believed that there were millions of hectares of land in Turkestan and other parts of the country waiting for cultivation. However, much of the land had to be irrigated and ameliorated in other ways before it would be fit for successful exploitation. This, of course, could not come about while so many restrictions were imposed on the peasantry. Despite Lenin's optimism it would take some time before the average peasant was capable or willing to cultivate marginal land. Therefore to overcome the desperate short-term demand for more land Lenin's eye fell on the large landowners' estates, the feudal latifundia as he called them. They would provide an instant solution to the problem since their land was already in good condition. The peasant would find it a relatively simple task to farm his former landlord's land.

Lenin viewed the countryside through the eyes of a Marxist theo-

rist and not pragmatically. Although emancipation had taken place in 1861, all the remnants of feudalism had not been swept away by the beginning of the twentieth century. He saw the large estates of the landowner as a great barrier to agrarian progress. He did not view them as the leaders of agrarian innovation and progress. Despite this, the estates were increasing their production for the market and for export. They were among the pioneers in introducing new machinery and techniques and indeed, as a result of their marketable surplus, were more likely to be able and willing to invest in new methods. One could contend that by the example of their success they were likely to convince the less technically advanced to improve their methods. Russia desperately needed to improve her land tenure and land use techniques.

Lenin insisted that the latifundia were hindering the progress of agriculture on the grounds that the conditions conducive to overall agrarian advance were not being allowed to develop owing to the 'feudal' nature of the large estates. The landowner still had too much power over the peasant even though he was, theoretically, emancipated. This retarded the technical advancement of the peasant. If the latifundia disappeared, then capitalistic economic relations would have room to develop among the peasants of Russia. The capitalistic relations would lead to a great improvement in technical proficiency and this in turn would make the cultivation of less fertile land feasible. Under the conditions of the day Lenin saw the situation in purely Marxist terms : disharmony between the forces of production and the means of production.

Lenin was over-optimistic in his assertion that the disappearance of latifundia would automatically lead to a 'tremendous rise in the level of technique and culture'. Progress in Soviet agriculture in the last half-century has not been spectacular.

On the morrow of the Bolshevik revolution Russia did not only get rid of latifundia. Lenin went further and confiscated all privately owned land (except that held by peasants). He did recommend that large estates should be kept intact and transformed into state farms, but was in no position to enforce his opinions. Indeed, had Lenin not been forced tactically to agree to the parcellation of the landed estates among the peasants he would have preferred transforming them into model or state farms. Thereby the problem of state procurement of agricultural produce would have been greatly alleviated. Lenin knew that the transfer of land was, of necessity, a short-term solution. Eventually the land would have to be collectivised. Circumstances would decide how long the interim period would last.

The ending of the war against Germany brought no respite to Russia. It was soon followed by the bloody and cruel Civil War and

then by the war against Poland. The Bolsheviks lost control of Siberia, the south and south-east. The food problem became acute as the rich soils of the south slipped away from the control of the Red Army.

The great problem of Soviet agriculture at this time was to find the necessary labour and draught power to work the land. The Bolsheviks' failure to utilise all known reserves was admitted by Lenin in a speech to an assembly of Moscow activists of the Bolshevik Party on 6 December 1920 : 'Further we have 1 million desyatinas [1,080,000 ha] of virgin soil which we are not ploughing since we do not have the draught animals and the necessary implements; but with a tractor the land could be ploughed to any depth. Therefore it is advantageous for us to rent the land.'[5]

Inaccessibility was blamed for the failure to exploit all land capable of being worked. Lenin told the VIII All-Russian Congress of Soviets on 21 December 1920 : 'In West Siberia there is a huge area of first-class land inaccessible to us because it lies far from the communications network.'[6]

Lenin's optimism concerning the availability of land reserves in Russia was not shared by P. Mesyatsev, an official spokesman, writing in *O Zemle*, published by the RSFSR Commissariat of Agriculture in 1922, who stated that : 'The reserves of land, usable as arable without must outlay, in the outlying parts of the country, must be accepted as by and large exhausted.'[7]

M. Bolshakov, a well-known student of agrarian problems, was just as pessimistic :

> Russia's land reserves for colonisation have been reduced greatly and have also sharply deteriorated in quality. The chernozem zone which spreads in Siberia from west to east in the steppe forest belts and together with its continuation in European Russia was the principal basis of all Russian colonisation for several centuries, must be accepted as exhausted. Since as early as 1910 or 1911 colonisation has had to be diverted to areas located either north or south of the chernozem zone with substantially poorer natural conditions.[8]

It must be admitted that Bolshakov was restricting himself to the very fertile chernozem soils. He did not consider the dark chestnut soils to the south of the chernozem or the brown forest soils to the north as worthy of serious colonisation. Nevertheless, if Soviet agriculture was to increase significantly the grain area, and thereby grain production, then these were the soils which would have to be cultivated.

The Commissariat of Agriculture did not always see eye to eye

with the Bolsheviks. As a result of the greater experience of the Socialist Revolutionaries in agrarian affairs it was natural that they should concentrate their efforts there. From its inception the Commissariat contained a large number of Left Socialist Revolutionaries within its various departments and the agrarian legislation of the post-revolutionary period was greatly influenced by them. This may explain the lack of response to Lenin's advice on the advisability of setting up state or model farms which would be socialist enterprises. The SRs were pervaded by the philosophy that land belonged to the person who tilled it.

The critical food situation which faced the Bolsheviks after the revolution forced them to use violent methods in order to secure supplies of grain. During most of the Civil War the situation remained critical, but the Bolsheviks were able to mobilise town dwellers to fight for the rich lands of the south. It was always impressed on the hungry that there was food available in the regions dominated by the Whites.

A decree of 24 April 1919 opened the productive southern country to immigration and promoted in particular the settlement of the Don area for the 'implantation of Bolshevism'.[9] The possibility of acquiring abandoned Cossack land proved a very powerful stimulant to migration towards the south.

The loss of 9·7 per cent of the population of West Kazakhstan, representing almost a quarter of a million persons, can probably be explained by a large exodus of Cossacks who had left their villages to follow their atamans.

In Turkestan there was a violent expansion of Russian colonisation which precipitated the departure of nomads ousted by the colonisation policy of Soviet agents.[10]

A decree, establishing the Autonomous Kirgiz Soviet Socialist Republic, was signed by Lenin and M. I. Kalinin on 26 August 1920. In October 1920 the Communist Party's Regional Committee in Orenburg convened the First Kirgiz Congress of Soviets.

On the all important land question the congress voted to retain the *status quo*: to stop further colonisation of the steppe but to allow the Russian colonists already settled there to keep their lands, including those which they had seized in 1916 and 1917.

In 1921 and 1922 the Kazakh–Kirgiz steppe was stricken by famine which took a heavy toll of the natives. It is estimated that about one million persons perished from hunger in 1921 in the Kirgiz republic. The establishment of the autonomous Kirgiz Republic, decreed in August 1920, was not possible until two years later, when the food situation had been normalised.[11]

Contributions in kind were not restricted to European Russia and

resulted in action against all profitable agricultural enterprises in the steppes. Bolshevik policy resulted in many cases in the ruin of peasants with the consequence that many abandoned their holdings and migrated. According to the official estimate of the Central Statistical Office, the rural population of West Siberia suffered, between 1920 and 1923, a net loss of 1·8 per cent.[12]

Peasants from European Russia moving eastwards knew that the population there had been decimated by death and emigration and that there was a vast amount of land ready to be occupied. The terrible famine of 1921–2 added desperation to urgency.

Native opposition in Turkestan proved much more difficult to overcome than that encountered in Kazakh–Kirgizia. Turkestan contained such ancient centres of civilisation as Tashkent, Bukhara, Kokand and Khiva and the native Moslem leaders, especially in Bukhara and Khiva, were effective rulers.

The main concentration of Russians was in Tashkent, where Russian railway workers, soldiers, colonists and colonial officials formed a large minority. The majority quickly transferred their allegiance to the Soviet government towards the end of 1917. This permitted the setting-up of a Soviet government in Tashkent which claimed authority over Turkestan. The Soviets were opposed by a native, Moslem government in Kokand. This led to the rounding-up of the local inhabitants who were suspected of harbouring sympathy for the Kokand regime. At the IV Regional Congress of Soviets, held in January 1918, the communists sharply condemned all native endeavours to institute self-rule in Central Asia.[13]

The Kokand government fell towards the end of February 1918 as a direct result of Russian military action. Emboldened by this success, the Tashkent soviet moved against the emirate of Bukhara but suffered military defeat in March 1918. Nevertheless, the Soviet government slowly consolidated its power over the major part of Turkestan. Only the countryside was beyond the Soviets' reach, largely owing to the maltreatment of the indigenous population. All through 1918 and most of 1919 the persecutions, expulsion from the land and the looting of the Moslems by the Soviets continued unabated.

Native dissatisfaction at Soviet rule soon found expression in guerrilla warfare, which originated in the Fergana valley but soon spread to almost all of Turkestan. The movement is known as Basmachestvo and the participants as Basmachis.[14] The Soviet forces experienced great trouble in suppressing the movement and it was not until 1924 that they gained the upper hand.

The Soviet government in Moscow was perturbed about the unpopularity of the Bolshevik regime in Turkestan and sent an emissary

in April 1918 to instruct the Tashkent soviet to proclaim Turkestan an autonomous republic.[15] Moscow reasoned that the main cause for the dissatisfaction in Turkestan was due to the local Bolsheviks refusing to grant the indigenous population self-rule.

In April 1918 the Autonomous Republic of Turkestan was proclaimed. However, it was not until 1920 that natives were given the right to participate in the government of the new republic.[16]

Towards the end of 1919 a special report on the situation in Turkestan was drawn up by an *ad hoc* commission. The report sharply criticised the action of the Soviet authorities. A completely different policy was implemented on Lenin's instructions which aimed at winning over the local population to Bolshevik rule. The natives were to be treated on a par with Europeans and were urged to join the Communist Party and to participate in Soviet institutions.

Despite these overtures to the goodwill of the Turkestanis, military action was recommended against Khiva and Bukhara. Khiva fell in February 1920 and Bukhara, after bitter fighting, in September 1920.[17]

In Turkestan, in the first six months of 1921, more than 6,000 Russian and Mennonite exploitations were suppressed. They contained 30,000 inhabitants. The same policy, somewhat less violent, prevailed in Kazakhstan. In the period 1920–3 the number of agricultural exploitations diminished by 23 per cent, the rural population decreased by 31 per cent. A large part of the decrease was due to Russian colonists returning to European Russia.[18]

Despite the considerable amount of movement, rural overpopulation, especially in the central areas of European Russia, remained an ever-present problem.

Between 1923 and 1926 the Soviet Research Institute of Colonisation made a survey of agricultural overpopulation in four regions of Russia. On the basis of these and other data the number of excess persons in agriculture was variously estimated at 9–20 million. A considerable portion migrated to the cities when industry was on the road to recovery. (One estimate puts the number of city dwellers who descended on the countryside between 1917 and 1919 to obtain their share of land as high as 8 million.)

By 1926 the USSR population had reached 147 million. This exceeded not only the 1917 figure but even the pre-war figure. In 1927 the urban population slightly exceeded the pre-war level.

The 1926 census revealed a tremendous migration of rural dwellers to the towns. In the preceding years the cities of the USSR had been absorbing one million persons annually. This represented 40 per cent of the natural increase of the rural mass.[19]

Purely agricultural areas did not have this outlet and had to rely on

colonisation and migration. During the NEP period (1921–8) something resembling the atmosphere of the Stolypin era prevailed. Land was available, but only for those who were willing to go to the east.

Between 1925 and 1929 about 900,000 moved out of European Russia. Two-thirds made for Siberia which, by a decree of 6 June 1925, was officially designated an area of colonisation. No new land in Siberia was ready for occupation and cultivation. The best areas, grasslands and regions with moderate forest, along the Trans-Siberian railway, had almost entirely been colonised already. In the taiga new lands were available but enormous labour was needed to clear them. As a result, newcomers settled mainly in regions already populated and managed to obtain part of the land of the resident population. Thus colonisation did not bring about an enlargement of the agricultural area; rather it extended to Siberia the system of land distribution.[20]

Kazakhstan had a reserve of uncultivated land suitable for farming which was even larger than that of Siberia. Kazakhstan was officially closed to colonisation. However, during the NEP there was a strong revival of the current going beyond the Urals and large numbers of spontaneous migrants appeared once more in Kazakhstan.

In 1926 the Kazakh Soviet Executive Committee promulgated a regulation according to which all Russians who had settled without an authorisation after 31 August 1925 were denied the right of receiving land by allocation. Either they were to leave or else they had to lease their plots. Between 40,000 and 50,000 families fell into this category. The Secretary of the Communist Party of Kazakhstan, F. I. Goloshchekin, afterwards claimed that he had rescued the Russian settlers from expulsion by intervening on their behalf.

In December 1927 A. I. Rykov, Chairman of the USSR Council of People's Commissars, declared at the XV Congress of the Communist Party: 'Colonisation must be accelerated, for an increase in agricultural production will result from it, overpopulation will be defeated and the situation of the poor and middle peasants will be improved.' Rykov's peasant policy, however, had little hope of implementation. Power was soon to slip away from him and his right-wing friends.

A series of decrees between 1928 and 1930 marked a turn in migratory policy. In future the interests of the Soviet Union were to predominate over local interests. These decrees legalised an eastward push even at the expense of the local inhabitants. As from 6 March 1929 the regions of primary importance in terms of colonisation, including Siberia, Kazakhstan and the Russian Far East, were declared colonisational areas of the Soviet Union.

The new government policy reflected a deep change with respect to the native peoples of Asiatic Russia, particularly those of Kazakhstan, which was officially opened to settlement in 1929. The new colonisation projects were worked out and applied under the form of collectivisation, first inaugurated in 1929, of which colonisation in a new form was an inherent part.[21] Peasants from European Russia were particularly welcome in newly formed collective farms in Central Asia. They were needed to overcome the lack of experience of the natives in settled agriculture.

The Soviet government was faced by many formidable problems during 1928 and 1929. The population was some 12 per cent more than in 1914; the area under grain was only 90 per cent of the pre-war area; per capita production was only about 80 per cent of pre-war output; there was a dearth of industrial goods to trade for foodstuffs; there was a constant increase in land parcellation (24·5 million households in 1928); the government's inability to produce enough goods to sell to the countryside was causing a decrease in the quantity of agricultural produce marketed; the urban population was increasing and the grain requirements of the armed forces were high.[22]

Faced with these problems, Stalin chose to increase the amount of cultivated land and thereby the harvest and to seize the largest possible share of farm produce for the use of the army and the growing urban population. He hoped to transform agriculture by drastically reducing the number of enterprises, cultivating huge areas and launching an all-out campaign against the kulaks (the better-off peasants, but sometimes defined as those who opposed collectivisation). He decided to send thousands of urban workers into the countryside in order to carry through collectivisation and to improve technical efficiency on the land. By these means, Stalin hoped to solve the grain problem and, by establishing a system of large mechanised units, to extend the control of the party to every agrarian corner of the Soviet Union. His aim was the same amount of authority for the party on the farm as it enjoyed in industrial enterprises. He sent thousands of technicians into the countryside at the same moment as he decided on a greater intensification of industrial production.

Lenin had always stated that the land fund of the country over and above that already in cultivation was very large. The main reason why the reserves had not been farmed in the past was the incapacity of the peasants to bring them effectively into cultivation. Stalin echoed Lenin's interpretation in 1929 :

> The question of cultivating unused and virgin land is of tremendous importance for our agriculture. You know that the pivot of the revolutionary movement in Russia in the old days was the agrarian question. You know that one of the aims of the agrarian movement was to do away with the shortage of land. At that time, there were many who thought that the shortage of land was absolute, i.e. that there was in Russia no new land suitable for cultivation. And what has actually proved to be the situation? Now it is quite clear that scores of millions of hectares of free land were and still are available in the USSR. But the peasants were quite unable to cultivate the land with their wretched implements. And precisely because they were unable to cultivate unused and virgin lands, they longed for 'soft' land, for the soil which belonged to the landlord, for soil which could be tilled with the aid of peasant implements by individual labour. This was at the bottom of the land shortage. It is not surprising therefore that our Grain Trust, which is equipped with tractors, is now able to place under cultivation some 20 million hectares of free land, land unoccupied by free peasants and unfit for cultivation by individual labour with the aid of small, wretched implements.[23]

Stalin overlooked the fact that between 1881 and 1914 more than 20 million ha of virgin land, largely in the steppe, had been brought under cultivation with the implements available.[24]

Since Stalin's speech there has been a consistent drive to expand sown areas and this has become one of the characteristics of collectivised agriculture.

The drive against the kulaks began in earnest in 1929 and reached its climax in a decree of 1 February 1930 which gave full powers to the executive committees of the *krai* and *oblast* soviets to 'take all necessary measures in view of the struggle against the kulaks, including the confiscation of their belongings and their expulsion from the region'.[25] Many of the kulaks left to search for new lands where they would not be persecuted as enemies of society.

The year 1929 marked the high-water mark of migration east of the Urals, when 300,000 persons were registered. Some must have been trying to escape collectivisation. In 1930 only 72,000 were registered as having been transported in collective units.[26] This type of colonisation hardly tempted the middle peasants who wished to migrate to escape collectivisation. The poor peasant could see little advantage in going east when he could find a place in the local collective.

Hundreds of thousands of kulaks were deported. Many of the deportees were directed to the regions which free migrants had avoided, namely the forests of North European Russia, the Siberian taiga and the deserts of Central Asia.

Hunger and misery forced many peasant migrants to accept the new collective farms. Migrants were often transported in collective units. Sometimes large state farms were organised in which migrants worked side by side with native labour. Beginning with 1931 the tendency to build grain factories in Siberia, Kazakhstan and the Russian Far East began to predominate.

Mikhail Kalinin in a speech in 1929 provided an explanation of the policy of favouring new large state farms: 'Is it more rational to invest 500 million roubles in new sovkhozes or in the intensification of the old ones? . . . Capitalists would do the latter. . . . But from the point of view of the Soviet state it is profitable to invest in new sovkhozes. And why so? Because we unleash new productive forces.'[27]

Not every specialist agreed that the tractor could transform unsuitable into suitable soil. A. Muralov wrote as early as 1928: 'We do not have enough fertile land for the sovkhozes. It is therefore necessary to revise the entire distribution of soils allocated for other purposes.'[28]

At the XVI Party Congress in 1930, the People's Commissar for Agriculture, Ya. A. Yakovlev, stated:

> According to Professor Tulaikov, 50–55 million ha in Kazakhstan may be regarded as suitable for cultivation; of these 36 million ha are situated on the northern districts bordering Siberia and the Urals: Aktyubinsk, Kustanai, Petropavlovsk, Akmolinsk, Pavlodar and Semipalatinsk. If we grow wheat on 30 per cent of these 36 million ha then by the end of the [First] Five-Year Plan we can have an additional 8–10 million ha in Kazakhstan alone.
>
> The central Black Earth area, the Middle and Lower and Trans-Volga regions, Kazakhstan, south-west Siberia and the east Ukraine taken together can increase the area sown to wheat by 20–25 million ha by the end of the [First] Five-Year Plan.[29]

Two and a half decades later another specialist on agriculture would come to the same conclusion. The similarity of the thinking of both concerning Kazakhstan is striking.

A great effort was made during the First Five-Year Plan to expand the sown area, and the results can be gauged from Table 2.1. In West Siberia the sown area actually declined and in Kazakhstan, the other region best supplied with reserve land, the increase was small (1·1 million ha). Three-quarters of the newly sown area was in European Russia. Expansion was often due not to sowing virgin land but to a reduction of the area devoted to fallow. In Kazakhstan the percentage of the area devoted to grain actually decreased, although the sown area increased. In 1928, 90·2 per cent of the sown area was devoted to grain but in 1932 the percentage was only

TABLE 2.1 Expansion of the Sown Area, 1928–32 (thousands of hectares)

Region	*Area*	*% of total increase*	*Increase on state farms*
North and Central	4,518	21·1	1,140
Southern (Ukrainian SSR, Central Black Earth region, Middle and Lower Volga, North Caucasus, Crimea)	11,651	54·3	6,801
Eastern (Urals, Bashkiria, Kazakhstan and Karakalpakia, West and East Siberia, Yakutia, Far East)	3,477	16·2	3,290
Central Asia and Transcaucasia	1,796	8·4	482
TOTAL	21,442	100·0	11,713

Source: *Summary of Fulfilment of the First Five-Year Plan for the Development of the National Economy of the USSR* (Moscow, 1933) p. 159.

83·2. Technical crops more than doubled their area. In 1928 the figure was 4 per cent of the sown area, in 1932 it had increased to 10·9 per cent. The greatest increase was registered by sunflower.[30]

Part of the increased cultivated area was at the expense of the nomad. Soviet policy has always aimed at convincing the nomad that settled agriculture is much more advantageous. It was also advantageous to the state since permanent settlement of nomads liberated vast areas for colonisation. It is estimated that before the revolution nomadic families in Russia numbered between 2 and 3 million, comprising 10 million persons. In 1935 only 450,000 families (2–2·5 million persons) were left.[31]

Plans for the economic reconstruction of Kazakhstan provided for 'simultaneous agrarian organisation, inventory of excess land and colonisation of these free soils'. The Russian, bourgeois or communist, realised he was not always welcome in Kazakhstan, so an ideological justification was prepared. Any Kazakh opposition was branded a 'nationalist deviation'. It was to be suppressed in order to 'organise' proper agrarian relationships in Kazakhstan and to strengthen the brotherhood of all nationalities.[32]

The Colonisation Committee introduced, during the First Five-Year Plan, a project for moving colonists to northern Kazakhstan on a large scale. Sovkhozes and kolkhozes obtained the best soils as a result of the agrarian reform while the Kazakhs were forced to enter collectives established on inferior soils. Many Kazakhs replied by slaughtering their livestock or emigrating with their livestock.

P. A. Isaev, the Chairman of the Council of People's Commissars of Kazakhstan, conceded that this mass flight lasted until 1935 when the administration renounced its plan of forced settlement of Kazakh nomads.[33]

Technical crops were given high priority since they provided basic raw materials for industry. In Central Asia cotton growing expanded during the First and Second Five-Year Plans (1928–37).

At the beginning of the Second Five-Year Plan, L. I. Prasolov, a leading soil scientist, while confirming that little free land remained in the black earth zone, estimated that up to 30 million ha of steppe land, primarily in the chestnut and brown soil zone, could be cultivated, though such a measure would undoubtedly mean the use of solonets soils.[34]

The Second Five-Year Plan (1933–7) was not as ambitious as its predecessor. Only 5·3 million ha of virgin and idle land were to be brought into cultivation. Of this, 1·79 million ha were to be found in the Asiatic part of the RSFSR and 470,000 ha in Central Asia. The sown area of Kazakhstan was to decrease by 260,000 ha.[35]

Great technical resources were now necessary to transform the steppe. This very important fact had finally been recognised in Moscow. The Trans-Volga area was marked out as a grain base and efforts were made to overcome periodical drought there. Together with the planting of trees a system of irrigation was to be introduced. The plan set a target of 130,000 ha to be irrigated.[36]

The plan envisaged the establishment of 300 new state grain farms in the Asiatic steppe. The assimilation of new lands required considerable technical assistance and qualified personnel. The grain sovkhozes were in areas of uncertain precipitation and the solonets soils were unfavourable for wheat culture. As a result of heavy losses, many of the large grain sovkhozes were divided up and turned into kolkhozes.

More intensive farming was necessary in the areas of traditional cultivation. This was pointed out in the draft of the second plan. 'The attained successes [in extending the sown area to virgin areas] permits directing the principal attention during the second plan period, not to the addition of new lands, but to improvement in cultivation of the land already under the plough.[37]

The less ambitious goal set for the extension of the sown area during the plan, however, was not realised. The increase in sown area was not 5·3 million as envisaged, but only 900,000 ha. In Kazakhstan the increase in the sown area amounted to 420,000 ha.

Over the period 1928–38 the expansion of the sown area amounted to 23·95 million ha, of which 8·74 million ha were in the Asiatic part of the Soviet Union (see Table 2.2). The expansion of 1·65 million

TABLE 2.2 Sown Area by Regions, 1928 and 1938
(millions of hectares)

Region	*1928*	*1938*
USSR	112·99	136·94
RSFSR	74·87	94·32
European North	1·38	1·64
North-West	4·99	5·94
Central	12·16	13·79
Central Chernozem	10·09	10·68
Upper Volga	6·49	7·99
Volga	8·82	12·71
North Caucasus and Crimea	10·24	13·70
Urals	9·10	12·98
West Siberia	7·76	10·30
East Siberia	2·69	3·69
Far East	1·15	0·90
Ukraine	24·93	25·60
Belorussia	3·40	3·34
Transcaucasia	2·14	2·51
Central Asia	3·41	5·06
Kazakhstan	4·25	6·11
Asiatic RSFSR	16·15[a]	21·38[a]

[a] Calculated.

Source: I. D. Laptev, *Razmeshchenie sotsialisticheskogo zernovogo khozyaistva* (Moscow, 1940) p. 61.

ha in Central Asia was based on the restoration of old and the construction of new irrigation facilities.

Part of the increase in the area of the European part of the RSFSR represented the recovery of the 1913 average level which had not been reached by 1928. Some added land was marginal while the rest came from regular meadows and pastures.

That Central and North European Russia, the previously neglected areas of the old settlement, had to be looked upon more as a source of new arable land is attested by the following statement from the draft of the second plan: 'Whereas the increase in sown area in the first plan period occurred mainly in the southern and eastern areas, in the second plan period the principal expansion is expected in northern and central areas and in Siberia.'

Of course, the limited land resources in Central and North European Russia did not permit spectacular expansion. Still, the sown area of these regions and of Transcaucasia showed an increase of 3 million ha during the period.[38]

One of the reasons for the failure to meet the expansion target

during the Second Five-Year Plan was the lack of success in agricultural colonisation. The collective system proved a great disappointment in this respect despite efforts to promote migration by granting privileges to the colonists. A decree of 17 November 1937 granted the colonists far-reaching tax exemptions, credits, etc. This decree regulated the migration of peasants, both collective and individual, who were migrating to join a kolkhoz.[39]

There was plenty of unoccupied land suitable for farming but colonisation was strictly limited by actual settlement possibilities. Before the First World War, at the time of the great Siberian migration, soils had been almost ready for immediate occupation. Now important preparatory work was required. In some regions it was irrigation, in others drainage, in others deforestation of the taiga. The necessary capital outlay was heavy and it was doubtful whether the investment would pay off; in any case, the available funds were limited.

The process of industrialisation consumed enormous quantities of capital. Modest colonisation plans remained unfulfilled because of the lack of prepared land. In 1939 only 10,000 peasant families (35,000 persons) were transferred from European Russia to the eastern area. For 1940 the resettlement of 35,000 families (140,000 persons) was planned.[40]

The rural population of the Urals, West Siberia and Kazakhstan during the period 1926–39 actually decreased slightly. A Soviet specialist reported that 'virtually no migration for the purposes of opening up new areas to agriculture took place. The government succeeded in bringing in only enough new settlers from European Russia to replace those who had shifted to industry.'[41]

Industry proved much more attractive to migrants than agriculture. Between 1927 and 1939 about 5 million streamed over the Urals. The vast majority of them preferred to find work in industry. Industrialisation resulted in the reduction of the rural population, but as conditions got better in the countryside, the peasants often preferred to stay on the land.

The failure to reach the targets set for the assimilation of virgin and idle land during the Second Five-Year Plan undoubtedly had a sobering effect on the target set for the Third Five-Year Plan (1938–42) (see Table 2.3). Between 1938 and 1940 the sown area of the Soviet Union increased by 15·1 million ha, partly owing to an expansion of the national territory on 17 September 1939. One million ha were added in Kazakhstan. However, in the RSFSR the sown area dropped by 330,000 ha between 1937 and 1940.

This failure resulted in a government and party decree, published on 20 April 1940, stating that kolkhozes and sovkhozes in the eastern

TABLE 2.3 Expansion of Virgin and Idle Land Assimilation, 1928–42 (millions of hectares)

	1928 actual	*1932 actual increase*	*1937 actual increase*	*1942 planned increase*
USSR	112·99	21·44	0·88	13·00
RSFSR	74·87	16·29	2·26	10·15
West Siberia	7·76	−0·25	2·25	2·80
East Siberia	2·69	0·13	0·65	1·33
Far East	1·15	−0·21	−0·07	0·25
Kazakhstan	4·25	1·15	0·42	1·30
Central Asia (excl. Kazakhstan)	3·41	1·46	0·00	0·90
Asiatic USSR	23·73[a]	4·20[a]	3·20[a]	7·78[a]

[a] Calculated.

Sources: *Sotsialisticheskaya Rekonstruktsiya Selskogo Khozyaistva*, no. 7 (1937) p. 22; Laptev, op. cit., p. 61.

regions of the USSR should plough up, by the end of 1942, no less than 4,345,000 ha of virgin and idle land.[42]

At the outbreak of war agricultural colonisation was not a genuine outlet for the millions of the increasingly overpopulated agricultural areas of European Russia. Large capital outlay was necessary to bring marginal land into cultivation. Large inputs were then necessary in order to mechanise the working of the land and the harvesting of the crops. Since yields were certain to fluctuate, considerable reserves were necessary to cushion the effect of poor yields.

The war forced agriculture to increase yields on existing farmland. Very limited resources were available for the extension of the area under cultivation.

Many peasants were transferred to state and collective farms beyond the Urals but remained unconvinced about the agricultural riches of Siberia and the steppe. This was illustrated by the eagerness of many to move to the Ukraine after liberation. The peasant was aware that an easier living could be gained in European Russia.

The more uncongenial parts of Asiatic Russia were peopled by the many nationalities deported on the orders of Stalin for alleged collaboration with the Nazis and lack of co-operation with the Soviet Army and communist officials.

After the war renewed efforts were made to achieve the pre-war sown area. A government decree of 26 December 1946 stated that during the years 1947–9, 8 million ha were to be added to the sown area in the eastern parts of the USSR. Spring wheat was to account

for 5·5 million ha of this total.[43] A decree of the CC plenum in February 1947 laid down that by 1949, 4·8 million ha of land sown to wheat were to be added to the sown area of Siberia, the Urals and north-east Kazakhstan.[44]

The catastrophic effects of the war on agriculture can be gauged by the fact that the sown area of the vast RSFSR, in 1945, was 25 million ha less than in 1940. In the USSR the sown area decreased by 36·6 million ha between 1940 and 1945. In Kazakhstan the drop was 770,000 ha.

The Fourth Five-Year Plan (1946–50) aimed at re-establishing the 1938 sown area and of modest additions to it. This was an ambitious target, but once again the goal was not attained, notwithstanding the fact that the 1950 target was for an enlarged territory.

The Russian Federation failed by 3·5 million ha to reach the 1938 target. Kazakhstan fared much better. The sown area in 1950 exceeded the pre-war total by about 2 million ha. War had not invaded Kazakhstan and this undoubtedly accounts for the success of the agricultural effort there. The greatest increase between 1945 and 1950 was registered by fodder crops – from 654,300 ha (10·8 per cent of the sown area) in 1945 to 1,234,900 ha (15·7 per cent of the sown area) in 1950. In the same period the grain area was extended by 1,150,000 ha.

The post-war ploughing-up of new land was not rapid, probably owing to a shortage of labour and machinery. In Kazakhstan, between 1950 and 1953, only 700,000 ha were added annually to the sown area. In West Siberia, between 1940 and 1950, there was only an increase of 200,000 ha, but in the three following years a total of 2,640,000 ha was added to the sown area.

Post-war agricultural development was marked by the appearance of a very ambitious scheme designed to overcome the problems of uncertain precipitation, dry winds and drought. A large part of the European part of the USSR is afflicted by these problems. Grain production was so important that the fluctuation in supply due to climatic conditions had to be reduced to a minimum. The unfavourable climate exerts a more detrimental influence on the Soviet harvest than in other advanced countries with similar dry farming problems, owing to the relatively backward nature of the agrotechnical methods and the quality of the personnel employed on Soviet farms.

A grandiose scheme was envisaged, sometimes referred to as the transformation of nature, which, if successfully carried out, would have substantially changed the conditions of agricultural production in an enormous area of the European part of the USSR.

Agriculture in the steppe area of the European part of the Soviet Union, especially in the areas to the east and south-east of the river

Don, is affected by dry winds (*sukhovei*) coming from the desert and semi-desert areas of Central Asia. Consequently drought is one of the great problems of these regions. Besides drought, low soil fertility and wind erosion have also to be combated.

The solution to all these problems was to be found in a complex system of afforestation measures for the preservation of moisture in the soil, an increase in the number of ponds by boring and the construction of reservoirs, measures for the introduction of rotation in grain and fodder crops (*travopole*), and other ameliorative measures specially suited to particular regions afflicted by drought.

It was envisaged that over 6 million ha would be planted with trees, 4 million ha of which were to be on kolkhoz and sovkhoz land. Labour for the planting of trees and boring wells on collective farms was to be provided by the kolkhoz. A complex system of incentives was worked out, according to which the progress of the afforestation and boring counted towards the fulfilment of the kolkhoz plan.

Nature, however, resisted man's efforts to transform her overnight. The young trees simply wilted and died in large quantities. To the percipient, the relative lack of success of this very ambitious scheme proved once again that nature could not be transformed rapidly or on the cheap. It would be a slow, expensive process demanding the expenditure of great technical and human resources.

Irrigation was not a new method for increasing agricultural production. It had been utilised in the Caucasus and in Central Asia before the Russian conquest.

Four large irrigation projects were announced in 1950. One was planned to irrigate the southern steppe in the Ukraine and the Crimea from the river Dnieper; another, the largest one, to irrigate the dry steppe along the lower flow of the Volga, in connection with the construction of two huge hydroelectric plants, one near Kuibyshev and another near Volgograd; the third, a smaller one, to irrigate the south-eastern dry steppe from the river Don, in connection with the construction of the Volga–Don navigation canal; and the fourth, to irrigate, by using water from the Amu-Darya river, the desert land along the lower flow of this river and through the long Turkmen canal, the land of the Kara-Kum desert and the south-eastern coast of the Caspian Sea.

Most of the land planned for irrigation had been used previously for non-irrigated crops; only the Central Asian project would have brought new land under cultivation.

The total irrigated area was only put at 6 million ha. However, it was also planned to provide 22 million ha of extra grazing land, mainly in the semi-deserts and deserts north and east of the Caspian. This was part of a determined attempt to increase the number of

livestock in the Soviet Union, since one of the main stumbling blocks to improvement of the poor animal husbandry situation was the great shortage of feed.

None of the irrigation projects was completely new. They had all been proposed during the pre-war Five-Year Plans but had not received much official backing.

The opposition to the scheme was demonstrated after the death of Stalin. They were greatly reduced in scope or simply abandoned for a while, such as the Turkmen canal project in Central Asia.

The performance of Soviet agriculture before 1953 was not first-class. However, socialist agriculture had been able to extend the sown area by about 40 million ha. This success must be qualified by the fact that the 1953 territory was larger than that of 1913 and that the easy course of ploughing up fallow and meadow land had been adopted instead of assimilating genuinely virgin land. Tables 2.4–2.6 demonstrate the changes in field husbandry over the years 1913–38 and Table 2.7 grain production between 1913–37. Much of the land ploughed up hurriedly to meet the targets of the First Five-Year Plan was allowed to revert to its former state.

Agricultural exploitation in the Soviet Union has always been extensive. A great effort to mechanise was made during the Stalin era but the desired results never fully materialised. Machinery was under-employed and badly managed. Many believed that if only tractors and machinery could be provided, then all the other problems of agriculture would pale into insignificance. This faith in the mechanical world is well illustrated by the following :

> And when we have put the USSR on an automobile and the muzhik on a tractor, then let the esteemed capitalists, who boast so much of their 'civilisation', try to overtake us! We shall see which countries may then be classified as backward and which as advanced.[45]

The muzhik had still to be convinced.

TABLE 2.4 Sown Area, 1913–38
(millions of hectares)

	1913	*1928*	*1932*	*1937*	*1938*
USSR	105·00	112·99	134·43	135·31	136·94
RSFSR	69·68	74·87	91·16	93·42	94·32
European RSFSR	58·02	58·80	73·50	72·99	73·06
Urals (Asiatic part)	4·24	4·47	6·39	6·33	6·37
West Siberia	5·13	7·76	7·51	9·76	10·30
East Siberia	1·62	2·69	2·82	3·47	3·69
Far East	0·67	1·15	0·94	0·87	0·90
Ukraine	22·89	24·93	26·44	25·12	25·60
Belorussia	2·56	3·40	3·98	3·51	3·34
Central Asia	3·62	3·41	4·87	4·87	5·06
Kazakhstan	4·19	4·25	5·40	5·83	6·11
Asiatic USSR	19·47	23·73	27·93	31·13	32·43
as % of USSR	18·54	21·00	20·78	23·01	23·68

Source: Laptev, op. cit., p. 61; otherwise calculated.

TABLE 2.5 Sown Area of Grain, 1913–38
(millions of hectares)

	1913	*1928*	*1932*	*1937*	*1938*
USSR	94·36	92·17	99·70	104·45	102·41
RSFSR	63·14	62·09	69·77	73·86	72·23
European RSFSR	52·08	47·30	54·73	55·86	53·85
Urals (Asiatic part)	4·07	4·13	5·38	5·64	5·52
West Siberia	4·87	7·19	6·36	8·53	8·87
East Siberia	1·51	2·46	2·53	3·17	3·33
Far East	0·61	1·01	0·77	0·66	0·66
Ukraine	20·71	19·66	18·12	18·19	17·77
Belorussia	2·04	2·52	2·63	2·24	2·07
Central Asia	2·72	2·18	2·63	2·97	3·02
Kazakhstan	3·91	3·83	4·50	5·15	5·33
Asiatic USSR	17·69	20·80	22·17	26·12	26·73
as % of USSR	18·75	22·57	22·24	25·01	26·10

Source: Laptev, op. cit., p. 65; otherwise calculated.

TABLE 2.6 Crops as Percentage of Sown Area, 1913 and 1938

	Grain		*Technical crops*		*Fodder*[a]		*Vegetables and potatoes*	
	1913	*1938*	*1913*	*1938*	*1913*	*1938*	*1913*	*1938*
USSR	89·9	74·8	4·3	8·0	2·0	10·3	3·6	6·9
RSFSR	90·6	76·6	4·0	6·6	1·6	10·2	3·5	6·6
Urals	95·4	86·5	1·9	3·3	1·1	5·9	1·4	4·3
W. Siberia	94·9	86·0	2·4	4·1	0·4	5·9	1·9	4·0
E. Siberia	93·3	90·4	1·7	1·4	1·3	4·0	2·5	4·2
Far East	90·4	73·6	4·6	12·5	0·6	2·8	2·7	11·1
Ukraine	90·5	69·5	3·5	9·4	2·2	12·9	3·6	8·2
Belorussia	79·5	62·1	3·5	7·4	3·5	9·7	13·5	20·1
Central Asia	75·1	59·6	16·2	28·5	6·6	9·1	2·0	2·8
Kazakhstan	93·3	87·3	2·7	5·7	2·2	4·4	1·8	2·6

[a] Predominantly grass.

Source: Laptev, op. cit., p. 69. (Where individual totals do not come to 100, mathematical inaccuracy in original.)

TABLE 2.7 Global Grain Production, 1913–37 (millions of tonnes)

	1913	*1928*	*1932*	*1937*
USSR	80·10	73·32	69·87	97·40[a]
RSFSR	52·94	50·30	48·17	70·85
European RSFSR	44·38	37·13	38·33	53·36
Urals (Asiatic part)	3·49	3·82	2·69	5·85
West Siberia	3·59	6·20	4·53	8·52
East Siberia	0·93	2·49	2·11	2·69
Far East	0·55	0·66	0·51	0·43
Ukraine	20·48	13·89	14·66	18·44
Belorussia	1·50	1·77	1·69	1·47
Central Asia	1·86	2·02	1·72	1·94
Kazakhstan	2·22	3·52	2·29	2·97
Asiatic USSR	12·64	18·71	13·85	22·40
as % of USSR	15·78	25·52	19·82	22·99

[a] 120·29 million tonnes is biological yield barn yield is 97·4 million tonnes. *Narodnoe khozyaistvo SSSR v 1958 godu* (hereafter *Narkhoz 1958*), (Moscow, 1959) p. 418. This is a reduction of 19 per cent; other figures adjusted accordingly.

Source: Laptev, op. cit., p. 77; otherwise calculated.

NOTES

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4 Ibid., pp. 228–9.
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36 Ibid., vol. I, p. 221.
37 N. Jasny, *The Socialized Agriculture of the USSR* (Stanford, 1949) p. 516.
38 Ibid., pp. 527–9.
39 Kulisher, op. cit., p. 111.
40 Ibid., p. 111.
41 Sonin, in *Problemy Ekonomiki*, no. 3 (1940).
42 *Resheniya partii i pravitelstva po khozyaistvennym voprosam* (hereafter *Resheniya partii*), vol. II (Moscow, 1967) pp. 749–52.
43 Ibid., vol. III (Moscow, 1968) pp. 368–79.
44 Ibid., pp. 381–427.
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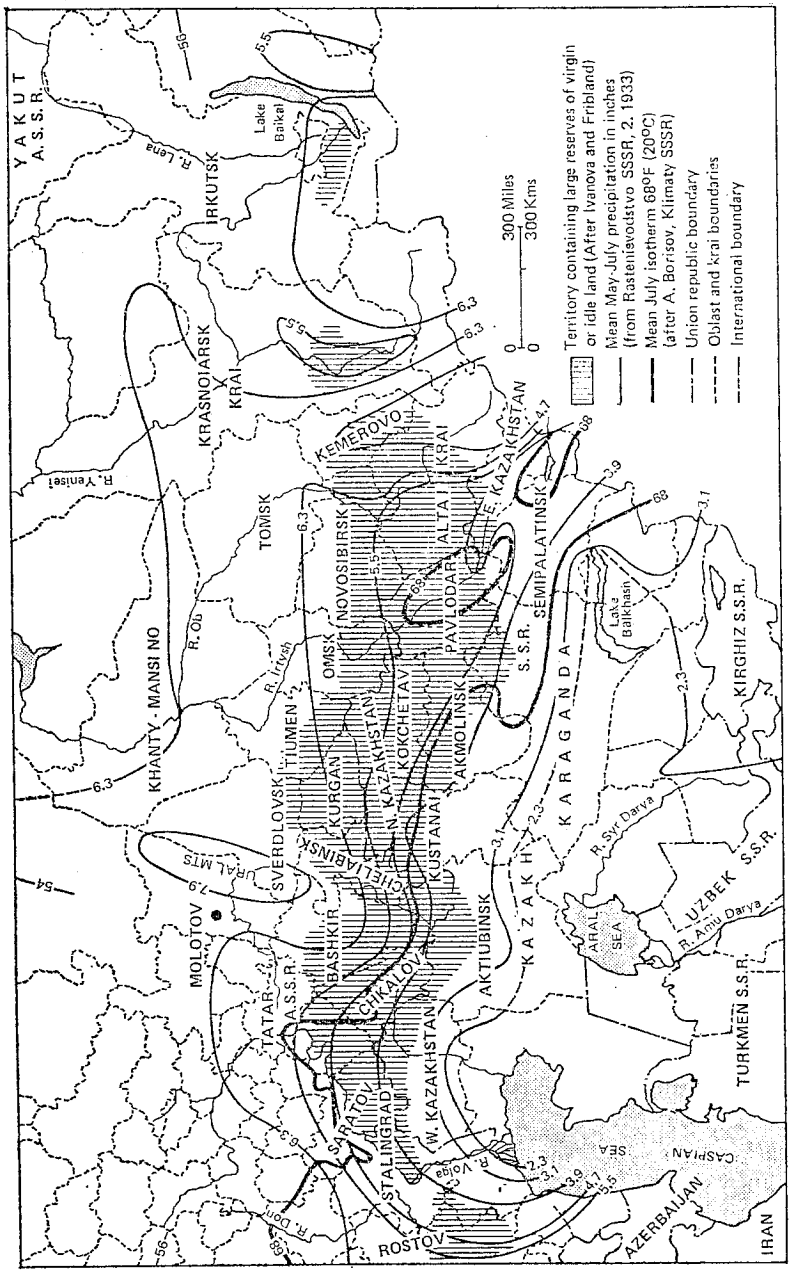
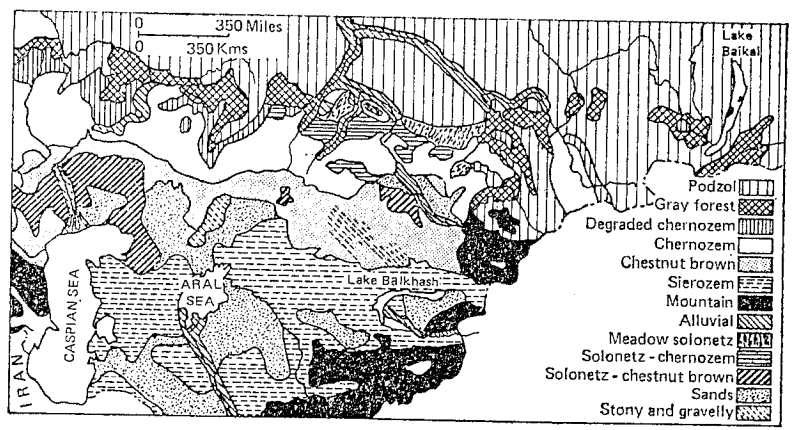
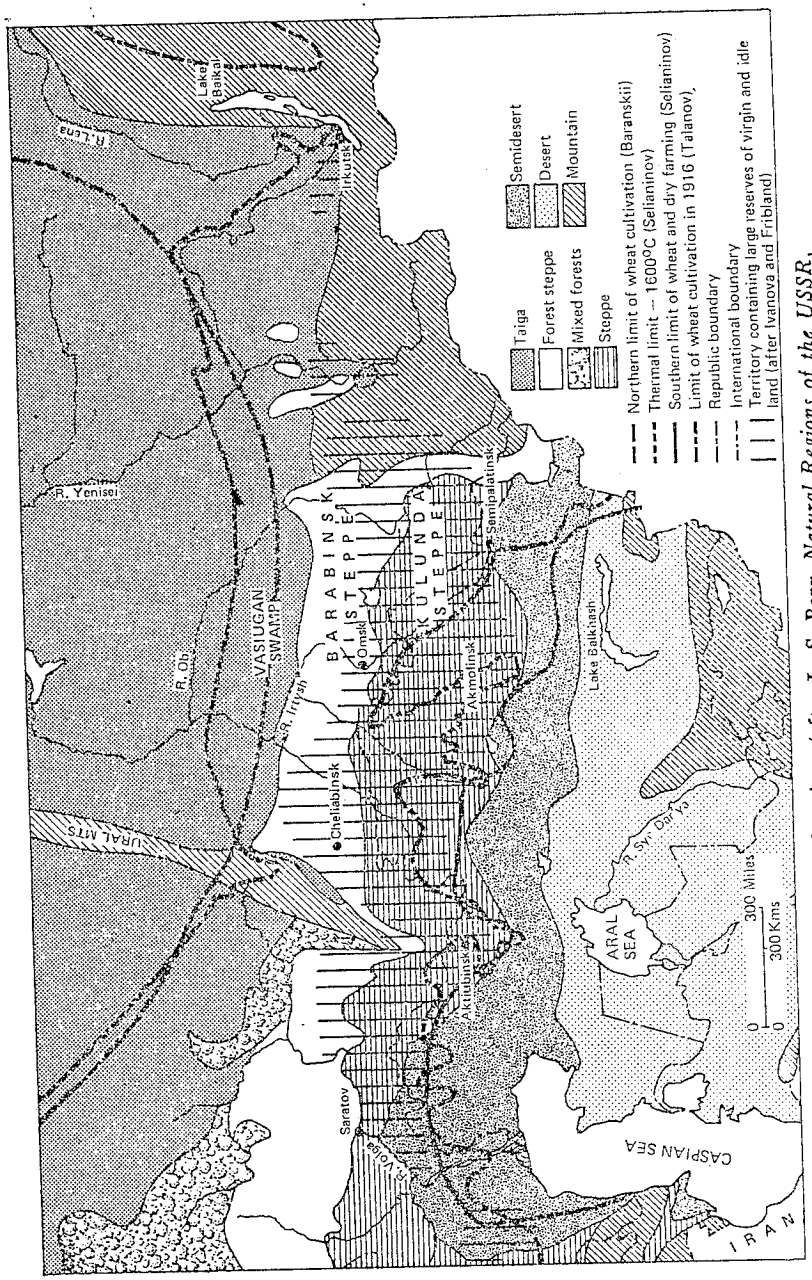


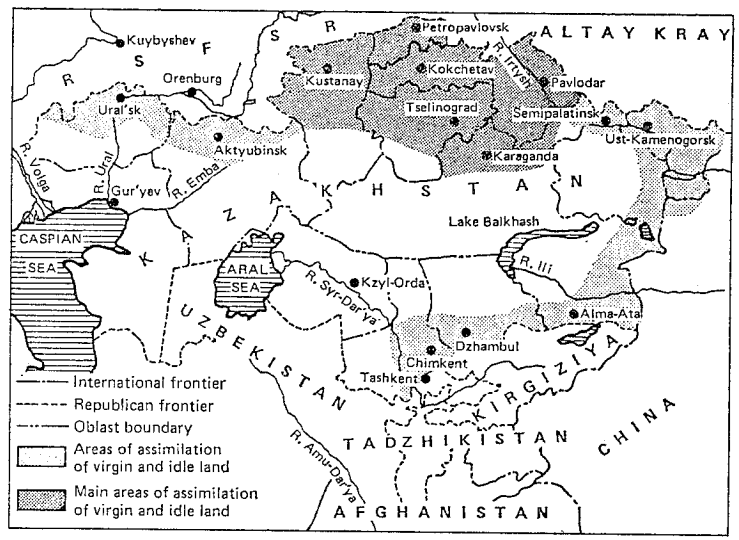
MAP 2.1 The eastern regions of the Soviet Union.



MAP 2.2 Virgin lands (after *Great Soviet World Atlas*).



MAP 2.3 Natural regions (after L. S. Berg, *Natural Regions of the USSR*, New York, 1950).



MAP 2.4 Virgin and idle lands of Kazakhstan, 1954–7.

3 From the Death of Stalin to the Fall of Malenkov, March 1953–February 1955

The death of Stalin brought no radical change in its wake in the approach to agriculture. The energy of the heirs was consumed in a tense and unrelenting struggle for primacy in party and state. The announcement of 7 March 1953 naming G. M. Malenkov Chairman and L. P. Beria First Vice-Chairman of the Council of Ministers of the USSR, the retention by Malenkov of his position as a secretary of the Central Committee, the merging of the USSR Ministry of State Security into the USSR Ministry of Internal Affairs under Beria, placed these two men at the very centre of power in the Soviet state. Between them they controlled, at least on paper, the three organs of power, the government, the party and the security police.

Malenkov, as leading Secretary of the CC, had a powerful say in moulding party policy but he had to compete with such men as Molotov, who had been the senior Deputy Chairman of the USSR Council of Ministers at the time of Stalin's death and was now number three in the government, and Khrushchev, who had lost his position as head of the party in Moscow in the reshuffle following Stalin's death but had been transferred to work in the Central Committee.

In order to reduce Malenkov's freedom of action in determining policy it was necessary for those who held high positions in the party to reduce his power in the party. This they succeeded quickly in doing and the first post-Stalin division of power broke down within a week.

A Central Committee plenum which met on 14 March 1953 released Malenkov from his position as Secretary of the Central Committee and elected five members to the Secretariat of the CC, with Khrushchev's name at the top of the list. A wedge had been driven between Malenkov's positions in the government and the

party and henceforth he would have to compete with the party leadership, spearheaded by Khrushchev in the Secretariat.

No charges were ever preferred in public against Malenkov over this change in the leadership. Neither Khrushchev nor anyone else ever charged Malenkov in any way with engaging in collusion with Beria. Perhaps this was because Malenkov's successors saw this splitting of the leaderhips of government and party as inherently beneficial to them.

Officially, collective party leadership was proclaimed and acknowledged as the highest aim of the party.

The second post-Stalin division of power lasted until about 26 June 1953, when Beria fell.

THE IMPACT OF BERIA

Agriculture was not the first problem which claimed the attention of Malenkov in the weeks after Stalin's death. He was too much taken up with other matters and may even have been a little out of touch with the exact situation. He did not attempt any new initiatives until after Beria's fall.

The kolkhozes received very little encouragement in an article in the Central Committee's theoretical organ, *Kommunist*, in the edition published a few days after Stalin's death.[1] His *Economic Problems of Socialism in the USSR* was lauded and quoted. Agriculture was to be placed on a more socialist basis and should be put under the direction of socialist industry. It was stressed that in order to remove the differences between town and country it was necessary to raise collective co-operative property to the level of state property. Specifically, there was a need to remove kolkhoz market produce from commodity circulation. The goal of product exchange would be easier to attain if all products were included in one state sector. Stalin's plan for the transformation of nature and his irrigation projects were saluted.

This uncompromising restatement of the Stalinist approach to agriculture was certainly not calculated to win tangible support in the countryside. It suggests that the inspirer of the article did not deem it important to solicit support down on the farm. This miscalculation presented those who wished to oppose Malenkov with an opportunity which they did not fail to seize.

Had he deemed it desirable, Malenkov could almost certainly have projected his own agricultural policy through the government newspaper *Izvestiya* and the journal *Voprosy Ekonomiki*, published by the Institute of Economics of the USSR Academy of Sciences. These two publications consistently presented the neo-Stalinist

approach to the economy and it was left to the Communist Party organ, *Pravda*, to carry indirect criticism of the formal policy.

Voprosy Ekonomiki usually averred that the grain problem had been finally solved and sometimes quoted the figure of 8,000 million poods as the grain harvest in 1952, a figure first given by Malenkov at the XIX Party Congress.[2] It wrote that shelter belts, irrigation and drainage schemes were necessary and that kolkhoz and inter-kolkhoz electric power stations were to be built.[3] The grassland crop-rotation system was promoted and kolkhozes were not to build their own brick and tile works since it would detract them from their production tasks.[4] All these proposals can be traced back to Stalin's final work on economic orthodoxy and the directives of the XIX Party Congress.

The conservative, staid approach to economic problems which *Voprosy Ekonomiki* adopted at this time is well illustrated by the report of a meeting of the Economics and Law Section of the Institute of Economics of the USSR Academy of Sciences held to assess the significance of Stalin's *Economic Problems of Socialism in the USSR* on 7–10 January 1953. The Director of the Institute of Economics, K. V. Ostrovityanov, attacked those who had supported Voznesensky, Malenkov's former opponent. This included several economists in the Institute, including the Director himself. He admitted that he had written subjectively about Voznesensky. Ostrovityanov was later to support Malenkov's industrial policy and to lose his position over it. At the meeting, Yaroshenko, who had come in for criticism by Stalin in his last major work, was put on a par with Bogdanov and Bukharin. A paper was read by E. S. Karnaukhova on raising kolkhoz property to national, state property. No summary of the paper was given, merely a promise to print it in a future edition of the journal.

The one issue over which there was dissent in the neo-Stalinist camp was that of changing commodity circulation into product exchange. Stalin had made it quite clear that his ultimate goal was the abolition of the market in the countryside; the countryside would receive industrial goods from the state in exchange for agricultural crops.

Dissent flared up in the spring and summer of 1953 and resulted in the defeat of the advocates of product exchange.

As part of Stalin's economic doctrine, the product exchange goal was included in the early pronouncements on economic policy.[5] An indication that product exchange was not accepted by all was given in the Central Committee's theoretical journal, *Kommunist*, in the edition signed for publication on 29 April. In it there was an article on goods production and the law of value by M. Constantinescu, a Secretary of the Central Committee of the Romanian Workers' Party. After referring to Stalin's works, he stated that in Romania commodity circulation between town and countryside was the basic channel for internal trade.[6]

In the next edition of the journal, in an article on Soviet trade by V. Lopatkin, the goal of product exchange was ignored.[7] D. T. Shepilov, chief editor of *Pravda* who was later to support Khrushchev in the virgin land debate, passed for publication an article by M. Makarova on 29 May which called for an expansion of trade. She added that recently several propaganda articles on product exchange had appeared but that they had not examined in detail the expansion of trade. Product exchange was to be a thing of the future. This was the line that Malenkov was to adopt at the V Session of the Supreme Soviet in August 1953.

The paper read by E. S. Karnaukhova at the January economic conference and which never appeared in *Voprosy Ekonomiki* must have been in favour of product exchange. After the Central Committee resolution condemning Beria, *Kommunist* published an article by A. Vishnyakov attacking Karnaukhova's views on product exchange expressed in a pamphlet on the liquidation of the existing differences between town and country.[8] Vishnyakov stated that Karnaukhova's point of view was incorrect and that the transition to product exchange was a question of the distant future. A great increase in agricultural production was required beforehand.

Pravda, on 10 June, carried an article advising the investment of capital in the central, thickly populated *oblasti* of the country where it could give the greatest results in the shortest time. This was in connection with the task of increasing agricultural production and hinted that the campaign to plant shelter belts and to irrigate the south-eastern part of European Russia and other dry areas was not the most economic method of investing capital. The transformation of nature scheme had been, of course, official policy since 1948.

By 26 June 1953 Beria had been arrested and stripped of his power over the security police. *Kommunist* accused Beria of trying to break up the solidarity of the Soviet people by sowing the seeds of dissent among nationalities.[9] The same journal had run several articles on the progress of non-Russian nationalities in the Soviet Union. In the edition signed for publication a week before Beria fell, there was an article by S. Yakubovskaya which quoted Beria at the XIX Party Congress on the nationalities issue.[10]

The other main issue in Beria's indictment was economic. *Pravda* stated that Beria, by every means, had slowed up the solution of all urgent agricultural questions. He had done his best to disrupt the kolkhozes and create difficulties in the provisioning of the country.[11]

Kommunist claimed that Beria had held up the execution of the most important decisions in agriculture. He had tried to undermine the kolkhozes and create difficulties in the provisioning of the country.[12] *Kommunist* admitted that difficulties did exist in agriculture, especially difficulties in growth.

The measures adopted by Beria in agriculture were never given in detail. *Voprosy Ekonomiki* carried no article attacking Beria's incorrect views on economic policy, which was in marked contrast to the treatment accorded Malenkov's views in the spring of 1955.

He was consistently stated to have held up the implementation of the most important decisions. This may have actual substance and may explain the apparent lack of activity of Malenkov in agricultural affairs before August 1953. Malenkov always believed that raising crop yields on the existing sown area was the surest way of guaranteeing increased supplies of foodstuffs. He may have proposed greater production of mineral fertilisers and a speeding-up of farm mechanisation and have had to watch Beria frustrate his proposals.[13] When he had to counter Khrushchev's agricultural proposals he decided to step up light industry and increase significantly consumer-goods production, the purchase of which was beyond the means of most of the agricultural population.

Beria was also accused of trying to undermine or disrupt the kolkhoz system. If this is literally true then he must have offered the kolkhozniks greater incentives, and this would mean larger plots and a greater part of the revenue received from farm production. This could only have been a temporary measure as the food situation in 1953 left little room for manoeuvre. Beria had been associated with the right wing of the party and may have incurred the enmity of some by not supporting a wholescale recollectivisation of the Western Ukraine and other areas formerly under enemy occupation, in the shortest possible time. Beria, it has been surmised, wanted to proceed at a slower pace. It is believed that he was in favour of issuing passports to dwellers in the countryside. This could have led to a mass exodus to the urban areas. The implementation of the product exchange doctrine would also have resulted in much discontent in the countryside since the supply of manufactured goods was very limited at that time and the exchange would therefore have favoured the towns.

MALENKOV AND KHRUSHCHEV VIE FOR PRIMACY

The elimination of Beria was the signal for Malenkov and Khrushchev to compete openly in the economic field. The prevailing mood

was that agriculture needed a boost and that industry should produce more goods to brighten the greyness of everyday living.

Malenkov, as an engineer, chose to expand production in the field in which he was most competent – industry. He boldly proposed the switching of some heavy industry over to consumer-goods production. He wanted rapid results and he knew that the urban masses would support him enthusiastically. In order to be able to do this he needed a relaxation in international tension so as to render less clamant the demands of the military. He was not to come up with anything radical in cereal production; he stuck to his usual policy of advocating higher yields as the way to increase grain production. After all, he had stated that the grain problem had been solved, so why should he announce any startingly new initiatives in the countryside?

The initiative in agriculture was allowed to pass to Khrushchev and he seized his opportunity with both hands. He had little influence in the industrial ministries and always saw them as a powerful source of opposition to his innovations. They were too taken up by bureaucracy to welcome new initiatives. Khrushchev sedulously set about collecting information and devising an agricultural policy which would reveal Malenkov's proud boast of having solved the grain problem as mendacious. Malenkov would insist that heavy industry was, as before, the key to economic expansion but that the time had come when Group B (light and food industries) capital investment should increase at the expense of Group A (heavy industry) investment. Some enterprises, hitherto manufacturing for heavy industry, should switch to consumer-goods production. Khrushchev's reply would be to claim that agricultural production was the key to economic expansion since it produces foodstuffs for the population and raw materials for industry. The transfer of plants from heavy to light industrial production would have to be attacked and discredited as anti-Marxist, the surest way of embarrassing Malenkov.

The July plenum of the Central Committee, at which Malenkov delivered the report of the Presidium, was given over to the condemnation of Beria. Articles appeared in *Pravda* and other newspapers, stressing that there was no conflict of interests among the different nationalities of the Soviet Union and that collective leadership was the order of the day. In contrast, no light was thrown on the mistaken kolkhoz policy of the former Minister of Internal Affairs.

The delayed meeting of the USSR Supreme Soviet in August provided Malenkov with an opportunity to present his solution of the economic ills of the time.

Malenkov assured the delegates that the country had been pro-

vided with sufficient grain.[14] Nevertheless, it was necessary to increase grain production in order to satisfy the growing demands of the population for grain, to ensure an increase in livestock production and to supply those regions which specialised in technical crops with grain. Malenkov proposed the abolition of the system whereby grain production was assessed according to the biological yield and a return to the barn yield system. The serious position of potato and vegetable production was pointed out. In order to remedy the lag in production, procurement prices for meat, milk. wool, potatoes and vegetables were to be raised. The kolkhoz market was to be developed so as to aid the kolkhozniks to sell their surplus produce. The policy of hedging the peasant's household plot around with restrictions was to be dropped and he was promised his full rights under the kolkhoz charter. Indeed, the kolkhoznik was promised a reduction in compulsory deliveries and in the tax levied on his plot and the cancellation of outstanding tax arrears. The incentives would result in a gain of 1,300 million roubles in 1953 and 2,000 million roubles in a full year. The procurement prices for grain were not raised, although they were very low.

In order to raise yields all round, the state promised a significant increase in the mechanisation and electrification of agriculture, an upsurge in the production of mineral fertilisers and more agronomical and veterinary help. The aim was an abundance of foodstuffs and raw materials inside two to three years. It was overlooked that such a programme could, of necessity, only be a long-term one and that great successes within a short period of time could not really be expected. No mention was made of the large capital investment entailed in such a programme. It all added up to a volte-face in agricultural policy. Malenkov was aiming at an intensification of agriculture and higher yields from existing land, but he had a formidable obstacle to overcome which was much more intractable than the technical – the mentality of the kolkhoznik. In order to realise his goal he would have to change the peasant into a farmer.

Malenkov, after a review of the progress of heavy industry, stated that the predominance of heavy over light industry up to that date had been justified. Now, however, with the successes in heavy industry apparent, in metallurgy, in the fuel, energy, chemical, timber, machine-building and construction industries, it was time to consider a greater expansion of light industry. The time was opportune to engage in the forced development of light industry. In order to guarantee a rapid rise in the production of light industry, some machine-building and other heavy industry enterprises should transfer to consumer-goods production. Malenkov gave a hostage to fortune by relegating the machine-building industry, a key industry

in the production of the means of production, to sixth place after the timber industry in his list of heavy industries. Equally risky was his bald statement that heavy industry was to lose some of its plants to light industry.

Malenkov's aim was to transfer as much capital investment as possible to light industry together with some heavy industry enterprises, in order to obtain quick, spectacular results. The light and food industries required an abundance of foodstuffs and raw materials which only a buoyant agriculture could produce. The grain crisis was not recognised and the Premier hoped that local initiative and resources, aided by some central investment, would raise yields. His freedom of action was limited by the fact that he was only head of the government. Had he been able to mobilise the party machine as well he would have wielded almost invincible power.

After Malenkov had presented his proposals for the development of the economy the initiative passed to Khrushchev. A Central Committee plenum on agriculture was arranged for 3 September 1953. It was called at Khrushchev's request.

The plenum marked the beginning of a war of attrition on the agricultural front between the First Secretary of the Central Committee, as he became at the plenum, and the Chairman of the USSR Council of Ministers. Khrushchev, with the resources of the Secretariat, was able to collect information on the condition of agriculture at the local level. His report is distinctly different from all the other post-Stalin assessments of agriculture. It goes into considerable detail and lists the main problems facing the country. Livestock farming comes in for special consideration. It disseminates practical advice right and left and many positive proposals are put forward to remedy the existing ills. Not all of Khrushchev's analysis is original; many aspects of it were first suggested by Malenkov at the V Session of the Supreme Soviet in August 1953. Nevertheless the flavour is recognisably Khrushchevian. He qualifies Malenkov's assertion that the country has been fully supplied with grain. He states that, basically, the grain needs of the country have been met, in the sense that the country is being provided, on the whole, with grain. In order to grow more winter and spring wheat there were many opportunities to extend cultivation to new areas. Many of the central Black Earth *oblasti*, the Volga region and parts of the non-Black Earth area were available for wheat production. The plenum's decree called for an unspecified amount of durum wheat to be produced in the south-east of European Russia, West Siberia and Kazakhstan.[15] This was a reasonable proposal as many of the areas mentioned are quite suitable for durum wheat cultivation. Growing durum wheat

in semi-arid steppes on black earth and chestnut brown soils has produced the best results only when it was sown on freshly ploughed grasslands. When, however, it is sown consecutively on the same land for a number of years, yields fall off significantly. The protein content of the grain drops and the fine bread-making qualities which mark durum wheat are reduced.[16] If Khrushchev was already thinking of the virgin land scheme at the September plenum, then he must have known that durum was only a short-term solution. To turn the lands of the east into a permanent wheat base would require the sowing of other types of wheat, predominantly spring wheat, with less satisfactory results.

The unsatisfactory nature of agricultural management was underlined forcibly by Khrushchev. The Ministry of Agriculture and Procurement, headed by A. I. Kozlov, and the Ministry of Sovkhozes came in for very heavy criticism. The Ministry of Agriculture was castigated for over-staffing, bureaucratic duplication, red tape, slowness in deciding urgent issues, technical incompetence and superfluous advice.

Khrushchev proposed that the area given over to maize for silage should be rapidly increased. He saw maize as a first-class fodder and much superior to grass. This was not the first time that Khrushchev had waxed eloquent on the virtues of maize. During his days in the Ukraine he was well known as a champion of this crop. Then as now there was opposition in the Ukraine to maize and Khrushchev conceded the point. In Khrushchev's scheme maize took the place of grass as animal fodder, thus reducing the area devoted to the cultivation of grass. The smaller area of grass would allow a larger area to be given over to grain production. Besides, Khrushchev was well aware that much of the grass grown was of low quality. Soviet hay yields are also very low.

The Ministry of Agriculture and Procurement was recommended to concern itself with the planning of agriculture and its different branches, material and technical supplies, the financing of agriculture, the procurement of agricultural produce, the selection, training and appointing of personnel, questions of propaganda and the application of advanced methods of work and scientific innovations. Khrushchev further counselled that in order to provide technical aid to the kolkhozes, not less than 100,000 agricultural specialists should be sent to work in the Machine Tractor Stations. The increase in the role of the MTS in kolkhoz production rendered the local agencies of the Ministry of Agriculture superfluous. The *raion* executive committee of the soviet needed only a small staff to look after planning and reports; the specialists should work in the MTS and kolkhozes. The decree of the plenum noted that the established

practice of making the agricultural agencies responsible for the direction of work in the MTS and the kolkhozes did not correspond to the growing needs and changes which had taken place in agriculture.[17] Shortly afterwards the *raion* agricultural department, the local agency of the Ministry of Agriculture, was abolished and its technical function allotted to the MTS. This was the first move in a long and successful campaign waged by Khrushchev to reduce the functions of the Ministry of Agriculture.

Khrushchev was concerned about the poor technical leadership of agriculture. The need to supervise closely the activities of the kolkhozes, since they provided much of the country's food, had led to duplication of functions among state agencies and had also led to direct interference in any issue, technical or otherwise, by the party. Production had been only one of the goals of the exercise, hence it was not afforded full priority. Khrushchev wanted agronomists and livestock experts to become directly involved in production and to be answerable for the results achieved by acting on their advice.

Khrushchev had great faith in the party as a mobiliser of the rural masses. He had grown up in the party and he always looked to it when faced with difficulties. He wanted the local party officials to involve themselves in the everyday running of agriculture so as to provide the kind of leadership which had been lacking before the September plenum. Khrushchev was departing from the orthodox Stalinist line on the function of the Communist Party. The role of the party was to exhort while that of the government administration was to give orders.

The abolition of the *raion* agricultural department resulted in the appointment to the MTS of a *raion* party secretary and a group of party instructors, each responsible for one or two kolkhozes. The previous party control in the MTS had been exercised through the deputy director responsible for political affairs. He had not been subordinate to the *raion* party secretary, so one could see the change as a strengthening of local party control over the MTS.[18] The *raion* party committee, headed by the first secretary, was to manage the entire economic and social life of the *raion*. The party press and propaganda media had, correspondingly, to advocate more advanced agricultural techniques.

At the very beginning of his speech to the September plenum, Khrushchev quoted Lenin to the effect that the machine-building industry was vital for the development of socialism and agriculture. He called for a rapid development of agriculture in order to satisfy the growing demands of the population. Khrushchev pointed out reasons, other than the priority of heavy industry over agriculture

and light industry, for the backward state of agriculture. These were the deficiencies in certain sectors of agricultural work and in the management of agriculture. One of the major failures had been the neglect of the principle of material incentive. He called Lenin to his aid to show that the economy could not be built on enthusiasm alone but on personal interest and incentive. It was a simple task for him to cite examples, especially in animal husbandry, where this principle had been violated. Khrushchev proposed an increase in the material wealth of the kolkhozniks but made no specific proposals to increase the supply of industrial goods in the countryside in order to meet the increased purchasing power of the peasant. The decree of the plenum adopted on 7 September 1953 did not wholly reflect Khrushchev's analysis of the situation. The reference to the machine-building industry was omitted and it was stated categorically that the country was being fully supplied with grain.

Although the USSR Ministry of Agriculture and Procurement and its local agencies lost some of its power, it was not reduced to the level suggested by Khrushchev in his report. It was to supervise, among other things, the implementation of the state plan for agriculture, to run the MTS and to see that the kolkhoz charter was not infringed.

During the plenum Khrushchev met various party officials from northern Kazakhstan, discussed with them the prospect of cultivating virgin land there and, according to Khrushchev's secretary, A. S. Shevchenko, received a very positive response.[19]

After the plenum, on 8 September, the entire Kazakh delegation had a meeting with Khrushchev and were 'insistently advised' by him to elaborate plans for the cultivation of virgin land in the republic.[20] The First Secretary soon afterwards met the members of the Kazakh Central Committee's bureau and *obkom* secretaries. Khrushchev gave 'instructions' to these party officials to draw up a plan for the cultivation of virgin land. During the following months several officials from Kazakhstan were called to Moscow by the Secretariat of the Central Committee of the Communist Party of the Soviet Union to help draw up the plan, but no member of the Kazakh Central Committee bureau was summoned to the capital.[21]

The journal *Kommunist*, after the September plenum, gave prominence to Khrushchev's agricultural proposals. His analysis of the deficiences in agricultural leadership, at party, kolkhoz, sovkhoz, MTS and government level, was dwelt upon. Khrushchev was to base his challenge to Malenkov over the issue of consumer-goods production on these points.

Not surprisingly, the Ministry of Agriculture received a new head in the person of I. A. Benediktov. He had been Stalin's Commissar

of Agriculture as early as 1938 and had returned to his post after the war, staying until the death of Stalin. A. I. Kozlov became USSR Minister of State Farms.

If *Kommunist* gave prominence to Khrushchev's agricultural proposals, then *Voprosy Ekonomiki* did the same for Malenkov's industrial and agricultural policies. In the September issue the editorial, probably written by K. V. Ostrovityanov, welcomed Malenkov's proposals made at the V Session of the Supreme Soviet and quoted them approvingly. The October issue editorial stated that the grain problem had been solved and gave Malenkov's 8,000 million poods as the 1952 harvest. In an article by A Schcherbakov on livestock no mention was made of the virtues of maize; instead the author called for the extension of the *travopole* system and a greater area devoted to perennial and annual grasses.[22]

Malenkov's consumer policy received further support in the November issue of *Voprosy Ekonomiki*. In an editorial it was stated that machine-building, metallurgical and chemical enterprises and other branches of heavy engineering could be switched over to the production of consumer goods.

A paper read by K. V. Ostrovityanov to a conference of the Academy of Sciences on 20–21 October 1953 was published in the December issue. It represented the orthodox Malenkov position on consumer goods. Ostrovityanov found it necessary to defend the policy against comments in the *New York Times*. This newspaper saw the new policy as a 1953 edition of NEP.

Stalinist economic orthodoxy raised its head in *Kommunist* in September 1953.[23] 'In our written and oral propaganda there have been cases of subjective, voluntaristic views on the nature of the economic laws of socialist development.' This was clear reference to Malenkov's attempt to lessen the disparity between heavy and light industry investment and production.

'The solution of the problem of how to produce more consumer goods lies with the party. In order to utilise all the existing possibilities for increasing production the party organisation has to improve the management of light industry. Where the party is actively engaged in leading and developing the activities of workers, an increase in consumer-goods production is guaranteed.'[24] This solution was reminiscent of Khrushchev's proposals at the September plenum when he had advocated a more active participation in the production problems of agriculture by party officials.

In the final issue of *Kommunist in* 1953 A. I. Kosygin, Minister of the Light and Food Industries, confirmed that machine-building enterprises and other branches of heavy industry were being utilised for the production of consumer goods.[25]

The 1953 harvest turned out a poor one, partly owing to unfavourable weather conditions in some areas. The per capita harvest of grain products in 1953 was 435 kg or 106 kg less than in 1913; marketed grain produce was 35·8 million tonnes or 2·5 million tonnes less than in 1940.[26] Nevertheless, *Izvestiya* still insisted on 12 November that the grain problem had been solved in the USSR. A separate USSR Ministry of Procurement was set up and L. R. Korniets, who had worked with Khrushchev in the Ukraine, was named the first Minister. Another appointment reflected the struggle between Malenkov and Khrushchev. V. M. Andrianov, First Secretary of the Leningrad *oblast* committee, was replaced by F. R. Kozlov, in the presence of Khrushchev.[27] Later it was stated that the reason for Andrianov's dismissal had been his failure to implement the decisions of the July 1953 Central Committee plenum which had condemned Beria.

E. S. Karnaukhova pointed out in *Kommunist* that the economic regions of the North, North-West, West and non–Black Earth Centre had, since the war, reduced the area devoted to grain.[28] The time was ripe for the assimilation of new lands in these regions. The land available for cultivation in these areas, without taking into account the Baltic littoral and the western *raiony* of Belorussia, was estimated by the Institute of Soil Science of the Academy of Sciences to be about 35 million ha. This area could be assimilated without harming the forests of the regions. Karnaukhova also recommended the east, especially Kazakhstan, as a region possessing great reserves of land which could be given over to grain production. An extension of the *travopole* system was recommended, even at the expense of grain, in the south and North Caucasus.

N. I. Belyaev, Secretary of the Altai *krai* party committee, who was later to become First Secretary in Kazakhstan, weighed in with an article in *Pravda* on 11 December 1953. He stated that several million hectares of arable land in the Altai, which were being used as cattle pasture and hay fields, could be given over to spring wheat. The objection that the increased area devoted to grain cultivation would reduce the amount of fodder was overruled by stating that sowings of fast-growing annual grasses would be increased and that each kolkhoz could grow maize for silage as well as increasing wheat production. Other areas of Siberia were mentioned as suitable for immediate cultivation. Later they were all included in Khrushchev's virgin land scheme. Another article in similar vein appeared in *Pravda* on 24 December. The author, E. Taibekov, Chairman of the Kazakh Council of Ministers, pointed out that over 6 million ha were ready for cultivation in the kolkhozes of the republic.

This press coverage is in marked contrast to the tone of the confidential report dated 3 December 1953, forwarded by the Kazakh Central Committee to the Secretariat in Moscow. The report stated that by 1955 the area sown to wheat would increase by 544,000 ha.[29] This is the first mention of a specific figure of new land to be cultivated. The sixth plenum of the Communist Party of Kazakhstan, meeting in October 1953, had only called for an increase in the area sown to winter wheat. Since northern Kazakhstan is overwhelmingly a spring wheat area, this was tantamount to ignoring Khrushchev's plea for the assimilation of new land. The modest increase of 544,000 ha had been agreed at a Kazakh Central Committee meeting in November 1953. The meeting was also of the opinion that roads, grain storage facilities, etc., should be constructed before any massive assimilation of land took place.[30]

A conference on kolkhoz management held at the Institute of Economics from 23 to 28 December 1953 was covered in *Voprosy Ekonomiki*.[31] Several of the papers read at the conference were printed in the journal, but the opening speech by K. V. Ostrovityanov, a Vice-President of the USSR Academy of Sciences and editor of the journal, was only briefly summarised. I. D. Laptev, a member of the Lenin All-Union Academy of Agricultural Sciences, proposed that a study should be made of the unused land in the eastern part of the country with an eye towards assimilating it. This would make it possible to create large state grain reserves which would be of great use in years when weather conditions were unfavourable. Besides grass, root crops and silage should be produced for fodder. However, he also hedged his bets by putting in a strong plea for an intensification of agriculture instead of the extensive methods which were almost everywhere in use. Professor V. S. Dmitriev of the Institute of Economics concentrated in his paper on the problems of assimilating virgin land. Besides the land in the east, Dmitriev suggested that land was also available in irrigated areas and areas which had been drained. He also revealed that methods had recently been developed which sharply reduced the costs of assimilating virgin and idle lands.

On 6 January 1954 *Komsomolskaya Pravda* carried a Tass announcement from Kazakhstan. In it the republic's Minister of State Farms stated that 2·5 million ha of additional land was to be sown to wheat in the next two years. This was the first public mention of a precise figure.

In an editorial on 7 January 1954 in *Pravda*, the Ministry of State Farms was once again attacked. It was pointed out that on state farms in Kazakhstan, the Volga region, the Urals and Siberia there were expanses of fertile virgin soil which could be turned over to cereals, especially wheat.

THE VIRGIN LANDS

Khrushchev launched his proposals for the amelioration of the agricultural situation in a memorandum to the Presidium of the Central Committee on 22 January 1954.[32] The title, 'Ways of Solving the Grain Problem', was a direct challenge to Malenkov. In case anyone missed the point, a footnote pointed out that it was Malenkov's statement at the XIX Party Congress which was being brought into question. Khrushchev produced figures which showed that state expenditure of grain had exceeded procurements by 76 million poods. To cover this disequilibrium and to meet essential exports, the state grain reserves had been depleted by 160 million poods (2·62 million tonnes). It was urgently necessary to increase the amount of grain procured by the state, and to do this Khrushchev proposed the cultivation of 13 million ha of virgin land in Kazakhstan, East Siberia, the Volga basin and North Caucasus. Even with a yield of 10–11 centners per ha the government would procure an additional 10 million tonnes of grain. Khrushchev was very optimistic in quoting 10–11 centners per ha. No grain region in the USSR averaged 10 centners in 1953; indeed the average was only 7·8 centners per ha. Perhaps it is slightly misleading to take 1953 as an example, since weather conditions were abnormal. Nevertheless, it was only in 1958, a very good year, that yields exceeded an average of 10 centners per ha. Khrushchev's estimate of a yield of 14–15 centners per ha in Siberia and Kazakhstan proved much too optimistic.

Capital investment on buildings, tractors, machines and equipment by the state was put by Khrushchev at 550–600 million roubles. It could be, he estimated, recouped in one year. The tractors and tractor-drawn machines required for the project would come from the funds allocated to agriculture in the 1954 plan. Technical equipment would be channelled from the traditional grain areas to the virgin lands. About 70,000 persons would be required to staff the sovkhozes, and since the new lands were sparsely populated these would have to come from other areas. A reduction had taken place in the area sown to grain in most parts of the country and this had been the result of favouring perennial grass. Despite this, not enough fodder was being produced for livestock. The fault lay with the *travopole* system which favoured perennial grass followed by spring wheat. This system had been promoted at the Central Committee plenum in February 1947, when Khrushchev had suffered defeat in his attempt to gain precedence for winter wheat instead of spring wheat in the Ukraine. One of the victors at the plenum had been Malenkov. The solution lay in the extension of maize circulation. Maize produced a much higher yield than small grain crops and thus

would prove a valuable fodder crop. The Ukraine should increase winter wheat cultivation at the expense of perennial grass. The high rates of grain deliveries by kolkhozes to the MTS were criticised. They resulted in a loss of incentive and lowered the rate paid per *trudoden* (labour days: assessed on the basis of fulfilment of norms. The different tasks on a farm are divided into nine categories and a daily norm varies from 0·5 for lowest to 2·5 labour days for highest). Khrushchev forwarded with his memorandum a draft decree on expanding grain production in 1954–5 by assimilating virgin and idle land, reports by Gosplan, the Ministries of Agriculture, Sovkhozes and Procurement on the problem, a statement by T. D. Lysenko on the question of yields of grain in the virgin and idle lands, and newspaper articles on kolkhoz and sovkhoz experience in assimilating new lands.

A conference of agricultural specialists was held in Moscow in January 1954 to discuss virgin land cultivation. Those who spoke reported, in most cases, excellent experimental field results on virgin and idle land. Yields of wheat of 25–35 centners per ha had been obtained.[33] The deliberations of this conference were not published in the national press. A Siberian grain specialist, N. Belozerova, in an article in *Izvestiya* on 7 February, welcomed the assimilation of virgin and idle land but warned that careful agronomical techniques would have to be applied in order to obtain consistently good yields. She also maintained that perennial grasses produced good yields on correctly cultivated virgin and idle land. T. D. Lysenko made his contribution to the debate in an article in *Izvestiya* on 20 February. The article may have been based on a statement he had made on the question of grain yields in the new lands which had been forwarded with Khrushchev's memorandum to the Presidium. Lysenko called for greater application of lime in the non-black earth zone and elsewhere and said the state was doing everything to increase considerably the production of mineral fertilisers. On the virgin lands he warned that incorrect ploughing would reduce the crop. He was against mixing the lower layer of soil with the surface layer. This foreshadowed the adoption of the Maltsev method which called for ploughing without a mouldboard in order to prevent the bottom layer coming to the surface. Even with incorrect ploughing the harvest should be 10–15 centners per ha, and in dry years less. An average yield for good virgin land was 25–30 centners per ha. The experimental farms described at the January conference had, on average, produced good yields and presumably Lysenko was thinking of them when giving his estimates. He also had the experience of kolkhozes and sovkhozes which had assimilated new land to draw upon.

Nevertheless, the yields quoted are not truly representative since the methods of cultivation would have been of a higher order than those practised on the average kolkhoz or sovkhoz. Lysenko was vindicated on the best farms, but the yields of wheat in northern Kazakhstan from 1895 to 1914 averaged less than 9–13 centners per ha, and from 1920 to 1934 were not much higher.[34] Over the period 1953–64 Kazakhstan never attained an average of 10 centners per ha. In the very successful harvest of 1964 the average was only 9·8 centners per ha, while that of the USSR as a whole was 11·4 centners per ha. West Siberia over the period 1954–8 averaged about 11 centners, but the average for 1954–63 dropped to just over 8 centners per ha. Hence it is apparent that Lysenko was over-optimistic about the prospects of Khrushchev's virgin land scheme. He was quite justified in pointing out that cultivation techniques would have to be different because of the climatic conditions and the nature of the soil.

The conference held in January 1954 revealed that experiments aimed at assimilating virgin and idle land had been carried out during 1953. West Siberia and northern Kazakhstan are predominantly spring wheat areas, so the order to step up experimental efforts could have come in the spring of 1953. The results were not based on merely one year's experience, so the decision to assimilate large areas could be said to have been a bold initiative based on scientific research. Had the assimilation been confined to those areas which could have been recommended by the agroscientists, then the venture would not have been hazardous. Khrushchev was so intoxicated by a few results that he threw caution to the winds and embraced nature with wild abandon. Nature, it became clear later, would only respond to a long courtship based on mutual respect.

The conference of MTS workers from 25 to 28 January 1954 was accorded great publicity in *Pravda* and *Izvestiya*. Mention was made in some speeches of preparations to cultivate new land, but the major speech of I. A. Benediktov, USSR Minister of Agriculture, omitted all mention of the subject. Khrushchev was reported as having made a major speech which was greeted with thunderous applause. No details of what he had said were printed.[35] Nevertheless, an editorial in *Pravda* on the conference stressed that the MTS and collective and state farms, in assimilating large tracts of virgin and idle land, were engaged in work of great state significance.[36] When Benediktov's speech at the conference was reprinted in full in *Pravda* on 10 and 11 February it was found to contain a commitment to assimilate 13 million ha of virgin and idle land.

Khrushchev's speech at a conference of sovkhoz workers on 5 February was also not carried by *Pravda* and *Izvestiya*.

The Central Committee plenum on the virgin lands which met between 23 February and 2 March 1954 provided Khrushchev with the opportunity of joining battle with his detractors and at the same time of overturning Malenkov's agricultural policy and of substituting for it his own proposals on the subject. Khrushchev had campaigned ever since the death of Stalin for a radically different approach to agriculture. He had tried to break down the centralist mentality and distrust of the countryside which more than two decades of Stalinism had engendered in the party and government elite of Moscow. Complementarily to this he had tried to convince the peasant that increased productivity and initiative would be tangibly rewarded. The extent to which Khrushchev devoted his energies to agricultural problems can be seen from the following list of speeches:

'The Development of Agriculture'	3 September (CC plenum)
'Ways of Solving the Grain Problem'	22 January (Presidium memorandum)
'Cadres and Techniques'	28 January (MTS workers)
'On Sovkhozes'	5 February (Sovkhoz workers)
'Agriculture in the RSFSR'	15 February (leading agriculturalists in the RSFSR)
'Virgin Lands'	22 February (Komsomols)
'Virgin Lands'	23 February (CC plenum)

In these speeches Khrushchev covered all the major branches of agriculture. The only omission was a speech to kolkhozniks on the inviolability of the private plot and an appeal to them to step up productivity and the marketable surplus from their private enterprises. Ideology prevented him from making this speech and it would have provided his opponents with ample ammunition for an attack on his right opportunism and deviationism. Nevertheless, if an increased supply of foodstuffs, regardless of origin, had been the order of the day, then the most rapid results would have been achieved by adopting this policy. Khrushchev's avowed goal was the solution of the grain problem and it must be admitted that, no matter the incentives offered, the kolkhoznik's private plot would not have solved it. An expanded sown area on collectively-owned land without commensurate returns to the individual kolkhoznik would result, inevitably, in his desire to devote less effort to collective work and more to his own plot. Did Khrushchev fully understand the implications of his policy to cultivate vast new tracts of land? Did he appreciate that if his policy was not completely successful, other branches of agriculture would be adversely affected?

Another very important effect of an unsuccessful policy would be that the kolkhoznik would once again be justified in believing that the incentives and blandishments of the party and government were only ephemeral and that sooner or later he would lose, wholly or partly, what he had gained during the good years. In order to overcome this belief the government would have to increase incentives substantially in order to get agricultural advance in the future. These incentives would have to be higher than they need have been had agriculture progressed more slowly but continuously in the previous years.

The February–March 1954 Central Committee plenum gave Khrushchev full scope for a searching analysis of the agricultural situation. He kept to the subject of the rural economy and did not use the occasion to attack Malenkov on the consumer-goods issue. The issues discussed were, in the main, those already enunciated in the January memorandum. Khrushchev used the plenum to apportion blame for the weak position of agriculture. In his speech he mentioned three conferences which had been held in the Kremlin in late January and February 1954, and at each of these he had delivered a speech. These speeches were published for the first time in 1962 and it is clear that the party did not permit their immediate publication. This was the period when collective leadership was being stressed, so all major policy speeches by members of the Presidium would have been considered before publication by the party elite. Malenkov and Molotov, if he opposed the virgin land scheme from its inception, would have been Khrushchev's persistent opponents on this particular issue.

The speeches Khrushchev made prior to the February–March plenum were very forceful and full of practical advice. Bureaucracy and the planning procedure adopted in agriculture were constantly under attack, as was the weak management of kolkhoz, sovkhoz and MTS. He wanted the virgin lands opened up straight away and turned aside objections that settlers should wait until necessary social amenities had been guaranteed. The need to produce more nutritive food for the population was so urgent that it took precedence over everything else. Khrushchev used the conferences to drive home his reasons for favouring maize as the best crop for fodder and silage. The yield was very much higher than that of small grains and there were more fodder units in a centner of maize than in a centner of grass. The United States gave 36 per cent of the total grain area over to maize, but only 3·6 per cent was given over in the USSR. Khrushchev perceived the connection between the large production of maize in the United States and the high level of animal products available. He knew that a relatively small area of the

USSR was suitable for growing maize for grain. Maize is a crop which must be sown on good land in order to achieve high yields. The combination of weather and soil suitable for high-yielding maize is only available on a large scale in the Ukraine. When Khrushchev was speaking the Ukraine was the major producer of wheat in the country. If Kazakhstan and West Siberia could take over the main burden of wheat production, then the Ukraine could switch over to growing large quantities of maize. If this were achieved a vast expansion in the availability of livestock products would be possible. Unfortunately for Khrushchev, the Ukraine suffers from periodic drought, as does Kazakhstan and West Siberia. The hazards of the east are greater and to them is added the withering effects of the dry winds, the *sukhovei*, blowing from the Aral Sea basin. Khrushchev revealed on occasions that one of his chief aims in launching the virgin land project had been to increase livestock production. He was willing to launch a bold plan of expansion in the east without the certainty that it would succeed. So long as it was not possible to transfer large areas of the Ukraine to maize production, the other areas, where maize would not ripen, could produce it for silage. In fact maize as fodder is unquestionably superior to hay, but its value depends on its ripeness. It is questionable whether very immature maize is superior to hay as fodder.

Khrushchev knew that the director of the sovkhoz and the chairman of the kolkhoz very often made the difference, but really efficient men were difficult to recruit. He conceded that decision-making at local levels could be to the detriment of state planning and could represent an underestimation of socialist methods of running the economy.[37] Bureaucracy and state planning were different concepts to Khrushchev, but the problem was how to make that distinction a reality. Malenkov and the other orthodox planners were not likely to show much sympathy for such ideas. The centralised planning system functioned more effectively in industry than in agriculture. Close economic control had to be kept on the countryside and this was necessary to make political control effective. The idea of giving the countryside a greater say in agricultural production aroused the instant opposition of the Central Committee. Khrushchev revealed what had happened in a speech delivered three years after the event: 'When the Central Committee proposed the introduction of a new system of planning agriculture, conservatives spoke against the measure. They tried to frighten the Central Committee by saying that if we gave up planning the sowing of crops from the centre, then the kolkhozniks would cease sowing wheat and that we would lose our supplies of grain.'[38]

In his speech to MTS workers on 28 January 1954, Khrushchev

throws a shaft of light on his thinking about science. Scientific opposition had arisen over his scheme to plough up new land in the east. The main objection was that the result would be positive in the short run but that the soil structure would suffer in the long run. Science existed, it was pointed out, to serve the interests of the people and the state. If it became divorced from life it became a false science. Scientists had a responsibility to develop science and the country. Khrushchev was quite justified in hitting out at those scientists who contributed little and only repeated the opinions of other scientists. He opposed the wholesale application of Vilyams' *travopole* system but had been contradicted by some orthodox scientists. Since his opposition in this case was justified, one can appreciate his lack of patience with some *soi-disant* experts. He was quite willing to accept theoretical conclusions if they stated that there was no need to postpone the immediate increase in the harvest. He was for more grain, meat and other agricultural products, so he supported that kind of science.[39] He saw science as an instrument of government policy. He had decided that it was necessary to cultivate the virgin lands, so the task of the scientist was not to produce negative evidence and try to persuade him otherwise, it was to make sure that the virgin lands produced high, consistent yields.[40] He was either unwilling or incapable of appreciating that science, at its present stage of development, is only capable of solving a few of the many problems which face mankind. A system for cultivating the virgin lands could have been worked out which would have satisfied most of the scientific opposition, but the capital investment involved and the speed of assimilation would not have been acceptable to Khrushchev. The agricultural scientist knows that one cannot work against nature, only with her. Khrushchev, in his impatience for high grain production, wanted to garb nature in human clothing and thus make her susceptible to Soviet direction.

The proposals outlined in Khrushchev's January memorandum had been put to the leaders of the Kazakh party. The local organisation had to be enthusiastic about implementing the proposals, otherwise the venture might not be successful. The largest part of the task of cultivating the new lands was to fall on northern Kazakhstan, so local leaders sympathetic to the wishes of Moscow had to be assured.

CHANGES IN KAZAKHSTAN

Kazakhstan had attracted criticism from the centre in the beginning of 1953. Bourgeois nationalists were unmasked and a campaign was launched against them.

The main offender in Kazakhstan was a member of the Academy

of Sciences of Kazakhstan, Suleimenov, who, it was stated, under the guise of unmasking bourgeois nationalists, introduced hostile 'ideas' into his lectures and thus spread bourgeois nationalist ideas. Two other Kazakhs, Bekmakhanov and Ismailov, were also tarred with the same brush.[41] A *Pravda* leader of 8 January 1953 had inveighed against bourgeois nationalism and warned that economic progress did not mean that the people could relax their vigilance. This had prompted party reaction in Kazakhstan.

A major change in party leadership in Kazakhstan was announced in *Pravda* on 12 February 1954. Zh. Shayakhmetov, First Secretary, and I. I. Afonov, Second Secretary, were dismissed and replaced by P. K. Ponomarenko and L. I. Brezhnev, respectively. Ponomarenko is regarded as a Malenkov appointee and Brezhnev as Khrushchev's appointee. Certainly Ponomarenko lost prominence after Malenkov was demoted, and Brezhnev supported Khrushchev's agricultural policies and rose to high office during and after Khrushchev's prominence.

Besides Shayakhmetov's cool attitude towards the assimilation of large tracts of new land he was also held responsible for the poor state of agriculture in Kazakhstan, especially livestock. It was stated that he had not relied on his *aktiv* in his work and that he had infringed the principle of collective leadership. Some officials had been selected not for their professional and political qualifications but on the basis of family ties, friendship or common geographical origin.[42]

The VII Congress of the Communist Party of Kazakhstan followed soon after these revelations on 16–18 February. Despite the fact that he had been dismissed as First Secretary, Shayakhmetov delivered the main report to the Congress. He did not qualify his support for the virgin land scheme and spoke of the great opportunities which existed for agriculture in Kazakhstan. In contrast to the hopes for the future, the existing situation was anything but satisfactory. Congress delegates stated that the Kazakh Communist Party had not taken the necessary steps to overcome the backwardness of Kazakh agriculture. 'Such was the lack of interest in agriculture displayed by the party', complained the chairman of Kzyl-Orda *oblast* soviet, that the *oblast* was familiar to certain leading officials only through geography books. The Chairman of the Council of Ministers, Taibekov, had not only failed to visit the *oblast* in 1953 but had also omitted to telephone even once during the year.' Delegates criticised the selection of personnel by the former First Secretary. The Deputy Chairman of the Council of Ministers, Garagash, and the Minister of Trade, Dzhangozin, were named as men who had been promoted to their present posts after having failed in other work.

The livestock situation was in a critical state and one of the main reasons was the lack of fodder. Khrushchev was well known as a champion of maize, be it maize for grain, ripe silage or green silage, and an opponent of perennial grass. He did not get his own way in Kazakhstan, but the congress called for increased sowings of annual and perennial grasses, maize, root crops, silage and melons. Maize and grass were almost mutually exclusive, since increased sowings of grass would leave little space for maize.

The poor performance of the party in Kazakhstan may have promoted the appointment of Ponomarenko and Brezhnev, neither of whom was especially familiar with Kazakh problems. It was the practice in a non-Russian republic to have a non-Russian as First Secretary and a Russian (or Ukrainian) as Second Secretary. This was followed in Kazakhstan until the dismissal of Shayakhmetov. Ponomarenko lost his position as First Secretary in 1955 and was succeeded by Brezhnev who stayed until 1956. Since then the top party office has always been occupied by a Kazakh or other non-Russian, with the exception of the period 1957–9 when N. I. Belyaev was First Secretary. Correspondingly a Russian has always been Second Secretary except when the First Secretary has been a Russian. Hence the Ponomarenko–Brezhnev duumvirate is an exception to the rule.

The VII Party Congress did not paint a very flattering picture of the leading officials in Kazakhstan. The republic, the second largest after the RSFSR, covered a huge area and was very unevenly developed. Large tracts of land are desert and the north and south are different climatically. After the revolution the area had a large nomadic agricultural population. The advent of collectivisation and the Five-Year Plan brought radical changes to Kazakhstan. Collectivisation was difficult to enforce owing to the nomadic way of life of many of the Kazakhs, but real agricultural progress could not be achieved until the nomads had been settled. As elsewhere, livestock numbers were decimated and memories of the 1916 rebellion, when the Kazakhs revolted against a Tsarist decree to mobilise them for labour duties behind the front, were evoked. Industrialisation came through the discovery and exploitation of mineral deposits, especially at Karaganda. Since the ambitious plans to crop large areas of virgin land in northern Kazakhstan in the 1930s and 1940s had not been realised, the republic did not contribute significantly to the food supplies of the country. It concentrated mainly on technical crops, especially cotton. During the 1941–5 war it benefited from the transfer of industry to the east and did not suffer hostilities on its soil.

The industrialisation of Kazakhstan had meant that many non-

Kazakhs arrived in the republic and ever since the 1930s the Kazakhs have been losing their dominant position. The 1926 census showed that Kazakhs formed 61·1 per cent of the total population. By the 1939 census this figure had dropped to 43·3 per cent and the 1959 census showed a further drop to 30 per cent. The percentage of Russians in the population in 1959 was 42·7 per cent according to the census.[43]

Some Kazakhs had misgivings about the virgin land scheme since it was certain to bring many new residents to the republic.[44] This was inevitable since neither the labour nor the skills required was readily available in Kazakhstan. The scheme would involve the government and party in Kazakhstan in much extra work and would mean that the gaze of the centre would more often be directed towards Central Asia. The local officials would have to give accounts of themselves and would be required to justify their actions not only in Alma-Ata but also in Moscow. The whole country's attention would be concentrated on northern Kazakhstan during the sowing and harvesting periods and failure would not be accepted lightly.

Such was the reluctance and inertia present among the Kazakh party leadership that it required direct orders from the Central Committee in Moscow before it began active preparations to assimilate new land. This was revealed at the VII Congress of the Kazakh party when it was stated that proposals had repeatedly been made to the Central Committee to assimilate new land but that the leadership had not acted upon them. It is, however, certain that officials who wished to assimilate new land were thinking of areas which were within the capacity of the republic to assimilate. There is no evidence to show that Khrushchev's figure of over 6 million ha was ever proposed by the Kazakhs.

KHRUSHCHEV IN THE ASCENDANT

Khrushchev must have increased his influence in the party in March 1954. He was able to proclaim his agricultural policy and to publish attacks on those who opposed that policy. In February several articles in favour of perennial grass had been published, notably that by Lysenko, which had impeded Khrushchev's programme. Khrushchev hammered away at the point that Vilyams' *travopole* system was only intended for use in the central region of Russia and should not be employed elsewhere. He pointed out, at the February–March plenum, that over the period 1940–53 the grain area had dropped from 69 per cent to 52 per cent of the sown area and that fodder crops had increased from 27 per cent to 44 per cent of the sown area, mainly owing to the increase of perennial grass. Despite

the fact that the area sown to fodder crops had increased by 10·6 million ha, the cattle population was only slightly larger than in 1940. To back up his case against the management of sovkhozes and perennial grass, Khrushchev cited some interesting figures. The average yield of grain in sovkhozes in 1952 was 10·2 centners per ha, which represented 1,420 fodder units. The yield of hay from perennial grass was 11 centners per ha or 550 fodder units. When it came to the Ukraine the discrepancy was even greater, grain producing almost four times as many fodder units as hay from perennial grass. Khrushchev was adding a new dimension to the debate on agricultural policy. He was using actual yields and arguing that since the yields of one crop were higher than another, the higher-yielding crops should be grown. This was quite different from the post-war debates which had concerned themselves with doctrinal orthodoxy. The *travopole* system had been declared the correct method of improving soil structure and thereby increasing fertility. It was known that other systems existed outside the Soviet Union which produced higher yields. They were rejected since it was held that the higher yields were only temporary and that the long-term effect would be a reduction of soil fertility. Any failure of the chosen system to produce good results could be put down to human inefficiency and lack of organisation. The system itself was correct, so the defects had to be found elsewhere. By employing empirical evidence to drive home his point, Khrushchev was inviting a reply in kind. When he was in a position to decide agricultural policy he reverted to traditional methods. He maintained that the virgin land campaign, the maize campaign, the anti-grassland campaign and the mineral fertiliser campaign were correct and that if the results were not always brilliant it was the fault of organisation and personnel. Negative empirical evidence was only regarded as strengthening Khrushchev's case. Khrushchev, faced with short-term disappointment, always believed that the drawbacks were only temporary and could be corrected by better organisation and higher 'consciousness' of the problem by personnel, in the long run.

The decree of the Central Committee plenum of 2 March was published in *Pravda* and *Izvestiya* on 6 March. The decree contained Malenkov's assertion that 'raising grain yields has been and remains the chief means of increasing grain production'. This shows that no compromise was reached between Khrushchev and Malenkov, so both their solutions of the grain problem were included in the same document.[45] Indeed, the joint government and party decree on the assimilation of virgin and idle land was not published until 28 March.

6 March was a propitious moment for the publication of the decree

as elections to the Supreme Soviet were shortly to take place. All the national leaders were nominated and their speeches appeared in *Pravda* and *Izvestiya* from 7 to 13 March 1954. The fact that a decree of the Central Committee had been published obliged everyone to mention it in his speech and to welcome it formally.

To what extent was Khrushchev really opposed on the virgin land scheme? He always gave the impression that he was the instigator of the undertaking and there was no attempt by leading officials to claim it as a joint venture. Therefore we must assume that Khrushchev was the person who met and overcame opposition and who piloted the scheme through.

The speeches made before the Supreme Soviet elections all mentioned the scheme. Some qualified their approval. M. A. Suslov, a Secretary of the Central Committee, stated that the main task in agriculture was to obtain higher yields of grain. Only then did he mention that the virgin land project was an important factor in increasing grain production. Molotov also used the same formulation and put the raising of yields first. All other speakers either put the project first and then stressed the need for increased yields or referred to the project without mentioning increased yields. Malenkov did not mention increased yields in his speech, although he had previously advocated an intensification of farming now that the pre-war sown area had been achieved. He did, however, call for higher labour productivity in agriculture.[46] A. I. Mikoyan welcomed the virgin land project but also pointed out that increased yields were necessary. He then touched on Khrushchev's 'queen of the fields', maize. Mikoyan praised maize as a fodder and produced a quotation from Lenin showing that the first Bolshevik leader had regarded the case for growing maize as proved. Mikoyan proclaimed that maize should be given its rightful place in crop rotation. The only other speaker to mention maize was N. M. Shvernik, Chairman of the All-Union Central Soviet of Trade Unions, who recommended it as a fodder crop. Those who qualified the extension of cultivation into new areas by stating that grain yields had to be raised in the traditional farming areas were not directly criticising Khrushchev. He had taken over Malenkov's point about raising yields and stated, in his virgin land speech, that it was a very important task for agriculture. Those, however, who put the raising of yields first and then referred to the new lands scheme could be regarded as critics of the initiative. They were Suslov and Molotov.

Suslov was a leading party theoretician and worked as a Secretary in the Central Committee apparatus. He maintained his position as the theoretician during the Khrushchev era, and retained it after Khrushchev's departure in October 1964.[47] This would lead one

to assume that he had maintained a more or less independent line and had not become too involved personally with any group aiming at increasing its power. On the face of it he does not appear to have sought power for power's sake. Another interpretation might be that he never mastered the subtleties of political in-fighting and wisely refrained from tangible involvement.

Molotov is quite a different prospect. He is the only man actually named as an opponent of the scheme in the resolution of the Central Committee on the anti-party group of June 1957. It was stated that he had manifested a conservative and narrow-minded attitude and had resisted the ploughing-up of 35 million ha of virgin land. Molotov retained the Stalinist outlook on economic development. Heavy industry was the real basis of economic power and progress. The means of production produced the means of production. Investment in metallurgy and machine building seemed to yield better results by ceaselessly adding to the pool of machines which produce still more machines. Light industry or industry devoted to consumption did not seem to give a comparable yield and, on the face of it, did not make such a contribution to national power and prestige. Agriculture was the milch cow of the Soviet economy and to Molotov and the other orthodox Stalinists it must have appeared that that was natural and flowed from the teachings of Marx. The proposal to invest a larger portion of precious national resources in agriculture in order to cultivate the new lands must have seemed irrational and utterly misconceived to Molotov. Other leading officials who had risen to power under Stalin must have thought the same way. They did not, however, openly and persistently oppose the scheme as did Molotov. Khrushchev had the opportunity, in the resolution on the anti-party group, of making reproaches as he pleased, yet he chose to mention only Molotov in this context. It is true that at the December 1958 plenum of the Central Committee, Kaganovich and other members of the anti-party group – nothing more specific was said – were stated to have obstructed the execution of the new lands decree. The conclusion is that there was no concerted and sustained effort made to discredit the project. Khrushchev disarmed some opposition by assuring everyone that the scheme would pay for itself in two to three years and as a result the grain programme would set in motion an expansion of livestock production and thus ensure higher living standards. The popularity enjoyed by Malenkov's proposals to increase consumer-goods production showed that any scheme whose aim was to increase food supplies would enjoy wide popular support. Opposition may have been softened by this fact and some may have been willing to suspend judgement until the scheme had been given a trial. It was natural to expect some of the bureaucracy to object

since they would have to organise the execution of the scheme. Their objections would be based on the feasibility of the scheme and the technical drawbacks, perhaps not appreciated by all the party officials. At various times, up to the December 1958 plenum, evidence does come to light of opposition to the scheme. However, most of it, with the exception of Molotov's ideological opposition, seems to have been of a technical nature.

Khrushchev, in a speech to the Komsomol on 8 November 1956, revealed that in a telephone conversation from Alma-Ata with Mikoyan, he had stated that Kazakhstan would produce 1,000 million poods of grain that year. Mikoyan had suggested 750 million poods as his estimate. As it turned out, 1956 was an exceptionally good year in Kazakhstan and the harvest surpassed even Khrushchev's bold estimate. Khrushchev's point was that Mikoyan had not as much faith in the scheme as he had and, of course, events had justified Khrushchev's confidence. N. I. Belyaev, who became First Secretary of the party in Kazakhstan, stated in a speech that Malenkov and some others had adopted a wrong position regarding grain production. Malenkov had advocated that since the pre-war sown area had been reached and surpassed, the all-round raising of yields was the only correct way of increasing agricultural production.[48] Malenkov was recommending the intensification of agriculture instead of extensive agriculture. This was not a novel departure for him as he had made this point on previous occasions.

At the December 1958 plenum the USSR Minister of Agriculture, V. V. Matskevich, said that those who had taken part in meetings of the Presidium of the Central Committee and Council of Ministers could see how obstinately and furiously Malenkov, Kaganovich and other members of the group obstructed the implementation of the scheme advanced and elucidated by N. S. Khrushchev. They did not draw back, either in word or in deed, especially Molotov, from blackening or undermining this measure.[49] Y. A. Yurkin, Deputy Minister of Agriculture of the RSFSR, gave some further details of the opposition. He said :

> The anti-party group fought furiously against the party policy of cultivating the virgin lands, threatening that it would lead to a fall in the grain harvest per hectare and that therefore the collection of grain would not increase and that state expenditure on cultivating the virgin lands would not be recovered. To what tricks did this despicable group not resort! Gosplan of that time declared that there was no money, no material stocks, for cultivating the virgin lands and opposed the allocation of funds for tractors, houses, metal rope. The supply organisation objected categorically,

saying there were no reserves. Kaganovich was in charge of this. They tried to call science to their aid. They pulled out old Tsarist maps and shouted that we were going into the desert, there would be no grain there.[50]

Most of the points made here could be interpreted as objections on technical grounds. The feasibility of the project was under discussion, but under Soviet conditions every economic point has its political implication. Since it is official policy that economics should concede primacy to politics, genuine opposition can be read as political opposition.

The objection that the cultivation of the new lands would lead to a fall in the grain harvest per hectare was reasonable. The first two Five-Year Plans had aimed at a very rapid expansion of the sown area, and in order to achieve that goal, with the limited resources available, doubtful agricultural practices were adopted. One of these practices was shallow ploughing of new land and this was to bias Khrushchev against this method of cultivation in the virgin lands. The limited technical resources of agriculture in 1954 made the task of cultivating and harvesting crops on the existing area very difficult. To undertake the expansion of the sown area meant that large quantities of capital equipment would be required. Since all the equipment could not be manufactured overnight, the only solution was to comb the existing kolkhozes and sovkhozes for machinery and to transfer it to Kazakhstan and Siberia. This would result in the production potential of the traditional farming areas being reduced and, given low yields in the virgin lands, the net overall result could be a reduced harvest yield per hectare in the Soviet Union.

Khrushchev boldly asserted that new lands would produce good yields. They were not expected to outyield the Ukraine, but the area sown would compensate for the somewhat lower yields. Molotov and the others were not willing to risk valuable capital in a project which was not certain to succeed. Most likely they would have opposed heavy capital investment if the aim had been to switch over to more intensive farming. They were not prepared to believe that agriculture was that important and should take priority over other industries. Kaganovich and Saburov, head of Gosplan at this time, were charged with obstructing the virgin land scheme. The statement they made may have been near the truth. In 1954 there were certain shortages in the Soviet Union and once again to favour the new lands would have meant that other areas would have to go short. Kaganovich and Saburov were not enthusiastic about the new campaign and certainly did not expend much energy in trying to make it feasible.

The maps mentioned presumably refer to the period before the First World War when there was a great influx into Siberia and the steppe, stimulated after 1906 by the Stolypin reforms. The dry conditions encountered in the steppe certainly caused many farm failures. Inexpert cultivation must have left some land in very poor condition. A pertinent question could have been: why should Khrushchev succeed when others had failed? Khrushchev would have justified himself by quoting Lenin. Lenin believed that the pre-revolutionary distribution of land was holding back technical development. Release the creative abilities of the peasant and the results could only be positive. Of course the peasants had failed in the steppe, their technical equipment and knowledge were very limited. Collective agriculture would be capable of overcoming the difficulties because of the pooling of resources and knowledge. Khrushchev did not use Lenin's writings on the Stolypin reforms to back up his arguments. He preferred to remove the debate from the theoretical plane and to keep it firmly practical.

Khrushchev's original proposals for the assimilation of virgin and idle land placed the main responsibility for the task on the kolkhozes. Two-thirds of the 13 million ha were to be cultivated by kolkhozes and the remaining third by sovkhozes. This proposal was likely to meet less opposition than one placing the main responsibility on the sovkhozes, since less capital expenditure and running costs would be involved. *Pravda*, however, reported on 18 October 1954 that experience had shown that the most efficient means of organising the development of virgin lands was the establishment of new state farms. A. M. Puzanov, the Chairman of the RSFSR Council of Ministers, wrote in *Pravda* on 5 November: 'The further development of virgin lands in the *krai*, *oblasti* and autonomous republics of the Russian Republic will be mainly carried out by the establishment of new state grain farms.'

There was opposition to the setting-up of a large number of sovkhozes in the new lands. The anti-party group of Malenkov, Kaganovich and Molotov were stated to have opposed the development of sovkhozes, especially in the virgin lands. Their defeat, it was stated, would lead to a more rapid development of agriculture, including sovkhozes.[51]

The December 1958 plenum of the Central Committee was an occasion for the denigration of Malenkov and his supporters. V. A. Telyakovsky, a *raion* secretary in Orenburg *oblast*, an important virgin land area, revealed that Malenkov, Kaganovich, Molotov, Bulganin and Shepilov had maintained that money spent on the organisation of sovkhozes would not be recouped for decades.[52] K. G. Pysin, Altai *krai* party secretary, stated:

> Malenkov and others of the anti-party group were against the assimilation of virgin land in the Altai. You remember, Nikita Sergeevich, when you were in the Altai in the summer of 1954, you saw that grain was already growing in the new sovkhozes. Malenkov, who was also the Chairman of the USSR Council of Ministers at that time, signed a decree condemning us for organising sovkhozes in the virgin lands. We were not permitted to set up any more and the next ten new sovkhozes were to be set up only in 1955. I say this because Malenkov not only did not agree with the assimilation of the virgin lands, he hindered this national cause.[53]

Khrushchev, in his speech to the plenum, revealed that Molotov had obtained a majority on certain issues, but he did not state the exact time of the decisions.[54] One was that each *oblast* should grow sufficient potatoes to meet its own requirements. Khrushchev argued that this would hit the kolkhozes in the Moscow and Leningrad *oblasti* hard as they would have to increase significantly their production of potatoes. The procurement price for a kilogram was only 2·5–3 kopeks, so the implementation of the decision would have had dire results. Another issue on which Molotov was successful was his demand that rural areas should participate to a much greater extent in state loans. Khrushchev's argument was that the reason why they contributed so little was primarily the smallness of kolkhoz incomes. Molotov apparently put forward many more proposals to improve the state of Soviet agriculture, but Khrushchev appears to have been able to convince the party that his policy of incentives and encouragement of local initiative had greater chances of success.

Khrushchev undertook his first trip to Kazakhstan in order to see how the assimilation of virgin land was progressing. He submitted his findings in a memorandum to the Presidium of the Central Committee on 5 June 1954.[55] He did not find everything to his liking and criticised the lack of equipment and cultural facilities. He revealed that exhortation was not sufficient to get experienced kolkhozniks to move to Kazakhstan. Many of those who were willing to go were unwilling to stay in any one place for very long and made a habit of moving from area to area. The areas to be assimilated were so extensive as to be beyond the capabilities of the kolkhozes, and in the absence of sufficient kolkhoznik recruits, the only solution was the setting-up of new sovkhozes. Despite the difficulties he saw at first hand, Khrushchev called for the assimilation of an additional 13–15 million ha in Kazakhstan and Siberia by 1956.

The Central Committee plenum on agriculture which met from 23 to 26 June 1954 was a time of frustration for Khrushchev. He made a speech to the plenum but it was not published until 1962. The report of the proceedings which appeared in *Pravda* and *Izvestiya* on 27 June stated that the Ministers of Agriculture, State Farms and Procurement had read reports, and omitted all reference to Khrushchev.

In his unpublished speech Khrushchev foresaw a great future for the virgin lands. He wanted another 15 million ha ploughed up and cultivated. This he thought, would be a worthwhile investment, since outside the Kuban the cheapest grain was being produced in Kazakhstan and Siberia. It was a better policy than concentrating on raising yields in the Central *oblasti* by using mineral fertilisers. Khrushchev estimated that it would take ten years to develop the industrial base capable of supplying adequate quantities of mineral fertilisers. The construction of the necessary chemical plant would entail the investment of tens of millions of roubles.

The essence of the problem was time; it was necessary to undertake bold steps to remedy the grain situation immediately.

Khrushchev had little difficulty in finding examples of mismanagement in agriculture throughout the country. He singled out I. A. Benediktov, the USSR Minister of Agriculture, and blamed him for the incorrect use of seed in Siberia. Winter wheat sowings had been ordered despite local protestations that spring wheat was the more advisable crop.

The plenum decree made no mention of Khrushchev's proposal to assimilate an extra 15 million ha.[56] It called on the USSR Ministries of Agriculture and State Farms, the RSFSR Council of Ministers, the Council of Ministers of Kazakhstan and the Central Committee of the party in Kazakhstan to carry out a survey of the available land in the northern *oblasti* of Kazakhstan, in Siberia, the Volga region and other parts of the country and to submit proposals to the government by 15 October 1954 for the expansion of the sown area in the new lands, mainly by setting up new sovkhozes and improving land use in the existing collective farms. This was designed to check the expansion of the virgin land project, but Khrushchev could derive comfort from the recommendation to set up new sovkhozes to assimilate the virgin land. The decree also criticised the neglect of the link system and advocated its use for intertilled and technical crops. The rest of the document contained criticism of the central ministries for their failure to supply the new lands with adequate equipment.

The decree also included concessions to collective farmers and other producers. Beginning with the 1954 harvest, compulsory deliveries of grain and oil crops to the state were to be reduced and

the purchase price paid by the state was to be raised. All arrears of compulsory grain deliveries and payments of grain in kind to the MTS were cancelled. The milling payment in kind was also abolished. Compulsory deliveries of grain from allotments (kolkhozniks' and state employees') producing grain were also terminated. The concessions are reminiscent of those announced by Malenkov in August 1953. The measures, if fully implemented, would raise the standard of living in the countryside and would almost certainly stimulate the kolkhozes to produce more. The measures, on the surface, do not suggest that the grain situation was serious. If the prime mover behind these reforms was Malenkov, then his intention was to give the impression that the agricultural situation was not critical and that industry was in a position to produce the consumer goods promised. It was more advisable to stimulate grain production in the traditional areas than to cultivate far-off virgin land.

The incentives could, however, also be viewed in quite a different light. The previous round of incentives in August 1953 had been seen by Malenkov as all that was necessary to stimulate production, especially the marketable surplus of kolkhoz and kolkhoznik production. Khrushchev's argument for virgin land cultivation received a fillip from the disappointing harvest in 1953. Khrushchev revealed the depletion of the grain reserves and the hollowness of the assurances that everything on the grain front was in order. The August 1953 incentives had not included anything directly aimed at stimulating grain production. The June 1954 incentives were mainly concerned with increasing cereal production. Not only was the price paid by the state raised, but also compulsory deliveries were reduced. This could be seen as an admission by Malenkov – if we assume, that is, that the incentives were his doing – that his previous grain policy had been misconceived and that he now found himself in an impasse. Khrushchev's virgin land project consumed most of the attention in the spring of 1954. The June plenum was a bold, almost desperate, counter-attack. The summer of 1954 was also the time when Malenkov apparently staged a comeback on the economic plane. Incentives to improve output was the only agricultural policy Malenkov knew, and this was just not the stimulus required by agriculture at that time. The June initiative came too late to affect 1954 production radically. To have achieved maximum effect they should have been announced in January or February 1954. Malenkov was caught in the vice of time and he could not produce the results he desperately needed in the time available to him.

The 1954 harvest proved to be only slightly superior to that of 1953. This was partly due to a disappointing harvest in the Ukraine. Nevertheless, West Siberia, which included virgin land production,

more than doubled its cereal production over 1953. Kazakhstan also increased its grain harvest by over 40 per cent. These yields were obviously evident before the actual harvest was gathered in, so Khrushchev and his supporters were provided with timely, conclusive evidence that the virgin land programme was bearing immediate fruit.

Khrushchev, in a speech in Novosibirsk on 11 July 1954, first published in 1962, continued his campaign for a greater expansion of the virgin land programme and reiterated many of the points made in his memorandum to the Presidium before the June plenum.[57] He criticised the self-satisfied attitude adopted towards agriculture and the necessity to buy meat and butter abroad. He pointed out that communism meant raising living standards. If people who lived in mud huts and ate black bread and drank kvas continued to do so, some might think that communism meant kvas and bread. This was not an entirely accurate description of Malenkov's position. He wished to raise living standards all round, but for him the urban consumer took first preference.

The decision, adopted at the June plenum, to wait until 15 October 1954[58] for the reports on the feasibility of cultivating additional millions of hectares of new land, was dramatically reversed on 13 August 1954. A decree of the Central Committee of the party and the government raised the original goal of 13 million ha to 28–30 million ha by 1956, 15 million ha of which were to be cultivated in 1955.[59]

THE CONSUMER-GOODS DEBATE

Success for the supporters of the rapid expansion of consumer-goods production seemed total in August 1954. The party theoretical journal, *Kommunist*, maintained that at the time the conditions existed which were necessary for the forced development of consumer-goods production as well as the further development of heavy industry.[60] The main economics journal *Voprosy Ekonomiki* carried an article by I. Vekua on the economic laws of socialism and the economic policy of the Soviet government.[61] It advocated the rapid increase of consumer-goods production and stated that the machine-building industry and other branches of heavy industry were being drawn into consumer-goods production. Some economists must have put forward very rapid expansion rates, for the author stated that the party and government were fighting against unreal and exaggerated plans. He warned that it would not pay to try and emulate the Trotskyites. The proponents of the rapid expansion of Group B must have pointed to the experience of the first Five-Year Plans when

great achievements were registered in heavy industry by concentrating investment in it. Such a proposal for Group B production in 1954 would have had little chance of being implemented. These consumer-goods enthusiasts must have embarrassed Malenkov and must have made it easier to undermine his position.

The dénouement of the struggle between the proponents of heavy and light industry came between November 1954 and January 1955. Academician S. G. Strumilin, one of the most influential among Soviet economic thinkers, launched the campaign for a return to the predominance of the production of the means of production.[62] The same issue of *Voprosy Ekonomiki* which contained Strumilin's article carried an editorial which stated that the policy of the forced development of agriculture and of the light and food industries was a logical development of socialist industrialisation. This policy was completely in accord with the requirements of the basic economic laws of socialism and the law of planned, proportional development of the whole socialist economy.[63] Strumilin's article did not go unchallenged; a reply to it appeared in the next issue of *Voprosy Ekonomiki*.[64]

The controversy took a decisive turn on 24 January 1955 when the editor of *Pravda*, D. T. Shepilov, inserted an article on 'The General Line of the Party and the Vulgarisers of Marxism'. The *Pravda* article upbraided several economists, such as Vekua, Kasimovsky and D. Kuznetsov, for spreading false theories about Marxist economic development. This was the first time the central press had actually cited names in the controversy. Shepilov, aided by quotations from Marx, Lenin and Stalin, showed that the continued predominance of heavy industry was vital to the well-being of the Soviet economy.

A Central Committee plenum on livestock breeding took place between 25 and 31 January 1955. The Shepilov article, published tactically the day before, gave Khrushchev his cue. He hammered away at the same theme and produced one of his favourite quotations from Lenin: 'The only material foundation of socialism possible is a large-scale machine industry capable of reorganising agriculture as well.'[65] Heavy industry was the key to the development of the light, food and other branches of industry and of agriculture. The plenum provided Khrushchev with his moment of vindication, for the virgin land programme had resulted in a 6 per cent increase in grain production over the 1946–53 average despite drought in the Volga and the south.[66] He called for a grain harvest of 160 million tonnes. Gosplan and others had reached the conclusion that this was the figure required to satisfy the needs of the population, the demand for animal feed and for adequate reserves. This would require the

assimilation of further expanses of new land, and to equip the new farms, more machinery would have to be produced.

Malenkov's letter of resignation, dated 8 February 1955, was read by an intermediary to the joint session of the Soviet of the Union and the Soviet of Nationalities.[67] Malenkov acknowledged that he had shown incompetence during the time he had run the central agricultural bodies and the local party and local government organisations concerned with agriculture. This conceded that opposition to certain schemes in the past had been misdirected and ill-advised. No specific project was mentioned, but the one which must have been still sticking in Khrushchev's throat was the *agrogorod* scheme. In 1952 he had had to concede at a Moscow *oblast* party conference that his views on the subject had been doctrinally unsound.[68] Malenkov further stated that the initiative for the reforms of the agricultural tax had belonged to the Central Committee. This implies that Malenkov had publicised a measure which had really originated in the Central Committee and had been put forward by someone else. Jealousy had been aroused by the great popular success achieved by Malenkov in espousing the issue. Heavy industry was acclaimed as the only correct basis on which the Soviet economy could develop. Only an upsurge in agricultural production could guarantee the increase in consumer goods desired by all. Khrushchev was triumphantly vindicated; his approach to the problem had been the only correct one all along.

Malenkov was defeated but not disgraced. He retained his membership of the Presidium but was demoted to Deputy Chairman of the USSR Council of Ministers in the government headed by Marshal Bulganin. It would take another startling initiative on Khrushchev's part, the *sovnarkhozy*, to afford Malenkov a new lease of life, but Malenkov's defeat on that issue led to the loss of his remaining offices in the summer of 1957.

NOTES

1 *Kommunist*, no. 4 (1953) pp. 53–67.
2 *Voprosy Ekonomiki* (afterwards *VE*), no. 4 (1953) p. 36; no. 5 (1953) p. 52.
3 Ibid., no. 5 (1953) p. 54; no. 6 (1953) pp. 31–2.
4 Ibid., no. 5 (1953) p. 51; no. 6 (1953) p. 34.
5 *Kommunist*, no. 5 (1953) p. 49; *VE*, no. 4 (1953) p. 23.
6 *Kommunist*, no. 7 (1953) p. 60.
7 Ibid., no. 8 (1953) pp. 40–52.
8 Ibid., no. 10 (1953) pp. 25–41. I. Vyazmin later stated that the support for product exchange in the press, especially by some comrades, was strong. *VE*, no. 4 (1954) p. 27.
9 *Kommunist*, no. 10 (1953) p. 6.

10 Ibid., no. 9 (1953) p. 40.
11 *Pravda*, 10 July 1953.
12 *Kommunist*, no. 10 (1953) p. 6.
13 Another possible reason for Malenkov's apparent lack of activity on the agricultural front was that his proposals, granted that he did make some, were also opposed by Khrushchev. The deadlock among Malenkov, Beria and Khrushchev would be one explanation for the suppression of initiative in the rural sector.
14 *Pravda*, 9 Aug 1953.
15 Ibid., 13 Sept 1953.
16 See W. A. D. Jackson, 'Durum Wheat and the Expansion of Dry Farming in the Soviet Union', *Annals of the AAG*, vol. XLVI, no. 4 (1956).
17 *Resheniya partii*, vol. IV, p. 53.
18 For a detailed description of the agricultural administration under Khrushchev see Howard Swearer, in *Soviet Agricultural and Peasant Affairs*, ed. R. D. Laird (Kansas and London, 1963) pp. 9–40. Cf. R. D. Laird, in *Soviet and East European Agriculture*, ed. J. F. Karcz (Berkeley and Los Angeles, 1967) pp. 29–50.
19 *Pravda*, 17 Nov 1960. For an excellent analysis of the decision to cultivate the virgin lands see R. M. Mills, 'The Formation of Virgin Lands Policy', *Slavic Review*, vol. XXIX, no. 1 (1970) pp. 58–69.

In retirement, Khrushchev stated that during the plenum he met Zh. Shayakhmetov, First Secretary of the Kazakh party, and was informed that the arable area could be expanded by a little more than 3 million ha. Khrushchev also claims that in talks with other party officials from Kazakhstan he was informed that yields of 15–16 or even 20 centners per ha were possible. S. Talbott (ed.), *Khrushchev Remembers: The Last Testament* (London, 1974) pp. 120–1.

20 *Kazakhstanskaya Pravda*, 20 Jan 1963.
21 S. Baishev *et al.* (eds.), *Ocherki istorii Kommunisticheskoi Partii Kazakhstana* (Alma-Ata, 1963) pp. 497–8.
22 Cf. *Kommunist*, no. 15 (1953) p. 41 and no. 17 (1953) pp. 42–3; *VE*, no. 8 (1953) pp. 12–15 and no. 9 (1953) pp. 10, 34.
23 *Kommunist*, no. 14 (1953) p. 61.
24 Ibid., no. 15 (1953) p. 4.
25 Ibid., no. 18 (1953) pp. 19–34.
26 *Kommunist Estonii*, no. 10 (1963), quoted in S. I. Ploss, *Conflict and Decision Making in Soviet Russia* (Princeton, N. J., 1965) p. 75.
27 *Pravda*, 29 Nov 1953.
28 *Kommunist*, no. 17 (1953) pp. 31–47.
29 V. K. Savosko (ed.), *Narodnoe dvizhenie za osvoenie tselinnykh zemel v Kazakhstane* (Moscow, 1959) p. 53.
30 M. Baranov and V. Skorobogatov (eds.), *Gody velikikh sverzhenii* (Alma-Ata, 1960) p. 211.
31 *VE*, no. 2 (1954) pp. 109–17.
32 N. S. Khrushchev, *Stroitelstvo kommunizma v SSSR i razvitie selskogo khozyaistva* (Moscow, 1962–4), vol. I, pp. 85–100.
33 *Doklady Vsesoyuznoi ordena Lenina Akademii selskokhozyaistvennykh nauk imeni V. I. Lenina* (Moscow, 1954), no. 2, p. 47.
34 W. A. D. Jackson, 'The Virgin and Idle Lands of Western Siberia and Northern Kazakhstan: A Geographical Appraisal', *Geographical Review*, vol. XLVI (1956) p. 18.

35 The speech was first published in 1962 in Khrushchev, op. cit., vol. I, pp. 101–44.
36 *Pravda*, 29 Jan 1954.
37 Khrushchev, op. cit., vol. I, p. 215.
38 Ibid., vol. II, pp. 463–4.
39 Ibid., vol. I, p. 139.
40 Scientists could also answer Khrushchev in kind. Khrushchev attacked P. A. Vlasyuk at a conference in Kiev on 22 December 1961 for favouring the *travopole* system. Vlasyuk flashed back that the CC had decreed the *travopole* system, hence he was merely obeying party instructions. This annoyed Khrushchev no end. Ibid., vol. VI, pp. 283–4.
41 *Pravda*, 18 Jan and 10 Feb 1953.
42 Ibid., 12 and 22 Feb 1954; Khrushchev, op. cit., vol. I, pp. 275–6.
43 E. Allworth (ed.), *Central Asia: A Century of Russian Rule* (New York and London, 1967) p. 96; *Narkhoz 1959*, p. 18.
44 Khrushchev later claimed that 'it was my increasingly strong impression . . . that Shayakhmetov was infected by the virus of nationalism. Since Kazakhstan was under-populated, he was afraid that the expansion of cultivation would necessarily mean an influx of [non-Kazakh] farmers into his republic.' Talbott (ed.), op. cit., p. 121.
45 It would be true, of course, to state that everyone, including Khrushchev, was in favour of increased yields. Here and elsewhere, such a statement ascribed to Malenkov should be regarded as a shorthand description of Malenkov's agricultural policy. He believed, as part of that policy, that the better course to follow was to raise yields on the existing sown area.
46 *Pravda*, 13 Mar 1954.
47 The only time, it seems, that Suslov openly challenged Khrushchev over an ideological matter concerned heavy industry in 1963–4.
48 *Pravda*, 24 Aug 1957.
49 *Plenum Tsentralnogo Komiteta Kommunisticheskoi Partii Sovetskogo Soyuza, 15–19 Dekabrya 1958 g.* (Moscow, 1958) pp. 421–2.
50 Ibid., p. 408.
51 *VE*, no. 7 (1957) p. 56. One must bear in mind the possibility, however, that since the anti-party group had been defeated, accusations made against it may have been exaggerated.
52 *Plenum . . . 15–19 Dekabrya 1958 g.*, p. 185.
53 Ibid., p. 318.
54 Ibid., pp. 11–12.
55 Khrushchev, op. cit., vol. I, pp. 296–305.
56 *Pravda*, 27 June 1954.
57 Khrushchev, op. cit., vol. I, pp. 337–58.
58 In the government and party decree of 27 March 1954, on assimilating virgin and idle land during 1954 and 1955, the date given for the completion of feasibility studies, covering the years 1956–60, was 15 September 1954. *Direktivy KPSS i Sovetskogo Pravitelstva po khozyaistvennym voprosam* (hereafter *Direktivy KPSS*), (Moscow, 1958) vol. IV, p. 204.
59 *Resheniya partii*, vol. IV, pp. 125–8. This was the first decree in the post-Stalin era issued jointly in the names of the party and government, in which the Central Committee took precedence over the government. Previously all joint decrees had been issued in the name of the government and the party, including the important virgin land decree of 27 March 1954.
60 *Kommunist*, no. 11 (1954) p. 15; cf. also no. 12 (1954) pp. 75–85.
61 *VE*, no. 9 (1954) pp. 3–18.

62 *VE*, no. 11 (1954) pp. 22–39.
63 Ibid., p. 5.
64 *VE*, no. 12 (1954) pp. 13–25.
65 Khrushchev, op. cit., vol. I, p. 422. Khrushchev used the same quotation at the September 1953 plenum: ibid., p. 7.
66 F. A. Durgin, Jr, 'The Virgin Lands Programme, 1954–1960', *Soviet Studies*, vol. XIII (1962), pp. 264–5.
67 *Pravda*, 9 Feb 1955.
68 *Moskovskaya Pravda*, 28 Sept 1952.

4 The Virgin Lands: Promise and Performance

The decree of the Central Committee of 2 March 1954, on the further increase of grain production in the country and the assimilation of virgin and idle land, marked a radical turning-point in post-war Soviet agricultural policy. Khrushchev persuaded the party that the only means of rapidly increasing the supply of grain, on which food supply is based, was by greatly increasing the sown area. To do this, large areas of hitherto uncultivated land were to be put to the plough. Extensive agriculture was judged to be the only solution to the food problem.

The target for 1954–5 was set at not less than 13 million ha of new land sown to crops to produce 18–20 million tonnes of grain and to market 13–15 million tonnes.

The success of the campaign is evident from a Central Committee decree of 24 June 1954 reporting on progress. Compared with 1953, the sown area of spring cereals was up 6,429,000 ha. Of this total, wheat was up 3,583,000 ha and maize for grain up 756,000 ha.

The 1954 goal for extra wheat and millet was 2·3 million ha (1·8 million ha in kolkhozes and 0·5 million ha in sovkhozes). The actual amount sown amounted to 3·6 million ha, the kolkhozes sowing 156 per cent and the sovkhozes 176 per cent of the plan.

By August 1954, 13·4 million ha had been ploughed and this success emboldened the planners to raise the 1955 goal from 13 million to 15 million ha and to aim for 28–30 million ha over the period 1954–6.

A decree, dated 25 December 1954, increased the area of virgin and idle land to be sown in 1955 to 18 million ha. Sovkhozes were to sow 6·8 million ha and kolkhozes 11·2 million ha. An additional 10 million ha were also to be ploughed in 1955, 5·5 million ha in sovkhozes and 4·5 million ha in kolkhozes, ready for the 1956 crops.

The Sixth Five-Year Plan (1956–60) foresaw the production of 180 million tonnes of grain by 1960. This ambitious target was considered possible on the basis of the performance of the virgin land

programme. The 1956 goal for assimilation was given as 30 million ha and the agricultural worker and peasant were to continue assimilation of virgin and idle land which did not require large capital investment and which produced a good, consistent harvest, especially in Siberia, the Urals, the Far East, the Volga and Kazakhstan.

By 1956 the scheme had reached its high-water mark and the total area assimilated between 1954 and 1956 was given as 35·5 million ha. This included some land assimilated outside the specific virgin and idle land project area.

The target for assimilation in 1957 was drastically reduced and only 4–5 million ha were set as the goal, with the rider that only land which did not require heavy capital investment and which guaranteed good, consistent harvests was to be assimilated.[1] By 1957 land meeting these requirements was very scarce indeed.

The continuing need to increase grain production was again underlined at the XXI Party Congress in January–February 1959 by N. S. Khrushchev. He did not set a target for assimilation of new land, but stated that sovkhozes and kolkhozes were in the position of being able, during the following few years, to raise their yields of grain on average by 3–4 centners per ha. Did this signify that the extensive methods employed since 1954 were not meeting expectations? Significantly, mineral fertiliser production was to be trebled during the Seven-Year Plan (1959–65). This plan also emphasised the necessity to raise the standards of the grain produced and recommended for special attention durum wheat, high-quality buckwheat and leguminous crops. The expansion of the sown area was recommended in Kazakhstan and success in obtaining good, consistent yields would only result from the introduction of correct crop rotations and the leaving of 15–20 per cent of the arable area in fallow each year. This was a direct indication that elementary farming techniques had been neglected and that monoculture had been practised, with the attendant result that weeds had become a problem.

The Seven-Year Plan envisaged gross production of grain in 1965 at between 164 and 180 million tonnes. A decree of the Central Committee in December 1959 issued instructions on the methods of attaining this goal. It proposed to expand the sown area by assimilatting virgin and idle land and by reducing fallow, and the replacement of low-yielding crops by high-yielding crops. At the same time the decree recognised that not all failures on the agricultural front were due to the weather and ordered an improvement in the quality of farm work, stressing that more attention should be paid to the use of organic fertiliser and that only selected seeds should be used for sowing.

Khrushchev, in a speech in Akmolinsk, capital of Virgin Land *krai* in Kazakhstan, on 14 March 1961, recognised that the era of the rapid expansion of the sown area by assimilating virgin and idle land had come to an end. He stated that the virgin land programme had passed to its second stage, the improvement of farming techniques, the raising of crop yields and the building-up of livestock production.

Continuing his tour of Kazakhstan, Khrushchev spoke in Alma-Ata on 21 March 1961, and as usual stressed the need to raise grain yields. However, he did not consider the need to assimilate some new land to be at an end and stated that 1–1·5 million ha could be assimilated in Kazakhstan in the following few years. He put the area of new land which could still be cultivated as high as 3·5 million ha.

The pressure for increased grain production was relentless, and since the record harvest of 1958 had not been equalled, Khrushchev had to find a means of increasing the supply of grain quickly. He chose, at the XXII Party Congress in October 1961, to launch a minor assimilation programme.[2] He called for not less than 8 million ha to be brought into cultivation, thus making a grand total of 50 million ha for the whole virgin and idle land programme (see Table 4.1). Khrushchev also suggested that the structure of the sown areas

TABLE 4.1 Goals for Sown Areas in Virgin and Idle Lands (millions of hectares)

1954	*1955*	*1954–5*	*1954–6*	*1957*	*1961–*	*Grand Total*
2·3[a]	10·7[a]	13·0[a]				
		15·0[b]	28·0–30·0[b]			
		18·0[c]	28·0–30·0[d]			
			30·0[e]	4·0–5·0[f]	1·0–1·5[g]*	
					8·0[h]*	
						50·0[h]*

[a] *Direktivy KPSS*, vol. IV, p. 167 (2 Mar 1954).
[b] Ibid., p. 266 (13 Aug 1954).
[c] Ibid., p. 320 (25 Dec 1954).
[d] Ibid., p. 335 (31 Jan 1955).
[e] Ibid., p. 561 (25 Feb 1956).
[f] Ibid., p. 689 (20 Feb 1957).
[g] Khrushchev, op. cit., vol. V, p. 268 (21 Mar 1961).
[h] Ibid., vol. VI, p. 26 (17 Oct 1961).
* Goals are for assimilation only. (*g*) applies to Kazakhstan only.

should be revised and the *travopole* rotation system abandoned. The area planted to oats and to annual and perennial grasses and the

amount of fallow should be cut drastically. Maize and such legumes as peas and fodder beans should be sown instead. The attack on fallow showed that the assimilation of new land was difficult and expensive and that short-term solutions were being adopted to raise grain production.

In a speech before the Central Committee on 9 December 1963, Khrushchev finally admitted that the solution to the grain problem could not be found in assimilating virgin and idle land in order to expand the sown area. He conceded that the land available for assimilation required heavy capital expenditure in order to drain it, clear it of bushes, etc., and prepare it for cultivation. Available resources should be invested in the production of mineral fertilisers and not on clearing new land. The problem of producing good, consistent harvests and enough grain to meet demands could be solved only if this were done. The limits of the land fit for cultivation had been reached. The raising of yields became vitally important and this major problem could not now, as in 1954, be avoided.

Table 4.2 shows the progress of the campaign to assimilate virgin and idle land. It was so successful that over the period 1954–60 no less than 41·8 million ha were ploughed up. West Siberia and Kazakhstan accounted for about 75 per cent of the new land.

Over the period 1953–60 the arable area increased from 188·6 million ha to 220·0 million ha, i.e. an increase of 31·4 million ha (Table 4.3). However, over the same period the amount of new land ploughed in the virgin and idle lands amounted to 41·8 million ha (Table 4.2). This reveals that 10·4 million ha, i.e. the difference between the two totals, were found, after ploughing, to be unsuitable for crops or went out of use in non-virgin land areas. This is borne out by adding the 41·8 million ha to the arable area in 1953, 188·6 million ha. The total is 230·4 million ha, i.e. the total given for arable + perelog (land retired from cultivation to allow it to recover its fertility) + idle (land found unfit for cultivation). (The actual total given is 230·3 million ha, but the difference is probably due to rounding.) The amount of land classified as perelog + idle in 1953 amounted to 19·4 million ha but in 1960 it was down to 10·3 million ha. The difference, 9·1 million ha, is the area of idle land cultivated in the virgin land drive. The amount of really virgin land therefore comes to 32·7 million ha.

The figures for the increase in the sown area in the virgin lands reveal an interesting state of affairs. The increase in all virgin land areas comes to 36 million ha. The virgin land areas in the RSFSR are stated to have increased their sown areas by 17·1 million ha, whereas Table 4.2 reveals that only an additional 16·3 million ha were

TABLE 4.2 Virgin and Idle Land Assimilation, 1954–60
(millions of hectares)

	1954	*1955*	*1956*	*1957*	*1958*	*1959*	*1960*	*Total 1954–60*
USSR (in regions of virgin and idle land assimilation)	17·3	12·4	2·6	2·5	2·8	1·8	2·4	41·8
RSFSR	8·7	3·0	0·7	1·5	0·9	0·8	0·7	16·3
Volga (Saratov and Volgograd *oblasti*)	0·8	0·6	–	0·1	–	0·1	0·1	1·7
Urals (Kurgan, Orenburg, Sverdlovsk, Tyumen, Chelyabinsk *oblasti*, Bashkir ASSR)	2·5	0·8	0·1	0·3	0·2	0·1	0·2	4·2
West Siberia (Altai *krai*, Kemerovo, Novosibirsk, Omsk, Tomsk *oblasti*)	4·1	0·9	0·2	0·5	0·3	0·1	0·1	6·2
East Siberia and Far East (Krasnoyarsk, Irkutsk, Amur, Chita *oblasti*, Buryat ASSR, Tuva ASSR)	1·3	0·7	0·4	0·6	0·4	0·5	0·3	4·2
Kazakhstan	8·6	9·4	1·9	1·0	1·9	1·0	1·7	25·5
Virgin Land *krai*	6·6	6·2	0·8	0·4	1·3	0·5	1·2	17·0

Source: *Narkhoz 1960*, p. 437. During the period 1954–6, 1·03 million ha of virgin and idle land were ploughed up in the North Caucasus (Kamen, Rostov *oblasti*, Krasnodar, Stavropol *krai*). This region is not now included in statistics on the virgin and idle land programme.

TABLE 4.3 Land in Agricultural Use in the USSR, 1953–64
(millions of hectares)

	1953	*1954*	*1955*	*1956*	*1957*	*1958*	*1959*	*1960*	*Total 1953–60*	*1961*	*1962*	*1963*	*1964*	*Change 1953–64*
Arable (sown + fallow)	188·6	204·6	215·7	216·5	216·9	217·9	218·6	220·0	–	222·4	223·5	224·2	223·3	+34·7
Arable + perelog + idle	208·0	219·7	228·4	229·4	229·9	229·8	229·7	230·3	–	232·2	232·7	231·2	230·0	+22·0
USSR sown area	157·2	166·1	185·8	194·7	193·7	195·6	196·3	203·0	–	204·6	216·0	218·5	212·8	+55·6
RSFSR sown area	97·1	103·3	112·5	114·4	113·6	114·7	115·0	120·7	–	121·7	129·7	130·5	126·8	+29·7
Kazakhstan sown area	9·7	11·5	20·6	27·9	28·0	28·7	28·0	28·6	–	28·6	31·0	32·6	30·8	+21·1
USSR fallow	29·6	–	–	–	–	24·0	23·6	17·4	–	16·1	7·4	6·3	11·6	−18·0
Increase in sown area in virgin lands, USSR	–	6·7	17·0	7·9	0·2	1·1	−0·7	3·8	36·0	−0·5	6·6	2·6	−4·3	+40·4
RSFSR	–	4·9	7·9	0·6	0·1	0·4	0.0	3·2	17·1	−0·5	4·1	0·9	−2·5	+19·1
Kazakhstan	–	1·8	9·1	7·3	0·1	0·7	−0·7	0·6	18·9	0.0	2·5	1·7	−1·8	+21·3

Note: The figures given for arable (sown + fallow) and arable + perelog + idle are those on 1 November of the respective years. The figures for the sown area (and for fallow) refer to the harvest in the respective years. This accounts for the small discrepancy between the figures.

ploughed. This must be simply an error. The situation in Kazakhstan is quite different. Whereas 25·5 million ha of additional land were ploughed, the sown area only increased by 18·9 million ha. Hence 6·6 million ha of new land were ploughed in Kazakhstan and never sown to seed.

Over the period 1954–64 the sown area in the virgin lands as a whole increased by a total of 40·4 million ha; in the RSFSR the total increase was 19·1 million ha and in Kazakhstan 21·3 million ha. The composition of these figures is very instructive. The first setback to the expansion of the sown area in the virgin lands occurred in 1957. As has been previously remarked, the needs of Hungary in 1956 were such as to scale down agricultural investment. The virgin lands had to cede precedence to military demands. The first actual reduction of the sown area in the virgin lands took place in 1959. This was doubtless the result of the confidence generated by the previous year's record harvest. The reduction occurred entirely in Kazakhstan. The next cut in the sown area was in 1961. It affected only the virgin areas of the RSFSR. The most severe cutback was recorded in 1964 when the sown area dropped by 4·3 million ha. This was obviously in response to the disappointing harvest in 1963 and to drought and wind erosion.

The difference between the land in use and the arable land fund (arable + perelog + idle) has been decreasing. The amount of arable (sown + fallow) increased over the period 1953–64, by 34·7 million ha, while the land fund increased by only 22 million ha, i.e. by only 10 per cent. Hence the enormous efforts undertaken during the Khrushchev era resulted only in a 10 per cent increase in the total land available for cultivation.

The arable area (sown + fallow) in the USSR increased by 31·4 million ha between 1953 and 1960. In the virgin lands the sown area increased by 36 million ha during the same period. This reveals that millions of hectares of previously cultivated land in the non-virgin land areas dropped out of use.

It appears that the upper limit of agricultural land in the Soviet Union was reached in 1960. The agricultural area increased between 1960 and 1964 but by 1964 the arable land fund was back at its 1960 level. Some of the land assimilated after 1953 was sub-marginal and was allowed to revert to its natural state, and it would not be surprising if some marginal land dropped out of cultivation. Khrushchev had to recognise, in December 1963, that the assimilation of more land would result in heavy capital expenditure. The main determining factor in this problem is, however, not capital expenditure but lack of precipitation. Large areas of the virgin and idle lands are subject to drought, especially Kazakhstan, the heart of the

whole scheme. Khrushchev always called for the assimilation of those areas of new land which would not require heavy capital expenditure and which would give good, consistent harvests. Unfortunately, no part of the scheme up to the present has produced good, consistent harvests year after year. Each region has experienced failure at some particular time.

The sown area has shown a spectacular increase over the period 1953–64. Of the 55·6 million ha increase, almost 40 per cent, 21·3 million ha, has occurred in Kazakhstan. So successful has Kazakhstan been in increasing the sown area that she has consistently sown larger areas to grain than the Ukraine. There has been a determined effort made, not without success, to turn Kazakhstan into a second Ukraine.

Table 4.4 shows the increase in the sown areas of virgin and idle land. The increase in the sown area of the USSR over the period 1953–64 was 55·6 million ha, and of this the virgin lands contributed 40·5 million ha. The East contributed by far the greatest portion of this amount, approximately 36 million ha. This has changed the traditional pattern of Soviet agriculture and considerably increased the contribution made by the Asiatic part of the country. In 1953 approximately 27 per cent of the sown area was in the Asiatic USSR, but in 1964 this had increased to approximately 35 per cent.

The sown area has, in fact, failed to keep pace with the area ploughed. In 1961, 2·7 million ha more were ploughed than sown; in 1962, 1·6 million ha; in 1963, 1·1 million ha.

The main crop in the expansion of the sown area is grain. Soviet leaders have underlined repeatedly that grain, especially wheat, is the key to the solution of all agricultural problems.

Grain production in the Soviet Union and in the virgin and idle lands is shown in Table 4.5. Grain produced has, on the average, significantly increased but is still subject to sharp fluctuations. The problem of achieving good, consistent yields, increasing annually, has not yet been solved. Precipitation still determines the harvest to a large extent.

Over the period 1954–8 the best crop was achieved in 1958. The harvest of 134·7 million tonnes was the best ever achieved in the Soviet Union. Of the five years, 1956 and 1958 were successes, 1954 and 1955 average and 1957 a failure.

The average yield over the same period was 9·1 centners per ha (Table 4.6), with the record year 1958 achieving the very creditable yield of 11·1 centners per ha. In the virgin lands the story was somewhat different. The record year was 1956, and 1954 and 1958 were also very good years, but 1955 and 1957 were failures. The average yield in West Siberia and East Siberia exceeded the average for the

TABLE 4.4 Sown Area of All Crops in Areas of Virgin and Idle Land Assimilation
(millions of hectares)

	1940	*1953*	*1954*	*1955*	*1956*	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
Sown area, USSR	150·4	157·2	166·1	185·8	194·7	193·7	195·6	196·3	203·0	204·6	216·0	218·5	212·8
In areas of virgin and idle land assimilation	41·9	48·5	55·2	72·3	80·2	80·4	81·3	80·7	84·4	83·9	90·7	93·3	89·0
RSFSR	35·1	38·9	43·8	51·7	52·3	52·4	52·8	52·8	56·0	55·5	59·7	60·7	–
Volga (Saratov, Volgograd *oblasti*)	8·3	8·3	9·0	10·2	10·3	10·4	10·3	10·0	11·5	10·8	–	–	–
Urals (Sverdlovsk, Kurgan, Chelyabinsk, Orenburg, Tyumen *oblasti*, Bashkir ASSR)	12·7	13·9	15·1	17·9	18·1	17·4	17·5	17·5	18·2	18·2	–	–	–
West Siberia (Altai *krai*, Kemerovo, Novosibirsk, Omsk, Tomsk *oblasti*)	9·7	11·4	13·8	17·0	16·7	17·1	17·3	17·3	17·9	17·7	–	–	–
East Siberia and Far East (Krasnoyarsk *krai*, Irkutsk, Chita, Amur *oblasti*, Buryat ASSR, Tuva ASSR)	4·4	5·3	5·9	6·6	7·2	7·5	7·7	8·0	8·4	8·8	–	–	–
Kazakhstan	6·8	9·6	11·4	20·6	27·9	28·0	28·5	27·9	28·4	28·4	31·0	32·6	30·8
Virgin Land *krai*	3·2	5·1	6·4	13·5	18·2	18·1	18·7	18·2	18·4	18·3	20·2	–	–
Sown area of grain, USSR	110·5	106·7	112·1	123·5	128·3[a]	124·6[a]	121·5	114·5	115·6	122·3	128·7	130·0	133·3
In virgin and idle land areas	–	36·1	40·8	54·6	–	–	60·2	58·0	60·3	60·5	65·9	65·0	65·8

[a] Includes maize to milk-wax stage for silage.

Sources: *Narodnoe khozyaistvo SSSR* (Moscow, 1956) p. 107; *Narkhoz 1960*, pp. 438–9; *Narkhoz 1962*, p. 292; *Narkhoz 1963*, p. 294; *Narkhoz 1964*, pp. 278, 332.

TABLE 4.5 Grain Production in Areas of Virgin and Idle Land Assimilation
(thousands of tonnes)

	1949–53 average	*1953*	*1954*	*1955*	*1956*	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
USSR	80,948	82,487	85,568	103,687	124,950	102,639	134,721	119,537	125,490	130,780	140,183	107,492	152,071
In areas of virgin and idle land assimilation	22,697	27,162	37,555	27,874	63,474	38,441	58,571	54,859	58,702	50,648	55,852	37,953	66,389
RSFSR	18,755	21,723	29,897	23,137	39,671	27,884	36,593	35,862	39,992	36,044	39,939	27,335	42,500
Volga	3,088	3,131	2,643	5,038	4,775	2,527	9,336	3,729	6,703	7,026[a]	–	–	–
Urals	7,323	10,017	9,115	6,342	14,202	6,264	8,649	14,295	15,000	12,432[a]	–	–	–
West Siberia	5,272	5,368	14,025	6,801	15,352	13,907	13,972	12,503	13,327	11,843[a]	9,054	4,344	–
East Siberia and Far East	3,072	3,207	4,114	4,956	5,342	5,186	4,636	5,335	4,963	5,217[a]	–	–	–
Kazakhstan	3,942	5,439	7,658	4,737	23,803	10,557	21,978	18,997	18,710	14,604	15,913	10,618	23,889
Virgin Land *krai*	2,133	3,365	4,579	3,107	17,658	6,729	14,333	13,850	12,917	10,323[a]	10,100[a]	–	–

[a] Figures include maize to milk-wax stage for silage.
Sources: *Narkhoz 1960*, pp. 440–1; *Narkhoz 1961*, pp. 347, 374; *Narkhoz 1962*, pp. 272–3, 292; *Narkhoz 1963*, pp. 274–5, 292; *Narkhoz 1964*, p. 298; *Narkhoz 1973*, p. 392.

TABLE 4.6 Yields of Grain
(centners per hectare)

	1949–53 average	*1953*	*1954*	*1955*	*1956*	*1957*	*1958*	*1954–8 average*	*1959*	*1960*	*1961*	*1962*	*1963*	*1959–63 average*	*1964*
USSR	7·7	7·8	7·8[a]	8·4	9·9	8·4	11·1	9·1	10·4	10·9	10·7	10·9	8·3	10·2	11·4
RSFSR	7·0	7·1	–	–	–	–	10·6	8·7	10·0	10·7	10·0	11·0	8·3	10·0	10·7
Volga	6·0	6·6	–	–	–	–	10·7	6·9[b]	7·6[b]	9·7	9·0[b]	12·0	8·7	–	11·2
Urals	7·2	8·9	–	–	–	–	6·8	7·0[a]	11·4[a]	11·5	9·1[a]	10·4	7·4	10·0[a]	9·2
West Siberia	6·6	6·3	–	–	–	–	11·2	10·8[a]	10·0[a]	10·6	9·4[a]	6·9	3·6	8·1[a]	9·9
East Siberia	8·3	8·5	–	–	–	–	9·3	10·2[a]	10·3[a]	9·3	9·9[a]	8·6	8·6	9·3[a]	8·8
Far East	7·7	6·5	–	–	–	–	7·1	8·0[a]	7·9[a]	7·0	6·4[a]	6·7	6·1	6·8[a]	8·0
Kazakhstan	6·2	7·7	–	–	–	–	9·4	7·3	8·7[a]	8·5	6·6[a]	6·5	4·4	6·9	9·8

[a] Calculated.
[b] Figures include maize to milk-wax stage for silage.
Sources: *Narkhoz 1960*, p. 377; *Narkhoz 1961*, p. 348; *Narkhoz 1962*, p. 274; *Narkhoz 1964*, p. 297.

country over the period 1954–8. East Siberia, however, had recorded yields above the national average during 1949–53. Kazakhstan recorded a disappointing 7·3 centners per ha.

THE 1954 HARVEST

The 1954 crop from the virgin lands turned out to be larger than expected. However, the authorities were unable to cope with the task of harvesting all the grain and a sizeable proportion had to be left unharvested. The harvest in West Siberia was exceptionally good. The virgin land harvest was up 14·8 million tonnes or 65 per cent over the 1949–53 average for those regions. Despite this substantial increase the Soviet Union's total grain production of 85·6 million tonnes was only up 4·6 million tonnes or 6 per cent over the average for the period 1949–53. This can be explained by the droughts which adversely affected the harvest in the Volga region and the Ukraine.

THE 1955 HARVEST

Expectations for the 1955 virgin land crop were high but it turned out to be an exceptionally poor one. The main reason was drought which affected most of the virgin land areas and especially Kazakhstan, which was reported to have received only 10 per cent of its normal amount of precipitation.[3] The Kazakhstan harvest, only 62 per cent of the 1954 harvest, was especially disappointing since the sown area in 1955 was almost double that of 1954. In the virgin land regions of the RSFSR the sown area in 1955 exceeded that of the previous year by about 20 per cent, but grain production sank by 23 per cent. Exceptions to this downward trend were the Volga and East Siberia and the Far East. West Siberia had a very poor harvest which totalled less than half of the record 1954 effort.

The results of the 1955 harvest in the Soviet Union as a whole were the reverse of the virgin land situation. Whereas in 1954 the excellent virgin land harvest had more than offset the effects of drought in other parts of the country, in 1955 the exceptionally good harvest in the Ukraine (32·5 million tonnes compared with 14·3 million tonnes in 1954) and the good harvests in the Central Chernozem region, Moldavia and elsewhere more than offset the disappointing virgin land performance.

The disappointments of 1955 did not prevent the sown area from being increased in 1956. Khrushchev strongly supported the expansion of the virgin land programme and advocated its extension into parts of East Siberia and the Far East which had not hitherto been part of the scheme. Nevertheless, only 2·6 million ha of new land were ploughed up in 1956. One reason for this small amount was undoubtedly that the goal of 30 million ha set for the period 1954–6 had been surpassed, but the sobering effect of the 1955 failure must have played its part.

THE 1956 HARVEST

Khrushchev's optimism was rewarded in 1956 with a bumper harvest both overall and in the virgin lands. The USSR harvest of 125 million tonnes was 20 per cent higher than the previous year's and almost 55 per cent above the 1949–53 average, despite a disappointing harvest in the Ukraine. The virgin land crop of 63·5 million tonnes almost equalled the harvests of 1954 and 1955 combined and was almost three times the 1949–53 average. The Urals and West Siberia more than doubled their 1955 crop; only the Volga failed to equal it.

THE 1957 HARVEST

The record harvest of 1956 promised much for the future, but 1957 turned out to be a great disappointment. With almost the same sown area as in 1956 the virgin land crop fell by 40 per cent and Kazakhstan's harvest was down by more than 50 per cent. The USSR harvest of 102·6 million tonnes was almost 20 per cent lower than 1956 but more than 25 per cent up on the 1949–53 averages. The principal cause was once again drought, especially in the Volga region, the southern Urals and Kazakhstan. West Siberia and East Siberia and the Far East were less than 10 per cent down on 1956.

THE 1958 HARVEST

Excellent weather conditions throughout the country contributed to a record harvest in 1958. The Union harvest of 134·7 million tonnes was more than 30 per cent up on 1957 and almost 70 per cent up on the 1949–53 average. Despite the record harvest the virgin lands could not equal their 1956 record crop. The reason for this was the failure of the Urals to approach the excellent 1956 harvest. The 1958 harvest was just over 60 per cent of that of 1956. Kazakhstan doubled its harvest in 1958 compared with 1957 but just failed to equal the 1956 record crop. For the first time since the virgin land programme had begun, all parts of the Union contributed their share, with the possible exception of the Urals, and it all added up to the best harvest in Soviet history.

The first five years of the virgin land programme, from a purely

production point of view, neither completely justified nor condemned the scheme. The record harvests of 1956 and 1958 could not have been achieved without the considerable contribution of the virgin land areas. The main determining factor, however, remains precipitation. The Volga, the Urals and Kazakhstan are especially liable to prolonged periods of drought. The Urals were the worst affected, droughts occurring in 1955, 1957 and 1958. West Siberia was very consistent and only failed in 1955. East Siberia and the Far East were not affected by lack of precipitation over the five-year period at all.

The period 1959–63 produced four good crops and one failure in the Soviet Union. Despite the increase of 10 per cent in the sown area over the same period, the record 1958 crop was exceeded only once, in 1962. The 1963 harvest was such a failure that it only exceeded the 1957 crop by 5 per cent. The sown area in 1963 exceeded that of 1957 by no less than 24·8 million ha.

The average yield in the Soviet Union over the period 1959–63 was 10·2 centners per ha compared with 9·1 centners per ha during the previous five years. The highest yield (10·9 centners per ha) was achieved in 1960 and 1962.

The yields in the virgin land areas did not equal the Union average. The Urals achieved an average of 10 centners per ha, the highest for any region in the programme over the period 1959–63. Kazakhstan recorded a disappointing 6·9 centners per ha.

In the virgin lands no harvest over the period 1959–63 attained the level of the record 1958 crop except that of 1960. This was particularly disappointing since the sown area increased from 80·7 million ha in 1959 to 93·3 million ha in 1963. The record 1956 harvest was achieved with a sown area of 80·2 million ha. The best year was 1960 and the worst 1963. The other three years were good.

THE 1959 HARVEST

Khrushchev had high hopes of a record harvest in 1959, especially since N. I. Belyaev, First Secretary of the party in Kazakhstan, had promised a record virgin land crop at the XXI Party Congress in January 1959. Drought again afflicted the Ukraine and heavy rain hit many regions of the RSFSR. In September early winter snows accompanied by freezing weather fell over millions of hectares of ripe grain east of the Urals. This resulted in the loss of valuable grain, some 1·6 million ha being lost in this way.[4]

Nevertheless, despite all the vagaries of the weather the USSR harvest was only about 10 per cent less than in the previous year

but exceeded the 1954–8 average by about 8 per cent. The virgin land crop was only 6 per cent less than in 1958. The Volga failed again, producing just under 40 per cent of the 1958 crop, but the Urals produced its best crop ever, surpassing the 1956 record. Kazakhstan, despite the early winter and slowness in harvesting, produced 86 per cent of the previous year's harvest. The Ukraine, despite the drought, just failed to equal the 1954–8 average harvest. N. I. Belyaev was relieved of his duties in Kazakhstan for his failure to produce the harvest he had promised.

THE 1960 HARVEST

The ploughing-up of virgin and idle land continued in 1960 and by the end of the year 41·8 million ha had been brought into cultivation. The main area of assimilation in 1960 was, as usual, Kazakhstan. Winter wheat in the Ukraine was badly hit by the severe winter and much of it had to be resown in spring. Expectations in the virgin lands were high owing to the heavier than average snowfalls. Spring arrived late in north Kazakhstan and party officials had a difficult task in organising the sowing of the crop. The summer rainfall was well above average but temperatures remained disappointingly low. The USSR harvest of 125·5 million tonnes was better than that of the previous year and approximately 15 per cent above the 1954–8 harvest average.[5] However, it fell short of the planned harvest of 152·5 million tonnes.[6] The original figure for 1960 in the Sixth Five-Year Plan had been as high as 180 million tonnes but had been forced down by practical experience. The virgin land harvest was better than in 1959 and was the best since the 1956 record crop. All virgin land areas of the RSFSR improved in 1960 except East Siberia and the Far East, which recorded a slight decrease. Kazakhstan, despite the weather, almost equalled the 1959 harvest.

A decree of the Kazakhstan Supreme Soviet dated 26 December 1960 transformed five *oblasti*, Akmolinsk, Kokchetav, Kustanai, Pavlodar and North Kazakhstan, into an administrative unit called Tselinny *krai* (Virgin Land *krai*). The task of administering the virgin land programme in Kazakhstan had provided the party with many organisational problems, so one large unit was formed which accounted for almost 70 per cent of the new land in the republic.

THE 1961 HARVEST

Weather conditions in 1961 were quite favourable and an average crop resulted. The Union harvest of 130·8 million tonnes was the best since 1958 but the virgin land crop did not come up to expec-

tations and was the lowest since 1957. No virgin land region failed completely, and the Volga and East Siberia and the Far East managed to produce more than in 1960. The major areas, the Urals and West Siberia, were down 10–15 per cent on the previous year. The summer in northern Kazakhstan was a dry one and this affected the yields. The crop was over 20 per cent down on 1960, illustrating once again the crucial role played by precipitation during the summer months. The Soviet harvest, although not a record one, was still 20 per cent above the average for 1954–8. The major success was the Ukraine, which gathered a record harvest.

Despite the steady progress in the size of the harvest, the Soviet Union was to Khrushchev's mind not increasing its grain production rapidly enough. Not only was the overall population increasing, but the urban population was rising much more rapidly than the national increase. In 1954 the rural population had numbered 107·4 million and in 1960, 108·5 million, while the population of the Soviet Union had increased by 21·3 million over the same period. To meet this rapid increase in the urban population the grain harvest had to rise every year. Not only that, but the harvest had to rise more rapidly than the population increase, since Khrushchev had promised an overall increase in the standard of living and that meant increased consumption by every Soviet citizen.

The goal of 152·5 million tonnes set for 1960 had not been reached and the 1965 target set in the Seven-Year Plan (1959–65) was 164–180 million tonnes, or more than double the average 1949–53 production.

THE 1962 HARVEST

A crash programme was launched by Khrushchev in 1961 to raise grain production in 1962. More virgin land was to be ploughed, but the main solution was seen in the sharp reduction of fallow and of land sown to perennial grasses. This could only be a short-term solution and illustrates Khrushchev's difficulties in the very important grain field. The wholesale ploughing-up of fallow can only affect agricultural production adversely in the future. Khrushchev's anti-grassland campaign resulted in a sharp reduction in fallow and increased the sown area by 11·4 million ha. The virgin land sown area also increased and expectations were high.

Spring arrived early almost everywhere and allowed spring sowing two weeks earlier than usual. Later, however, complex meteorological conditions hindered the progress of the crops. In the virgin land areas a dry spring was followed by a period of rain which was itself soon followed by very hot, dry weather. Many regions of the

European part of the RSFSR experienced a spring marked by cold rains, and this greatly impeded work in the fields and the normal growth of crops. The harvest was also caught by rainy weather. West Siberia, on the other hand, suffered from drought. The Ukraine experienced unfavourable weather conditions and lost at least 1·5 million ha of winter wheat. The signs were that the 1961 harvest would not be equalled. Despite the vagaries of the weather, however, 1962 produced an excellent harvest in the Soviet Union. It was 10 million tonnes more than the previous year and over 25 per cent up on the 1954–8 average. The Volga region produced its best ever harvest and North Caucasus also had a very successful crop. The Ukraine recovered well from the loss of winter wheat and its harvest was almost 20 per cent above the 1954–8 average. The unusually hot weather in West Siberia and Kazakhstan reduced the virgin land crop and the harvest was only average. West Siberia produced its smallest crop since 1955, but Kazakhstan's harvest was over 16 per cent up on the 1954–8 average.

THE 1963 HARVEST

The planned goal for 1962 grain production had been between 172 and 180·2 million tonnes, but this had proved unattainable so the same goals were set for 1963.

The sown area was increased for the 1963 crop and a determined effort was made to prepare the way for a bumper crop. The harvest turned out, however, to be disastrously small. Only 107·5 million tonnes were collected, well below the needs of the Soviet population. The chief reason for the lowest yields since 1954 was, once again, drought. The Ukraine, West Siberia and Kazakhstan were badly affected. The only parts of the RSFSR to exceed the 1962 crop were the North-West region and East Siberia, both of minor importance as grain-producing areas. The Ukraine was 25 per cent down on 1962 and 10 per cent below the 1954–8 average.

The virgin land crop at 38 million tonnes was the smallest since 1955, despite an increase in the area sown to grain of 10·4 million ha over 1955. The worst hit area in the RSFSR was West Siberia, which produced only 4·3 million tonnes, the lowest since the 1955 crop of 6·8 million tonnes.

The largest virgin land area, Kazakhstan, produced only 10·6 million tonnes, which represented a yield of only 4·4 centners per ha. The 1954–8 average had been 7·3 centners per ha.

The only major grain-producing region of the Soviet Union which did not fail was the North Caucasus, but even there production was down 10 per cent on 1962.

The period 1959–63 saw four good harvests and one disastrous one. The good harvests resulted mainly from an expansion of the sown area (the 1959–63 increase was 15·5 million ha), but increased yields per hectare also played a part. The 1959–63 average of 10·2 centners per ha (it would have been higher but for 1963) was an improvement on the 1954–8 average of 9·1 centners per ha, and a significant improvement on the 1949–53 average of 7·7 centners per ha. The capital investment in agriculture for machinery, fertilisers, etc., over the decade was beginning to solve the grain problem slowly, by increasing yields.

The virgin land programme over the period 1959–63 never really came up to expectations. The bumper 1956 crop was not equalled during the period despite a great increase in the sown area. Yields did not reach the national average, although the Urals averaged 10 centners per ha. Kazakhstan was a disappointment, only averaging 6·9 centners per ha, compared with 7·3 centners per ha during the period 1954–8.

On the whole the virgin land venture contributed significantly to grain production in the USSR. Its contribution can be readily seen from Table 4.7. Of the 43·8 million tonne increase in average annual

TABLE 4.7

	Grain production in the USSR (millions of tonnes)	*Grain production in Virgin land areas* (millions of tonnes)
1949–53 (average)	80·9	22·7
1954–8 (average)	110·3	45·2
1959–63 (average)	124·7	51·6

grain production (1959–63) compared with the 1949–53 average, 28·9 million tonnes or 66 per cent was contributed by the virgin land areas. The sown area in the non-virgin land area has correspondingly decreased; in 1953, 70·6 million ha were sown to grain in the 'old' areas, but the 1959–63 average figure dropped to 60·3 million ha. This permitted areas which were not ideally suited to grain growing to switch to crops more suited to their climatic regime. Fodder crops showed a significant increase over the decade.

Wheat is the main grain crop and is a vital constituent of the average Soviet citizen's diet. The Soviet Union has significantly increased its production of wheat over the decade and it is by far the main grain crop of the virgin lands (see Table 4.8) So rapid has the expansion of wheat cultivation been in Kazakhstan that the Ukraine has been overtaken since 1956 as the main producer of wheat outside

TABLE 4.8

Wheat production in the USSR (millions of tonnes)	*% of Soviet grain production*
1949–53 (average) 34·5	42·7
1954–8 (average) 58·3	51·5
1959–63 (average) 64·1	51·4

the RSFSR. Only in 1957 and 1961 did the Ukraine produce more wheat. The Ukraine has been able to concentrate on other crops, such as maize and sugar beet, and on animal husbandry.

THE 1964 HARVEST

Khrushchev's last year in office was 1964 and it was ironical that it should produce the greatest harvest the Soviet Union had ever achieved. It can justifiably be claimed that it was due to the ex-First Secretary's policies. The total grain harvest at 152·1 million tonnes was over 40 per cent above that of the previous year. The average yield however, at 11·4 centners per ha was only 0·3 centner up on 1958, the previous record. Khrushchev's extensive agriculture at any price certainly paid off in 1964. Kazakhstan more than doubled its yield to 9·8 centners per ha, the highest ever achieved there. Despite the bumper grain harvest, wheat production was only 5 per cent up on 1962 and fractionally less than 1958. Winter wheat yields in the Soviet Union were a very disappointing 13·8 centners per ha, just above those for the disastrous crop of 1963.

The grain problem, however, was not solved as 180 million tonnes were considered the minimum to meet all obligations and build up reserves. This represents an almost 50 per cent increase over the average 1959–63 production.

STATE PURCHASES OF GRAIN

Table 4.9 shows the evolution in the volume and geographical location of state purchases of grain over the period 1953–64.

The volume of state purchases and procurements reflects very closely the gross grain harvest. During the period 1954–8, 1956 and 1958 are again the outstanding years. The great disappointment was 1957. The virgin land areas played a decisive role in raising the state purchases over the period 1954–8. During the period, state purchases rose on average by 10·8 million tonnes but purchases in the virgin land areas rose on average by 13·2 million tonnes. Virgin

TABLE 4.9 State Purchases of Grain in Areas of Virgin and Idle Land Assimilation (thousands of tonnes)

	1949–53 average	*1953*	*1954*	*1955*	*1956*	*1957*	*1958*	*1954–8 average*	*1959*	*1960*	*1961*	*1962*	*1963*	*1959–63 average*	*1964*
USSR	32,769	31,107	34,601	36,902	54,107	35,411	56,608	43,526	46,637	46,736	52,109	56,649	44,822	49,391	68,275
In areas of virgin and idle land assimilation	9,905	10,862	17,824	11,276	36,800	17,058	32,709	23,133	27,942	29,057	23,784	27,100	16,300	24,837	37,553
RSFSR	8,086	8,471	13,817	9,561	20,658	12,276	17,900	14,842	16,469	18,535	16,275	18,900	11,500	16,336	22,112
Volga	1,494	1,285	1,104	2,857	2,521	740	5,443	2,533	1,781	3,398	3,805	–	–	–	–
Urals	3,163	4,259	4,309	2,055	7,212	1,383	3,128	3,617	6,638	6,829	5,424	–	–	–	–
West Siberia	2,199	1,805	6,821	2,571	8,645	7,908	7,689	6,727	5,979	6,497	5,185	–	–	–	–
East Siberia and Far East	1,230	1,122	1,583	2,078	2,280	2,245	1,640	1,965	2,071	1,811	1,861	–	–	–	–
Kazakhstan	1,819	2,391	4,007	1,715	16,142	4,782	14,809	8,291	11,473	10,522	7,509	8,200	4,800	8,501	15,441
Virgin Land *krai*	1,031	1,561	2,509	1,143	12,596	2,991	9,924	5,833	8,708	7,361	5,514	5,200	–	–	–
% of grain from areas of virgin and idle land assimilation	30·2	34·9	51·5	30·6	68·0	48·2	57·8	53·1	59·9	62·2	45·6	47·8	36·4	50·3	55·0

Sources: *Narkhoz 1960*, pp. 442–3; *Narkhoz 1961*, p. 375; *Narkhoz 1962*, p. 293; *Narkhoz 1963*, p. 294; *Narkhoz 1964*, pp. 325, 332; *Narkhoz 1973*, p. 393.

land areas supplied 30·2 per cent of state purchases on average over the period 1949–53, but their contribution rose to 53·1 per cent over the period 1954–8. The bumper year was 1956 when the virgin lands provided no less than 68 per cent of total state purchases.

State purchases did not rise so rapidly during the period 1959–63. The average purchases only increased by 13 per cent compared with the 1954–8 figure. The best year was 1962 and the worst 1963. Nevertheless, average purchases over the decade 1954–63, 46·5 million tonnes, were almost 42 per cent above the average for 1949–53.

The virgin land areas did not significantly raise the amount of grain sold to the state over the period 1959–63. The increase over the average for 1954–8 was only 7 per cent. The average would have been much higher but for the very poor 1963 record, when the amount sold to the state, 16·3 million tonnes, was the lowest since 1955.

The failure of the virgin land areas to keep pace with the increase in national state purchases meant that the proportion contributed by the new lands decreased compared with the 1954–8 average of 53·1 per cent, the 1959–63 average falling to 50·3 per cent.

Kazakhstan only managed to raise its average sales to the state by less than 3 per cent over the period 1959–63 compared with the previous five years. This disappointingly low figure was largely due to the disastrous harvest of 1963.

Over the decade 1954–63 the non-virgin land areas of the Soviet Union contributed 22·5 million tonnes annually, or less than they did on average over the period 1949–53, when their share was 22·9 million tonnes annually.

TABLE 4.10 State Purchases of Wheat as percentage of State Grain Purchases

	millions of tonnes	*%*
1949–53 (average)	16·6	50·6
1954–8 (average)	28·9	66·4
1959–63 (average)	31·1	63·0
1964	38·7	56·7

The most important grain, wheat, has increased impressively over the decade 1954–63 (see Table 4.10) and this is mainly due to the contribution made by the virgin lands, where the predominant grain crop is wheat. In the exceptional year of 1964, wheat sold to the state was less than in 1958.

The increase in the marketable surplus of grain due to the virgin

land programme has made it possible for the USSR to increase her grain exports (see Table 4.11). Most of these exports have been to

EXPORTS

TABLE 4.11 Soviet Grain Exports (millions of tonnes)

1950	*1955*	*1956*	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
2·9	3·7	3·2	7·4	5·1	7·0	6·8	7·5	7·8	6·3	3·5
of which wheat:										
1·4	2·0	1·5	5·5	3·9	6·1	5·6	4·8	4·8	4·1	2·0

Eastern Europe, but exports to the non-Communist world have increased.

OTHER CROPS IN THE VIRGIN LANDS

The role played by the virgin land areas in increasing production of other products has been far less important than in the case of grain. It is impossible to provide data showing the non-grain output of the virgin lands. Available data show the part played by the regions of the RSFSR and other republics. The basic virgin land areas are sometimes only a part of the region in which they are situated, e.g. in the Volga region only Saratov and Volgograd *oblasti* are virgin land areas. Table 4.12 includes under 'virgin lands' all of the Volga, Urals, West Siberia, East Siberia and the Far East regions of the RSFSR, plus Kazakhstan.

The table shows that the virgin land areas played their part in increasing production of animal products, vegetables, etc., but not the role they assumed in raising grain production. This illustrates the assertion that they are primarily regarded as grain-producing areas. But it has been the aim of Soviet planners to increase the output of animal products in virgin land areas and to transform them, especially Kazakhstan, into both grain- and animal-producing regions.

Kazakhstan and the RSFSR virgin lands emerge from Table 4.12 very creditably. Increases recorded there are about or above the national average, except for vegetables. Kakazhstan performed very well. Except for sugar beet the republic's increase is above the national average. The Kazakh climate is not conducive to a rapid expansion of the crop. Khrushchev's goal of turning Kazakhstan into an area of mixed farming certainly met with some success.

The essential contribution of the virgin lands, so far, has been to relieve other regions of the country of the necessity of producing

TABLE 4.12

	1953	*1964*	*1964 increase over 1953*	*Total increase as % of 1953 production*
Meat (millions of tonnes, dead weight):				
USSR	5·8	8·3	2·5	43·1
RSFSR virgin lands	1·4	2·0	0·6	42·9
Kazakhstan	0·3	0·7	0·4	133·3
Milk (millions of tonnes):				
USSR	36·5	63·3	26·8	73·4
RSFSR virgin lands	9·6	16·6	7·0	72·9
Kazakhstan	1·6	3·1	1·5	93·8
Eggs (thousand millions):				
USSR	16·1	26·7	10·6	65·8
RSFSR virgin lands	3·7	6·6	2·9	78·4
Kazakhstan	0·5	0·9	0·4	80·0
Wool (thousands of tonnes):				
USSR	234·9	340·7	105·8	45·0
RSFSR virgin lands	54·9	86·1	31·2	56·8
Kazakhstan	38·0	74·9	36·9	97·1
Vegetables (millions of tonnes):				
USSR	11·4	19·5	8·1	71·1
RSFSR virgin lands	2·3	3·4	1·1	47·8
Kazakhstan	0·2	0·7	0·5	250·0
Sugar beet (millions of tonnes):				
USSR	23·2	81·2	58·0	250·0
RSFSR virgin lands	0·5	3·6	3·1	620·0
Kazakhstan	0·6	1·6	1·0	166·7

Source: *Narkhoz 1959*, pp. 361, 365, 396, 399–401; *Narkhoz 1964*, pp. 312, 323, 362–5.

large quantities of grain. Before 1954, the inadequacy of the country's marketable grain surplus forced practically all regions to aim at self-sufficiency in grain, often to the detriment of livestock production and industrial crops. The increased supply of grain from the new lands (30·2 per cent of purchases on average for 1949–53, 51·7 per cent on average for 1954–63) has allowed the government to free some areas from the obligation of selling grain to it and other areas have had their obligations reduced.

Thus it is not surprising to find that the area of land sown to grain in the non-virgin land areas over the last decade has actually fallen. In 1953, in the non-virgin land areas, 70·6 million ha were sown to grain, but in 1963 only 65 million ha were sown to grain. The lowest total area sown to grain in the non-virgin land area was 55·3 million ha in 1960.

TABLE 4.13 Sown Areas of Crops in the USSR
(millions of hectares)

	1940	*1953*	*1954*	*1955*	*1956*	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*	*1964*
All crops, USSR	150·4	157·2	166·1	185·8	194·7	193·7	195·6	196·3	203·0	204·6	216·0	218·5	212·8
Wheat	40·3	48·4	49·3	60·5	62·0	69·1	66·6	63·0	60·4	63·0	67·4	64·6	67·9
Rye	23·4	20·2[a]	20·5[a]	19·1[a]	18·4[a]	18·1[a]	18·0	17·1[a]	16·3	16·7[a]	16·9	15·0	16·8
Maize	3·6	3·5	4·3	6·2	6·6	3·3	4·4	3·5	5·1	7·2	7·0	7·0	5·1
Barley	11·3	9·6	10·7	9·9	11·9	9·2	9·7	9·6	11·0[b]	11·7[b]	14·3[b]	18·4[b]	20·3[b]
Oats	20·3	15·3	15·9	14·8	15·1	14·0	14·8	14·3	12·8	11·5	6·9	5·7	5·7
Legumes	3·5	2·4	–	–	–	–	2·1	2·5	3·3	4·3	7·2	10·8	10·6
Technical crops:													
Sugar beet	1·2	1·6	1·6	1·8	2·0	2·1	2·5	2·8	3·0	3·1	3·2	3·8	4·1
Cotton	2·1	1·9	2·2	2·2	2·1	2·1	2·1	2·2	2·2	2·3	2·4	2·5	2·5
Flax (Dolgunets)	2·1	1·2	1·1	1·5	1·9	1·7	1·6	1·6	1·6	1·6	1·7	1·5	1·6
Potatoes	7·7	8·3	8·7	9·1	9·2	9·8	9·5	9·5	9·1	8·9	8·7	8·5	8·5
Vegetables	1·5	1·3	1·5	1·5	1·6	1·5	1·5	1·5	1·5	1·4	1·5	1·4	1·5
Fodder crops	18·1	28·7	31·2	38·7	44·4	48·0	50·2	57·8	63·1	57·9	62·3	63·1	53·5

[a] Winter rye only. [b] Spring barley only.
Sources: *Selskoe khozyaistvo SSSR* (Moscow, 1960) pp. 132–3; *Narkhoz 1961*, pp. 311–12; *Narkhoz 1963*, pp. 242–3; *Narkhoz 1964*, pp. 272–3.

Table 4.13 shows the development of crops in the Soviet Union since the beginning of the virgin land programme.

Among the cereals, besides wheat, maize and barley have had their sown area significantly increased. The rapid expansion of barley since 1959 is especially noteworthy, since it is a feed grain and illustrates once again that animal husbandry is increasing in importance.

Rye used to occupy second place, behind wheat, as a bread grain. The rapid increase in wheat production has made is possible to sow less rye and the 1964 sown area was approximately 15 per cent less than in 1953.

The grain which has decreased the most in significance over the last ten years has been, without doubt, oats. Oats is a very good feed grain for horses, but as numbers have decreased (15·3 million in 1953, 8·5 million in 1964) so has the need to sow as much as in former years. The decrease in the number of horses has not, however, been the main reason for the rapid decline of the sown area of oats, but the campaign launched by Khrushchev against such crops as oats, hay and potatoes has had dramatic results. The sown area of oats declined from 14·3 million ha in 1959 to 5·7 million ha in 1964. Oats is a good grain for using in concentrates for livestock and also good as a rotation crop, especially on poor, sandy, acidic soils.

Legumes have also increased rapidly since 1959. They were among the 'favoured' crops together with maize and sugar beet for feed. Peas, as feed, have ben specially favoured.

Among technical crops, sugar beet has made the most progress. It was one of Khrushchev's favourite crops and as a result has been increasing in production ever since 1954.

The greatest expansion, in terms of the sown area, over the past ten years has been registered by fodder crops. The increase in sown area from 28·7 million ha in 1953 to 63·1 million ha in 1963 has been more rapid than that of wheat. However, there was a sharp drop in the 1964 sown area.

Among fodder crops the most rapid expansion has been in maize, grown to the lacto-ceratic or milk-wax stage for silage and almost to this stage for green feed. In 1958 the sown area amounted to 15·3 million ha and in 1962 had increased to 30·1 million ha, but this dropped to 22·3 million ha in 1964.

This rapid expansion has been made possible by the virgin lands taking over some of the burden of wheat production and allowing other areas, which previously had to sow wheat, to switch to other crops. Unripe maize was seen by some Soviet specialists as a first-rate feed for livestock and as a way of producing large quantities of silage. This has not been borne out in non-socialist countries, and

more orthodox methods of producing silage and feed for livestock would probably serve the Soviet Union better in the long run.

ANIMAL HUSBANDRY IN THE VIRGIN LANDS

One of the reasons advanced by Khrushchev for embarking upon the virgin land programme was that it was necessary if animal husbandry was to play a more important role in agricultural production.

Cattle increased their numbers by more than 50 per cent between 1954 and 1964 and cows by just over 50 per cent. The largest increase, as one might expect, was registered by the pig producers. Pig numbers in 1963 were more than double those in 1954, but there was a rapid drop in numbers in 1964 due to the bad harvest of 1963. Sheep also showed an appreciable increase in numbers; in 1963 they were 40 per cent up on 1954. The only animals to decline in numbers were goats and horses. This is quite natural and shows that animal husbandry is concentrating on the more productive animals. The large increase in mechanical power has meant that the horse has lost its leading position on the farm, but it can still perform many useful functions.

The virgin land areas have also been playing their part in increasing animal numbers. The Volga and Urals have been the most successful of the 'new' lands in the RSFSR. Kazakhstan has steadily built up its animal herds and the greatest success has been registered in sheep rearing.

The Ukraine is the main area outside the RSFSR which specialises in animal husbandry. The area devoted to fodder crops almost doubled in the years 1953–63 (5·7 million ha in 1953, 10·8 million ha in 1963 with a peak 13·4 million ha in 1960), helped by the campaign favouring maize for silage and green feed.

Cattle numbers increased by more than 50 per cent in the decade beginning in 1954, as have the numbers of cows. Pig numbers almost doubled in the same period.

The disastrous 1963 harvest had an immediate effect on pig numbers. The 1964 count found their numbers had declined to the 1957 level.

KOLKHOZES AND SOVKHOZES

A significant change took place over the decade in the role played by kolkhozes and sovkhozes in the agricultural sector of the economy. Whereas in 1953 kolkhozes numbered 91,177 and sovkhozes 4,857, in 1964 kolkhozes had decreased to 37,600 and sovkhozes had jumped

to 10,078. The sovkhoz has gained steadily in importance and was the major instrument in cultivating the virgin and idle lands.

TABLE 4.14 Sown Area in the USSR
(millions of hectares)

	1953	*1964*
Total	157·17	212·80
Sovkhozes	18·24	87·30
Kolkhozes	132·00	110·85
Grain total	106·71	133·32
Sovkhozes	9·30	59·71
Kolkhozes	95·54	67·67
Technical crops total	11·47	15·46
Sovkhozes	0·41	3·22
Kolkhozes	10·94	11·94
Fodder crops total	28·73	53·45
Sovkhozes	7·91	22·52
Kolkhozes	20·50	27·67

Note: Sovkhozes includes sovkhozes and other state undertakings for 1953.
Source: *Narkhoz 1959*, pp. 332–3; *Narkhoz 1964*, pp. 272–3.

The great increase in the role of the sovkhoz can be readily seen from Table 4.14. By 1964 sovkhozes accounted for more than 40 per cent of the sown area in the USSR and almost half of the area sown to grain. Since all sovkhoz produce goes directly to the state, the government's purchasing and procuring difficulties have been greatly reduced.

The great reduction in the number of kolkhozes has partly come about through amalgamation, with the result that by 1964 the average kolkhoz was much larger than in 1953. The sown area of the average kolkhoz in 1953 was 1,448 ha, but by 1964 it had increased to 2,948 ha. Kolkhozes in the virgin land areas of the RSFSR have been generally reduced in numbers. The average sown area of the RSFSR kolkhoz has increased much more rapidly than the Union average.

In Kazakhstan the average kolkhoz has usually been greater than the USSR average, and since 1953 this disparity has been increasing. The greatest difference was registered in 1958 when the average kolkhoz in Kazakhstan had almost four times the sown area of the average Union kolkhoz. Since 1958 the average Union kolkhoz has increased its sown area by just over 50 per cent and in Kazakhstan the increase has just been over 20 per cent.

The other main reason for the drop in numbers of kolkhozes has been their transformation into sovkhozes. This process, which is still

continuing, has been especially noticeable since 1958. At the beginning of the virgin land campaign, great stress was laid on the role of the kolkhoz as a base for rapidly expanding the sown area. By 1955 this had changed in Kazakhstan and there the leading role was taken over by newly founded sovkhozes. The increase in sovkhozes in the virgin land regions of the RSFSR was slightly faster than in the USSR as a whole, but in Kazakhstan there was an almost five-fold increase between 1953 and 1964.

The sown area of the average sovkhoz has also greatly increased as has the agricultural land fund. The optimal size of a sovkhoz has always been a problem, but it appears it has been decided that about 28,000 ha of agricultural land should be the maximum.

NOTES

1 The context for this reduction is the Hungarian revolt of 1956. Khrushchev obviously had his wings clipped after that débâcle. One must also bear in mind the increased defence expenditure and the need to revive the Hungarian economy. Little was available for the virgin lands.
2 Khrushchev, out of office, had the following to say about the availability of new land: 'Among the problems that came up; certain regions which had been designated for cultivation turned out to be barren. But often such setbacks could be rectified. There was enough land in Kazakhstan so that when one stretch proved infertile, we could simply mark it off and look for a new stretch.' Talbott (ed.), op. cit., pp. 124–5.
3 *Le Monde*, 23 Aug 1955.
4 *Pravda*, 29 Dec 1959. As a result, state procurements of grain from Kazakhstan were 94 million poods (1·54 million tonnes) below the plan.
5 The harvest achieved in 1960 is a tribute to the efforts expended after the dreadful dust storms of the spring of 1960. Large areas of grain were destroyed and had to be replanted.
6 *VE*, no. 1 (1960) p. 3.

5 From the Fall of Malenkov to the Fall of Khrushchev, 1955–64

The role of the agricultural administration from the mid-1930s until the death of Stalin was often difficult to fulfil but was relatively easy to grasp. Its main task was to exercise close control over the countryside in order to guarantee supplies of food and raw materials vital to the success of the industrialisation drive. Production sometimes suffered, but control was the order of the day. The MTS, the large agricultural bureaucracy, the complicated procurement system, the extreme centralisation of agricultural planning and procurement and the often arbitrary nature of administrative intervention were all geared towards one goal – control.

Khrushchev castigated the over-centralisation of decision-making and the stifling of local initiative. He was an organisation man and tended to believe that most problems could be resolved by ameliorating the administration.

The reforms in agriculture enacted during his stewardship can be seen as falling into two main categories; administrative and technical. From September 1953, when he formally assumed the role of First Secretary of the party, until 1958, almost all the major reforms were administrative. The major exception, it may be argued, was the abolition of the MTS. Yet this momentous change in the countryside was as much administrative as technical. The kolkhozes afterwards were to develop the ability to make agrotechnical decisions and this implied they would have a greater say in the determination of planned goals. Another exception was the maize campaign. Khrushchev more than once revealed that the vast virgin land initiative was seen as a means of shifting the locus of the cultivation of the main food grains. Kazakhstan, West Siberia and other areas of new land were to take over the main burden of producing wheat so as to relieve the Ukraine and the North Caucasus of some of the responsibility so that they could cultivate maize and other high-

yielding fodder crops instead. It was imperative to effect a fodder revolution, from grass to maize, if the promised animal husbandry upsurge was to be achieved. The growth of the urban population and the voracious demand for animal products of all kinds made it imperative to effect some changes in the livestock sector.

The period from 1959 to the removal of Krushchev in October 1964 was marked by even more changes than the previous one. Khrushchev seems to have been lulled by a very successful harvest in 1958 and the overall success of his agricultural policy since 1953 into believing that the administrative format he had hit upon was sufficient to guarantee further successes. The grandiose goals of the Seven-Year Plan were based on the assumption that the excellent harvest of 1958 was but the springboard for further advances.

There were fundamental reforms in both the administrative and technical spheres during this period. The failure of the harvest in 1959 and 1960 to come up to expectations raised Khrushchev's ire. When he discovered that major frauds were being perpetrated in reporting production, the sparks were bound to fly. He used the CC plenum in January 1961 to castigate rural officials, and reforms followed in the wake of the plenum. Perhaps the most dramatic of all administrative reforms came in 1962. After setting up the TPA (Territorial Production Administrations) he set about splitting the party apparatus into agricultural and non-agricultural sections. This was his final fling and it must have aroused considerable opposition.

Technical reforms were a feature of the early 1960s. The disappointments suffered in 1959 and 1960 forced Khrushchev to consider ways of increasing the sown area. He launched the anti-fallow drive which sounded the death-knell for the *travopole* system. With it came the campaign for inter-tilled crops, and here maize springs immediately to mind.

The last year of Khrushchev's power was devoted to a vigorous campaign for the intensification of agriculture. By adopting this new approach, Khrushchev was tacitly admitting that the initial potential of the virgin land had been realised and that the only way to add to production was to increase output per hectare. Along with the intensification drive went a determined campaign to increase the production of mineral fertilisers. They were now increasingly to be used on non-technical crops. An irrigation programme was also launched.

Shortly before his removal, Khrushchev was envisaging the setting-up of production agencies for each main product.

As it turned out, Khrushchev was much too sanguine in estimating the ability of the bureaucracy to switch from merely controlling the countryside to stimulating production as well. The latter function

required a certain amount of technical knowledge, and the higher up the functionary the greater the need for it.

1955–8

Administration at its upper level after 1953 was characterised by considerable instability as functions were distributed and then redistributed, merged, then divided among an ever-changing array of ministries and committees. A very noticeable trend, which came to a head in the early 1960s, was the gradual elimination of the functions of the Ministry of Agriculture. It lost its major planning responsibilities in 1955, its Machine Tractor Stations in 1958, its supply responsibilites in 1960 and in 1961 was transformed into a purely research and extension concern. In line with its new functions, agricultural scientists were put in charge of the Ministry until the end of the Khrushchev era. On the whole, the more traditional central agricultural bodies lost power to the party apparatus and, to a certain extent, to lower-level administrators in the republics, *oblasti* and *raiony*. It could hardly be an accident that in the general upheaval the party gained at the expense of the bureaucracy.

The defeat of Malenkov's economic policy in early 1955 rendered it incumbent on those who had overcome him to proffer something tangible in its place. Malenkov's desire to increase consumer-goods production had been popular. Now it was Khrushchev's task to expand rapidly the production of the agricultural sector.

A constant source of complaint was the inadequate performance of agricultural planning. Another was the lack of properly trained personnel down on the kolkhoz. In order to ameliorate the situation on both these fronts, decrees appeared in March 1955, and they reveal that some radical thinking was taking place in high places.

The decree of the CC of the party and the USSR Council of Ministers of 9 March 1955 on changes in agricultural planning attempted to involve the kolkhoz more deeply in setting production goals.[1]

The kolkhoz was to receive its annual plan from the *raion* soviet executive committee (*raiispolkom*) not later than 1 September for the following year. Together with the Machine Tractor Stations (MTS) the kolkhoz was to elaborate the cropping pattern, since the original plan had stated only the volume of production required.

This decree greatly enhanced the role of the MTS in planning agricultural production. Hitherto the MTS had concentrated on its annual plan and kept a political eye on kolkhoz behaviour. Now the MTS was being asked to maximise kolkhoz production and simultaneously show a profit on its own operations. The central planners

were aiming at a more rational use of the available mechanical power.

Local soviets were to submit plans for the development of agriculture in their own area to the soviet directly above them, and in this way the Council of Ministers of each republic was to forward information to USSR Gosplan and the USSR Ministry of Agriculture. This was one way the kolkhoz could influence perspective planning.

USSR Gosplan was only to be responsible for perspective planning and the co-ordination of agriculture with other branches of the national economy.

The decree did not afford the kolkhoz the right to decide its own production plan. It still had to meet state deliveries. The central planners believed that the kolkhoz was capable of producing in excess of the total provided for the state. They wished to stimulate the kolkhoz to produce much more by encouraging it to maximise the output of those products which promised the highest yield per hectare, taking into account all the local conditions. In so doing, the kolkhoz would eventually be in a position to sell more produce to the state.

The other initiative launched in March 1955 was the attempt to strengthen the technical leadership of agriculture at grass-roots level. The party and government decree of 25 March 1955[2] was accompanied by an appeal for volunteers from industry to go to the countryside.[3]

Leadership was seen as the key to the situation. *Kommunist*, in an editorial, put it thus: 'If at the head of the kolkhozes, MTS and sovkhozes of a *raion* or *oblast* there is genuine Bolshevik leadership, which correctly understands and selflessly carries out the party line and its directives, then the planned tasks will be successfully carried out in the shortest possible time.'[4]

This idealisation of the relations of production seems to reveal that incentives were in short supply. Exhortation tends to be used when the more obvious solution would be to increase real wages for marginal work.

The party is the keeper of the keys of the national economy. It provides the drive to achieve planned goals.[5] It is therefore rather surprising to find that in the decree of 9 March 1955, a party and government decree, all mention of the party organs is omitted. The soviets have the say in agricultural administration.

One reason for this step may have been the lack of success exhibited by party organs in raising production. It was generally agreed that the orders from above were too vague and that too many orders were given by functionaries who were nearly illiterate in an agricultural sense.

The fault lay in the system of demanding plan fulfilment at any price. Goals had to be reached and campaigns followed even if the locality was not suitable.

The September 1953 plenum had appointed a *raion* secretary and instructor groups to each MTS zone. This reform had not justified the hopes placed in it. The most telling criticism of the instructor groups was that they were often no more than collectors of information.

In the campaign for more production the kolkhoznik was not forgotten. In a party and government decree of 6 March 1956, monthly advance payments were instituted.[6] Monthly advances were to be based on the number of labour days worked and were not to be less than 25 per cent of the money income received for agricultural production by the kolkhoz and 50 per cent of the money income received in advance on contracts and compulsory deliveries and state purchases.

This was a really sensible reform, since one of the great drawbacks of the kolkhoz system had been the uncertainty of remuneration. Nevertheless, if farm income was low, advance payments would not be forthcoming. It all depended on the viability of the enterprise.

The kolkhoznik had to be stimulated into spending more of his time in social labour on the kolkhoz and less time on his private plot. The reformers had to ensure that he gained an increasing amount of his income from the kolkhoz. He was usually paid partly in kind and received fodder for his animals.

It was a logical step to take to issue a decree on the Model Charter of the Kolkhoz on 6 March 1956, stating that some alterations were appropriate.[7]

Henceforth the size of the household plot was to depend on the number of *trudodni* worked. Since cattle consumed fodder and needed careful attention, the reformers decided it was time that the number of cattle originally laid down in the charter could be reduced. The planners wanted collective herds to increase and the extra labour saved to be expended on social work.

Previous decrees had favoured the kolkhoznik. He had seen the restrictions on his private plot eased by reducing compulsory deliveries,[8] writing off indebtedness, etc. The temptation was to expand his activities on the private plot and curtail his time on kolkhoz work. It was a delicate operation to reverse apparently the previous policy and to convince the kolkhoznik that the net result was beneficial to him.

Not only was the kolkhoznik to involve himself more closely with increasing kolkhoz production, but party, soviet and agricultural

organs were to increase their involvement in kolkhoz affairs. Why was this necessary? It was necessary since the interests of the state were paramount; the dormant abilities of the kolkhoznik had to be guided along the path most profitable to the state.

In early 1956 suggestions were being voiced behind the scenes to withdraw the *raion* party apparatus from direct agricultural administration in the MTS. They were quashed without further ado by Khrushchev.[9] Nevertheless, MTS party instructor groups were suddenly abolished in December 1957. This led to Khrushchev's announcement, in January 1958, that the MTS was to be dissolved and, in direct contrast to his actions in September 1953, that the *raion* executive committee and the Ministry of Agriculture were again to be equipped to take over the daily running of agriculture by, as it later turned out, the setting-up of *raion* agricultural inspectorates.

The decision to abolish the MTS signified that Khrushchev was willing to give the kolkhozes the benefit of the doubt.[10] They were the repository of the available machinery and saw to it that the equipment they controlled was not underutilised. Much was made of the 'two masters in the countryside' argument. After his victory over the anti-party group, Khrushchev felt that he could attempt more radical initiatives in the rural sector.

The reform had its drawbacks. The richer kolkhozes were quite capable of raising the finance for the machinery, but the poorer ones were not. They were in fact saddled with debts for years to come. Another adverse effect was that many kolkhozes were forced to acquire obsolete and sometimes useless machines fit only for the scrapheap.[11]

The withdrawal of *raion* party functionaries from direct agricultural administration was motivated by several considerations. Agricultural production was increasing at a satisfactory rate, so the time had come to afford more elbow-room to the kolkhozes. Management in kolkhozes had improved and party cadres had been strengthened.

Another reason for the exit of the functionaries was that they were becoming too deeply involved in the production problems of the kolkhozes. It was proving difficult for them to keep their distance and *partiinost* was being flouted.

The MTS had been an important source of produce for the state. Its abolition permitted a radical change in payment for produce procured by the state from the kolkhoz. Kolkhozes received one price for planned deliveries and one for over-plan deliveries. The prices varied with the location of the collective farm. It was hoped that the increased revenue would stimulate kolkhoz initiative, since more and more capital investment would be contributed by the farms themselves.

1959–64

(i) *Regroupment and Experimentation in the Administration*

As it turned out, 1958 was the high-water mark of the movement towards real local initiative. Why was the decentralisation of management and the reduction in the extent and intensity of central control, which had been the guiding principles before 1958, less favoured afterwards? A lack of response to national plans at the local level and the rapid slowdown in agricultural growth would appear to be the two main causes.

There was bound to be competition for control over public agriculture between the government bureaucracy and the party. The aim of the reforms before 1958 had been to rationalise decision-making at the local level. From Khrushchev's point of view the Ministry of Agriculture had to be restricted in its operational role and the supervision of the farms handed over more and more to the party. The party could not increase its jurisdiction except at the expense of the bureaucracy. As has been noted, the abolition of the MTS was followed by handing back to the *raion* executive committees and the Ministry of Agriculture the functions usurped by the party. However, the government bureaucracy was not the force of yore, and the *raion* party secretary was still responsible for the execution of central directives in the agricultural sphere.

There appears to have been a continuous struggle between the Ministry of Agriculture and the party apparatus between 1958 and 1961. One of the bones of contention was the kolkhoz debate. Here the main issue at stake was whether or not kolkhozes in a given area should be permitted to form some kind of union. The issue was debated at the CC plenum in December 1959 and at the conference of agricultural specialists in June 1960 without a decision having been reached. It appears that the party apparatus was in favour of the scheme, since they saw it as a way of increasing their grip on agriculture. If this was so, then it is reasonable to assume that V. V. Matskevich, the ebullient Minister of Agriculture, opposed the proposal. Khrushchev's personal position is not clear. The kolkhoz union affair petered out, so if he was backing the apparatus, it can be construed as a defeat for him. However, the treatment he meted out later to the Ministry would tend to lead one to the conclusion that he was not defeated by the Ministry alone. If the Ministry's opposition was responsible for blocking the plan, then it must have enjoyed powerful support from other quarters which it later lost.

The increasing number of sovkhozes could have entailed a more important role for the All-Union Ministry of State Farms. It could eventually have challenged the Ministry of Agriculture as the main administrator of public agriculture. Khrushchev had no intention of showing bias in favour of socialist as against co-operative property. The All-Union Ministry of Sovkhozes was disbanded as early as 1959 and replaced by Union–republican ministries, where the importance of state farms warranted this.

The failures of the 1959 and 1960 harvests to come up to expectations made life very difficult for the bureaucracy and the party. The upshot was that they entered into collusion and falsified production reports.

The CC plenum, in January 1961, held to discuss the situation was bound to produce surprises and some very unpleasant ones at that. If the Ministry of Agriculture and the local soviets were not capable of acting responsibly, then they would have to be controlled from the centre. Decentralisation had degenerated into 'localism' and even worse into fraud and collusion.

The Ministry of Agriculture was shorn of its executive functions in the fields of supply and finance and transformed into a research and extension service charged with the direction of agricultural research institutes, the publication of technical journals and the organisation of model farms in each *raion*. V. V. Matskevich lost his position and was to see service in the virgin lands of Kazakhstan where he could redeem himself.

The Central Statistical Administration was to take charge of collecting crop statistics. Gosplan took over the planning and direction of state farms. A new agricultural equipment association (*Soyuzselkhoztekhnika*) was set up to handle the supply of farm machinery, spare parts and fertilisers, and therefore to act as the intermediary between the farms and industry. Procurement was centralised in a State Committee for Agricultural Procurements, which was to effect purchases from collective and state farms via contracts (*kontraktatsiya*). The new procurement agency was the former Ministry of Procurement in a new guise and operated at different geographical levels.

These fundamental reforms bear the imprint of excessive haste, and the thinking behind them led to the March 1962 reforms when the TPA were set up.

The 1961 upheaval clearly demonstrated the reversal of the trend towards the decentralisation of decision-making. The *raion* party and soviet apparatus had failed in their allotted tasks and responsibility had to revert once again to higher bodies. By dividing up the various aspects of agricultural management among several centralised agencies, Khrushchev was attempting to obtain a more objective picture of local realities or in plain language to cut down on fraud and collusion.

Significantly enough, the State Committee for Procurement was headed by N. G. Ignatov, a former member of the party Presidium. The local inspectors of the committee were to participate in planning production, see that plans were being fulfilled and report on deficiencies. They were not to be responsible to any official at the *raion* level.

These reforms did not delineate responsibility clearly. Who was to co-ordinate the efforts of the various centralised agencies? To what extent was the party to assume its pre-1958 role in supervising production on the farms? It took a year before positive answers were forthcoming.

The CC plenum in March 1962 radically restructured the institutional farmework of farming. Territorial Production Administrations (TPA) were set up, the goal being about 800–1,000 so as to bear some resemblance to the *sovnarkhozy* set up in the decentralisation drive in 1957. The body set up to co-ordinate them at the centre, the All-Union Committee on Agriculture, never functioned. The TPA was to contain representatives of kolkhozes and sovkhozes in its area and to cover more than one *raion*. It was to supervise production and procurement and take an active part in improving the technical level of farming via inspector-organisers. These extension officials were to report refusals by farms to heed their advice.

The TPA was a dual form of control and administration : it was responsible for production and procurement and was in turn supervised by a party-dominated network of agricultural committees. The basic TPA unit embraced several *raiony*. At the *oblast* level there were *oblast* administrations of production and procurement of agricultural products, and at the republican level a similar organisation. The TPA became a microcosm of state and party control at the local level.

At *oblast*, republic and All-Union level, agricultural committees, composed of both party and government officials concerned with agriculture, were set up to co-ordinate activities and to act as a check on the agricultural bureaucracy. The predominant role of the party in these committees was ensured by having party first secretaries of *oblasti* and republics chair them. N. G. Ignatov, Chairman of the State Committee for Agricultural Procurement, was named head of the All-Union Agricultural Committee.

The TPA was a radical departure from the previous policy of using the *raion* party secretary and his organisation as the main

means of control, for the territory of the TPA embraced three to four *raiony*. This problem was solved, after some confusion, by increasing the number of TPA to almost 1,500 and making the area of the new basic party organisation coincide with that of a TPA.

The TPA were envisaged possibly as a centralising measure. If this was the case, then the policy was ineffectual. The central All-Union Committee never got off the ground, thus this reform can be regarded as to a large extent frustrated.

Perhaps the most original of all the proposals made by Khrushchev was contained in a memorandum he placed before the party Presidium on 10 September 1962. In it he proposed that the party should henceforth be divided into two parts, one dealing with agriculture, the other with non-agricultural branches.[12] This was a startling confession that not only was agriculture causing great concern, but that the party as then constituted was not capable of surmounting all the difficulties involved.

The reasons behind this démarche are not difficult to discover. In order to give agricultural production the impetus it needed, those in positions of responsibility in agricultural affairs had to have the requisite technical training to fit them for their posts. The formation of the TPA sharpened the conflict between the ordinary party official and those responsible for the technical side of agriculture. Khrushchev admitted that since the TPA could embrace up to five *raiony*, party and soviet officials in the *raiony* often found themselves wondering what their responsibilities were. They came into conflict with the party organisers in the TPA who were responsible for party mobilisation in the kolkhozes and sovkhozes. Every time there was a campaign, every party official switched his attention to that particular aspect of agriculture which was being promoted. Many of those involved were not qualified to take agricultural decisions. Khrushchev thought that it would be better if those skilled in non-agricultural affairs stuck to them and left agriculture to others.[13]

Implicit in Khrushchev's analysis was the admission that all the measures taken to promote the role of the specialist in agriculture had enjoyed only limited success. He had waged a constant battle against the permanent organs and had cut back their responsibilities. He had placed his faith in the local party officials and had now to concede that their increased activities had not produced the desired results.

Why did Khrushchev undertake such a radical delineation of the party's functions? The soviets remained and the TPA remained. Was there any logic behind the decision to restructure the party along functional lines? Could the intensification of agriculture – and that

was really what the reform was about – not be achieved by other means?

The splitting of the party into a non-agricultural and an agricultural section was really a desperate attempt to improve the quality of those officials who had responsibility for agriculture. In an area where agriculture and other sectors existed side by side, and this applied to many parts of the Soviet Union, the party official interested himself more in the performance of the non-agricultural sector. Such was the training of the official that when a clash of interests occurred, non-agricultural interests took preference.

Another aspect was that the official, if he wished to improve his qualifications, plumped for non-agricultural studies. If his technical competence rose, then he had the prospect of being promoted to a more industrial region. This normally meant a higher standard of living. Agriculture came a very poor second among intelligent party officials.

Planning in industry is mainly in physical numbers. This method is not applicable to agriculture or construction or services. A certain volume of production has to be delivered at the end of the harvest. Since the state wants more produced, it resorts to using money as an indicator, via higher *zakupka* prices, for above-plan deliveries.

It is not insuperably difficult to keep a check on plan fulfilment of industrial enterprises month by month. However, it is almost impossible in agriculture. A party official without great interest in agriculture can only keep contact by means of orders, controls of sown area, crop mix, etc., and there is no guarantee that after the harvest his supervision will be rewarded with higher yields. This is one of the fundamental difficulties of party control of agriculture. Khrushchev wanted officials who would participate in the production process and help to achieve higher production. He needed party functionaries who were willing to devote all their energies to advancing their technical knowledge of agriculture in order to participate more fully in the production process.

Khrushchev's bold, imaginative reform of the role of the party had only limited prospects of success. The really competent, ambitious party officials were bound to opt for industry, since success was not so difficult to attain there. Agriculture had been neglected for too long for it to be fully resuscitated with an injection of party functionaries with some technical knowledge. The more rational approach would have been to increase incentive and inputs.

The final showdown between Khrushchev and his persistent critics is said to have concerned another scheme for agricultural reorganisation in October 1964. This involved the creation of seventeen agricultural regions and may have embodied a scheme for setting up

separate bodies to manage the production of individual commodities which Khrushchev had proposed two months earlier.[14] This time the full Central Committee, unlike a previous occasion seven years earlier, did not find in his favour.

(ii) *Production Problems*

The heady wine of optimism was liberally dispensed by Khrushchev at the extraordinary XXI Party Congress called to put the party imprimatur on the Seven-Year Plan. The five-year planning period was regarded as too constricting. The new plan (1959–65) was to usher the Soviet Union into a new phase of its development – the period of the fullscale construction of the communist society. By the end of the plan the material and technical foundations of communism were to be built.

The goals of the plan had been published before the congress in the form of theses and were presented for discussion. The dawning of the new era required a novel approach in order to create the feeling of participation among those who were to benefit from the new society. It was stated that more than 70 million had attended meetings called to debate the plan. An awesome total of 4,672,000 persons took the platform to deliver their verbal contribution to the proceedings.

The excellent harvest of 1958 provided a springboard for great optimism in the plan for agricultural growth. Over the period 1959–65 gross agricultural production was to grow by 70 per cent, or an average of 10 per cent annually. This was very ambitious as this rate of growth had never been achieved in the Soviet Union before 1958. The best performance so far registered had been over the period 1953–8, when it was calculated that gross production had risen 51 per cent or an average of 8·5 per cent annually.

One of the reasons which nourished the hope that these extremely high growth rates would be achieved must have been the belief that the agricultural reforms enacted since the death of Stalin had finally released the production potential of the kolkhoz and the kolkhoznik. The abnormally high harvest of 1958, which was due to a felicitous combination of circumstances, not least the weather, was seen as only the beginning of a long upswing in production. One of the main complaints against the MTS was that it interfered with the rational use of machinery. Now, with their own machinery, the kolkhozes would leave previous levels of labour productivity far behind.

Cereal production, the decisive factor in the success or failure of the Seven-Year Plan in agriculture, was to rise to 180 million tonnes by 1965.[15] This represented a 35 per cent increase over the record 1958 harvest. However, over the average harvest during the period

1953–8 it signified an increase of approximately 70 per cent. In keeping with the goal of surpassing the United States in per capita production of animal products, the largest increase in production was to come in these products. Meat output was to be enlarged by no less than 100 per cent and milk by 70–80 per cent.

The resources necessary for these enormous growth rates were not discussed or promised. However, mineral fertiliser production was to increase from the 1958 level of 12 million tonnes to approximately 35 million tonnes in 1965. To underline the importance of this, Khrushchev stated that this increase was of vital importance in the struggle to raise the yields of all agricultural crops.

No realistic analysis was made of the capital investment which would be required to assure such a massive increase in agricultural production. With the growth of the economy as a whole, agriculture's share of investment would rise in volume, though not necessarily as a percentage of total investment. The basic weakness of the whole plan was that agriculture could not increase its production significantly without more inputs of machinery, equipment, skilled labour, mineral fertilisers, etc. This, however, involved other ministries which would have to increase output in their sector to satisfy agricultural needs. Machinery and fertiliser output always proved very difficult to expand rapidly because of the heavy capital investment necessary. This applied especially to fertilisers, which require very heavy expenditure if the chemical industry is not highly developed. The upsurge in the Soviet chemical industry took place at this time, but fertilisers did not gain high priority until 1964.

The unexpected priority afforded the manufacture of mineral fertilisers was the first time that this subject had been given prominence since the September 1953 plenum. Then the hope had been expressed that the output of mineral fertilisers would expand from 1954 onwards and reach 16·5–17·5 million tonnes by 1959 and 28–30 million tonnes by 1964.

The very slow progress recorded in output by 1958 revealed that this sector was relegated to a minor role in the race for more food production. Expanding the sown area took first preference. Since most of the mineral fertilisers went to raise technical crop yields, there was no urgency to raise output rapidly.

A change in thinking was heralded by the Seven-Year Plan. The size of the increase meant that some of the output was to become available for cereal crops. This was bound to arouse opposition among many economists. Hitherto it had been held that applying significant quantities of mineral fertilisers to cereals was uneconomic. This very point was the subject of an article in the main economics journal.[16]

An increase in fertilisers signified an expansion of the chemicals industry. This was not the first time that the industry had received national attention. A CC plenum in May 1958 had been devoted to the expansion of synthetic fibre production and other materials for consumer use. An increase in chemical production would permit some raw materials produced in the countryside to be replaced by chemical substitutes. The forced development of the gas industry, which was then under way, would benefit mineral fertiliser production as gas was a cheaper fuel than coke.[17]

The decision to expand fertiliser production represented a step towards intensification.

The intensification of agriculture assumes a recognition that the supply of good, virgin, arable land has ceased and that to raise production consistently the existing cultivated area must yield more. The degree of intensification is relative to the stage agrotechnology has reached in the area concerned. It is also relative to the necessity to raise production. The campaigns to increase gross agricultural production were steps in the right direction, but as long as no direct indication was available as to the relative costs of production, it could not be maintained that a fundamental switch-over had taken place.

Much of the land cultivated in the period 1954–8 in the new lands was of marginal value. To all intents and purposes the land frontier of the Soviet Union had been reached. The task, then, was to make the existing cultivated areas yield more.

To increase yields, more than mineral fertilisers are required. Great play was made in the press of the need to provide agriculture with more machinery, technical expertise and incentive. However, the point was soon made that if it were considered of primary importance to utilise all available technical resources to the full, why had the Soviet Union embarked on a campaign to assimilate 36 million ha of new land in areas to a large extent uninhabited? Since all admitted that Soviet agriculture lacked mechanical power, why spread the available resources over a larger area? A proclaimed goal was to maximise production per 100 ha. Did the virgin land venture not contradict this objective?

An answer was given to all the doubters in an article in *Voprosy Ekonomiki*.[18] It was pointed out that intensification had always been the aim of Soviet agriculture but that its implementation would take time. In the meantime it had been correct to assimilate 36 million ha of virgin land. Those who called the assimilation an exercise in extensive agriculture, since it embraced areas without previous habitation, were wrong. The assimilation of this land represented the intensification of agriculture, since the mechanical power

and energy at the disposal of the new sovkhozes was considerably higher than that of sovkhozes in inhabited regions.

The maximisation of production per 100 ha would be achieved by the development of a many-faceted agricultural economy by means of specialisation using complex agrotechnical methods which would guarantee high and consistent harvests under any climatic conditions. Chemicals would come to be of enormous importance to agriculture.

To argue that extending the sown area was an intensification of agriculture since the mechanical power was greater there than in traditional regions is, at least, original. Since inputs were greater, output should also have been greater than elsewhere. On the whole, this was not the case. It is significant that Khrushchev needed to describe his initiative in the east as an intensification of agriculture. Few economists would claim that Canadian and United States grain production was intensive agriculture. It is definitely capital-intensive, but compared with other branches of American agriculture cereal production must be classified as land-extensive.

Khrushchev's argument was specious, to say the least. It marks, however, an awareness that the possibility of rapid expansion of the sown area by assimilating new land is a thing of the past. Concentration on raising yields on the existing area must receive priority.

The belief that agrotechnology could overcome the hazards of the weather and guarantee consistent harvests was also a vain hope. Climatic conditions can never be fully overcome. Eventually crops may be provided with plastic cover to protect them, but this will be of little value if precipitation fails.

To obviate the contingency that the existing sown area might not achieve the goal of increased yields, the Seven-Year Plan provided for the extension of the sown area by assimilating more new land. It was not contemplated that the new land would contribute much to grain production, since a large proportion of it would be devoted to technical crops and fallow.

Cereals were to increase output by raising yields. Khrushchev, at the XXI Party Congress, called for an average increase of 3–4 centners per ha. This was possible in the near future, he claimed, since kolkhozes and sovkhozes had qualified staff, modern equipment, the capacity to carry out agricultural work in due season, the use of organic and inorganic fertilisers and assorted seeds. His goal of 3–4 centners per ha meant an increase in yields of 25–30 per cent. Had this been achieved, the goal of 180 million tonnes of grain would almost have been reached. Nevertheless, this implies an increase in yields uniformly throughout the whole country. Had mineral fertilisers been available in optimal quantities, the increase could only

have been achieved in areas with adequate precipitation. This meant, in the main, the European part of the USSR. Only about half of the area devoted to cereals can benefit fully from the application of mineral fertilisers. Drier areas can achieve good results with superphosphates, but irrigation is advisable.

The goal of increasing yields and extending the cultivated area is typical of the Khrushchev era. The framework of a more intensive system was being elaborated: more economical use of human and mechanical labour, more advanced agronomical practices, introduction of cost accountancy and the application of the resources of science to agriculture.[19] At the same time, practices which usually signify extensive agriculture were employed: spreading mechanical power over a large area instead of concentrating it on a smaller and smaller area; sending young people with little or no experience in agriculture to work new land when such land requires skilled labour, thus risking the dissipation of the stored-up fertility of the soil. Extending the sown area into regions of low precipitation risked low returns since fertiliser without irrigation would not guarantee higher yields. Dry land farming areas are typically devoted to extensive agriculture.

The apparent contradiction of the policies adopted in the Seven-Year Plan gives an indication of the pressure for higher production. Almost any method which guaranteed quick returns was liable to be pressed into service. It was too risky to concentrate all resources on increasing yields; resources had to be spread so as to increase the cropped area at the ame time.

(iii) *Existing realities*

The disappointing harvests of 1959 and 1960, coming as they did after the reforms of 1958, sowed consternation among agricultural policy-makers. Since much of the success of the period 1954–8, it was believed, had been due to the reforms enacted during that period, drastic measures could be expected if production did not rise to the levels laid out in the Seven-Year Plan.

Khrushchev, who always believed that a verbal confrontation was superior to a paper missive, engaged in a tour of inspection in early 1961.

The key to the problem of raising production was to increase the mechanical power available. This had always been one of Khrushchev's favourite themes. Had not the MTS been reorganised to provide a more rational use of available machinery? Eventually the RTS (Repair Tractor Stations) were to be phased out to allow the *selkhoztekhnika* to provide marketing and repair facilities.

Besides the need to increase the volume of machinery available

for agriculture, Khrushchev spoke out for more investment in facilities and services, especially in the virgin lands. He did not gloss over the difficulties which the operatives there faced. He made it plain that if amenities did not improve, the new lands were unlikely to attract much new labour and were not in a strong position to retain the labour they had.

Khrushchev, of course, was implicitly revealing that the decision to expand into the virgin lands had not received adequate thought and that the level of investment had been underestimated.

The lack of success achieved in raising yields in 1959 and 1960 led Khrushchev inexorably to posit the need for more new land to be cultivated. The area his eyes had hit on was the Far East. He claimed that there were millions of hectares capable of bearing crops, especially soya beans, in Maritime *krai*, Khabarovsk *krai* and Amur *oblast*. To work this new expanse, large quantities of machinery and implements were necessary. Therefore capital investment had to increase, the planners at the centre were to take note.

As yields were to increase, the climatic and soil conditions of each zone had to be taken carefully into consideration when elaborating the production plan. The collection of the relevant information was the responsibility of the Ministry of Agriculture at All-Union and republican level and of all research establishments. Khrushchev maintained that the task had been assigned to the Ministry two years previously and that they had not presented any solution. Khrushchev referred to this matter twice on his peregrinations, and one can see in this emphasis on zoning some of the thinking which lay behind the creation of the Territorial Production Administrations in March 1962.[20]

Khrushchev was well aware that a more productive agriculture was a pressing need in the Soviet Union. How did he envisage this being achieved? Raise labour productivity, increase the input of machinery and fertiliser and enlarge labour incentive. Apply the findings of science to the production process, more technical instruction of kolkhoz and sovkhoz personnel, pay more attention to soil and climate.

On the surface Khrushchev cannot be faulted, but how were these improvements to be achieved in an agriculture not susceptible to the stimuli of the market? It will surprise no one to discover that the eventual answer was seen in administrative reorganisation. The relations of production must be out of harmony if things are going badly.

Khrushchev's attitude towards science was also ambivalent. If he intended to allow the scientists to evolve cropping patterns in each zone of the country, he had to accept the possibility of their coming

to the conclusion that certain policies in vogue at that time were inadvisable and unscientific. This he was palpably unwilling to countenance. He wished to play the arbiter of goals himself and wished scientists to bend nature to his whim. He must have been conscious of the maxim, evolved during the years of struggle, that the Bolsheviks were capable of storming any fortress; if the will-power was there it could be achieved. This peculiarly un-Marxian mode of thought was deeply ingrained in Khrushchev. The task of the agroscientist was to make infertile soil fertile and to make crops grow where none had grown before. If he claimed it could not be done, he was only revealing his own inefficiency.

The XXII Party Congress (1961) launched a new party programme and spelled out the goal of a communist society. Agriculture, said the programme, was to be intensified and thereby to achieve the goals set it. Technical equipment and the organisation of production would approach the level of industry, thus making it possible to achieve a secular rise in output. The caprices of nature would be, to a large extent, kept in check.

Khrushchev's response to the problem of raising agricultural production without large increases in investment was typical. He embarked on a speaking tour to denigrate the *travopole* system. He did not reject Vilyams' work on soil structure, only the value of grasses. He saluted the work of D. N. Pryanishnikov and endorsed his criticism of the *travopole* system. Khrushchev introduced a touch of unintended irony when he stated that Pryanishnikov had criticised those who had seen in the system a panacea for all times and all places, by saying that there could not exist a system which was equally satisfactory everywhere.[21]

It may appear that the argument was essentially scientific and should be left to specialists, but it had a very practical side to it. Khrushchev wanted the arable land given over to annual and perennial grasses, oats and clean fallow to be planted to inter-tilled crops and fodder crops. The area occupied by these in 1961 was 63·7 million ha, or the equivalent of the area sown to wheat.[22] Here was a newly discovered source of arable land which could be used to cultivate crops in great demand.

On areas of adequate precipitation clean fallow can be restricted. Indeed some farms almost eliminate clean fallow. If this occurs, break crops must be employed to control weeds and plant diseases.

Khrushchev was quite in order in attacking the excessive amount of fallow in the non-black earth zone. He was on shaky ground when counselling the restriction of fallow in drier regions.

Under the cover of rejecting Vilyams' crop-rotation system, which was quite justifiable, Khrushchev included other rotation techniques

such as clean fallow and oats which appeared to him to be holding back the expansion of the area devoted to grain and maize. He desperately wanted to expand fodder crops in order to produce more livestock products.

The goal he set was to increase the area under fodder crops by no less than 41 million ha. Of this, maize sowings were to increase by 18 million ha, sugar beet by 7 million ha and feed beans also by 7 million ha. The area under oats was 11·5 million ha and Khrushchev suggested this be sown to peas.[23]

Khrushchev was very critical of party and government officials in Kazakhstan who were unenthusiastic about inter-tilled crops and who favoured the use of clean fallow (echoing the advice of Baraev).[24] Kunaev, First Secretary of the Communist Party of Kazakhstan, took his cue from Khrushchev and announced that the area sown to maize was to increase by 535,000 ha in 1962. Virgin Land *krai* was also to see an expansion of inter-tilled crops and a cutting back of clean fallow and grass.[25]

Gosplan estimated that the amount of seed grain available was sufficient to cover an extra 22 million ha. The goal for 1962 was set at 140 million ha of sown area or an increase of 18 million ha over 1961.

This enormous extra task of not only increasing grain sowings but also fodder to a significant extent was placed on the shoulders of kolkhozes and sovkhozes without mechanical power and labour inputs being increased to the same extent. Total capital investment in agriculture, including kolkhoz investment, in 1962 was only 10 per cent up on 1961.

It has been estimated that the presence of approximately 1 million extra operatives in agriculture would have been necessary in order to achieve the goals of the anti-fallow campaign in grain and fodder crops.[26] Especially ominous was the emphasis on inter-tilled crops which require not only more labour but also special equipment. It was generally admitted that mechanical power was not up to an optimal level.[27]

The dilemma which Khrushchev faced in his attempt radically to restructure cropping patterns throughout the country contains elements which worked against a rational solution of the problem. To achieve success a campaign had to be launched and a campaign demands a basically simple formula. Little opportunity for choice must be allowed.[28] The *travopole* system with its emphasis on grass could not have been effectively outlawed without attacking the concept of clean fallow. If Khrushchev had left clean fallow as a respectable designation for land, then he might have risked losing the campaign against Vilyams. Those kolkhozes and sovkhozes which

had neither the equipment nor the inclination to plant grain or fodder crops on land previously given over to annual and perennial grasses would have simply reclassified the land as clean fallow.

Soviet agricultural campaigns invariably aim at a goal, the complete attainment of which would be extremely difficult. Khrushchev always believed in taut planning and aimed a little beyond reality. He had not only to contend with the conservatism of the farms but with the ingrained habits of the bureaucracy against change.

He realised that few farms would entirely eliminate grass, clean fallow, etc., and plant inter-tilled crops and grain, but he expected that party and soviet pressure would be such as to effect an appreciable increase in the area sown to crops.

The need, as Khrushchev proclaimed it, to plant millions of hectares to various new crops implied that machinery, fertilisers, seed, labour and everything else necessary would have to be provided in order to implement the programme successfully. The intensification of agriculture was the declared aim of the third party programme. If the necessary machinery, etc., were not delivered, either the new campaign would only succeed to a limited extent or, if the programme was pushed ahead without an adequate supply of new inputs, Soviet agriculture would become even more land-extensive and reduced yields would be the inevitable result.

Per se, there can be no objection to the extension of the production of grain and fodder on a land-extensive basis. If the extension of the sown area results in yields comparable to those already achieved and sufficiently high as to be regarded as a fair return for the inputs expended, all is well. However, in the Soviet situation, with a shortage of every major input except land, it is questionable if the additional spreading of the inputs over a wider area yielded satisfactory results. As it turned out, the 1962 harvest proved the best on record. The sown area was also a record. However, the following year with an even larger sown area was a disaster.

Khrushchev grasped every opportunity he had for promoting the case for higher farm investment. In an interview with an American publisher he stated that agriculture was suffering from the neglect and mismanagement of the Stalin era. More electrification and mechanisation were necessary. Factories to produce mineral fertilisers had to be built. Khrushchev looked forward to the day when the sown area would be reduced and yet produce more than previously.[29]

There were several possible ways of raising more capital for investment in agriculture. One way would have been to reduce investment in heavy industry or in defence spending. These two are interconnected, and a feeling of détente would have to be abroad to make reductions in military investment acceptable. On this score

Khrushchev was unfortunate. The United States had taken the decision in 1961 to increase radically its nuclear capacity, since admitted by the then Secretary of Defence, Robert McNamara, to have been based on incomplete intelligence.[30] Another way of raising capital was to increase retail prices for foodstuffs and thereby curb effective demand. The peasant's private plot could have been taxed more heavily and expenditure on housing and other cultural needs curtailed.

The decision adopted was to restrict urban demand by temporarily increasing the retail price of meat and meat products by an average of 30 per cent, and of butter by an average of 25 per cent. At the same time, in order to stimulate production, purchase prices paid by the state for livestock and poultry were raised by an average of 10 per cent. Meat and poultry produced by sovkhozes were to be paid for at 10 per cent below the prices established for kolkhozes. Production on private plots would be paid for at the rates established for kolkhozes.[31]

These price increases provided clear evidence that urban spending power was running ahead of the ability of the rural sector to meet ever-increasing demands at the existing prices. This was being augmented annually by an increase in urban population and by growing prosperity.

Khrushchev forwarded a memorandum to the Presidium of the party on 4 August 1962, after coming across the agricultural machinery plan for 1963.[32] This had been issued by the Agricultural Machinery Association (AMA) but was greatly amended by the agricultural section of Gosplan. He was very dissatisfied with the plan and advised the bureaucracy to consult the kolkhozes and sovkhozes on the real needs of the rural economy.

A month later Khrushchev submitted another memorandum to the Presidium.[33] In it, the special needs of the sovkhozes set up around urban centres to provide potatoes, vegetables and animal products were underlined. Machinery, amelioration and irrigation equipment were all necessary to intensify production and raise income.

The problem of increasing the authority of farm specialists was touched on again. It was necessary, wrote Khrushchev, to restrain the ardour of the administrators. Their interference often resulted in great losses of production. Technical matters should be decided by those professionally competent. Party workers should refrain from pontificating on each and every matter and should cultivate a little modesty. They should listen to men of experience and base their decisions on science and good practice. If a method achieved success in one zone, this did not signify that it was valid elsewhere.

At the November 1962 plenum of the CC, held mainly to justify

the division of the party along production lines, Khrushchev was able to report some success in his struggle for more farm machinery and fertilisers.

Nevertheless, he conceded that there was intractable opposition in high places to a reduction in steel output. He said that some had put on steel blinkers and cried 'Steel, steel', when other materials which were cheaper and better were proposed.[34] Nevertheless, he was able to report that the Kirov works in Leningrad had been switched over from the manufacture of machinery to the production of large, powerful tractors. There was the possibility that a new factory for the production of tractors would be constructed. The production of mineral fertilisers was to reach 41 million tonnes in 1966 compared with 17 million tonnes in 1962.[35]

The harvest brought in during 1962 surpassed in volume, at long last, that of 1958. However, this was achieved with a record sown area and the average yield per hectare was below that of 1958.[36]

Despite the tremendous efforts made on the agricultural front, things had not been going as well as expected. The 1962 harvest, although a record, was not up to the volume laid down in the Seven-Year Plan. Figures were produced which showed that the average annual increment of agricultural output over the period 1953–8 was 8·5 per cent,[37] whereas the figure for the period 1954–62 dropped to 5·5 per cent.[38] What was even more devastating was that these figures conceded that agricultural growth over the period 1959–62 had been as low as 1·8 per cent. This cast a very long shadow over the claims that the country was successfully intensifying its agriculture.

The stagnation of agriculture during the three years after 1958 was due to many factors. The 1958 price reform was a step forward and helped to increase the cash income of many kolkhozes. It was not so welcome for prosperous farms which had been able to make over-plan deliveries and for those growing technical crops. Since 1958 was a good harvest year, prices were not especially high. The following year was disappointing but prices were not raised to compensate for the harvest. This put the farms in a difficult position, since they had purchased machinery from the MTS and had to pay for it over a short period. Farm income stagnated between 1958 and 1962. Income in 1960 and 1961 was actually lower than in 1959, which in turn was only slightly better than 1958. The net income of farms over the same period may have declined. The kolkhoznik must also have shared in this downturn in agricultural fortunes and it is generally accepted that his income declined after 1958. Capital investment devoted to electrification and machinery declined after

1958. It was only in 1962 for electrification and 1963 for machinery that 1958 levels of investment were surpassed.

Intensification became one of the stocks-in-trade of those who advocated increased inputs in agriculture. During the remaining period of Khrushchev's power the word gained wide currency. Indeed, it has retained its popularity ever since.

I. Buzdalov, an economist, placed an article in *Voprosy Ekonomiki* on the intensification of agriculture.[39] This, he argued, involved considerable expenditure. He maintained that the part of the national income provided by agriculture was capable of financing intensification. Buzdalov must have had in mind the taxes, turnover tax and other benefits which the state received from its rural sector. Only a part of these were ploughed back into agriculture via capital investment. State resources assigned to agriculture in 1963 were to rise by 17·8 per cent. The delivery of machines, fertilisers and other means of intensification were to rise by 10·5 per cent. Buzdalov was dissatisfied with these increases and added that in future these allocations would have to be increased. He did not believe that raising purchase prices for farm produce would itself solve the problem of increasing production. What was needed was the provisioning of kolkhozes and sovkhozes with equipment and means of intensifying their enterprises and lowering their costs of production.

An announcement appeared in *Pravda* on 4 June 1963 to the effect that the USSR Council of Ministers had been meeting to consider proposals put forward by Khrushchev to revise the technique applied in preparing the national plan. Khrushchev wanted more emphasis to be placed on new technology, especially substitutes for traditional metals. He stressed especially the potential of the chemical industry, which was not only capable of replacing some metals by plastics and other artificial substances, but also could produce mineral fertilisers, herbicides, insecticides and other chemicals vital to the intensification of agricultural production. There was also the possibility that substitutes would be found to replace some raw materials hitherto produced by agriculture. Gosplan was instructed to pay particular attention to the chemical industry.

These revelations did not mark any radical changes in resource allocation, but they revealed that the case made out for the chemical industry had had some effect. The chemical industry was to provide Khrushchev with hope that the deadlock over investment could be partially overcome. It was an all-purpose industry, it could provide metal substitutes and so weaken the case of the 'metal-eaters' and at the same time provide valuable inputs in agriculture.

In an interview with the American Rockwell Garst, whose ability to produce seed maize he greatly admired, Khrushchev stated that a

great chemical programme was under way.[40] It was of such a size that he thought that the USSR would overtake the United States in chemical production in five to seven years. Khrushchev, if not contemplating success in two to three years, tended to think of success according to Five- or Seven-Year Plans.

Details of this very ambitious plan were contained in a memorandum forwarded to the party Presidium on 12 July 1963. He proposed that the production of mineral fertilisers should be increased from 15·8 million tonnes in 1963 to 100 million tonnes in 1970. This enormous increase was to cost 5,800 million roubles in initial costs. Khrushchev hoped that some of this capital would be provided by pruning construction work. Sixty new factories would have to be constructed to produce the extra mineral fertilisers required. The number was large to eliminate excessive cross-hauling.

American success in raising yields by applying fertilisers had deeply impressed Khrushchev, and he was certain positive results could be achieved in the USSR.

In 1963, of the 15·8 million tonnes to be produced, only 1·9 million tonnes were earmarked for use on grain crops (excluding maize). Khrushchev was attempting to effect a revolution, not only in the quantity of fertilisers used, but also in how it was used. He wanted cereals to get their fair share of fertilisers, previously devoted mainly to technical crops. The goal was 45 million tonnes of fertiliser on cereals in 1970.

In conversation with a delegation of American specialists, which included the Secretary of Agriculture, Orville Freeman, on 30 July 1963, Khrushchev stated that the mineral fertiliser goal was 80–100 million tonnes by 1970. The cost had risen to an estimated 10,000 million roubles and construction work would be examined to find ways of economising on investment.[41]

Khrushchev was faced with tremendous difficulties in his campaign to popularise mineral fertilisers. It was one thing to deliver fertilisers to the farm; it was quite another to ensure that they were applied in the most economic manner. There existed a formidable education barrier which had to be overcome before consistently good results could be obtained. Farms had to be shown that fertilisers were an economic investment, as many of them were reluctant to apply them in large quantities. The problem of providing the extra transport necessary for the successful application of the fertilisers was not seriously discussed.

Some of the difficulties inherent in the Soviet situation emerge from a memorandum prepared by Khrushchev on the subject.[42] One suggestion he made in the memorandum was to cease exporting mineral fertilisers and thus boost the amount used on cereals. He maintained it would be better if the extra grain produced by using the formerly exported fertilisers was exported instead.[43]

Significantly, Khrushchev was forced to concede at a meeting with agricultural workers from the southern *oblasti* of the Ukraine on 27 September 1963 that pursuing the twin goals of mineral fertilisers and irrigation, although desirable, was not feasible in the conditions then existing in the Soviet Union. The country was not capable of providing the funds for both, so maximum attention would have to be focused on increasing mineral fertiliser production.[44]

Mineral fertilisers are not really effective in areas of low precipitation. Indeed, in drought years they can reduce yields. However, if the necessary moisture is provided through irrigation, high, consistent yields can be achieved. The only caveat to this is the absence of *sukhovei* (dry winds).

The XXII Party Congress passed the party programme which provided for an increase in the irrigated area from 9 million ha to 28 million ha. Khrushchev submitted a memorandum to the Presidium outlining ways of attaining this goal.[45]

He had to dress up his own package in the most attractive wrapping to make an impact on those who had grown cynical towards his suggestions for ameliorating agriculture. They were likely to consider his new venture as another doubtful panacea, produced from Khrushchev's bottomless box of agrarian tricks. As the situation became more pressing, the rabbits made their appearance more frequently. Khrushchev would have to sell his new venture really hard, since not only did it require mineral fertilisers to increase yields, but it also needed capital investment to build irrigation systems.

The programme outlined by Khrushchev was slowly put into operation. This is another of the list of measures adopted in the early 1960s which was accepted as economic by Khrushchev's successors. Irrigation is an important method of increasing the intensification of agriculture. Most of the Soviet Union's demand for rice, for example, will be produced in the southern dry steppe of the Ukraine as a result of the Kakhovka hydroelectric station providing a man-made lake which allows the requisite irrigation water to be drawn off.

Such is the capital expenditure required for irrigation and fertilisers that in one of the most fertile of the irrigated areas, the southern Ukraine, a yield of 3 tonnes per ha of winter wheat is required to produce an overall profit. This is about double the national average on non-irrigated land.

The disastrous 1963 grain harvest, the lowest since 1957, came as a bitter disappointment, especially since the previous year had produced a record crop. The vagaries of the weather contributed to

a certain extent, especially in Kazakhstan, but it was clear that Soviet agriculture had not advanced sufficiently in technique effectively to mitigate variations in natural conditions. Despite the huge investments in equipment in the previous decade, the yield per hectare for cereals was as low as during the last years of the Stalin era.

An editorial in *Kommunist*, occasioned by the tenth anniversary of the September 1953 plenum, analysed the situation after a decade of new agricultural policies.[46] The analysis could be subtitled 'trying to do too much too quickly'. Most of the writer's comments are banal. He states that the increase in the sown area of inter-tilled crops necessitated special new equipment and fertilisers. Sowing wheat year after year in the virgin lands produced wind erosion and weeds. Officials, both party and soviet, were castigated for their errors of omission.

The article was an admission of abject failure on many fronts. The most important question was never even adumbrated: why had the courses which had led to so much failure been adopted in the first place? Many of the recorded failures could have been anticipated by a specialist before the policies had been adopted.

One thing the writer had learnt from the failures was that the land frontier had been reached and that Soviet agriculture had to switch to intensification in order to extricate itself from its self-generated mess.

Khrushchev tried to put the blame on those who had opposed his recommendations for substantial increases in capital investment. Even this was not as good as it sounded. Total investment in agriculture increased rapidly after 1959 and in 1963 it was approximately 50 per cent higher than in 1958.[47]

The exact amount of fertiliser needed to produce the desired results by 1970 became a subject of controversy in the press. Khrushchev had originally quoted 100 million tonnes in 1970 as the goal but had subsequently backtracked and suggested 80–100 million tonnes by 1970.

The original goal found support in a *Pravda* editorial on 14 November 1963. The previous day *Izvestiya* had stated the same figure. A few days later, on 17 November, *Pravda* and *Izvestiya* carried a letter by a group of agroscientists. They questioned the validity of the goal of 86·4 million tonnes put forward by the USSR Ministry of Agriculture. Their main point was that really efficient use of fertiliser would reduce the volume required. They nevertheless advocated increasing investment in agriculture even if this entailed a reduction in the means earmarked for the manufacture of mineral fertiliser. Storehouses, machinery and transport were all needed.

In their technical analysis of the possibilities of using mineral fertiliser in the Soviet Union some very illuminating points arise.

They advocated the heaviest application of nitrogen, phosphates and potassium in the areas of adequate precipitation. This includes most of European Russia where the soils are non-chernozem and the northern part of the chernozem belt. Winter wheat yields could be pushed up to 23 centners per ha. The total sown area in this region was approximately 50 million ha.

The chernozem soils of the eastern wooded steppe and the steppes of the Ukraine and North Caucasus, an area covering 30 million ha, required less fertiliser since they were already well stocked with natural reserves of nitrogen. Grain yields here should be not less than 20 centners per ha.

The specialists proposed the application of only 10 kg of P_2O_5 per hectare over the drier parts of the Soviet Union. This expanse covering 65 million ha, included the virgin lands. It comprised the southern Ukraine, the eastern part of the North Caucasus, the southern part of the Volga, West Siberia and West Kazakhstan. The cereal yield was only expected to rise to 12 centners per ha.

The scientists calculated that eventually the 50 million ha of the zone of adequate precipitation, receiving the greatest amount of fertiliser, would produce about 140 million tonnes of grain, whereas the 65 million ha of the dry zone, capable only of utilising small amounts, could only be expected to produce approximately 80 million tonnes. The dry facts and figures of the scientists contained a sting in their tail. If the desired goal was to increase grain production, then maximum attention had to be paid to the traditional areas of cereal production. The dry farming zone, the centre of the virgin and idle land programme, was incapable of competing with the old regions on a purely production basis. More intensive farming, the apple of Khrushchev's eye for several years, had to be concentrated in European Russia.

The promotion of the chemical industry was the object of the December 1963 party plenum. Ambitious plans were announced which aimed at tripling the output of the industry over the period 1964–70.

In his report Khrushchev lowered his estimate for mineral fertiliser production in 1970 to 70–80 million tonnes.[48] However, of the 42,000 million roubles to be invested in the chemical industry over the seven-year period, approximately a quarter or 10,000 million roubles were to go to those branches of the industry directly servicing agriculture.[49]

Shortly after the plenum the state plan for 1964 and 1965 was passed.[50] State investment in agriculture was to amount to 11,500

million roubles for the two years as opposed to the 10,000 million roubles invested during the previous four years. Moreover, kolkhozes were to receive long-term credits to the value of 2,800 million roubles in the succeeding two years. Irrigation was not forgotten. It was planned to incorporate an extra 762,000 ha during 1964 and 1965, with 313,000 ha intended for cotton. One positive move from Khrushchev's point of view was the reduction of the military budget by 600 million roubles.

What proved to be the last plenum devoted to agricultural affairs during the Khrushchev era took place in February 1964. The main purpose was to launch a new campaign – the intensification of agriculture in the Soviet Union. This formidable task was to be based on the use of fertilisers, the development of irrigation, the widespread use of mechanical equipment and the raising of the technical standards of the farms. The main report was delivered, not by Khrushchev, but by the USSR Minister of Agriculture, I. P. Volovchenko. Khrushchev only addressed the plenum on the fifth day of the proceedings.

Volovchenko made little effort to disguise the magnitude of the problem which faced Soviet agriculture. Maps had to be produced in order to make it possible to apply mineral fertilisers in a rational manner. Land surveyors were in short supply and the demand for soil and other types of maps was very great. The German Democratic Republic was held up as a model in this respect.

No attempt was made to cover up the errors of the rapid extension of the sown area. Volovchenko stated bluntly that enormous damage was being caused to agriculture by wind and water erosion. The situation had become so serious that a special session of the All-Union Academy of Agricultural Sciences had been devoted to it.

The Minister's speech is a catalogue of the measures which had to be adopted in order to switch over to a more intensive agriculture. Their realisation in the short run was quite out of the question; a minor revolution was necessary before they could be implemented successfully. The old methods which achieved results under an extensive system of agriculture, basically the campaign and local pressure, are quite incapable of solving the much more involved problems of intensified cultivation. When agricultural inventories are limited, mistakes are not catastrophic, but the higher the capital intensity of agriculture the more costly each mistake becomes. The neglect and the exploitation of the soil inherent in extensive agriculture will have to be redeemed and the Soviet Union may find herself forced to invest more heavily in the future than she need have done had more attention been paid to that basic means of production, land.

It was, perhaps, the crowning irony that the year which produced the record Soviet harvest, 1964, should also have marked the departure of Khrushchev not only from the agricultural but also from the national scene. Too many costly errors had been committed during the decade which began with Stalin's death to allow him to absolve himself of total blame by referring to the vagaries of the weather, the inadequacy of cadres, the lack of technical equipment and know-how and the opposition of conservatives who had little sympathy for agriculture or for those who were trying to turn the Soviet Union into a land of plenty, at least as far as foodstuffs were concerned.

Of course, Khrushchev had set himself and the nation's farms an impossible task. A country which has not paid sufficient attention to crop rotation and which has not mastered mixed husbandry or balanced farming could not be expected to solve the intricacies inherent in intensive monoculture. Machinery and other technological aids are important, but the human operator is the more important. He it is who makes the production decisions. He is the key to the whole problem.

Khrushchev, despite creating the impression of being truly in control, was never able to defeat the *apparat* system. Such was the power of the *apparatchiki* that they finally broke Khrushchev.

The following tables graphically illustrate Khrushchev's record. He was much more successful at increasing agricultural inputs than agricultural output. It is interesting to follow the techniques whereby Khrushchev strove to outmanoeuvre his detractors who were responsible for vitiating or emasculating so many of his reforms.

The period up to 1958 proved very successful for him. He launched the virgin land programme, dissolved the MTS, set up the *sovnarkhozy* and defeated the conservatives in mid-1957. The harvest of 1958 proved a bounty and gave Khrushchev the economic vindication he required.

However, success can be too great. Others in positions of power are liable to become concerned lest the success of the leader of the party sweeps them from their perches. Few were willing to allow Khrushchev the opportunity of becoming a second Stalin. The more success Khrushchev enjoyed, the more determined the opposition to block his progress before it was too late.

There was great CC activity in 1958 when Khrushchev was seeking to consolidate his victory over the anti-party group. There were five plenums during the year, revealing that Khrushchev was not finding the consolidation of his power plain sailing.

Afterwards plenary sessions of the CC were held in the presence of a larger audience which included lower officials and leading kolkhoz operatives. These persons were not members of the CC and

sometimes not even members of the party. This added grass-roots support to Khrushchev's policies which was bound to turn up in the press, and in the subsequent published reports of the meetings. Often the meetings were announced in advance and this gave many supporters the opportunity of voicing their opinions which frequently were published in the press.

This type of campaigning must have appealed to the rank and file who had the opportunity of achieving overnight stardom. It was evanescent but soothing to the ego. The permanent members of the CC, especially those who had not climbed on to the Khrushchev bandwagon, must have reacted with scarcely concealed dismay at his tactics. Some CC meetings such as those in May 1960 and April 1962 were restricted to the CC membership. After October 1964 the CC plenums reverted to closed sessions with little published afterwards.

Baulked more often than not in the CC, Khrushchev resorted to another tactic in order to bring home the pressing necessity for the adoption of the measures he was proposing. Extensive tours of the country were followed by memoranda outlining his experiences. These he submitted not to the CC but to the Presidium. It is difficult to resist the conclusion that since he had great trouble in persuading the CC that his course of action was legitimate, it would be an even more complex operation to convince the Presidium. As the agricultural situation gave him grounds for concern – and Khrushchev can hardly have been satisfied with any year after 1958, with the possible exception of 1962 – he increased his memoranda output. From a total of two in 1960 and 1961 it cascaded to nine in 1962 and seven in 1963. This was not a new tactic by Khrushchev; it will be remembered that his original proposals on the virgin land venture were contained in a memorandum submitted to the Presidium in January 1954. One is tempted to conclude that had Khrushchev had full confidence in a majority in the Presidium or CC he would have convened meetings and addressed the gathered assembly. As it was, he was forced to bombard the redoubt of the Presidium with paper missives.

He did not submit a single one in 1964. He may have considered the splitting of the party and soviets into industrial and agricultural wings, the TPA, the chemical and mineral fertiliser drive, the anti-fallow drive and the irrigation drive as enough to be going on with. One of the projects which he was nourishing in his head and which never came to fruition was the plan to set up committees for the production and procurement of each and every agricultural product. This would have added confusion to chaos in the countryside. One simple example will suffice to show the hare-brained nature of this

project: beef and milk production, to be successful, must be planned together.

TABLE 5.1 Some Agricultural Inputs, 1953–8 and 1958–64[a]

	1958 (*1953 = 100*)	*1959*	*1960*	*1961* (*1958 = 100*)	*1962*	*1963*	*1964*
Sown area	124	100	104	105	110	111	109
Chemical fertiliser deliveries[b]	159	105	107	110	126	146	205
Deliveries of machinery:							
Tractors	207	92	100	118	131	152	141
Lorries	148	75	65	68	81	67	62
Grain combines	158	82	88	108	122	123	121
Capital stock[c]	190	113	124	134	152	171	197
Productive investment by socialised sector, total	248	108	110	121	134	148	175
By the state	266	89	108	131	148	171	211
By the kolkhozes	239	126	111	112	121	126	142

[a] All agriculture, i.e. including private plots.
[b] Converted to active ingredients.
[c] Excluding livestock.
Source: Nancy Nimitz, *Farm Employment in the Soviet Union, 1928–63* (Santa Monica, Calif., 1965) p. 4; *Narkhoz 1964*, pp. 68, 267, 338, 518.

TABLE 5.2 Global Agricultural Output per Man-Day, 1953–63[a] (1953 = 100)

	Global output	*Man-day input*	*Output per man-day*
1953	100	100	100
1954	104	103	101
1955	116	105	110
1956	132	101	131
1957	134	99	135
1958	149	100	149
1959	149	99	150
1960	153	102	150
1961	157	106	148
1962	159	106	150
1963	147	104	141

[a] All agriculture.
Source: Calculated. Based on data in Nancy Nimitz op. cit.

AGROPOLITICS IN KAZAKHSTAN

Those who expect to find reverberations of the Malenkov–Khrushchev struggle at the top in Kazakhstan will be disappointed. The two

Secretaries carried out the policy which they had been posted to Kazakhstan to fulfil. The total area of new land subjected to the plough in 1954 reached 8·6 million ha, as against the original goal of 6·3 million ha. Ponomarenko received his share of praise for the promotion of the scheme. In his speeches he asked for greater efforts and emphasised the assistance afforded Kazakhstan by the Soviet government. However, his administrative success in organising the ploughing-up of vast areas of new land did not prevent him from being dismissed in May 1955. He was named Soviet ambassador to Poland. It appears to be no accident that his demotion should have come a few months after Malenkov's resignation as Chairman of the USSR Council of Ministers. Ponomarenko was never attacked in public over his record in Kazakhstan.

L. I. Brezhnev was not appointed First Secretary until August 1955, a delay of three months. This would lead one to assume conflict at the centre over a successor to Ponomarenko. Since Brezhnev was seen as a follower of Khrushchev, it was natural to expect a Second Secretary whose career had had little contact with Khrushchev; indeed a conservative linked with the aspirations of heavy industry was on the cards.

In the meantime Brezhnev was in *de facto* control. He must have used his time to advantage, since on assuming the First Secretaryship he was under no illusion about the prospect of success in Kazakhstan and had no desire to remain long enough to be judged, not by implementation of decrees, which was not too difficult, but by grain production. He stayed only seven months in the top party post. As things turned out, 1956 produced an excellent harvest, but natural conditions were favourable so Brezhnev had more time than he realised. He is the only *apparatchik* to have used the position of First Secretary in Kazakhstan as a stepping-stone to greater things. After his departure success was measured, not by the number of hectares ploughed up in new areas, but by the volume of the grain harvest. Without exception, those who followed him found themselves between the devil and the deep blue sea.

The new Second Secretary to succeed Brezhnev turned out to be I. D. Yakovlev, previously First Secretary of Novosibirsk *oblast*. Yakovlev, coming from an *oblast* which had ploughed up close on 700,000 ha in 1954, could be said to know something about the problems of virgin land. Nevertheless, the soils are not exactly similar. Dry farming techniques must be applied in Kazakhstan whereas more traditional methods can be applied in Novosibirsk *oblast*.

In 1957, as First Secretary, Yakovlev was at variance with Khrushchev over the numbers of *sovnarkhozy* to be set up. Khrushchev had proposed that *sovnarkhozy* should be set up in *oblasti* where industry

was well developed but allowed for some cases where industry had not yet been very highly developed. Yakovlev and several others favoured the idea of regarding the whole of Kazakhstan as one *sovnarkhoz*. Yakovlev's thinking on this issue shows that he was not relying on Khrushchev for advancement. He made his stand against the decentralisation of decision-making in industry and lost.

Yakovlev had become First Secretary in March 1956 on the promotion of Brezhnev to a secretaryship of the Central Committee in Moscow. Yakovlev lasted until the end of 1957 when his opposition in industrial affairs and the failure of the 1957 harvest to come up to expectations provided enough ammunition to have him removed.

Brezhnev left Kazakhstan early in 1956 with neither success nor failure accompanying him. Had he remained until the end of 1956 the very successful harvest of that year, for which 40,000 awards were made, might have required him to stay longer. One can surmise that the personal knowledge of the virgin land scheme which Brezhnev was able to collect revealed to him the limited possibilities of the long-term success of that venture. He may have known from a very early stage that Khrushchev was on a slippery slope and would find it very difficult to extricate himself from part of the blame for the inevitable bad harvests. Brezhnev was ensconced in Moscow in the party Secretariat and could judge the overall position much better than if he had been on the periphery in Kazakhstan. Khrushchev's frequent absences from the capital threw an added responsibility on the Secretaries of the Central Committee.

Yakovlev's successor as First Secretary was N. I. Belyaev. He had promoted the cultivation of virgin land, including the setting-up of new sovkhozes, for which he was criticised by Malenkov in 1954, in the Altai and other parts of Siberia from the very beginning. He had been one of the first to draw attention to the possibilities of an expansion of extensive agriculture in the east.

Belyaev was obviously a personal appointment by Khrushchev and reveals the significance of Kazakhstan in the thinking of the First Secretary. Belyaev, at the time of his appointment, was a Secretary of the CC of the CPSU and a member of the Presidium. His appointment underlined the significance which Khrushchev attached to Kazakhstan, the heartland of the virgin land venture.

The excellent harvest of 1958 inspired optimism and the Seven-Year Plan was based on its exceptional output. Disappointment was certain to follow, because nature is not perennially bountiful. Soviet agriculture is more prone to be influenced by climate than those countries in which agrotechnology is more advanced. Wind erosion was certain to become a problem owing to the annual tilling of rather light soils on a flat plain.

The first year of the loudly heralded Seven-Year Plan proved very disappointing on the agricultural front. It was an unexpected and thus bitter blow, since the June 1959 plenum had portrayed the harvest as promising fair. Belyaev had said so himself. Kazakhstan had even been congratulated on its successful endeavours in agricultural production in 1959.

The reckoning came at the December 1959 plenum when even the success of the 1958 harvest could not save Belyaev. It appears that Khrushchev was genuinely misled by Belyaev and Kunaev, the Chairman of the Council of Ministers of Kazakhstan. What really caused Khrushchev's anger to rise was the fact that over 1·6 million ha of grain had not been harvested in Kazakhstan. Belyaev blamed the weather and the poor state of repair of the machinery park. Khrushchev claimed that Belyaev had assured him that the machinery necessary for normal harvesting was available.

One of the drawbacks of the virgin land programme in Kazakhstan was the paucity of the machinery available. The republic did not then possess an agricultural machinery plant and had to rely on a large number of producers in other parts of the Soviet Union. Khrushchev expressed surprise that 32,000 combine harvesters had not participated in harvesting work. This was no new revelation to him. Poor-quality machinery was one of the problems of life in Soviet agriculture. Apparently the same number of spare parts are manufactured in the Soviet Union as in the West. But Soviet conditions are such that machinery, on the average, breaks down more often. It was also not news to Khrushchev that Kazakhstan was short of agricultural machines. He had carried on an unrelenting struggle to boost machinery production ever since 1953, and was aware of the realities of the situation. The virgin lands had special problems not met with in more traditional agricultural areas. Technicians were always in short supply and the turnover was too rapid for comfort.

Khrushchev's indictment of Belyaev sought to create the impression that the 1959 harvest failure was due to administrative incompetence. Had Belyaev been effective as First Secretary, all would have turned out all right. Belyaev appears to have assured Khrushchev that all would be well. When he failed to keep his word Belyaev was certain to be criticised. Nevertheless he must have been surprised at the severity of the sentence – dismissal from the First Secretaryship in Kazakhstan and loss of his Presidium seat at the centre.

An old adversary, A. I. Kozlov, came in for praise at the December 1959 plenum. He had been in the Agricultural Department of the CC before the death of Stalin and had come in for sharp criticism

by Khrushchev during the reign of Malenkov as Chairman of the USSR Council of Ministers. Among other things he had been USSR Minister of State Farms. He had mended his ways and was at that time director of a sovkhoz in Kazakhstan. Such was his change of heart that he had become an enthusiastic maize grower! Khrushchev was so pleased that Kozlov was awarded the Order of Lenin.

D. A. Kunaev, previously Chairman of the Council of Ministers, was promoted First Secretary to replace Belyaev. Kunaev was a non-Russian, and with the appointment of N. N. Rodionov, a Russian, as Second Secretary, Kazakhstan reverted to the normal procedure of pre-Ponomarenko days – a native First Secretary aided by a Russian Second Secretary.

Rodionov had previously been First Secretary of the Leningrad city party and his selection may have been influenced by his engineering experience. A party official with technical experience was badly needed in Kazakhstan.

Kunaev became First Secretary despite Khrushchev's criticism of him at the December 1959 plenum. What may have influenced the selection of Kunaev was that he knew the republic intimately, he was by training a metallurgical engineer, and Khrushchev's view that the foundation for the success of the virgin land scheme had been laid already in Kazakhstan. Almost 23 million ha had been cultivated by 1958 and there was little room to expand this figure.

In January 1960 a Kazakh Ministry of State Farms was set up in order to direct agriculture throughout the six northern *oblasti*. In fact the Ministry was to include under its wing the kolkhozes in the areas as well. It was to have jurisdiction over all agricultural enterprises in northern Kazakhstan.

Together with the new Ministry, a Bureau of the CC of the Communist Party of Kazakhstan for northern *oblasti* was established. Its centre was Akmolinsk, which Khrushchev was to rename Tselinograd, since the former name means a white sepulchre, so the story goes. Henceforth agriculture in the republic was divided between the newly cultivated lands of the north and the more traditional areas of the south which concentrated on technical crops. There is no doubt about the instigator of the changes. *Kazakhstanskaya Pravda* stated that the Bureau and the Ministry of State Farms had been created 'on the initiative of the CC of the CPSU and N. S. Khrushchev personally'.[51]

The rather disappointing grain harvest of 1960 moved Khrushchev to consider more administrative innovations. The end result was the formation of the Virgin Land *krai* in December 1960.[52] The reasons behind this démarche are contained in a memorandum submitted to

the Presidium of the CC of the CPSU, dated 29 October 1960. In it Khrushchev reveals that D. A. Kunaev had proposed the scaling-down of the size of the *oblasti* in the virgin land area. He suggested the creation of one more *oblast*. Khrushchev rejected the idea and claimed that a new *oblast* would require an apparatus of no less than 500 officials. This figure was based on 4–5 administrative officials per sovkhoz at *oblast* level.

Khrushchev instead proposed the setting-up of a *krai* to embrace the northern *oblasti* of the republic (Virgin Land *krai*). This, he maintained, would permit a reduction in the staff of the Council of Ministers, Gosplan and other republic organisations, the *oblast* party committees, the *oblast* soviet executive committees and other *oblast* organisations without increasing the number of officials in the republic. He revealed that a short time before the decision had been taken to plan separately the technical supply and financing of the virgin land *oblasti* of Kazakhstan. This was to strengthen the responsibility of Union organs for the development of agriculture in the region. He wondered whether it might not be better to subordinate the *krai* party committee, the *krai* soviet executive committee and the Ministry of State Farms in the virgin lands to dual direction, i.e. they would be republican organs but leadership would be exercised for five to seven years by the CC of the CPSU and the USSR Council of Ministers. Planning would also be from the centre.[53]

This appears to have been implemented, but Khrushchev had to contend with local attempts to influence the functioning of *krai* organisations. He is on record instructing D. A. Kunaev and M. B. Beisebaev, Chairman of the Kazakh Council of Ministers, to refrain from interfering in *krai* organisations. Kunaev was further criticised for the failure of planning organs to follow the special procedures laid down for them in the virgin lands.[54]

Obviously the task of running the virgin land administration from Moscow proved a rather intractable problem. Kunaev was rebuffed over his proposal to set up a new *oblast* in 1960 but continued as First Secretary until the end of 1962.

The first Minister of State Farms in northern Kazakhstan was A. I. Kozlov, who had had experience of grain production in the virgin lands.

Kozlov was in effect to oversee agricultural production in northern Kazakhstan. The Bureau of the CC of the CP of Kazakhstan provided party control in the area.

Kozlov only remained Minister for the 1960 harvest, which was not up to expectations. Appointed in early 1960, he was dismissed in early 1961. His successor was F. E. Savitsky, who lasted until the Territorial Production Administrations were set up in March 1962.

They linked sovkhozes and kolkhozes, so there was no need for a ministry which duplicated the task.

Despite the high hopes placed on Kunaev and Rodionov they failed to meet the goals set for them. The 1960 harvest was lower than 1959 and the sown area was over 1 million ha less than under Belyaev in 1958.

The 1961 harvest was an even greater disappointment. It was more than 30 per cent down on 1958 with a slightly reduced sown area.

The following year, 1962, was just as bad. A determined effort to plough up fallow had resulted in a record sown area. Nevertheless, the yields achieved were actually lower than in 1961. What was worse, yields had been falling continuously ever since the record 1958 harvest. This made determination to expand the sown area all the greater. Everything had to be sacrificed to extensive agriculture.

Notwithstanding their failure to improve on Belyaev's record, Kunaev and Rodionov weathered all storms until they were finally removed at the end of 1962.

Kunaev could hardly be faulted on the fulfilment of administrative orders from the centre during his tenure of office. He raised the area sown to grain from almost 22 million ha in 1960 to an all-time record of more than 24·5 million ha in 1962. He revealed no scruples about ploughing up fallow but had to contend with natural difficulties which presented problems that proved insuperable. Weeds, soil erosion, extreme weather conditions and the incorrect tillage methods were bound to affect grain production. His training as an engineer did not fit him for solving problems which had been needlessly exacerbated by previous incumbents of his post.

In another direction Kunaev was eminently successful. He expanded the area sown to maize, in all its forms, from under 2 million ha in 1960 to almost 3 million ha in 1962. Of the 1962 area, only 105,000 ha were sown to maize for grain. Khrushchev's well-known penchant for switching from grass to maize silage as fodder was well cultivated in Kazakhstan.

Kunaev must have felt disappointed at his dismissal since he could claim to have fulfilled the centrally decided success indicators. His only notable failure was in achieving grain production goals. Attenuating circumstances were not difficult to find, but Khrushchev desperately needed spectacular successes in the virgin lands. His main objection could have been that under Kunaev's direction yields per hectare had continued to fall. If the Seven-Year Plan was to succeed on the grain front, expanding the sown area in Kazakhstan was not enough; yields had to increase too.

I. Yu. Yusupov, a non-Russian, succeeded Kunaev, who reverted to his former position of Chairman of the Council of Ministers, and

a Russian, M. S. Solomentsev, became Second Secretary. They lasted until Khrushchev passed from the scene and were dismissed in December 1964.

Their two years were very eventful. The 1963 harvest was a disaster, but that for 1964 was the greatest ever achieved in the Soviet Union up to that date. That they did not fall after the calamities of 1963 but after the triumphs of 1964 leads one to the conclusion that their dismissal was not tied to the size of the harvest but was due to their association with Khrushchev. A new broom had to sweep clean.

Brezhnev, the First Secretary of the party, knew Kazakhstan well and had visited it several times after his translation to the CC Secretariat. He chose Kunaev to replace Yusupov and V. N. Titov, a Ukrainian and an engineer by training, became the new Second Secretary in April 1965. Titov had previously been a Secretary in the CC of the CPSU.

It is popularly held that the reason for the turnover at the top of the party apparatus in Kazakhstan during the decade when Khrushchev was First Secretary of the CPSU was inability to attain targets set at the centre. But this does not apply to Ponomarenko and Brezhnev. Ponomarenko was successful in attaining the goals set and faded from the picture because of his association with Malenkov. Brezhnev was successful in effecting a transfer which was also a promotion – a secretaryship of the CC of the CPSU. All the others failed by varying margins to come up to scratch, but no one was dismissed after one year after the departure of Brezhnev, and Yusupov and Solomentsev were dismissed after a second harvest, on political grounds. Kunaev is an even stronger contrary instance: all his three years, 1960, 1961 and 1962, were disappointing. Only Yakovlev and Belyaev obey the alleged rule: they were dismissed in the second year, after one good and one bad harvest.

NOTES

1 *Resheniya partii*, vol. IV, pp. 192–7.
2 *Direktivy KPSS*, vol. IV, pp. 392–8.
3 Ibid., pp. 372–92.
4 *Kommunist*, no. 8 (1955) p. 3.
5 Khrushchev, in retirement, put the relationship between party and government organs thus: 'We should remember that while the party plays the leading political role in our system, the function of our socialist institutions is to organise production in the most efficient way. Under private enterprise, profit is the determining factor. Under socialism we don't have private property, so the determining factors should be sensible controls, sensible administration, and sensible distribution. So far we have failed on all three counts, primarily because we have failed to give more independence to our state and collective farms.' Talbott (ed.), op. cit., p. 138.

6 *Resheniya partii*, vol. IV, pp. 288–90.
7 Ibid., pp. 290–7.
8 Compulsory deliveries from private plots were finally abolished in a party and government decree dated 4 July 1957. This was in line with the policy of encouraging the kolkhoznik to run down his private plot and treat it as source of vegetables, fresh fruit and berries only.
9 Leo Gruliow (ed.), *Current Soviet Policies* (New York, 1956) p. 58.
10 Molotov, Khrushchev later claimed, opposed the reform, calling it an 'anti-Marxist measure' and claiming that it meant 'destroying our socialist achievements'. Talbott (ed.), op. cit., p. 126.
11 This information was provided in a conversation with an ex-MTS economist.
12 Khrushchev, op. cit., vol. VII, pp. 163–77.
13 Khrushchev, in the evening of his life, held to these views: '. . . it is intolerable to let party administrators manage agriculture when they don't have the proper training, yet that's precisely the situation today: as a rule the people promoted to the posts of secretaries in the district (*raion*), regional (*oblast*) and territorial (*krai*) party committees have their training in engineering. In other words, they're experts in urban rather than rural affairs. So they are allowed to administer agriculture, while the training of many of our agricultural experts goes to waste.' Talbott (ed.), op. cit., p. 137.
14 E. Strauss, *Soviet Agriculture in Perspective* (London, 1969) p. 221.
15 This total of 180 million tonnes of grain had been set by the XX Party Congress as the goal for 1960.
16 P. Baranov, in *VE*, no. 8 (1957) pp. 63–71, came out strongly for the use of chemicals to increase yields in agriculture and refuted the argument that fertilisers on large areas sown to cereals were uneconomic.
17 *VE*, no. 5 (1958) p. 7.
18 I. D. Laptev, *VE*, no. 9 (1958) pp. 93–6. This was an account of what he had said at a conference of social scientists in June 1958. N. Anisimov, *Kommunist*, no. 18 (1959) pp. 10–19, stated that the anti-party group had opposed the virgin land programme on the grounds that it represented extensive agriculture.
19 These amount to an increase in skill and are only part of the requirements necessary to justify the use of the term 'intensification of agriculture'.
20 Khrushchev, op. cit., vol. V, pp. 55, 294.
21 Ibid., vol. VI, p. 173.
22 Ibid., p. 218.
23 *Plenum Tsentralnogo Komiteta KPSS, 5–9 Marta 1962 g.* (Moscow, 1962) pp. 38–40. As it turned out, the total area sown to grain in 1962 was 128·7 million ha or 6·4 million ha more than in 1961. Maize for fodder increased by 11·5 million ha, peas by 2·4 million ha, sugar beet for fodder by 1·5 million ha and beans by 2·9 million ha. *Narkhoz 1962*, pp. 259–62.
24 Ibid., pp. 29–30.
25 Ibid., pp. 134, 208.
26 V. F. Mashenkov, *Ispolzovanie trudovykh resursov selskoi mestnosti* (Moscow, 1965) p. 111.
27 In 1962 labour productivity in kolkhozes increased by 3 per cent and in sovkhozes by 7 per cent compared with 1961. *Strana Sovetov za 50 let* (Moscow, 1967) p. 125.
28 Khrushchev, out of office, showed he was aware of the drawbacks of a campaign: 'I remember once Grechko told me he had a brother working on a state farm in the Kharkov Region who complained about being forced to plant too much maize. I thought Grechko's brother had a point. I took the matter up with Comrade Podgorny who was then in the Ukraine. "You're

overdoing the maize compaign." "What will we feed our cattle if not maize?" he retorted. He gave me a long song-and-dance about why he had no choice, but I think he was just toadying. There was a lot of that kind of shameful irresponsibility, and it inflicted serious economic and political damage on our socialist system.' Talbott (ed.), op. cit., pp. 133–4.

29 Khrushchev, op. cit., vol. VII, pp. 20–7. The interview took place on 20 April 1962.

30 Robert S. McNamara, *The Essence of Security* (London, 1968).

31 Decree of the USSR Council of Ministers in *Pravda*, 1 June 1962. The appeal, issued in the name of the party and government, which accompanied this decree, gave details of the aid extended to agriculture in the course of the previous year. There were reductions in the prices of farm machinery, spare parts and fuel and cuts in income tax. This was stated to mean an annual saving of 900 million roubles to the kolkhozes. On 14 February 1962 the USSR Council of Ministers had adopted a decree placing the prices paid by kolkhozes for building materials, metal and hardware on a par with those paid by sovkhozes. This meant an annual saving of 250 million roubles for the kolkhozes. Besides this, an extra 210 million roubles had been allocated to sovkhozes for capital construction in animal husbandry.

32 Khrushchev, op. cit., vol. VII, pp. 126–42. Cf. his speech to secretaries of party committees of TPA in the RSFSR on 12 March 1963, pp. 432–72, in which he gives details of the manufacture and utilisation of farm machinery.

33 Ibid., pp. 143–62. The memorandum is dated 5 September 1962.

34 *Plenum Tsentralnogo Komiteta KPSS, 19–23 Noyabrya 1962 g.* (Moscow, 1963) p. 51.

35 Ibid., p. 70.

36 *Strana Sovetov za 50 let*, p. 133.

37 N. Khlebnikov, *VE*, no. 7 (1962) p. 49.

38 *Kommunist*, no. 8 (1963) p. 20 (editorial). This compared favourably with the figure of 1·3 per cent annual increase for the years 1949–53.

39 *VE*, no. 1 (1963) pp. 63–72.

40 Khrushchev, op. cit., vol. VIII, p. 14. The conversation took place on 10 May 1963.

41 Ibid., pp. 44–61. It is interesting to note that the output of mineral fertilisers in 1964 was almost the same as that proposed by Malenkov in 1953.

42 Ibid., pp. 105–13. It was dated 5 September 1963.

43 Ibid., p. 127.

44 Ibid., p. 224.

45 Ibid., pp. 91–102. The memorandum was dated 14 August 1963.

46 *Kommunist*, no. 13 (1963) pp. 3–11.

47 *Strana Sovetov za 50 let*, p. 203. Total investment in the same period increased by 40 per cent.

48 *Plenum Tsentralnogo Komiteta KPSS, 9–13 Dekabrya 1963 g.* (Moscow, 1964) p. 42.

49 Ibid., p. 17.

50 *Pravda*, 17 Dec 1963.

51 *Kazakhstanskaya Pravda*, 11 Mar 1960.

52 In retirement, Khrushchev stated that the setting-up of the Virgin Land *krai* was necessary since 'we didn't want to channel our investments through the Republican (that is, Kazakh) government or planning commission because we were afraid that resources earmarked for the Virgin Lands might end up in other branches of the Kazakh economy'. Talbott (ed.), op. cit., p. 124.

53 Khrushchev, op. cit., vol. IV, pp. 168–70.

54 *Kazakhstanskaya Pravda*, 26 Dec 1962.

6 The Virgin Lands: The Balance Sheet

THE COST OF THE VIRGIN LANDS

To attempt a cost analysis of the new lands is to undertake a task of incredible complexity. Considering the paucity of information available on the subject and the difficulties of interpreting the available Soviet data, no claims are made that the following remarks touch more than the tip of the proverbial iceberg.

The average grain yield in the new lands of Kazakhstan over the period 1954–64 was approximately 7·5 centners per ha.[1] This metric measurement is roughly equivalent to 6 cwt an acre. Few farmers in Western Europe could survive for long if their yields remained at such a level. Taking into consideration the economies of scale in Kazakhstan, it is still with difficulty that one resists the temptation to classify the whole virgin land venture as a very expensive method of producing grain, even before attempting to cost the operation.

Khrushchev, since he was the initiator of the campaign, needed corroborative evidence that the undertaking was proving a financial success. The figures in Table 6.1 were quoted on numerous occasions and provide many insights into the progress of the campaign. They end in 1962, since Khrushchev declined in a speech at a conference in February 1964 to furnish figures for 1963, stating that the weather then had been especially unfavourable.[2] The 1954–65 data were published in 1969. From Table 6.1 can be derived the annual figures given in Table 6.2.

The undertaking performed creditably until 1960. Until then, net income kept roughly in step with investment. In 1961 and 1962, despite an extra investment of 2,300 million roubles, a net loss of 200 million roubles had to be registered. One of the reasons for this dramatic reversal of fortunes in the virgin lands was the very severe losses due to soil erosion in 1960. The losses necessitated an expansion of the sown area in order to retain the same area under crops. Something like 350 new sovkhozes were set up either on virgin land

TABLE 6.1

	1954–8	*1954–9*	*1954–60*	*1954–61*	*1954–62*	*1954–65*
	(milliards of roubles)					
Additional capital investment[a]	3·1	3·7	4·4[e]	5·3	6·7	9·8
Turnover tax and profits	4·9	6·2	7·6	8·6	9·7	11·5
Net income[b]	1·8[d]	2·4	3·2[f]	3·3	3·0	1·7
Production funds of sovkhozes, etc.[c]	2·4	3·0	3·5	4·3	4·7	–

TABLE 6.2

	1954–8 (average)	*1959*	*1960*	*1961*	*1962*	*1963–5 (average)*
Additional capital investment	0·6	0·6	0·7	0·9	1·4	1·0
Turnover tax and profits	1·0	1·3	1·4	1·0	1·1	0·6
Net income	0·4	0·6	0·8	0·1	−0·3	−0·4
Production funds of sovkhozes, etc.	0·5	0·6	0·5	0·8	0·4	–

[a] This means investment in all virgin land areas (RSFSR and Kazakhstan) over and above normal capital investment in those regions. It includes equipment, machinery, training and transport of cadres, installations, etc.

[b] Net income *(chisty dokhod)* is additional investment deducted from turnover tax and profits.

[c] These include funds of sovkhozes, MTS, RTS, and procurement organisations at the end of a period. They are inclusive of additional capital investment.

[d] RSFSR 0·93, Kazakhstan 0·89.

[e] RSFSR 2·3, Kazakhstan 2·1.

[f] RSFSR 1·9, Kazakhstan 1·3.

Sources: R. D. Laird and E. L. Crowley (eds.), *Soviet Agriculture: The Permanent Crisis* (New York, 1965) p. 45; A. Strelyany, *Novy Mir*, no. 5 (1969) p. 259.

or by transforming existing kolkhozes into sovkhozes. 1962 was also a year of soil erosion and this palpably influenced the financial situation.

1963 was a very poor one for the virgin lands, with average yields in Kazakhstan dropping to 4·4 centners per ha. However, Khrushchev's removal in 1964 occurred in a year of bumper harvests with the virgin lands contributing their share. If one averages the yields of 1963 and 1964 one gets 7·1 centners per ha, in other words, roughly the average for the period 1954–64.

The disappointing harvest of 1965 contributed little to the profitability of the virgin lands. Indeed, the period 1963–5 recorded a

net loss of 1,300 million roubles. This seriously affected the viability of the whole enterprise. Investment over the period 1954–65 recorded a net income of 1,700 million roubles. Over the period 1954–61 it had been as high as 3,300 million roubles. Thus the years 1962–5 were very costly to the Soviet Exchequer.

D. A. Kunaev, First Secretary of the Communist Party of Kazakhstan, writing in 1967, stated that over the years 1954–65, 8,500 million roubles had been invested in the virgin land areas of the republic. This sum covered the construction of railways, highways, schools, hospitals, etc., as well as purely agricultural investment.[3]

Although the virgin lands were regarded primarily as producers of grain, they were capable of providing animal products as well. Such was the demand for beef, milk, mutton, wool, etc., in the Soviet Union that the output of them had to be maximised. After all, had Khrushchev not hit on the slogan of surpassing the United States in per capita production of animal products?

The gross capital investment quoted above includes the provision and housing of cattle, sheep, pigs, etc., in the virgin lands. Because of uncertain precipitation, fodder supplies were not always adequate in the new lands. This restricted the expansion of cattle and pig herds, but sheep fared better.

There are no separate statistics available on the progress of animal husbandry in the virgin lands, probably owing to the fact that this branch of agriculture was nothing like as successful as grain production. In fact over the period 1954–62 it must have recorded a net loss, since Khrushchev never made any claim that animal husbandry had produced a profit in the new lands. This is hardly surprising, since it was only in the later 1960s that animal husbandry in kolkhozes and sovkhozes could claim to have shown a small net profit in the country at large.[4]

Nevertheless, it was stated that over the period 1954–62 compared with the average 1949–53 figures, the virgin lands sold to the state an additional 8·1 million tonnes of meat (live weight), 23·8 million tonnes of milk and 566,000 tonnes of wool. There is reason to believe that these products cost more to produce than the national average. In a study of virgin land sovkhozes, V. Semenov stated that in 1960 they produced, per 100 ha, 4·1 times less milk, 3 times less meat, 10 times less pork and 2·3 times less wool than the average sovkhoz in the USSR.[5]

Global grain production and state grain procurements in the virgin lands are given in detail in Tables 4.5 and 4.9.

The increase in grain procurements over the period 1954–64 compared with the 1949–53 period amounted to 15·6 million tonnes

annually. Of this, the virgin lands contributed 15·3 million tonnes annually. In other words, the virgin lands contributed almost the entire increase in grain procurement since 1954. This has meant that other regions which hitherto, because of the lack of commercial grain, had to grow much grain have had their procurement quotas reduced and have been able to concentrate on other crops or animal husbandry. This has been of special advantage in areas such as the North-West of the RSFSR, the Baltic States and Belorussia, where it is very expensive to produce grain.

How expensive was it to switch so much grain production to the east? Presumably it was considered advantageous to allow some of the best land, for example in the Ukraine, to switch over to technical and fodder crops. This would imply that a rise in the cost (*sebestoimost*) per tonne was willingly countenanced in Moscow.

TABLE 6.3 Cost (*Sebestoimost*) of a Tonne of Grain in Sovkhozes (roubles)

	1954–60 (average)	*1956–62 (average)*	*1959–62 (average)*	*1960*	*1961–4 (average)*	*1964*	*1965*	*1967*
USSR	–	35[a]	43[h]	41[b]	46[j]	50[c]	66[d]	55[e]
Kazakhstan	–	–	–	–	66·8[g]	54[c]	124[d]	69[e]
All virgin lands (RSFSR and Kazakhstan)	41[f]	–	–	46[f]	–	–	–	–

Sources: [a] *Ekonomika Selskogo Khozyaistva*, no. 9 (1963) p. 37.
[b] Khrushchev, op. cit., vol. VI, p. 48.
[c] *Narkhoz 1964*, p. 412.
[d] *Narkhoz 1965*, p. 428.
[e] *Narkhoz 1967*, p. 484.
[f] V. Semenov, *Finansy SSSR*, no. 2 (1962) p. 27.
[g] N. P. Makarov, *Ekonomicheskie osnovy organizatsii proizvodstva v kolkhozakh i sovkhozakh* (Moscow, 1966) p. 252.
[h] *Vestnik Selskokhozyaistvennoi Nauki*, no. 6 (1966).
[j] Estimated.

Cost is regarded as covering labour, use of machinery, amortisation, repairs and overheads. There is considerable criticism over the method of arriving at the cost. It has been known to omit all machinery not in use when calculating amortisation and repairs. Machinery has been written off before its amortisation period has expired.

Nevertheless, the figures in Table 6.3 give a reasonably accurate guide to the actual situation. In the average figures presumably the same method of calculation has been used each year. Makarov's figures for Kazakhstan for 1961–4 are probably arrived at by the same method of calculation employed by Semenov for the virgin lands for 1954–60.

The virgin lands come out of the comparison quite well during the period 1954–60. However, they deteriorated after 1961. Kazakhstan in the excellent harvest year of 1964 is about the national average but in 1965 shows up very unfavourably. However, 1965 proved to be the worst ever year for Kazakhstan with average yields dropping to 3·1 centners per ha.

Over the period 1961–4 Kazakhstan grain was probably about 40 per cent above the national average. Kazakhstan's production accounts for just under 30 per cent of the virgin land total and about the same for national sovkhoz grain production.

It would appear that grain from Kazakhstan was about 20 per cent more expensive than the national average over the period 1954–64. All grain sown in Kazakhstan is classified as virgin land grain in order to render this comparison possible.

An interesting trend manifests itself when an attempt is made to calculate the net profit per tonne of grain coming from the new lands (Table 6.4). These figures are arrived at by dividing the total net income (*chisty dokhod*) of the virgin lands by the total amount of procured grain.

TABLE 6.4 Profit (*Chisty dokhod*) per Tonne of Grain Purchased by State in Virgin Lands (roubles)

	1954–8 (average)	*1954–9 (average)*	*1954–60 (average)*	*1954–61 (average)*	*1954–62 (average)*
All virgin lands (RSFSR and Kazakhstan)	27	28·5	31·5	28·5	21
Virgin lands minus Tselinny *krai*	–	–	–	35·5	24·4
Tselinny *krai*	–	–	–	15·3	11·5

The rate of profit declined after a peak in 1960. The figures clearly show that Tselinny (Virgin Land) *krai* adversely affected the overall performance of the virgin lands. Since Tselinny *krai* (most of northern Kazakhstan) occupies almost 40 per cent of the sown area, it reveals that the other areas of the new lands (the Far East, East Siberia, West Siberia, the Urals, the Volga and North Caucasus, all in the RSFSR) did considerably better.

Of the total net income of the years 1954–61, 3,300 million roubles, Tselinny *krai* accounted for 650 million roubles.[6] In other words, almost 40 per cent of the sown area accounted for only 20

per cent of the profits. Of the 3,000 million roubles of net income over the period 1954–62, Tselinny *krai* accounted for 650 million roubles.[7]

Since net income in the virgin lands in 1961 only exceeded capital investment by 100 million roubles, it is likely that Tselinny *krai* only just broke even in 1961. It might even have registered a net loss. In 1962 it only broke even.[8] Since 1963 was very poor and 1964 was very good, it is probable that over these two years the *krai* achieved parity between investment and net income. Therefore over the period 1960–4 it appears that the northern part of Kazakhstan only broke even and left the profit-making to the other areas of the virgin lands, all in the RSFSR.

Over the period 1954–64, however, it appears that the *krai* showed a profit rate of around 10 roubles per tonne of procured grain. This is only about half the rate for the virgin lands as a whole.

From the data available in Soviet sources the bold expansion of the sown area in the east, which began in earnest in 1954, more than returned the capital invested. If there is one area where it proved costly to expand rapidly it was Tselinny *krai*. This is tantamount to saying that much of Kazakhstan was not suitable for monoculture. If the sown area is reduced in Kazakhstan (Tselinny *krai* accounts for about two-thirds of the sown area of Kazakhstan) and monoculture is balanced with the liberal use of clean fallow, then northern Kazakhstan should average 10 centners or more per ha in the future. The greatest threat to this modest forecast is the damage already done to the fertility of the soil by year after year of grain cultivation. This has led to a serious weed problem, plant diseases and severe soil erosion. Such are the depredations occasioned by soil erosion that no less than 7 million ha of arable were retired from cultivation owing to ploughing mistakes over the period 1954–65. The land was in Kazakhstan and West Siberia.[9] The responsibility for this state of affairs must lie with Khrushchev. He insisted that fallow should not be increased if it meant reducing the sown area.

Given that more grain had to be produced in 1954 and that mineral fertilisers, insecticides, pesticides, technical expertise, etc., were not going to become available in the short term, why did Khrushchev decide on the areas he did to launch his new lands campaign? Why did he not concentrate on Belorussia and the less intensively cultivated parts of the Ukraine? Why did he deliberately seek out sparsely populated areas on the borders of the cultivated area?

Table 6.5 will give an indication of what sort of material he had to base his decision on. The Baltic States, and by extension the

TABLE 6.5 Cost of a Tonne of Grain Received by MTS from Kolkhozes as Payment in Kind in 1953 (roubles)

RSFSR		55·45
Chelyabinsk	*oblast*	28
Kurgan	,,	40
Kuibyshev	,,	32
Saratov	,,	44
Volgograd	,,	80
Gorky	,,	81
Ryazan	,,	172
Tatar ASSR		35
Kazakhstan		40·6
Ukraine		30·32
Belorussia		135·13
Lithuania		131·4
Estonia		72·7
Latvia		72·6
Turkmenistan		119·1
Uzbekistan		41·3

Source: Khrushchev, op. cit., vol. I, p. 317.

North-West of the RSFSR, Belorussia and Central Asia (Uzbekistan has little prospect of expanding its own area without irrigation), rule themselves out. The Ukraine would seem to offer the best hopes, were it not for the fact that little arable land was left in 1953. Irrigation could have brought more under the plough, but not on the scale envisaged by the First Secretary.

That leaves Kazakhstan and the RSFSR. In the Russian Federation, the central non-black earth zone based on Moscow was well populated and offered little possibility for rapid expansion. Trees and shrubs would have had to be cleared as a necessary prerequisite to cultivation. The open steppe beckoned – the Volga, the Urals, West Siberia, North Caucasus, even East Siberia and the Far East. The latter two were rich in minerals and needed their agricultural bases developed.

It is interesting to note that all the *oblasti* in the RSFSR listed were selected for expansion except the last three. It can be argued that the figures quoted cannot serve as an adequate guide since presumably they represent the better land in the areas concerned. Nevertheless they do provide a rough appreciation of the reality facing the decision-makers. Also, it should be pointed out that the amount paid per hectare and per unit of service varied in different areas.

TABLE 6.6 Cost (*sebestoimost*) of a Tonne of Grain in Sovkhozes (roubles)

	1964	*1965*	*1967*
USSR	50	66	55
RSFSR	48	57	50
North-West	176	132	132
Central	95	75	79
Volga–Vyatka	99	67	80
Central Black Earth	36	36	37
Volga	35	46	41
North Caucasus	27	32	31
Urals	51	71	48
West Siberia	55	85	59
East Siberia	60	57	45
Far East	100	88	80
Ukraine	30	30	32
Lithuania	113	87	86
Latvia	112	89	96
Estonia	90	74	78
Kaliningrad *oblast*	94	67	73
Kazakhstan	54	124	69
Belorussia	127	87	94
Moldavia	77	36	46

Sources: *Narkhoz 1964*, p. 412; *Narkhoz 1965*, p. 428; *Narkhoz 1967*, p. 484.

Table 6.6 illustrates the wide differences in the cost of producing grain in sovkhozes. The main virgin land areas are in the Volga, North Caucasus, the Urals, West and East Siberia and the Far East in the RSFSR. The cheapest areas, the Black Earth region, the Ukraine and Moldavia, are not available owing to lack of available land for cultivation. Kazakh grain is more expensive than the national average, but that was known in 1954.

The figures for the virgin lands up to 1960 were not too bad and would have been better had reckless ambition not been so rampant in Moscow. Too much marginal land was ploughed up – the figures over the period 1961–4 certainly show this – and there is evidence that since 1964 some of it has been retired – not before its time.

The opportunity cost is higher than the total arrived at here. It has to include the negative impact of the transfer of men and machinery from the Ukraine, Belorussia and the RSFSR in 1954 and 1955 on the agricultural performance of those areas. The virgin lands were Khrushchev's pet prestige project and it was his favoured child. Machinery which would have produced better results elsewhere was sent to Kazakhstan. Soil erosion caused damage not only to agriculture but to industry and the transport network. Technical talent was diverted from the traditional farming regions and sent to the dry arid steppes where different techniques were necessary. Not surprisingly, many young persons became disillusioned and abandoned the vocation of a pioneer.

Considerable strain was put on the Soviet transport network. Machinery, building materials, volunteers and so on had to be transferred to the new lands and grain had to flow in the opposite direction. Since the virgin lands lack the basic wherewithal of life, railway lines and roads had to be built. Some sovkhozes were more than 100 km from the existing railway network. By August 1957 about 3,000 km of narrow-gauge railways and main roads had been built in Kazakhstan alone.[10] The distance a tonne of grain had to be transported increased.

Housing presented enormous problems. The pioneers had to make do with sleeping in tents in the steppe. The basic essentials of a settled existence – houses, schools, shops, kindergartens, recreational facilities and the like – are not present in every urban settlement in European Russia, so the virgin lands could hardly expect exemplary conditions overnight. The population of Kazakhstan rose by 3 million over the years 1954–61.[11] Half of this increase occurred in rural areas.[12] However, only 218,000 houses were completed in rural areas in the same period.[13] The number of workers in state farms in Kazakhstan during the years 1953–7 jumped by 332,400,[14] but only 1·8 million m² of living accommodation were built between 1954 and 1957.[15] This represents about 50,000 dwellings. Khrushchev put expenditure on housing and cultural facilities between 1954 and 1960 in state farms in Kazakhstan at 416·8 million roubles.[16] Investment in housing in state farms in northern Kazakhstan over the years 1954–64 came to 632 million roubles. This meant 7·1 million m² of living space, schools for 86,000 pupils and 24,500 kindergarten places.[17]

On the credit side, shifting the grain-growing burden to the east eased the pressure in the traditional areas and allowed them to switch to more profitable pursuits. The great increase in the output of animal products is due in no small degree to the virgin lands permitting more fodder to be grown in European Russia. Technical crops have also expanded rapidly. More of the country has been colonised and roads and railways have penetrated regions hitherto untouched by the modern world.

Khrushchev, it is not unreasonable to assume, did not decide to farm on the frontiers of the Soviet Union because he was uneasy about the aspirations of the Chinese. There is no hint that he rushed

Russians to the deserts and steppes fearing that if the Russians did not arrive first, the Chinese would.

Nevertheless, at least the military must be willing to give credit to Khrushchev on this score. It is today all the easier to fortify the border regions of Kazakhstan, the Altai and Siberia since these areas have been filling up with people during the last decade and a half.

If the extra grain procured is taken as a criterion of success, then a failure to deliver grain to the state must be placed on the debit side. The failure of the harvest in 1963 excited the USSR into purchasing over 11 million tonnes of grain on the world market. This expenditure must be chalked up in part to the virgin lands, if only since they failed to produce the grain which would have eliminated imports.

The question of what would have been the result if the money invested in the virgin lands had been invested elsewhere is impossible to answer. Probably the most that can be said is that a comparable sum of money would not have been expended on agriculture elsewhere. It was the very nature of the project which won for it so much investment, especially after 1960. Khrushchev's self-respect demanded a net income from the new lands.

WATER AND WIND EROSION

Soil erosion occurs in both temperate and tropical agriculture. The problem tends to be neglected if there is plenty of available new land to replace that damaged. Only when the frontiers of the cultivated area have been reached or where losses of existing cultivated soil become serious are government and private bodies forced to combat soil loss seriously. The Soviet Union has always been faced with erosion and from time to time measures have been taken to combat it.

The most comprehensive attempt made to combat erosion was the adoption of the Stalin plan for the transformation of nature in 1948.[18] The plan made the *travopole* system obligatory in the Soviet Union. An important aspect of the system was the planting of protective tree belts in areas suffering from water or wind erosion. The decree concentrated on the Volga basin and the Caspian Sea area, Voronezh to Rostov-on-Don, the northern Donets to the Don, Krasnodar *krai*, the Crimea and the southern Ukraine. The USSR Ministry of Forestry and the Lenin All-Union Academy of Agricultural Sciences were to carry out feasibility studies in other areas of the European part of the USSR. The only area which was included which could be classified as part of the Asiatic USSR was the line

Vishnevaya hills–Orenburg–Uralsk–Caspian Sea. Otherwise the Asiatic part of the Soviet Union was ignored.

The implementation of the decree met with mixed fortunes. Many of the trees planted died but some survived. The survivors proved valuable as wind-breaks and contributed to the anti-erosion struggle. The plan, put into action in 1949, lost impetus after Stalin's death. Khrushchev became the driving force in the development of agriculture and his eyes were set on the virgin lands, the majority of which were to be found outside the European part of the USSR.

In the decree announcing the virgin land drive, the *travopole* system was criticised. The main thrust of the criticism was against the spread of Vilyams' grassland policy outside the areas of adequate precipitation in the European part of the USSR. Although Vilyams' theories were really concerned with ameliorating soil structure, the extensive employment of perennial grasses acted, in effect, as an efficient anti-erosion system.

Khrushchev paid little attention to the possibility of erosion in the virgin lands which, by definition, were new to cultivation. It cannot be pleaded, in mitigation, that he was ignorant of the problem. His experience in the Ukraine could not have but confronted him with the problem. He was First Secretary there at the inception of the transformation of nature scheme. The southern Ukraine is an area subject to wind erosion.

The widespread damage caused by the dust storms of 1960 and 1962 brought the problem of wind erosion to the attention of a wide public. Hitherto only a few specialists had concerned themselves with the problem and their influence had been minimal.

The leading expert in the field of water and wind erosion in the Soviet Union is A. I. Baraev, who is director of the research station at Shortandy, in Tselinograd *oblast*, Kazakhstan. He has written much about the technique of soil conservation in the dry lands but has largely been ignored. One of the first comprehensive studies of the problem of erosion is contained in a book published in 1962 and edited by Baraev.[19]

Such was the neglect of erosion that besides Shortandy only one other institute, the Dokuchaev Soil Institute, concerned itself with the problem.[20] This led to erosion being considered a minor problem and having to be rediscovered periodically. The situation became so serious in 1964 that it was decided to set up a new body, the State Inspectorate for the Supervision of Land Use and the Protection of Soils, within the USSR Ministry of Agriculture. The main task of this inspectorate was to concern itself with the problems of water and wind erosion.[21]

Water erosion is a widespread scourge affecting almost 50 million

ha of the European part of the USSR, including 10–11 million ha seriously affected. The Ukraine suffers considerable annual damage. Of a total of 42 million ha inspected, it was discovered that 13 million ha were affected including 5 million ha seriously affected.[22] It was calculated that throughout the USSR 500 million tonnes of topsoil were washed away annually. The quantity of nitrogen lost in this way was greater than that provided by industry, via mineral fertiliser.

Wind erosion, on the other hand, never affects all of the USSR at the same time. The area subject to wind erosion, about 40 million ha, stretches in the main from the southern dry steppe of the Ukraine to Central Asia. The northern boundary of dust storms is Kishinev, Kharkov, Saratov, Kuibyshev, Chelyabinsk, Petropavlovsk, Novosibirsk. Only very light soils north of this line can be affected by wind erosion. Much of the area subject to wind erosion is also subject to the withering effects of the *sukhovei*, the dry winds. These winds can reduce humidity to 15 per cent and raise air temperatures above 40°C. If they blow at an inopportune moment they can turn a field of immature green grain yellow in a very short time.

Wind erosion affects some regions once every three years. However, only the great dust storms of 1892, 1928 and 1960 affected 10–15 *oblasti* and *krai*, damaging millions of hectares of crops.[23] The Ukraine is much more prone to attack and suffered considerable damage in 1927, 1928, 1946, 1948, 1951, 1953, 1954, 1957, 1959 and 1960.

Since wind erosion affects some part of the Soviet harvest almost every year, the problem is an ever-present one and cannot be dismissed as a passing aberration of nature. One would expect to find main soil institutes working on the problem and a well-developed counselling network covering those areas most often affected. However, this is not the case. The problem debated by scientists, often in public, never succeeded in commanding government and party attention for very long. It suffered from the disadvantage of being rather expensive and only promising to sustain and perhaps increase yields if applied over a longish period. It could not guarantee quick results, and this was what the planners were essentially seeking.

The exception to this was the Stalin plan for the transformation of nature. One of its measures was to plant tree belts to protect crops from the prevailing winds, and this served also as an anti-erosion measure. After Stalin's death the plan faded away and Khrushchev turned a deaf ear to those who feared the spread of erosion to the large expanses of newly cultivated soil in the east.

The system of cultivation favoured by Khrushchev in the virgin lands was devised by T. S. Maltsev, in Kurgan *oblast*, West Siberia. Lack of precipitation had led Maltsev to reject the traditional method

of ploughing. He proposed that land should be ploughed to a depth of 40–50 cm, without turning over the furrow, by using a plough without a mouldboard, and sown to crops for three or four years in a row.

The method was promoted at a conference called by the CC at Maltsev's kolkhoz, held on 7–10 August 1954. He devised four- and five-field rotations and recommended that about 20 per cent of the area should be given over to fallow. Special implements were necessary to carry out Maltsev's recommendations. The new type of plough had first to be manufactured, hence there were none available for those engaged in ploughing up the virgin lands. It was to be a constant complaint that the Maltsev machines were never delivered in sufficient quantities. Maltsev's system, and the many variants of it, became the official tillage system of the new lands.

Maltsev's system was never given an extended trial. Grain production took precedence, so fallow was restricted. Ploughing without a mouldboard does not eliminate weeds, which soon become a major problem. Traditional ploughing methods cope more successfully with weeds, so they were used. This led, in turn, to soil erosion.

Soil erosion achieved prominence in the Soviet press in the spring of 1956. A discussion was initiated by publishing a letter in *Izvestiya* from a reader in the Chuvash Autonomous Republic.[24] He described how he had countered water erosion by planting saplings. He also revealed the lack of understanding of his experiment shown by his neighbours. From this one can conclude that measures to combat soil erosion were unknown and that losses due to water and wind were regarded as natural.

Wide publicity was given to the problem and all private plot owners were encouraged to take measures to combat erosion. However, previous initiatives had not always received official sanction. One reader stated that he had planted some land at the bottom of his garden with fruit trees in order to combat erosion. He was rewarded with increased taxes on his garden and had his war pension reduced into the bargain.

A decree of the Chuvash Autonomous Republic on countering soil erosion was given wide publicity and the youth of the country were exhorted to join the ranks of the soil conservationists.

More than just ignorance at the local level emerged from the campaign. Professor S. Sobelev revealed that no body in the USSR Ministry of Agriculture was responsible for advising on and propagating conservation measures. The comparison with the leading capitalist countries was very much to the disadvantage of the USSR. Sobelev also revealed that various research institutes, such as the Institute of Botany, the Institute of Forestry of the USSR Academy of Sciences, the Far Eastern, the Bashkir (and Bashkiria is one of

the main centres of wind erosion) and the Kazan branches of the USSR Academy of Sciences, and the All-Union Institute of Fertilisers, Agrotechnology and Agrochemistry, among others, which had previously conducted research on soil erosion, had ceased to do so.

Such official neglect is even more surprising when one recalls that many of the pioneers of the study of the soil were Russians. Soil science is replete with Russian words now accepted in other languages.

The 1956 campaign had not been aimed at the virgin lands. There, wind erosion was bound to occur owing to the nature of the soils and the agrotechnical methods employed in cultivating them. Since it took Khrushchev a decade to realise that Kazakhstan was a dry farming area, it is not surprising to discover that traditional European methods were adopted when the cultivation of the new expanses in the east began. After all, the operatives came from areas with a higher level of precipitation, which results in heavier soils, so they treated the whole operation as an extension of their own traditional areas. True, Maltsev's methods were propagated, but they implied the use of special machinery and little of it was readily available. Anyway, the soils in Kurgan *oblast* where Maltsev carried out his experiments are generally heavier than in most parts of Kazakhstan. Soon results were published which cast doubts on the applicability of his techniques to the other areas of the virgin lands campaign.

The inevitable happened in the new lands of the east, and again it was the government newspaper *Izvestiya* which published the initial critical article.[25] It was the work of the Director of the Soil Institute of the USSR Academy of Sciences, Academician I. Tyurin. He stated quite unequivocally that in the previous few years whole new areas of the Soviet Union had become susceptible to wind erosion. These areas were none other than the new lands ploughed up in the pursuit of rapid expansion of the grain area.

Tyurin pointed out the glaring discrepancies between the yield attained by the leading farms and experimental stations and those achieved by the others in the Soviet Union. This was directly the outcome of a poor understanding of the soil and the conservation of its fertility.

Elementary methods of combating water erosion were deliberately neglected. In order to conserve fuel, farmers had been ploughing up and down slopes instead of adopting contour ploughing.

The light, sandy soils of the arid regions of the east demand very careful conservation techniques. Tyurin suggested reducing the size of ploughed areas and alternating ploughed areas with vegetation zones. Very large ploughed areas had to be subjected to careful crop rotation. Tree belts, at right-angles to the prevailing winds, had to

be planted and any other method opportune to the local circumstances adopted.

No campaign against soil erosion will ever succeed without constant, expert advice being available. Tyurin's suggestion was something similar to the services available in the United States, Canada and Great Britain.

He also declared that the problem of soil conservation had repeatedly been discussed over the previous ten years in the Academy of Sciences and soil advisory bureaux proposed as the means of disseminating technical knowledge. By 1954 the Soil Institute of the Academy had drawn up a plan to this effect. The plan had been received favourably by the Scientific and Technical Council of the USSR Ministry of Agriculture and had been supported by soil experts at various conferences in 1954 and 1956. Despite intensive study of the plan by various departments of the Ministry, nothing concrete ever emerged. Despite this, several Union republics, such as Armenia, Azerbaidzhan and the Ukraine, had set up their own soil advisory system.

Tyurin assured his readers that the academic study of the soil was still at a high level in the Soviet Union. The problem was how to overcome the great gulf which existed between scientists and the average kolkhoznik and sovkhoznik.

What is instructive is that Academician Tyurin regarded it as incumbent upon him to reiterate many of the simpler measures to be adopted against water and wind erosion.

The failure of the virgin lands in Kazakhstan and elsewhere to harvest the grain crop in time in 1959 stimulated T. D. Lysenko to propose that the virgin land crop should be sowed earlier in order that it could also ripen earlier, thus giving more time for harvesting.[26] Maltsev, from his experience of West Siberia, and Baraev, from that of northern Kazakhstan, vigorously opposed early sowing. They feared that drought would decimate the virgin land crop and that weeds and soil erosion would increase. Maltsev was vindicated in 1963 when Kurgan *oblast*, using his method, outproduced the rest of West Siberia.[27]

Baraev and Maltsev also resisted a suggestion by A. S. Shevchenko, Khrushchev's agricultural assistant, that maize was the perfect predecessor for spring crops in West Siberia and northern Kazakhstan. Shevchenko's conclusions were music to Khrushchev's ears. Such was the pressure to produce more fodder that Baraev and Maltsev had to give ground. In March 1961 Baraev's institute was reorganised and placed under the Lenin All-Union Institute of Agricultural Sciences, of which T. D. Lysenko shortly afterwards became president.

The main propagandist of the view that maize is not only an excellent fodder crop but also enriches the soil was G. A. Nalivaiko, director of the Altai Agricultural Institute. This ambitious agronomist claimed that experiments at his institute had shown that maize was superior to grass in increasing soil fertility, thus opening the way to the sowing of all clean fallow and grassland with intertilled crops.[28]

Wind erosion strikes in early spring and sometimes more than once. In 1960, the worst year on record, it appeared three times in the southern Ukraine, at the end of March and the beginning and middle of April, and damaged more than 1 million ha of grain. The Kuban was also severely hit, more than 600,000 ha of grain being completely ruined.

The dust storms did not restrict themselves to the confines of the Soviet Union. Many countries in the Balkans were blighted by them. One report from Romania on 10 April stated that the thickest dust clouds were 700 m high, but some dust was reported at 1,800 m. Average particle density was 30 per cm^3. Some of the dust which had settled on Romania reached a thickness of 3 cm.

All areas of the virgin lands are subject to soil erosion. They are all in steppe areas with little natural cover or protection. Wind erosion can result not merely from cultivating them but from overgrazing them.

One of the most vulnerable areas is Kazakhstan. This is due to its exposed position, flatness, low precipitation and the texture of much of its soil. In addition it has to contend with the *sukhovei* blowing from the hot deserts of Central Asia. The sheer size of the newly cultivated lands makes the task of preventing erosion even more complex. All *oblasti* affected by the blight must concert their efforts. The good work of one may be vitiated by the neglect of its neighbours.[29]

Baraev put the area of soil which offered little resistance to wind erosion in Kazakhstan in 1960 as high as 11·9 million ha. This sum was made up of 5·2 million ha of light soils and 6·7 million ha of calcareous soils. Some areas were more susceptible than others, Pavlodar *oblast* coming top of the list. There over the period 1955–61 more than 700,000 ha were affected.[30]

The lessons of 1960 had hardly been digested before Kazakhstan was visited by an even worse series of dust storms in the spring of 1962. Such were their intensity that Virgin Land *krai*, which includes most of the new lands of Kazakhstan, was ravaged from 20 April to 10 May inclusive.[31]

A breakdown of the areas susceptible to wind erosion (in thousands of hectares) is given in Table 6.7.[32]

TABLE 6.7

Oblast	*Light soils*	*Calcareous soils*
Aktyubinsk	582	308
Uralsk	480	–
Karaganda	–	1,225
Kokchetav	–	423
Kustanai	1,670	1,807
Pavlodar	2,512	40
North Kazakhstan	–	286
Tselinograd	–	2,572

The table reveals that approximately 50 per cent of the cultivated area of Virgin Land *krai* was in need of protection against wind erosion. Pavlodar appears to be the most vulnerable. One estimate placed the area of grain ruined annually between 1955 and 1960 as high as 187,500 ha.[33] In 1961, 700,000 ha were affected and the spring 1962 dust storms embraced some 1·5 million ha.[34] These figures are considerably above those for 1960; possibly a much wider definition of wind erosion was employed in 1962.

Drought and wind erosion struck northern Kazakhstan in early 1963. According to F. S. Kolomiets, First Secretary of Virgin Land *krai*, over 3 million ha of crops were ruined and yields in the remaining areas were extremely low.[35] F. T. Morgun puts the grain area in Kazakhstan ruined by wind erosion between 1962 and 1965 at 3·9 million ha, with an additional 12·9 million ha damaged.[36]

Wind erosion continues to be a considerable natural obstacle in Kazakhstan. The winds blow in force in April and May. In some regions in 1968 they blew until early June. They are normally of 15–18 m/sec velocity but this can rise to 30 m. Thus they can start in the beginning of March and continue until 10–15 June, causing erosion all the time. Before 1968 it was believed that only light and calcareous soils were susceptible to wind erosion, but the experience of the spring of 1968, a severe year, showed that there are practically no soils which can stand up to wind erosion in Kazakhstan. Nor does erosion only affect one part of the republic at a time; such is the extent of the problem today that it can affect the whole republic in any one year.[37]

Other areas which formed part of the original virgin land drive are also suffering from soil erosion. The Minusinsk depression in Krasnoyarsk *krai* has been extensively affected. All soils have succumbed, with especially heavy damage to sandy loam soils. More than 230,000 ha have been affected.[38] In Kuibyshev *oblast* even

heavy calcareous chernozem and chestnut soils have been damaged.

Outside Kazakhstan the areas most affected are Altai *krai*, Bashkir ASSR, the Volga, the Kuban and the southern dry steppe of the Ukraine. In the Ukraine dust storms take place on average five days a year and in some areas 10–12 days.

The temptation existed to regard soil erosion as the result of bad farm management, which it is, and to see the remedy in better organisation at the local level. Khrushchev must accept part of the blame for the increasing losses due to soil erosion. He it was who refused to countenance Baraev's argument that the new lands of Kazakhstan were really different from other parts of the Soviet Union. Baraev finally won a grudging admission from Khrushchev in 1963 that he, Baraev, was correct in equating the virgin lands with the prairie provinces of Canada.[39] However, it was rather late in the day to concede the point.[40]

There are circumstances which may explain Khrushchev's unwise reluctance to listen to scientific advice. He was obsessed by the need to achieve a secular rise in grain production. If he had acknowledged that erosion could appear on a large scale, he could not have got his policy of expanding in the east through the Central Committee. His opponents, obviously, could point to the mistakes made in the pre-1917 period when expanding the cultivated area. He could counter by saying that technical knowledge and machinery had vastly improved since the days of Stolypin and Witte.

Once embarked on an expansionist policy he could not draw back. If he could only solve the grain problem by his initiatives he would consolidate his political power. The vagaries of the weather forced him to keep on expanding, but this in turn was self-defeating. He was driven to the absurdities of the anti-fallow campaign but disingenuously tried to rationalise his objectives by stating that, of course, fallow was of great value in the virgin lands but this fact was not to restrict the area sown to grain there. In other words, expand the sown area into new areas in order to retain an adequate quantity of fallow in the existing!

Such was the rapidity of the new lands drive in 1954–6 that traditional methods had to be employed to cultivate the soil. Since the object was to turn over the largest area possible in the shortest possible time, little attention was paid to technique. Few special implements were available and this has remained the complaint right up to the present.

The damage occasioned by soil erosion in Kazakhstan obliged the central planners to find new ways of overcoming the losses there. Too much emphasis could not be placed on combating wind erosion without reducing the credibility of the whole new lands exercise.

Funds which were available had to be employed in increasing yields. Such was the pressure to make the virgin lands pay that awkward problems such as erosion were swept under the carpet. Indeed, those who were bold enough to suggest solutions which did not guarantee rapid results were sometimes treated to some of Khrushchev's peasant humour. A. I. Baraev was one such; he was admonished to learn at the feet of one Kad de Khan, a kolkhoz chairman. 'He', went on Khrushchev, 'will put a flea under your shirt, comrade Baraev, and this would not be inopportune, because it would wake you up and stop you dreaming.'[41] Baraev's championing of clean fallow so annoyed the leadership that it led, according to D. A. Kunaev, First Secretary of the Communist Party of Kazakhstan at the March 1965 CC plenum, to a proposal that he should be expelled from the party. However, a well-known proverb applies to Baraev in 1963. He who laughs last laughs best.[42] Even after Baraev's methods were recognised as correct in the summer of 1963 – ploughing without a mouldboard, late sowing and liberal use of clean fallow – G. A. Nalivaiko refused to concede the advisability of clean fallow. Nature took her revenge in the Altai, as a result.

One of the ways of bringing a problem to the notice of the government, in any country, is to dramatise it. Some dire warnings concerning the possible future effects of soil erosion, especially in the newly cultivated areas of the east, have come from soil scientists. Some would go so far as to say that unless the problem of erosion is recognised and resources are diverted to counter it, the whole of the new lands in Kazakhstan may be stripped of their fertility. There is plenty of evidence of loss of topsoil and the area of quicksands has increased. Those campaigning against erosion have difficulty in convincing those influencing decision-making in the European part of the USSR to devote energy and resources to the problem. Since most of the traditional areas are only subject to a limited degree to wind erosion, it would take a few dust storms over Moscow to convince the planners that the problem should be treated urgently.

One may ask, legitimately, how does one measure damage due to erosion? Some land, not badly affected, recovers quickly. Other land, seriously afflicted, may be put out of cultivation for decades. Instances of this extreme case can be found in Canada and the United States, to name only two examples. If scientists are describing the phenomenon, they may over-dramatise to achieve a shocked response from the administrators. Erosion may only mean the loss of one crop, or it may mean large subsequent losses, due to lack of fertility, etc. The information available on this subject seldom differentiates between erosion which can be put right in one, two,

ten or more years. If the problem is neglected, practice has shown that nature exacts her revenge.

The scourge of soil erosion cannot be eliminated by having a successful campaign which, of necessity, must be of short duration. It involves a constant, long-drawn-out effort. Special machinery is necessary so as not to turn over too much soil; crops may not be sown monolithically, they must be broken up into areas. Strips must be planted between the grain areas. Strict rotation of crops must be observed. It will be necessary to overcome the mistakes of the past, since Khrushchev's anti-*travopole* and anti-fallow drives led some in Kazakhstan to believe that crop rotation was unnecessary in the new lands. Monoculture must go and fallow must be accorded high priority. The stubble must be left after harvesting and special precautions taken to prevent the rapid run-off of melting snow in the spring. The more moisture which is retained in spring, the higher the ensuing crop. These and numerous other measures must be adopted if the virgin lands are to be taken seriously as a long-term grain-producing area. Of necessity, the actual sown area must be reduced. This implies that the area planted will have to increase its yields. The ravages of the decade and a half since the assimilation of the land make this a very difficult task.

Most important of all is the outlook of those engaged in agriculture in the east. Labour turnover has been abnormally high. Many were the complaints of the workers about the poor material base, the limited cultural facilities and the wage rates. What is certain is that not enough attention was paid originally to the effects of such a tremendous change in the natural environment. Kolkhozniks from Belorussia, with its woods and marshes, found themselves in treeless, arid steppe land. They had previously produced flax; they were now asked to grow wheat or raise sheep. Medical experts believe that the body needs time to adjust itself to a 2° change in latitude. The extreme heat and extreme cold of the east would prove strenuous even for the fittest.

All the agricultural experts sent to the new lands from the traditional farming areas had been trained to solve problems of agronomy, soil science, etc., in the European part of the country. Very few of them had received instruction in dry land farming. A whole new generation of specialists had to grow up in the east and gain their experience from working there. Mistakes were inevitable. Many were disillusioned and retreated to better-known pastures. So many changes occurred in the official teachings of agronomy during the Khrushchev era that many specialists must have been bewildered and utterly confused. There was the anti-*travopole* campaign, the maize campaign, the anti-fallow drive, the Maltsev cultivation drive, the

mineral fertiliser campaign and, last but not least, the intensification drive. Specialists brought up for decades on the doctrines of Vilyams were instructed to forget what they had been taught. In 1965 the king of Soviet agrobiology and genetics was dethroned. Lysenko had had an immense influence on Soviet plant breeding and animal husbandry and the damage he occasioned was tremendous. The situation is even more confusing now since not all the teachings of Vilyams and Lysenko have been overturned.

The confusion created in agricultural theory during the Khrushchev period may go a long way towards explaining many of the mistakes made. Anyway, how were those in authority to recognise a rational voice among the scientists? Khrushchev, as is usual among those in power, was more inclined to listen to those experts who were saying the things he wanted to hear. Perhaps one cannot entirely blame him. Would any other leader have provided the funds to combat the negative effects without first seeing the depredations which can be caused by dust storms? The plain fact is that soil erosion has only been taken seriously by experts and not by those whose task it is to produce results. Even five years after Khrushchev's dismissal there were widespread complaints that not enough was being done to combat erosion. Not enough special machinery and equipment was arriving in the areas most severely afflicted. A special inspectorate has been set up in Moscow, but has it real teeth? It is at least certain that the longer the delay in the present, the shorter will be the productive life of the virgin lands.

SCIENCE AND THE VIRGIN LANDS IN KAZAKHSTAN

Before the massive expansion of the cultivated area from 1954 onwards, virgin and idle land in Kazakhstan was being assimilated, albeit on a much smaller scale.

The war years and the loss of much crop land in the west had forced an expansion in the eastern parts of the country. Over the period 1941–53 Kazakhstan managed to expand its arable area by 2·6 million ha (37 per cent), of which more than 1 million ha were under grain.[43] Many agronomists were aware of the potentialities of the large expanses of chernozem and dark chestnut soils to be found in the northern parts of the republic. One estimate of the untapped reserves was given as 12 million ha.[44] Another went as high as 26·5 million ha, but this included much land in the western parts of the republic.[45]

Considerable areas of land had been brought under cultivation before the March 1954 plenum. Kustanai *oblast* recorded that in the five years before the plenum, 211,700 ha of virgin land and 548,100

ha of idle land had been added to the cultivated area.[46] It was stated that kolkhozes and sovkhozes in North Kazakhstan *oblast* had been assimilating large areas of new land before 1954 and had harvested good crops. One sovkhoz had added almost 11,000 ha of new land over the period 1948–53.[47] However, yields fluctuated greatly according to the agrotechnology employed. Land ploughed in spring and sown to spring wheat yielded only 3·5 centners per ha, whereas that ploughed the previous autumn yielded 9·6 centners and when organic fertiliser was added, 13·5 centners.[48]

Other parts of Kazakhstan could give evidence of much higher yields. Kolkhozes in Tselinograd *oblast* had achieved an average yield of 15 centners per ha of spring wheat over an area of 850,000 ha of new land. An even higher yield, 21 centners per ha of spring wheat, had been achieved over an area of 580,000 ha of previously idle land. Kustanai *oblast* had averaged 19 centners per ha of durum spring wheat over an area of 550,000 ha of new land. Kokchetav *oblast* recorded the highest yields of all, 24 centners per ha of durum spring wheat and 27 centners of soft spring wheat. All these yields relate to the 1953 harvest.[49]

Nevertheless, yields of spring wheat on the experimental station at Shortandy, in Tselinograd *oblast*, over the period 1949–51 had not been so encouraging. Where snow retention had not been practised the average yield was as low as 3·9 centners.[50] A warning was issued not to plant spring wheat for more than three or four years consecutively. Ample experience, especially in Kokchetav *oblast*, where assimilation had started in 1944, had borne this out. Weed infestation and crop disease were the natural results when this advice was ignored.

It is interesting to note that such was Khrushchev's haste to secure a harvest from the virgin lands in 1954 that he was willing to forgo some grain by concentrating on spring ploughing. The ideal time for assimilating the new lands would have been the autumn of 1953, and had it then been done the harvest in 1954 would almost certainly have been higher.

A scientific feasibility study of the new lands in West Siberia, Kazakhstan, the Urals and the Volga region was carried out by the Timiryazev Agricultural Academy, Moscow, and the Institute of Land Tenure, Moscow, over the period 1954–6. The study was carried out by specialists in agronomy, soil science, economics, animal husbandry and related subjects. On a scale 1 :100,000 they surveyed an area of 5·6 million ha. Soil samples were examined at the Academy in Moscow. Altogether they visited 76 kolkhozes and sovkhozes and examined 7·2 million ha.[51] This figure corresponds well with the first goal of the virgin land campaign set at the March

1954 plenum. The report did not comment on the feasibility of expanding the original goal of 13 million ha to 28–30 million ha decided on by the Central Committee in 1955.

The original decree in March 1954 had envisaged an average yield of 13·9–15 centners per ha from the 13 million ha of virgin and idle land to be ploughed up. When the goal was increased to 28–30 million ha the average yield target was sensibly reduced to 10 centners per ha. Khrushchev conceded in 1961 that the goals for the Virgin Land *krai* had been based on an average yield of 8 centners per ha.[52]

The main task of the scientific mission in 1954 was to indicate which areas could be assimilated and in 1955 to consider the agrotechniques required for cultivation of the soils found there.

This was not the first scientific expedition to descend on Kazakhstan. Soil research had been carried out during the years 1932–8, especially in Kokchetav *oblast*.

The information the economists collected on yields was, of necessity, on the whole reassuring. This was so since the decree had been published and the goal for average grain yields set initially at 13·9–15 centners per ha. The economists were able to give average yields of 24 centners per ha, of spring wheat in several *oblasti* of Kazakhstan and in the Altai on newly cultivated virgin land. These harvests were achieved in 1952 and 1953.[53] On previously idle land, on the other hand, the reported yields could not be so high and they varied on the average between 12 and 15 centners per ha. The region which showed up badly in comparison with the others was West Kazakhstan *oblast*. There the kolkhozes had only achieved 12 centners from virgin land and 7·4 centners from idle land.

On agrotechniques the specialists considered that 15–20 per cent fallow was necessary and measures to prevent the occurrence of wind erosion on light sandy soils were considered obligatory.[54] They also revealed that by 1956 experiments with T. S. Maltsev's system of cultivation had not proved satisfactory in Tselinograd *oblast*.[55]

The Timiryazev Academy expedition was only one of 47 carried out as a result of the party decision to expand the sown area in the east. The USSR Academy of Sciences, the Lenin All-Union Agricultural Academy and the Institute of Soil Science of the Kazakh Academy of Sciences were only some of the scientific institutions which undertook research in the new lands. Altogether, it is claimed, they surveyed 80 million ha and classified over 30 million ha as suitable for cultivation.[56]

The natural conditions the scientists met in Kazakhstan initially were difficult, to say the least. They had to battle through blizzards and snow-storms in February and March 1954, but managed to

traverse hundreds of kilometres of snow-covered uninhabited steppe.[57] What was the purpose of sending agronomists, soil scientists and others into the freezing steppe in February? They couldn't even see the soil they were supposed to be surveying. Perhaps it was to demonstrate that man can survive blizzards even in the middle of the God-forsaken Kazakh steppe. If the scientist lives through such an experience, the hardy peasant will obviously have no trouble.

It is interesting to note that so much scientific interest was taken in the new lands. Doubtless much valuable information was collected during the many missions sent out from Moscow and Alma-Ata. Nevertheless, it strikes one that practically all the specialists were assigned to their tasks after the decision to cultivate the virgin lands had been taken. It would appear that their main function was to research local conditions and advise on the most propitious areas to be cultivated. It was not within their terms of reference to state whether they considered the whole venture as ill-conceived or a brilliant piece of imaginative planning. The Timiryazev Academy mission carried out the most detailed work. Nevertheless, they did not cover more than a fifth of the area which was eventually cultivated. The first flush of success in 1954 seems to have convinced the planners that bolder steps would be rewarded. The later, very ambitious estimates given by some specialists were obviously based on the supposition that the original area cultivated would achieve its production goals. It has since been shown that much of the effort devoted to expanding the sown area beyond the original limits was of marginal value. It is possible, indeed probable, that in the next decades the area of new land, especially in Kazakhstan, will be reduced significantly. The main force opposing this measure would be the inability of the other grain areas of the country to increase their yields so as to bring some intensification to Soviet agriculture. The weather can play such havoc with even the best laid plans that it is by no means a foregone certainty that the more marginal areas will even be put back to grass.

VIRGIN LAND IN CANADA

The growth of demand for wheat on the world market, coupled with the fact that traditional areas with adequate precipitation were on the whole already occupied, led some immigrants in North America to venture on to land which had previously been regarded as of little value for agriculture. Sometimes religious groups, seeking isolation, could only find it on marginal land. The Mid-West of the United States and the prairie provinces in Canada were opened up by such people. The traditional European farming methods were of little

use. New, dry farming techniques had to be developed. These were sometimes worked out on the spot, for example by the Mormons in Utah, and sometimes brought with the immigrants, for example by the Mennonites from southern Russia to the prairie provinces.

Hard and durum wheats are the most sought after. Hard wheat is used for making bread and durum wheat for semolina, spaghetti and macaroni. However, these wheats need to be planted in the autumn so as to yield a harvest the following summer. They are referred to as winter wheat since they lie in the ground during the winter. If the temperature drops lower than −2°C then winter kill can result. Hence the areas of the world which can sustain winter wheat are limited. Most wheat is planted in the spring and harvested in the late summer, hence the name spring wheat. The wheat produced is classified as soft wheat and is little used for bread making on its own, being usually mixed with hard wheat.

Wheat requires adequate moisture in the spring to get well started and then some rainfall later in the summer when the kernels have begun to fill out. Shortages of summer rain lead to reduced yields but usually mean a higher than average amount of gluten. Too much rain stimulates the growth of the stalk at the expense of the grain itself, promotes the development of disease and lowers the gluten content. Grain cannot be grown year after year on the same land, if consistent yields are the goal. Overcropping leads to loss of nutrients in the soil, weed infestation, increased attacks by parasites and greater susceptibility to disease. Special seed suitable to dry land farming has been developed in the prairie provinces and elsewhere. Strains can be developed which are more drought-resistant, but achieving this goal may mean sacrificing other qualities, such as yield, resistance to disease, and lodging.

If an area is consistently so dry that only the most drought-resistant varieties can be grown, then they would have to be grown. However, when an area is subject to large fluctuations in annual precipitation, with a series of favourable and unfavourable years, farmers have a choice. Should they sow only the best resistant strains? It is the favourable years which make it possible to continue farming during the inevitable unfavourable periods. Hence the behaviour of crops during the bountiful years is of vital significance for the viability of long-term farming in dry areas. The good years must make up for the poor years. It is a fact of life that some harvests will fail in the dry lands, independent of the socio-economic system the operatives are working under.

Conserving moisture and restricting weeds are particularly important goals of the dry land farmer. The conservation of moisture is especially important in areas approaching the margin of cereal

production. Summer fallowing, up to 40 per cent of the cropland, has proved efficacious.

The virgin lands in the USSR are predominantly spring wheat areas. How do they compare with similar regions elsewhere in the world? Exactly similar climatic and soil conditions, of course, do not exist, but the virgin lands of northern Kazakhstan and the wheat lands of Saskatchewan are almost similar (Table 6.8) Alberta and Manitoba record more precipitation than northern Kazakhstan and Manitoba is also milder. Precipitation in the growing season is of vital importance.

TABLE 6.8 Meteorological Data, Long-term Average

	Saskatchewan	*Virgin Land krai*
Annual precipitation	350 mm	300 mm
Length of frost-free period	110–115 days	120 days
Number of days over 20°C	–	40–50

Sources: *Atlas selskogo khozyaistva SSSR* (Moscow, 1960) pp. 27, 32, 45; *Guide to Farming* (Saskatoon, 1960) pp. 4–6; C. Zoerb, 'The Virgin Land Territory: Plans, Performance, Prospects', in R. D. Laird and E. L. Crowley (eds.), *Soviet Agriculture: The Permanent Crisis* (New York, 1965) p. 37.

About 80 per cent of annual precipitation falls in Saskatchewan between 1 April and 1 November. The comparable figure for northern Kazakhstan is about 70 per cent. Maximum precipitation falls in July and August when about 40 per cent of the annual quantity is recorded. In May and June, the beginning of the growing season, only about 20 per cent falls.[58]

Conditions vary from year to year, but frosts in late spring and early autumn do occur in both regions. Also common is the danger of heavy falls of snow in August, making it impossible to save the affected grain. Kazakhstan also knows the effects of the *sukhovei*, the dry winds. These winds can turn standing grain yellow overnight. Saskatchewan does not suffer to the same extent.

Both areas are approximately the same area above sea level and the soils are somewhat similar. Saskatchewan soils are slightly more fertile than those of northern Kazakhstan.[59] Both regions have known the scourge of wind and water erosion, and trial and error has produced counter-measures in the prairie provinces. Baraev used Canadian experience in devising his system for the virgin lands of Kazakhstan, West Siberia and elsewhere.

The prairie provinces have been cultivated since the beginning of this century, whereas only parts of northern Kazakhstan were

tilled before 1954. The stored-up fertility of the soil was a bonus for Khrushchev in the early years. Canadians have long since had to rely on agronomical practices to maintain yields.

Virgin Land *krai* averaged about 18 million ha of land sown to wheat over the period 1956–63. Some more land was given over to clean fallow. Saskatchewan had about 7 million ha of wheat land and about 30–40 per cent more in clean fallow. The average yield achieved in Saskatchewan over the years 1954–63 was 1·3 tonnes per ha.[60] Virgin Land *krai* recorded 0·7 tonnes per ha. Of course, had less land been cultivated in Virgin Land *krai* the average yield would almost certainly have been higher. Risks were taken in Kazakhstan which were not regarded as prudent in Canada.

The average area sown to wheat in Saskatchewan over the period 1964–71 was 6·7 million ha and the average yield was 1·5 tonnes per ha.[61] Sowings in Virgin Land *krai* probably declined, but the average yield was about 0·9 tonnes per ha.

The socio-economic systems prevailing in Canada and the Soviet Union are quite different. In Saskatchewan the number of farms declined steadily from over 100,000 in the late 1950s to 77,000 in 1971. Concomitant with this has been an increase in the average size, from 240 ha in 1956 to 340 ha in 1971.[62] In the Virgin Land *krai* state farms predominated, cultivating from 10,000 to 70,000 ha of arable each.[63] Labour in Canada is provided mainly by the family. In Kazakhstan paid farm operatives do the work. There is considerable labour mobility in northern Kazakhstan.

Both areas are heavily mechanised. The value of implements and machinery on farms in Saskatchewan doubled over the period 1958–70, from about $90 per ha to $180 per ha.[64] (This includes machinery employed in animal husbandry.) Kazakh farms are not in such a fortunate position.

The average price (ex-farm) received by the Saskatchewan farmer for his wheat over the period 1959–71 was $60 a tonne.[65] In northern Kazakhstan it cost farms, over the same period, about 70 roubles per tonne to produce their wheat, according to Soviet calculations. Even at the rate of 1 dollar for 1 rouble, the Canadians produced their grain more cheaply. Another point to be borne in mind is that the Soviet figures are based on bunker yield and the Canadian on barn yield. About 10–15 per cent should be deducted from the Soviet figures to make them comparable with Canadian data.[66]

A most striking difference in the agronomical practices between the two areas under study is the amount of clean fallow regarded as necessary in Saskatchewan. It averages between 30 and 40 per cent, even higher in certain parts. The Soviets only employed 10–15 per cent during the Khrushchev years. Most of the techniques advo-

cated by Baraev and only officially sanctioned at the end of the Khrushchev era are standard practice in Saskatchewan.

Practices in Saskatchewan have been changing. Changes include the use of a one-way disc and blade cultivator which leaves weeds, etc., on the surface to combat wind and water erosion; the rejection of black fallow in favour of modified fallow with a cloddy surface and with stripping to prevent soil drifting; the recognition in some areas that the incorporation of forage crops in a rotation sequence with grain increases output and reduces the amount of fallow; the transfer of much marginal wheat land to pasturage; the increased use of mineral fertilisers; a re-examination of the tradition of summer fallow; an extension of irrigation and the introduction of new seeds and varieties.[67] These alterations reveal the evolution of thinking on the problems and once again underline the proposition that a fixed, static system imposed on farmers is inadvisable, to say nothing of its being impossible to impose.

EVERYDAY LIFE IN THE VIRGIN LANDS

The life of the pioneer is often tough and dangerous. Where the young and daring will venture, the more mature will draw back. The Communist Party of the Soviet Union, in the spring of 1954, sought to fire the imagination of the nation's young people. The task was the taming of the virgin steppe in distant parts of the Soviet Union. The prize was an economic leap forward on the agricultural front. The battle for bread was to be waged on the barren, uninhabited expanses of the east, mainly to be found in western Siberia and northern Kazakhstan. First-hand accounts usually paint the scene in heroic colours, and realistic accounts revealing the negative as well as the positive aspects of the venture are seldom encountered. One such percipient account is by F. T. Morgun, who first went to northern Kazakhstan in 1954 and set up a sovkhoz in the virgin steppe.[68] He remained director until 1959. Then he became secretary of a *raion* party committee, worked in the *oblast* party and soviet organisations, then from the beginning of 1964 to the end of 1965 in Virgin Land *krai* where he headed the agricultural administration. He was then transferred to work in the Central Committee in Moscow. After a spell in Moscow he became First Deputy Prime Minister in Kirgizia. Such a progression, from a sovkhoz, where he was rated a successful director – otherwise he would not have been promoted so rapidly – to party and soviet work, first in a *raion*, then in a *oblast*, then in a *krai* and then to Moscow, is the *curriculum vitae* of a successful Soviet official. If an official is posted to Moscow, he is on the up and up. It is instructive that

successful farm managers are transferred from direct production to administration. The man on the tractor becomes the man with the attaché-case. Morgun had a successful track record in Kokchetav *oblast* over the years 1954–9 and this is no mean achievement. It should be mentioned, however, that the years following 1959 were the really difficult ones in the virgin lands. Morgun stayed in Kazakhstan until the end of 1965, thus indicating that his administrative record was adequate.

Morgun was called, he did not choose himself. One fine day in September 1954 he was called to party headquarters in Poltava *oblast*. 'We have decided to recommend you as director of a newly-formed sovkhoz', the First Secretary said decisively. The prospect of going to some unknown part of the country appealed immediately to the head agronomist of the Poltava sugar beet trust. He was instructed to repair to Central Committee headquarters in Kiev for further instructions. Morgun's grandfather had had a decisive influence on the career the grandson had followed. 'If you are ever lucky enough to get some learning, then become an agronomist. It is the most necessary work that has to be done', advised the old man. After war service, Morgun enrolled in the Dnepropetrovsk agricultural institute. After graduating with honours in 1949 he wanted to earn a higher degree, but found that the grant of 49 roubles a month was insufficient to keep himself, his wife and two-year-old son. His wife had graduated from a medical institute, but since the nearest hospital was 20 km away she could not take up an appointment there. Morgun's section head at the sugar beet trust was a man who had enjoyed none of the benefits of education and had difficulty in writing longhand. The young agronomist was taken aback by something else. Whereas his boss paraded around the fields in a cart, he, a trained agronomist, had to go on Shanks's pony! If a work horse did happen to be free, he was at liberty to jump into the saddle and inspect the sugar beet crop in style.

Morgun was under no illusions about the quality of the soil in his prospective sovkhoz. The virgin land drive had been under way since March 1954. This meant that much of the good land situated near the railway towns had already been taken up. He had just turned thirty, was a member of the party and could look forward to a pleasant life in the Ukraine, working in a fertile and prosperous farming area. Why should he throw it all up in order to start from scratch in the middle of nowhere? However, the call of duty, the excitement of starting something new and playing his part in fulfilling the party and government decision to cultivate the new lands won Morgun over. Taking with him a peg cut from a family apple tree, he said goodbye to his wife and family and made for the east.

That winter was unusual for its heavy snowfall. The train taking the pioneers east passed through an endless, snow-covered, sparkling landscape. The train reached Kokchetav, in northern Kazakhstan, on the fifth day out from Moscow. Kokchetav, the *oblast* centre, was the assembly point for the new settlers where building materials, equipment and warm clothing were handed out. Morgun and his group set out, on tractors, over the snowy steppe. They were heading for Kzyl-Tu, the *raion* centre, 200 km from the nearest railway station at Kulomzino. Morgun, the director, was from Poltava. Other leading officials accompanying him were from Moscow, Lugansk, Leningrad, the Volga region, and there were even some from Poltava as well. It took two days to get to their destination. The sun had just risen over the steppe. The first thing their eyes lit on in the brilliant morning light was a thicket of silver birch. They decided to build their settlement right there. The first person they encountered was a Kazakh shepherd. The horesman was glad to see the new settlers who had arrived to turn over the steppe, so Morgun tells us. He showed them the way to a shepherd's hut used by those who drive their cattle there for summer grazing. There turned out to be three young people in the hut, two brothers and a sister. Morgun and his group bedded down in a stable, but before going to sleep they issued Order No. 1 setting up the sovkhoz and naming it after Marshal Tolbukhin. F. Morgun, as from 5 December 1954, was made director. All this was written with frozen fingers, by the light of an oil lamp. Then everyone lay down on the available hay to sleep. Next morning the most persistent sensation was the dreadful cold. The newcomers set about blocking up all the cracks and holes in the stable so as to make it more habitable. The tractors returned to Kulomzino to fetch warm clothing and bedding. Then they had to bring equipment, petrol, coal, prefabricated houses and so on. They had to contend with the bitter cold, the blizzards and the monotonous, snowy landscape.

No building could be carried out before the ground thawed out. So tents and carriages had to be used in the meanwhile. Building began in March and the first prefabricated house was ready in May 1955. The main thoroughfare was christened Poltava Street. After the houses, came a school, a bath-house, a hospital, a club-house and a post office. Most settlers were able to move into new dwellings in 1955. The Morgun family was reunited at last. The Kazakh steppe is not rich in building materials. However, it transpired that a quarry was situated about 100 km from the farm. The leading lights in the sovkhoz set off in a lorry one Sunday to see what kind of stone was available. On the way there they went through all the inhabited areas, but decided to strike across country on the way

back. They had arranged for electric lights to shine in the centre of the sovkhoz to act as beacons. The stone turned out to be fine but night was drawing in when they left. The terrain was very difficult and the lorry skidded from time to time. Suddenly the engine went dead. It transpired that the petrol tank was empty. The group had badly miscalculated the distance to be covered. The only thing to do was to split into pairs and make for the sovkhoz. Unfortunately no farm light was visible, it was pitch black and clouds had covered the moon. An eerie silence reigned. There was no road to follow. The cold was so intense that after ten to fifteen steps one had to stop to recover breath. Two of the group collapsed and lay stretched out, motionless, in the snow. The surviving members did not have the strength to keep them upright, let alone drag them forward. The end appeared to be near for everyone. Suddenly, a few steps further on, a birch tree became visible. They were in the middle of the sovkhoz! The electric lights had gone out because the single generator providing current had broken down.

The Tolbukhin sovkhoz, concentrating on the production of grain, was one of the successes of the virgin lands. A kolkhoz, based on the Kazakh settlement of Mortuk, was taken over in 1957. Mortuk was quite a sight. About four hundred persons lived in one hundred and fifty mud huts. Electricity, radio and medical aid were unheard-of things. A four-year school was quartered in a mud-walled building. When the kolkhoz joined the sovkhoz, the job of pulling down the mud huts and replacing them with more modern dwellings was first on the agenda.

The party appeal of early 1954 for young volunteers to go to the virgin lands produced a positive response from more than a million young men and women. During 1954 and 1955 northern Kazakhstan welcomed about 650,000 new settlers. Among these were 20,000 party members. 130,000 mechanisers and over 15,000 agricultural specialists from the western part of the country. The Ukraine sent 50,000 young men and women. Two-thirds of all graduates from agricultural institutes moved to the east to take up their first appointment. The 1956 harvest was bountiful in the new lands. As a reward, the party and government named 139 settlers 'Heroes of Socialist Labour' and more than 40,000 kolkhoz and sovkhoz operatives were given state awards. At a special ceremony in 1974 to mark the twentieth anniversary of the opening-up of the virgin lands, L. I. Brezhnev stated that the special medal 'For assimilating virgin land' had been awarded to 1,340,000 persons.[69]

The names of the new sovkhozes reflected the native hearths of the pioneers: Moscow, Leningrad, Kiev, Perm, Kazan, Volgograd, Kalinin, Izhevsk, Lvov, Gorky and Sevastopol.

Twelve Soviet republics and 30 *oblasti*, *krai* and ASSRs of the RSFSR were involved in setting up new state farms. Belorussia promised to equip 23 farms, the Ukraine 54, Moscow *oblast* 25 and Leningrad *oblast* 15.[70]

One hundred and two nationalities took part in the battle to tame the steppe; Russians, Ukrainians, Kazakhs, Belorussians, Kirgiz, Uzbeks, Latvians, Armenians, Germans, to name only a few. Sovkhozes were multinational. One in Tselinograd *oblast* and another in Kustanai *oblast* had 21 nationalities. A kolkhoz in Tselinograd *oblast* counted 17. This led to intermarrying between various nationalities. Student brigades from 76 cities and 9 republics came to carry out construction work during their holidays. About a fifth of the building done in sovkhozes in Kazakhstan between 1959 and 1966 was carried out by students.

It was one thing to come, it was another to stay. Fired with enthusiasm, thousands of young people from the European part of the country set out for the unknown. Many of them were quite unprepared for life in the steppe. Many migrants from Belorussia appear to have stayed only a short time. The searing heat of a Kazakh summer, when 40°C was not exceptional, and the bitter cold of a steppe winter when temperatures could drop to −40°C, were too much for them. Belorussia possesses many woods; Kazakhstan appeared as a desert or semi-desert. Specialists maintain that the human organism reacts if a person moves 2° in latitude. The difference between Belorussia and southern Kazakhstan, is 12°, about 1,200 km. Many of the newcomers possessed skills which were irrelevant to Kazakhstan. For instance, Belorussians knowledgeable in flax growing could not find similar work and were asked to raise sheep in southern Kazakhstan. Turnover among all migrants was high. The major reasons were bad housing and lack of facilities, transport and culture. The housing construction plan in Kazakhstan was seldom, if ever, fulfilled. In 1963 only 35 per cent and in 1964, 41 per cent of the plan was realised.[71] Many families had to be split up on arrival because of the shortage of accommodation. Over the period 1955–66, only 86 per cent of the available long-term state credits were taken up in Kazakhstan.[72] Credits were granted for the building of houses and the purchase of livestock. Unfortunately the total amount which could be borrowed per person was not adequate to meet the costs of setting up home and buying animals. Anyway, the private plot contributed little to the household's income since it was difficult to grow very much in the dry conditions. Preferential treatment was extended to mechanisers. They were placed top of the accommodation queue. Nevertheless, tractor drivers and combine operators were hard to find. Many grain sovkhozes needing 170

mechanisers attracted only 40. In 1964, in the virgin lands of northern Kazakhstan, 49,800 mechanisers arrived but 51,200 departed. Where did they all go? Some switched to work as chauffeurs or mechanics on the same farm, some went to other farms, but the majority left the republic. To add to the frustrations of the other workers, a dwelling vacated by a mechaniser was not made available to other categories of workers but left vacant until the next tractor driver could be recruited. Pay was substantial. In 1953, a mechaniser earned on average 527 roubles in the *oblasti* which made up the future Virgin Land *krai*. In 1964 he averaged 1,320 roubles. In 1964 the RSFSR average wage for a mechaniser was 998 roubles, in the Ukraine it was 926 roubles and in Belorussia 745 roubles. A tractor driver in 1964 in Virgin Land *krai* was then being paid 10 per cent more than the average industrial worker in the USSR.

A major reason for the unwillingness of tractor drivers and combine operators to settle down was the loneliness of the job. In the Tolbukhin state farm, five brigades were established in 1954 to look after 28,000 ha of arable. In 1957 the sovkhoz grew to 42,000 ha of arable and eight brigades were made responsible for the work. Everything was in short supply, especially transport, and this exacerbated the problem of distance. It was 26 km from the centre of the farm to the fourth brigade, but 46 km to the seventh brigade. If the director wished to visit each brigade, he had to cover more than 120 km. Then there was the problem of where the workers were to spend the night and their free time, in the fields or back at the sovkhoz centre. In Kokchetav *oblast* it was the practice for mechanisers to live out in the fields in huts, either the whole year round or from spring to the finish of harvesting, from April to November. When workers were not engaged on field work they concentrated on repair work and building huts. The organisation of field work was made more difficult by the non-availability of many spare parts and by the lack of essential goods. This, in turn, affected wages and labour discipline. If a crisis did occur, the director and the necessary specialists were a long way away and this added to the complexity of the situation.

The Tolbukhin sovkhoz organised things differently. Only bachelors lived out in the fields, and then only in April, May, August and September. When the harvest had been brought in, all who had been living out in the steppe were taken back to the sovkhoz centre. They still had to put up with sharing a room in a hostel and living in tents and carriages, but at least they were near the restaurant, club and repair shop.

If life was tough for mechanisers, it was also tough for sovkhoz directors. They were judged by results and this led to great mobility.

Between 1959 and 1961, 645 directors or 53 per cent left their sovkhoz. Of this total, 218 or 33 per cent were sacked. In Pavlodar *oblast*, 66 out of 105 directors changed over the same period. Morgun's comment on this high casualty rate is that sovkhoz directors during this critical period needed a few kind words and moral support more than incessant criticism and threats that they would be sacked.

A sovkhoz director was usually showered with orders, exhortations, advice and visits from officials during the vital sowing and harvesting periods. He had to be sure of his ground to oppose a party directive. Morgun relates one occasion when he refused to carry out party instructions and survived. The argument concerned the harvest. Should the crop be cut and stacked for threshing or should it be cut and threshed in one operation? On the surface it was a purely technical question. In 1957 the order went out to harvest in two operations, first cut then thresh. It was a wet summer and the grain ripened. Sunshine in late August reduced the moisture content to 12–15 per cent, ideal for storing the grain. Morgun decided to switch to cutting and threshing in one operation. This did not go down well in the *raion* centre. They were furious and demanded an explanation. A committee arrived but direct threshing continued. Morgun was called to a meeting of the bureau of the party *raion* committee. One of the committee members proposed Morgun's expulsion from the party since he had ignored the order to cut and thresh in separate operations. The matter was resolved by the personal intervention of the Second Secretary of the Kokchetav *oblast* party committee. He visited the Tolbukhin farm and supported Morgun. Morgun was not expelled from the party but was reprimanded. The summer of 1958 was also wet. On 16 September the party removed its veto on direct threshing and ordered this method to be used in the struggle to save the harvest. Morgun and his specialists decided that their best course was to continue using the old method. The crop was too wet to thresh directly. When the party officially found out they reacted as in 1957. Morgun stuck to his guns and results confirmed his judgement. The Tolbukhin sovkhoz was the only farm in the whole *raion* to cut and thresh all its crop. Morgun ceased to be director after the 1959 harvest.

Other sovkhoz directors did not resist party instructions. In 1957, one followed to the letter every telegram and order he received. His sovkhoz became the first to cut wheat in Kokchetav *oblast*. This achievement was trumpeted far and wide. Not a word was said about the fact that about 3,000 ha of stacked wheat was not threshed. The rain beat it into the ground and ruined the grain.

Another major battle which Morgun fought was over the question

of fallow. Before 1958 weed-infested cropland was left fallow. Farms could do this because the global output of grain of the virgin lands was more or less satisfactory to the planners in Moscow. Morgun states that a change became noticeable after 1958. He states that officials ceased to seek advice from farm personnel and disregarded their opinions. At the beginning of the 1958 sowing campaign he received an order outlawing all fallow. Morgun decided that some arable had to be put to fallow and ordered the necessary machinery. The machinery and finance his farm received was in accordance with official instructions. His requests were ignored completely.

The official argument against fallow went sometimes as follows: 'How can you possibly justify allowing land to lie fallow for a whole year? It amounts to barbarism and not agriculture.' Agricultural experts began producing studies proving that progressive grain growers in ancient Rome and Babylon had regarded fallow as a waste of precious fertile land. What they failed to mention was that irrigation was being used and that a high level of field husbandry skills had been developed. The battle against fallow, which really got under way in the early 1960s, badly affected grain yields in Kazakhstan. Over the period 1955–9 the average yield of grain in northern Kazakhstan was 7·4 centners per ha. Over the years 1960–4 it dropped to 6·9 centners per ha. The drop in yields was not compensated for by extending the sown area. Between 1955 and 1959 the output of grain per hectare of arable was 5·9 centners, but during the succeeding five years it dropped to 5 centners. Thus sales of grain to the state in northern Kazakhstan dropped over the period 1960–4. As yields dropped, so production costs rose. The cost of a tonne of grain in sovkhozes during 1957–60 averaged 42·8 roubles; over the period 1961–4 it averaged 58·2 roubles. Inter-tilled crops were sown on clean fallow. The area sown to maize rose from 241,000 ha in 1956 to 1·8 million ha in 1963, 7·9 per cent of arable. Sugar beet as feed, previously unknown in Kazakhstan, accounted for 73,200 ha in 1962. Peas jumped from 4,100 ha in 1956 to 485,200 ha in 1962. Clean fallow, as a result, was sharply reduced. In 1963 only 5·8 per cent of arable was under clean fallow compared with 17 per cent in 1953. Fodder production rose to 1·59 centners of feed units per hectare of arable in kolkhozes and sovkhozes in northern Kazakhstan over the period 1960–4, compared with 0·91 centners over the years 1955–9. Nevertheless, land productivity over the decade 1955–64 did not rise. The global production of field crops over the years 1955–9 averaged 8·3 centners of feed units per hectare of arable but dropped to 7·9 centners during the years 1960–4. In money terms (in 1958 prices) global production dropped from 37·7 roubles to 36·6 roubles per hectare of arable.

Kazakh grain became very expensive to produce. Over the period 1959–62 the cost of a tonne in sovkhozes was 51 roubles in northern Kazakhstan. The comparable figure in West Siberia was 42 roubles, in the Urals 39 roubles, in the Volga 36 roubles, in the Ukraine 30 roubles and in the North Caucasus 22 roubles.

The reduction of clean fallow, monoculture, poor cultivation of the soil and insufficient use of herbicides led to weed infestation. During the period 1959–61 more than a half of the assimilated virgin land in northern Kazakhstan was infested with wild oats. In 1961, 7 million ha or 38 per cent of the grain area was badly affected by pastor's lettuce; in 1963, 8 million ha or 49 per cent was and in 1964, 11 million ha or 70 per cent.

The spread of weeds affected the quality of the harvested grain. Over the period 1954–7, the amount of grain containing more than 5 per cent of weeds averaged 6·1 per cent in Tselinograd *oblast*. This rose to no less than 50·5 per cent on average over the years 1958–61, reaching an all-time high of 64·7 per cent in 1960. Only 9·7 per cent of grain delivered to the state in 1960 was recorded as clean grain (up to 3 per cent weeds). Research conducted by scientists in the Virgin Land *krai* into the 1961 harvest revealed that of the 18 million ha of grain inspected, 14 million ha were badly affected with wild oats and about 7 million ha by a variety of perennial weeds. The crop in 1964, when natural conditions were excellent, would have been above 10·2 centners per ha if it had not been for 70 per cent of the grain area being infested with wild oats. One specialist estimated that weed infestation cost northern Kazakhstan 4·2 million tonnes of grain in 1964.

The record for weed infestation must go to a sovkhoz in Kokchetav *oblast* where, on 18 May 1960, 3,700 shoots of wild oats were counted on one square metre of cropland. The roots of the wild oats went down 20 cm. No wheat could possibly grow on such land. One *raion* in Kokchetav *oblast* counted 60,000 ha of grain choked by wild oats and pastor's lettuce in 1960.

Besides the weed problem, farm workers had to battle to keep down the moisture content of the grain harvested. It often rains during the harvest in northern Kazakhstan, hence available fine weather has to be exploited to the full. The lack of machinery and mechanisers makes this very difficult. Only once over the period 1958–65 did harvesting take less than 56 days, and that was in 1962. The average was 80–90 days. In 1958 harvesting lasted 87 days in Kokchetav *oblast* but 102 days in Tselinograd *oblast*. Combine harvesters on average had to bring in 250 ha of grain in the Virgin Land *krai* in 1958, in 1959, 210 ha, in 1960, 230 ha and in 1961, 200 ha. They only managed to harvest 2–3 ha per twenty-four-hour period.

The long-drawn-out nature of the harvest resulted in over-ripe grain being lost in the fields. There is very little economic gain in harvesting grain, the ears of which have already dropped to the ground. If grain is to be stored, then moisture content must be kept below 15 per cent. In northern Kazakhstan in 1958 and 1960 about 60 per cent of the grain delivered to the state was unsuitable for storage. In 1958, 1,514,000 tonnes of grain were delivered and found to be unfit for baking. In 1960, 13·4 per cent of delivered grain was rejected by the state. One sovkhoz in 1958 transported 4,270 tonnes of grain to the state collecting points but had 610 tonnes rejected. The farm received from the state, on average, 29·9 roubles per tonne of grain delivered while production costs were 73·1 roubles per tonne. Another sovkhoz delivered 6,096 tonnes of grain with a moisture content of 26·7 per cent. Only 45·5 per cent of the grain was classified as of normal quality. The absence of adequate drying facilities both on the farm and at the collecting points meant that large quantities of valuable and hard-won grain spoiled. The worst year in Tselinograd *oblast* was 1960, when 17·9 per cent of delivered grain was not accepted.

The lack of arable free of weeds resulted in a decline in the quality of seed used. The best seed comes from land previously given over to clean fallow. After 1958 there was a noticeable increase in the quantity of seed bought from the state in northern Kazakhstan. For instance, in 1960, of the 2 million tonnes of seed used, 22 per cent was bought from the state. In 1963 the quantity dropped to 10 per cent but it rose again to 40 per cent in 1964. Pavlodar *oblast* bought 85 per cent of its seed from the state in 1964. Why was it necessary for farms to sell grain to the state in autumn and then purchase seed grain the following spring? If the seed grain purchased from the state had been of higher quality than that available on the farm, the decision to buy would be understandable. However, that was not the case. In many instances the farms brought back the same grain they had sold to the state the previous autumn. Usually farms set aside the best land for the production of grain for seed. The amount of weeds in the grain after 1958 and the high moisture content meant that the grain could not be stored on the farm. The sovkhozes did not have the equipment to clean and dry the grain. In the spring the farms procured the grain, more or less free of weeds, from the state elevators. Specialists have estimated that the sowing of seed wheat on badly prepared land reduces yields by 30–35 per cent and the storing of seed grain above the optimal moisture content cuts the number of shoots by 30 per cent.

Weeds were a serious problem, but the most formidable of all was wind erosion. Morgun's experience in the new lands convinced him that clean fallow, snow retention, the planting of corridors and all the other methods favoured by T. S. Maltsev and A. I. Baraev were absolutely essential in Kazakhstan. Neglect of the problem was forcibly brought to the attention of the post-Khrushchev leadership in 1965 when officials in the former Virgin Land *krai* recorded over 5 million ha or about a quarter of the arable area damaged by wind erosion.

The Tolbukhin sovkhoz, under Morgun's leadership, had a very good record. The balance sheet over the period 1956–9 recorded a profit of 315,000 roubles. This was made up of profits in 1956 and 1958 and losses in 1957 and 1959. None of the neighbouring sovkhozes managed to record a profit. They finished with losses of 221,000, 967,000, 1·2 million and 1·4 million roubles. These farms are all on the worst land and in the driest part of Kzyl-Tu *raion*, Kokchetav *oblast*. This puts Morgun's achievement in perspective. Over the years 1954–65 the state invested about 7 million roubles in the Tolbukhin state farm. In 1965 basic funds were valued at 5·6 million roubles. The farm sold 201,000 tonnes of grain to the state and all sales of field and animal husbandry products realised over 15 million roubles during the period 1954–65. The period 1960–5 was a difficult one, even for well-managed farms. This means that the Tolbukhin state farm almost certainly recorded a net loss over the whole period 1954–65.

The early years were the most taxing. Morgun provides insights into the demands made on leading personnel in the sovkhozes. They had to be as strong as oxen to permit them to work for days and nights on end, often only snatching two to three hours' sleep in a lorry travelling over rough terrain. The severe climate and the great distances from the economic centres and supply bases added to the difficulties of finding accommodation for workers, building up a sovkhoz, ploughing, sowing and harvesting of various crops. There was as well the task of unloading dozens of railway wagons every day in Omsk or Kokchetav, loading the goods on to lorries and taking everything to the sovkhoz. The enormous distances, the lack of roads and the lack of means of communication normally resulted in the lorries not being there when the railway wagons arrived. Railway platforms were piled high with goods while the wagons stood for days on end waiting for the farm lorries to arrive to unload them. Sovkhozes were at the same time in desperate need of the waiting equipment. Railway workers had to pay huge fines for the delays caused, while sovkhoz directors received threatening orders replete with warnings and reprimands. It often occurred that lorries had to leave the farm at midnight so as to be in Omsk, 200 km away, the following morning. Then it might be necessary to go to Kokchetav, covering a further 400 km, then home, another 200km. It was very difficult to unload the railway wagons, transport everything to the farm, deliver everything to the right place, satisfy everyone and solve a mass of complicated economic problems. After 1957 the Tolbukhin farm was unable to solve the two main problems: how to harvest the grain in the shortest possible time without any losses and how to plough land in autumn correctly. The result was that everyone and everything suffered. Combines and tractors were left during the winter in bunkers with the grain. Radiators and engines, predictably, rusted away. Not many directors stayed to face the music. Most left before they could be blamed for the mess the virgin land sovkhozes were in.

Given the obstacles, it is remarkable what the virgin land did achieve. Even a farm on bad land such as the Tolbukhin could record a profit over the years 1954–9. It was difficult afterwards even for a farm on good land to produce a positive balance. The enormous improvement of virgin land sovkhozes since 1965 shows what could have been done had there not been such pressure from above after 1959. The chief success indicator then became the number of hectares sown to grain. Any other consideration was tantamount to treason. It is worth recording that Morgun is capable of writing 413 pages without ever mentioning the driving force behind the whole policy – Nikita Sergeevich Khrushchev.

THE WEATHER

Variations in the number of sunspots during the solar cycle seem to reveal a striking correlation with fluctuations in yields of agricultural crops ranging from wheat to turnips and swedes. Presumably this is because sunspots affect the weather, which in turn dictates the length and success of the growing season.

Data to support these conclusions have been provided by Dr J. W. King and his colleagues at the Appleton Laboratory, Slough, England.[73] They put the weather variable at about 10 per cent of world food consumption. Many people, they say, have reported associations between the solar cycle and the weather, but relatively little attention has been paid to the fact that the eleven-year and twenty-two-year sunspot cycles could produce important modulations of agricultural productivity.

World wheat production for the years 1949–73 can illustrate how sunspot cycles appear to influence food production. Sunspot maxima occurred at the end of 1957 and again in 1968, and it is worthy of

note that global wheat production in 1958 was greater than in any of the five succeeding years, whereas that of 1968 was greater than that of the four succeeding years. In 1954 (a year of sunspot minimum) output was lower than in the two preceding or succeeding years.

The fact that wheat production in the Northern Hemisphere increases at around sunspot maximum can be seen from wheat figures in many countries. In the People's Republic of China, the annual output over the years 1956–8 (centred on the 1957 sunspot maximum) was 22 per cent higher than during the period 1960–5. The total produced in 1958 has probably not been equalled in any year up to and including 1973. The average harvest in the Soviet Union during the period 1956–8 was, as in China, greater than during the years 1960–5. In 1958 the crop was 54 per cent higher than in 1963. Average wheat output in Canada during the period 1967–9 (centred on the 1968 sunspot maximum) was 27 per cent greater than that of the four succeeding years, 1970–3.

Over much of the Northern Hemisphere, therefore, wheat production appears to increase significantly near sunspot maximum and to fall at sunspot minimum. The facts reveal that the modulation of wheat production associated with the eleven-year sunspot cycle appears to be at least 10 per cent in many parts of the world, and in certain countries it may even be greater than 50 per cent. A consequence of this modulation may be the fact that the Soviet wheat harvest in 1972 was smaller than that of 1971 which in turn was less than 1970. It may be reasonable to suggest, in view of the reduced Soviet harvests after the 1957–8 solar maximum, that the disappointing harvest of 1972 was associated with the decline of solar activity between the 1968 sunspot maximum and the minimum due in about 1974.

The data cited here refer to the Soviet harvest. Did the virgin lands follow the same pattern or were they a law unto themselves? The record wheat year was 1956 and the 1956–8 average (1957 was very disappointing) was about the average for the period 1959–63. The dismal harvest of 1963 was repeated in the virgin lands. 1965 and 1969 were disappointing years both nationally and in the virgin lands. However, the poor harvest of 1972 nationally was offset to some extent by a very good harvest in the virgin lands. It is worthy of note that the record national wheat harvests of 1958, 1966 and 1973 and the near-record of 1970 were all preceded by disappointing harvests the year before. There seems to be a pattern that unsatisfactory harvests are often followed by record ones.

There is opposition in official meteorology to the observations presented above. Professor H. H. Lamb, Director of the Climatic Research Unit at the University of East Anglia, points out[74] that

eleven-year and twenty-two-year sunspot cycles do not show up well in weather data: the best attested results indicating association between solar fluctuations and weather have periods of about 5·5, 90 and 200 years. He does not believe that the change in wheat production in Canada after 1970 can be attributed to any feature of the eleven-year sunspot cycle. It is much more probable, he claims, that the decline of output in the 1970s is related to a 90- or 200-year-cycle.

The eleven-year sunspot cycle covered the years 1957–68 with maxima at beginning and end. Sunspot minimum was around 1963 when a very disappointing harvest was gathered in the Soviet Union. However, 1964 was a record followed by an unsatisfactory 1965 harvest. The next cycle would be 1968–79. However, Professor Lamb states that the next sunspot maximum is expected around 1982, not earlier. The so-called eleven-year sunspot cycle, he writes, is very far from being a regular cycle. All the sunspot cycles in this century up to 1957 have been about ten years in length, but the range of observed lengths since 1700 includes one cycle as short as nine years and one as long as seventeen years. According to the observations of Dr King, Khrushchev opened up the virgin lands at the most propitious moment. The years after 1959, when sunspot activity was declining, were not so favourable. Had Khrushchev known about the sunspot theory, he would in all probability have kept quiet about it before 1959, claiming the good harvests to be the result of party leadership, and then marshalled the scientific evidence after 1959 to demonstrate that the gods were against him and that yet another reform was necessary to cope with this new state of affairs!

NOTES

1 Khrushchev, in retirement, claimed that Soviet agronomists had estimated that as little as 5 centners per ha would be needed to make virgin land farms profitable. Talbott (ed.), op. cit., p. 124.
2 Khrushchev, op. cit., vol. VIII, p. 541.
3 *Voprosy Istorii Kompartii Kazakhstana* (Alma-Ata, 1967) p. 22.
4 The net profit registered by kolkhozes and sovkhozes was only a book-keeping one. The state budget was subsidising meat sales to an enormous extent.
5 *Finansy SSSR*, no. 2 (1962) p. 33.
6 *Ekonomika Selskogo Khozyaistva* (hereafter *ESKh*), no. 10 (1963) p. 26.
7 Khrushchev, op. cit., vol. VII, p. 423.
8 I. Yusupov revealed that in Tselinny *krai* in 1962, 572 sovkhozes ended the year with losses which reached astronomical proportions – nearly 250 million roubles. *Kazakhstanskaya Pravda*, 14 June 1963.
9 *Vestnik Selskokhozyaistvennoi Nauki*, no. 5 (1966) p. 12.
10 *Izvestiya*, 25 Aug 1957.
11 Khrushchev, op. cit., vol. V, p. 264.
12 Ibid., p. 264.

13 Ibid., p. 264.
14 *Selskoe khozyaistvo SSSR* (Moscow, 1960) p. 454.
15 *Izvestiya*, 16 Feb 1958.
16 Khrushchev, op. cit., vol. v, p. 302.
17 F. T. Morgun, *Dumy o tseline*, 2nd ed. (Moscow, 1969) p. 81.
18 *Resheniya partii*, vol. III, pp. 531–49. The decree is dated 20 October 1948. In the previous edition of this series, published in 1958, this decree is omitted, but is brought back in the post-Khrushchev edition.
19 A. I. Baraev (ed.), *Osnovnye polozheniya po borbe s vodnoi i vetrovoi eroziei pochv* (Moscow, 1962).
20 The entry on erosion in the *Large Soviet Encyclopaedia* lists other centres of research. Baraev, however, ignores them in his study.
21 T. A. Koval, *Zernovoe khozyaistvo SSSR* (Moscow, 1965) p. 71.
22 Baraev, op. cit., p. 17.
23 Ibid., p. 17.
24 *Izvestiya*, 3 Apr 1956.
25 Ibid., 7 May 1958.
26 *Kazakhstanskaya Pravda*, 9 July 1960.
27 *Ekonomicheskaya Gazeta*, 8 Aug 1964. Cf. W. G. Hahn, *The Politics of Soviet Agriculture, 1960–1970* (Baltimore and London, 1972) pp. 26–32.
28 Ibid., op. cit., p. 48.
29 It is true that topsoil blown from one part may settle on another part of the virgin lands, thus enriching it. However, if there is no natural barrier on arable land the soil may be lost.
30 Baraev, op. cit., p. 21.
31 A. I. Baraev, A. A. Zaitseva, E. F. Gossen, *Borba s vetrovoi eroziei pochv* (Alma-Ata, 1963) p. 10. There were also dust storms during the autumn of 1962 which affected Virgin Land *krai*, West Kazakhstan *oblast* and neighbouring *oblasti* of the RSFSR.
32 Ibid., p. 4.
33 Ibid., p. 3. Over the period 1954–60 in Pavlodar almost 3·5 million ha (14 per cent of the Kazakh total) were assimilated. The total quoted for the period 1955–60 therefore represents about 5 per cent of the total assimilated area. The 1961 figure is about 20 per cent of the total and the 1962 figure about 43 per cent of the total assimilated area. (The area assimilated in Pavlodar *oblast* is given in Morgun, op. cit., p. 80.)
34 Ibid., p. 3.
35 *Plenum Tsentralnogo Komiteta KPSS, 10–15 Fevralya 1964 g.* (Moscow, 1964) p. 379.
36 Morgun, op. cit., p. 262.
37 A. I. Baraev, *Selskoe Khozyaistvo Kazakhstana*, no. 3 (1969) p. 14.
38 A. A. Konshin (ed.), *Ekonomika sovkhozov i kolkhozov tselinnykh raionov* (Moscow–Tselinograd, 1964) p. 239. Unfortunately the author does not indicate what percentage of the total this area represents.
39 *Pravda*, 15 Dec 1963. Interestingly enough, no instance of Khrushchev using the word 'erosion' has been found. He occupied himself with the *travopole* system, clean and occupied fallow, etc. Erosion can result from a lack of fallow and the arguments with Baraev and others implicitly included this problem. Khrushchev often used the tactic of stating that soil experts did not agree among themselves over fallow. Here he was not comparing like with like, since fallow can be dispensed with under certain conditions, e.g. adequate precipitation, break crops, etc. Fallow in dry zones is indispensable.
40 Koval, op. cit., p. 27, states that a system well suited to the virgin lands was 'developed a comparatively long time ago by the Grain Research Institute at Shortandy [where Baraev is director] . . . in a number of experimental stations, but for an unknown reason it was not extended beyond the stage of institute experiments'.

41 Khrushchev, op. cit., vol. VI, p. 145.
42 Someone else who came in for severe criticism was N. Laskovaya. She wrote a piece in *Novy Mir*, no. 6 (1960) on the dust storms of that year. She was later accused of spreading horror stories by *Kazakhstanskaya Pravda*, 23 Oct 1963.
43 A. I. Baraev (ed.), *Nekotorye voprosy osvoeniya tselinnykh i zalezhnykh zemel v Kazakhstane* (Alma-Ata, 1954) p. 21.
44 Ibid., p. 9.
45 Ibid., p. 35.
46 Ibid., p. 59.
47 Ibid., p. 64.
48 Ibid., p. 92.
49 Ibid., pp. 40–1.
50 Ibid., p. 51.
51 S. P. Yarkov (ed.), *Pochvenno-agronomicheskie issledovaniya na tselinnykh zemlyakh* (Moscow, 1957) pp. 4–5.
52 *ESKh*, no. 6 (1961) p. 11.
53 Yarkov, op. cit., p. 300.
54 Ibid., p. 260.
55 Ibid., p. 196.
56 *Preobrazhennaya step* (Alma-Ata, 1967) p. 249. Another writer puts the area surveyed during 1954 and 1955 at 93 million ha and the area designated as fit for cultivation at 20 million ha. I. D. Yakovlev, *Vtoraya zhitnitsa strany* (Moscow, 1957) p. 24.
57 F. K. Mikhailov, *Sovkhoznoe stroitelstvo v Kazakhstane (1946–1970 gg.)* (Alma-Ata, 1973) p. 32.
58 *Pravda*, 13 Feb 1964; C. Zoerb, 'The Virgin Land Territory: Plans, Performance, Prospects', in R. D. Laird and E. L. Crowley (eds.), *Soviet Agriculture: The Permanent Crisis* (New York, 1965) p. 38.
59 Ibid., p. 38.
60 Ibid., p. 39.
61 Calculated from data in *Saskatchewan Economic Review*, no. 26 (Regina, 1972) pp. 18–19.
62 Ibid., p. 17.
63 *Pravda*, 14 Feb 1964.
64 *Saskatchewan Economic Review*, op. cit., p. 17.
65 Calculated from data ibid., p. 20.
66 Khrushchev, out of office, had some pertinent remarks to make on the reliability of Soviet statistics: 'Stalin arbitrarily dictated the average yield. Nowadays it isn't that bad, but I still don't trust our bureau of statistics. I think there remains a tendency among our statisticians to conceal setbacks and tell the leadership what it wants to hear. I know some of these statistical experts. They're the sort who can melt shit into bullets (i.e. tell lies). They're clever at hiding the truth. Sometimes they bury the truth so deep in a report that you can't possibly dig it out.' Talbott (ed.), op. cit., p. 131.
67 J. Warkentin (ed.), *Canada: A Geographical Interpretation* (Toronto, 1968) p. 426.
68 Morgun, op. cit. This section is based on Morgun's account unless otherwise stated.
69 *Velikii podvig partii i naroda* (Moscow, 1974) p. 46.
70 Mikhailov, op. cit., p. 38.
71 *Ekonomicheskie Nauki*, no. 5 (1969) p. 36.
72 Ibid., p. 37.
73 *Nature*, vol. 252, 1 Nov 1974, pp. 2–3.
74 In private correspondence: letter of 24 Feb 1975.

7 The Alternatives to the Virgin Lands

The rapid expansion of the sown area after 1953 showed that Khrushchev had little faith in the agricultural policy of the XIX Party Congress. Malenkov placed raising of yields on the existing cultivated area among the main tasks confronting Soviet agriculture. Khrushchev overturned this and it was only towards the end of his period in office that he officially acknowledged that the long-term solution to the problems confronting those in farming lay in intensifying agriculture. Extending the sown area was only a short-term solution.

Was Khrushchev right in deciding to go east in 1954, or could he have gained the same results or perhaps surpassed those achieved by intensifying agriculture in the traditional farming areas of European Russia?

The cropping pattern, shown in Table 7.1, will shed light on the possibilities of expanding the sown area there. On podzols the grain area is 41–55 per cent of the whole area, on chernozems it is 56–68 per cent, on the chestnut about 80 per cent. On chernozems the fodder crops take up 21–35 per cent of the sown area.

Podzols are not very fertile, although modern methods can achieve adequate yields on them. The North-West of the RSFSR is exclusively podzols, as is the region around Moscow. Since the grain area covered 50 per cent of the total arable and grasses took up 35 per cent more on average, not much was left for expansion, given that the area devoted to grass would not be drastically reduced. This could only happen if Vilyams' *travopole* system was rejected, and this was unlikely at that time since the final victory of the *travopole* system had only come in 1948. Since the area free of bush and shrub is limited, extensive clearing work would have to be undertaken before sowing could begin. Since there is a surplus of precipitation, drainage work would also be necessary.

The further north, the lower is the ploughed area, and this results in Leningrad *oblast* only ploughing about 30 per cent of its arable.

TABLE 7.1 Cropping Pattern, 1953
(percentage of arable)

	Annual grass %	*Perennial grass* %	
Podzols	8	33	Estonia
	16	26	Leningrad *oblast*
	9	22	Pskov ,,
	4	30	Kalinin ,,
	10	23	Kaluga ,,
Chernozems	13	8	Tula ,,
	22	5	Orlov ,,
	20	3	Voronezh ,,
	13	5	Belgorod ,,
	15	3	Volgograd ,,
	18	10	Orenburg ,,
Chestnut	8	9	Urals

Source: N. P. Makarov, *Ekonomicheskie osnovy organizatsii proizvodstva v kolkhozakh i sovkhozakh* (Moscow, 1966) p. 38.

Animal husbandry can thrive on the abundant grass in river valleys. Fields are small compared with those in the chernozem and investment in machinery would not produce the results achieved elsewhere.

Yields on the podzols are modest and some of the most expensive grain in the USSR is produced there.

Few would disagree that there is little future in expanding the grain area in the North-West. Podzols also cover Belorussia, the Baltic States, the north-western part of the Ukraine, Moscow *oblast* and thence east to the Urals in the European part of the RSFSR.

To the south of the podzols come the brown earths and then the chernozems of the wooded steppe and steppe. The chernozems extend to the Black Sea and then in a strip to Western Siberia. This area contains some of the most fertile land in Europe. Evaporation is seldom higher than annual precipitation, which is adequate.

Grain accounts for more than 60 per cent of all land. The percentage is higher in the west and lower in the drier steppe in the east. Fodder crops account for approximately 30 per cent, which leaves little room for expansion of the sown area. Reserves of meadow in the western chernozem are no higher than 5–6 per cent, while in the drier steppe regions in the east the reserves rise to 20–24 per cent.

Since perennial grasses play a minor role in the wooded steppe and steppe regions, the *travopole* policy would not have hindered significantly the reduction of the grass area.

The open steppe in the west has little uncultivated land, but in the drier east much more land was available for grain, provided it was understood that risks with the weather were being taken. The east could not be expected to produce the consistently high yields of the west.

The wooded steppe, as its name implies, contains a lot of woodland. Since it is predominantly flat, clearance would not present insuperable obstacles. However, it is expensive and without adequate machinery a long job. Too much woodland must not be cleared, otherwise water and wind erosion could cause heavy damage.

The chernozems extend into the North Caucasus, but here again the soils with adequate precipitation were already being farmed while those in the drier regions were only partly cultivated.

The chestnut soils which are to be found in a long strip south of the chernozems do not always produce consistent yields. Of the sown area, about 80 per cent is devoted to grain but there are large expanses of uncultivated land. Much the same applies to West Siberia, where the fertile soils were being exploited and the more difficult soils left alone.

Had the *travopole* system been rejected in 1953 it would not have solved at a stroke the two important problems of rapidly increasing both grain production and the output of animal products. More arable land would have been put under grain. The main fodder at that time was grass. Its yields would have had to increase to compensate for the reduced area as more grain would have had to be used as fodder. The new lands provided the opportunity of increasing grain production rapidly. More valuable fodder, such as maize, could then be grown in areas most propitious for its cultivation. Such areas would be freed from the burden of cultivating grain. The new lands would thus allow livestock farming to be expanded in the south of the European part of the Soviet Union.

The course of switching to maize was adopted in 1955. Unfortunately, instead of restricting this valuable fodder crop to areas where maize can ripen, Khrushchev forced the cultivation of maize for silage and green fodder. The value of this latter extension of the crop, often to areas where the vegetation period was short, was limited.

Intensifying agriculture in the European part of the USSR meant cultivating every possible hectare. This implied more and better machinery, equipment, etc. It implied a huge increase in the quantity of mineral fertilisers made available to agriculture. It also meant that the level of skill of the average person employed in agriculture had to rise rapidly. Many thousands of specialists were required to study the best methods of intensification on the spot. It

implied a mammoth educational task. The peasant had to be motivated to increase his skills and accept more responsibility.

Increased yields would certainly have resulted, but would they have provided the extra grain so desperately needed quickly?

The need for the grain was self-evident. In 1953 the per capita harvest of grain was a quarter less than in 1913. The volume harvested in 1953 was roughly the same as in 1913, while the total population had increased by some 45 per cent and the urban population by 450 per cent. In 1953 there was actually less livestock than before the revolution, and Soviet organs later admitted that the 1953 grain harvest was not sufficient to meet all the needs of the population.

In such a situation, desperate measures were necessary. If intensification had been adopted it could not have yielded the results required by the state. The state required an increased grain supply immediately and intensification is, by definition, a slow business.

No glowing promises were made about immediately increasing the share of agriculture in state investment. Had Malenkov remained in power, would agriculture have received the materials promised? Doubtless it would have received some, but would the additional investment have shaken the collective system out of its rut?

Khrushchev was a powerful advocate for the claims of the rural economy. Nevertheless, he once remarked :

> For a long time in the past no one was concretely answerable for the state of agricultural production. The *raion* party committees and *raion* executive committees . . . were occupied to an equal extent with the *raion* budget and with agriculture, public health, road construction and general cultural work. In these circumstances, agricultural affairs often landed at the bottom of the pile.[1]

Khrushchev adopted many reforms to overcome local indifference. The situation was not very different at the higher levels of government and party. At the XXII Party Congress in 1961, the Central Committee elected only 20 members with agricultural experience out of a total of 175. Those with engineering backgrounds, on the other hand, totalled 75. In the party Presidium most members combined *apparat* experience with a technical educational background.

In 1953 the claims of agriculture in the higher echelons of government and party were very muted. The post-war period was dominated by the drive to re-establish industry on a pre-war footing. There were few social or economic experiments, especially in the rural economy. True, the number of kolkhozes was drastically reduced after 1949, but the MTS system remained as the method

of providing agricultural machinery. Khrushchev's *agrogorod* scheme was blocked because it appeared to be too radical.

Stalin's book on the economy appeared shortly before his death and it could not be classified as a treatise giving rise to expectations of radical change. Its contribution on agriculture is certainly conservative.

Had Malenkov desired to inject large sums of money into agriculture after 1953, would he have succeeded in deflecting resources from other uses? It is likely he would have met the same opposition to the expansion of mineral fertiliser production which confronted Pryanishnikov in the 1920s and 1930s. In short, the economy, his detractors would maintain, had not reached the stage of development which would permit the chemical industry to be expanded in the direction of inorganic fertiliser production. An even more potent argument would have been advanced by the followers of Vilyams, to the effect that yields were best raised by improving soil structure.

One way of improving yields is to increase drainage and irrigation. In the absence of the large state funds necessary, it is likely that the farms would have been exhorted to expend great efforts towards these ends.

Increased labour productivity would have been out of the question without a significant increase in the machinery parks. Since Malenkov's avowed objective was to improve living standards by increasing consumer goods, it is difficult to see how he would have increased technical inputs into agriculture at the same time. Khrushchev's solution was typical of the man. He avowed that little new machinery was necessary for his virgin land project since most of it would come from the established farming areas of European Russia. Once a successful harvest or two had been achieved in the east he could increase the machinery input, saying that the added machinery would greatly increase grain production.

There is little doubt that Khrushchev's extensive agriculture programme was very successful until 1958. Afterwards he introduced a remarkable number of institutional reforms in his attempt to increase production.

Khrushchev was a powerful force in the party and government and the sums invested in agriculture reached the totals they did mainly due to his insistence and optimism. He gave agriculture the hard sell and it is doubtful if his like will ever be encountered again in the Soviet Union. He stood or fell mainly on his record in this field. If the hard sell is not accompanied by hard results, the vendor's end is usually sharp and sudden.

What would have happened had Malenkov's policy of intensifying

agriculture been followed? The virgin land project was launched with the promise that it would repay its initial expenditure in two to three years. As events turned out, more and more investment was diverted to the east. The mere fact of its existence and the need of Khrushchev to vindicate his agrarian initiative made it virtually certain that agriculture, especially in the new lands, would receive more investment. This was especially true in the period 1956–8 and in 1963–4. It is arguable that had the virgin land project not been undertaken, and had Malenkov been First Secretary of the party, agriculture would not have received the investment it did. But the failure of the post-1958 period, especially the harvest of 1963, made it virtually certain that agriculture would receive more inputs under any ruler.

The virgin lands received capital investments of 6,700 million roubles over and above what they would normally have received over the period 1954–62. Detailed figures for 1963 and 1964 are not available but must have been in the region of 2,000 million roubles.

Would this investment used for irrigation, drainage, the production of mineral fertilisers, herbicides, machinery, etc., have achieved the increased yields necessary in the traditional farming areas? There cannot be a precise answer to this question, but an assessment can be made.

Irrigation would mainly have affected those parts, especially in the southern Ukraine, which have been in the process of irrigation since the fall of Khrushchev.[2] Irrigation is a long-term enterprise and quick results will certainly not be forthcoming. The possibility always exists that the project will eventually raise the water table and increase the salinity of the soil. The stopping of work on some irrigation canals after the death of Stalin revealed that not everyone was convinced that irrigation was the panacea some had made it out to be.

In the southern Ukraine, mineral fertilisers cannot be applied as easily as in areas of adequate precipitation. Phosphates are successful but nitrogen requires adequate moisture. The southern Ukraine is also subject to the *sukhovei* and to wind erosion.

Drainage applies to the west and the north.[3] Belorussia does not produce much grain and this is understandable from an economic point of view. Drainage would provide more pasture for cattle breeding.

To have expected massive investments in mineral fertiliser production in 1953 is unreasonable.[4] This only occurred towards the end of Khrushchev's time and it required the chemical industry to be in a reasonably advanced state.

Had the traditional areas produced more grain, could technical

and fodder crops have expanded as they did under Khrushchev? The answer must be a clear 'no'. The transfer of part of the burden of grain production to the east made it possible to increase the production of sugar beet, sunflower, maize and fodder crops, which increased their area from 28·7 million ha in 1953 to over 60 million ha in the early 1960s. The greatest increase occurred in the Urals, the Volga and West Siberia and in the Ukraine. Admittedly, some of the fodder in the shape of green maize had probably only fictional value, but the increased real supplies permitted the cattle population to rise by more than 50 per cent and pig and sheep numbers by almost 50 per cent between 1953 and 1964.

Procurement of produce is a vital factor in the USSR. The new lands of the east sold a higher percentage of their production to the state than the traditional areas.

All parts of the Soviet Union with the exception of the north are subject to drought. Drought has never affected all of the Soviet Union simultaneously. If there is drought in the Ukraine there may not be any in Kazakhstan and West Siberia and vice versa. Spreading the grain area reduced the possibility of most of the crop being affected in any one year. However, it must be conceded that the risk of drought is higher in the east than in European Russia.

An interesting attempt by a Soviet scholar to assess the level of yields to be expected, given the necessary inputs of machinery, skilled labour, mineral fertilisers, etc., is by P. M. Zemsky.[5] Zemsky's work concentrates on the years 1954–5 and included the planned extension of grain cultivation in the new lands. His work has been analysed by some American specialists and their conclusions are on the whole positive. Most agree with his evaluation of wheat potential.

His upper limit for winter wheat in the USSR is 18 centners per ha.[6] The Soviet Union averaged 15 centners per ha over the period 1954–64 (bunker weight).

Zemsky puts spring wheat yields at 12·1 centners per ha.[7] He assesses optimal yields in Kazakhstan at 9·4 centners per ha. Without the lower contribution of the new lands in Kazakhstan the national level would rise to about 13 centners per ha.

Over the period 1954–64 national spring wheat yields averaged 8·3 centners per ha. This was an increase of about 25 per cent over the period 1949–53 despite all the vagaries of Khrushchev's agrarian policies.

The physical yields attained are not as high as they appear. Most students of the statistics of Soviet grain production estimate that a reduction of 10–15 per cent should be made from the given Soviet yields (bunker weight) to reduce them to barn yield.[8] In the light

of this, the average yield between 1954 and 1964 is between 7 and 7·5 centners per ha. Zemsky foresees a potential 75 per cent increase on these figures.

Had the area of wheat production not been extended by entering the new lands, then the old area (48·3 million ha) would have had to achieve an average yield of 12·9 centners per ha over the period 1954–64 to have produced as much grain as the extended area. Although this was not achieved, it was feasible. It was achieved in 1966 and 1968, to quote only two post-Khrushchevian years. Over the period 1965–8 the average wheat harvest exceeded 78 million tonnes whereas over the period 1954–64 it only attained 62·4 million tonnes. For the old area to have attained 78 million tonnes annually, a yield of about 16·2 centners per ha would have been necessary. This is above what Zemsky considered to be feasible. The record 1966 wheat crop of 100·5 million tonnes only averaged 14·4 centners per ha.

From the point of view of production, the new lands have certainly eased the grain situation. The importation of more than 20 million tonnes of grain – and the main grain bought was wheat – between 1964 and 1966 showed that high wheat production is absolutely necessary in the Soviet Union today. Hard currency is so short that home-grown wheat at almost any price is acceptable.

NOTES

1 *Pravda*, 14 Mar 1963.
2 Only 2·3 million ha of land were irrigated in the period 1945–65. The 1966–70 plan foresaw a further 3 million ha of newly irrigated land. The total irrigated area in 1968 was not much higher than in 1965.
3 A total of 3 million ha was drained between the end of the war and 1965. The 1966–70 plan envisaged an additional 6 million ha being drained.
4 D. N. Pryanishnikov, the leading champion of mineral fertilisers, died in 1948. In the same year the *travopole* system received a boost from the party. Malenkov's views on agricultural development in 1953 were directly influenced by those of Pryanishnikov.
5 P. M. Zemsky, *Razvitie i razmeshchenie zemledeliya po prirodno-khozyaistvennym raionam SSSR* (Moscow, 1959).
6 Ibid., p. 105.
7 Ibid., p. 105.
8 H. E. Walters and R. W. Judy, 'Soviet Agricultural Output by 1970', in J. F. Karcz (ed.), *Soviet and East European Agriculture* (Berkeley and Los Angeles, 1967) p. 312, n.9.

8 Agriculture in the Central Zone and the North-West Zone of the Russian Federation, the Baltic States and Belorussia

Besides his favoured crops, Khrushchev also had his favoured areas. The virgin lands were always clamouring for priority and such was the prestige connected with their progress that it was difficult for Khrushchev to resist the temptation to favour their claims on the resources available. If some areas received more, others had to receive less. The areas which suffered most were the central zone and the North-West of the Russian Federation, the Baltic states and Belorussia.

Such had been the neglect accorded these regions that L. I. Brezhnev, Khrushchev's successor as First Secretary of the party, devoted much attention to them at the CC plenum in March 1965. He described their position as difficult and stated that the Five-Year Plan for the years 1966–70 would devote special attention to them so as to overcome rapidly the backwardness of their agriculture.

Soviet agriculture as a whole turned in a disappointing performance over the period 1959–63, so the travails of part of the country should be seen in focus. Nevertheless, more than the weather can be blamed for the failures. Brezhnev listed various complaints and these can be summarised as follows :

(*a*) There was a serious neglect of the economic laws of the development of a socialist economy.
(*b*) An incorrect policy on prices was adopted. Investment in the Seven-Year Plan (1959–65) was too low.
(*c*) Raising yields, rules of agronomy and crop rotations were neglected and the favouring of some fodder crops led to losses.

(*d*) Party, soviet and agricultural organs were guilty of many deficiencies.

This list is formidable and amounts to a vote of no confidence in most of the agricultural policies adopted by Khrushchev. Before looking at the impact of these policies on the non-black earth areas, it is instructive to turn first to the study by P. M. Zemsky on the possibilities of expanding the sown area in the USSR after 1955. He and his colleagues came to the conclusion that the sown area in the USSR could be expanded by the following amounts :[1]

	(hectares)
USSR	38,053,000
of which :	
RSFSR	23,236,700
of which :	
North-West	1,791,700
Central Zone	2,747,800
Belorussia	2,192,000
Latvia	780,000
Lithuania	526,200
Estonia	590,000

Zemsky recommended that 33 per cent of the proposed increase in the sown area in the North-West of the Russian Federation should come from idle land, 39 per cent from swampy land and 17 per cent from swampy meadows. He pointed out that considerable hydrotechnical work would be necessary not only to reclaim swampy land and meadows but also to render the idle land agriculturally viable. Boulders are common and would have to be removed. Boulders and shallow humus soil have always been a problem in this area. When cultivation was carried out by traditional methods, boulders were not an insuperable problem. With the advent of modern machinery, the ploughs penetrate deeper and hence turn over more stones and boulders than before, and the difficulties are increased. The irregular field contours and the need to plough around large obstacles compound the problems. The traditional method of ploughing with horses was more suited to the terrain. Under such conditions, machinery cannot be employed as economically as in the steppe, where there is little to hinder progress.

The central zone is mainly composed of podzols which require regular supplies of organic and mineral fertilisers. Provided fertilisers are available, Zemsky sees this zone as climatically suitable to sustain high and consistent yields of grain and fodder crops, potatoes, vegetables, etc. The area is also especially suited to the cultivation of flax. Animal husbandry is an obvious choice for expan-

sion because of the great potential of the zone as a source of high-grade fodder.

There are many swamps, copses and bushes in the zone and considerable work entailing heavy capital expenditure would be necessary before the existing sown area could be extended. Zemsky suggests that the clearing of the copses and bushes be left to the end and that idle land, amounting to 21 per cent of his proposed increase, be assimilated forthwith.

Belorussia, according to Zemsky, has great potential for agricultural development, especially for grain and fodder crops and potatoes. The republic could rapidly expand its livestock farming. The area to be assimilated is now under swamps (29·6 per cent) and swampy meadows (41·1 per cent). These would require considerable amelioration before they could be used for agriculture. Of the rest, idle and pasture land account for 27 per cent and bushes for 2 per cent.

There is also scope for expansion in the Baltic states. About a third of the recommended increase would come from swamps and marshland. The rest is at present idle land, dry meadows and pasture land. Zemsky conceded that considerable resources would be required to assimilate the land mentioned and also to improve the quality of the cultivated land then in use.

On the whole, Zemsky had little difficulty in discovering land which could be turned to good agricultural use. A conclusion which occurs many times in his survey is that the necessary ameliorative work would be rather expensive. With the knowledge of hindsight it is not difficult to understand why the regions under review were not accorded favoured area status. Rapid increases in agricultural output at low cost were unlikely to emanate from them.

Tables 8.1 and 8.2 show what actually occurred. The North-West of the RSFSR increased its sown area after 1955 but by 1964 was still short of its 1950 total. Of the *oblasti* shown, all reduced their sown area except Leningrad. The central zone added to its sown area but the three *oblasti* shown reversed this trend. Less than half of the additional area recommended by Zemsky was added to the cultivated area over the period.

Belorussia and the Baltic republics all reduced their sown area over the period. In an era when there was a desperate search for more land to cultivate, the fact that these four republics all cut down their sown area is strange indeed.

Grain output in the North-West never achieved the level of 1950. The central zone on average exceeded the output of 1950, although the record Soviet harvest of 1964 was not matched in the area. Belorussia and the Baltic republics recorded a considerable reduction

TABLE 8.1 Sown Area of All Crops
(thousands of hectares)

	1950	*1955*	*1958*	*1960*	*1962*	*1963*	*1964*
RSFSR, North-West	3,104	2,584	2,850	3,047	3,150	3,080	2,946
Archangel *oblast*	311	–	281	284	292	284	271
Vologda ,,	894	–	763	817	795	775	744
Leningrad ,,	328	–	336	348	352	350	353
Novgorod ,,	499	–	484	514	498	481	453
Pskov ,,	899	–	830	923	976	892	848
Central Zone	12,286	–	13,206	14,042	14,833	14,453	14,104
Vladimir *oblast*	650	–	671	672	655	625	618
Ivanovo ,,	608	–	595	624	648	620	590
Kostroma ,,	693	–	640	680	691	659	600
Belorussia	4,913	6,198	5,449	5,664	5,962	5,955	6,009
Lithuania	2,294	2,714	2,218	2,375	2,452	2,407	2,439
Latvia	1,413	1,652	1,460	1,534	1,594	1,584	1,562
Estonia	813	883	733	762	788	783	777

Sources: *Narkhoz 1963*, p. 254; *Narodnoe khozyaistvo RSFSR v 1964 g.* (Moscow, 1965) p. 180.

TABLE 8.2 Global Output of Grain
(thousands of tonnes, figures in parentheses show average yield in centners per hectare)

	1950	*1958*	*1960*	*1962*	*1963*	*1964*
RSFSR,						
North-West	1295·4	676·9	692·8	577·9	743·4	782·9
	(6·8)	(6·2)	(7·0)	(5·6)	(6·6)	(6·9)
Archangel *oblast*	173·8	86·1	80·6	62·5	90·9	78·8
Vologda „	433·8	223·5	193·8	197·9	259·5	218·5
Leningrad „	123·1	57·2	49·8	38·0	62·2	87·3
Novgorod „	158·2	86·7	108·8	70·8	105·2	117·0
Pskov „	339·6	201·5	237·8	193·0	205·6	265·8
Central Zone	4534·2	4744·4	4249·0	5578·2	4898·2	5544·6
	(5·8)	(7·0)	(6·8)	(8·1)	(6·9)	(7·4)
Kalinin *oblast*	486·2	444·8	473·5	455·6	548·1	457·1
Kostroma „	255·2	144·8	176·6	163·8	201·9	171·5
Moscow „	461·1	394·4	243·3	366·1	380·7	418·9
Belorussia	2684	1790	2165	1802	2245	2147
	(7·9)	(6·5)	(8·4)	(6·9)	(8·0)	(7·2)
Lithuania	1172	713	855	723	996	1202
	(7·9)	(7·4)	(9·3)	(8·2)	(9·8)	(11·2)
Latvia	732	444	570	407	449	779
	(9·1)	(8·5)	(10·1)	(7·3)	(7·2)	(11·9)
Estonia	522	308	363	366	393	542
	(11·5)	(11·0)	(13·3)	(12·4)	(12·4)	(16·4)

Source: *Narkhoz* for the various years.

in average annual output.

One explanation why the area sown to grain dropped is that the areas under review were increasing their cattle population (see Table 8.3). The area sown to fodder crops increased substantially in most places, especially in the central zone of the RSFSR, Lithuania and Belorussia. Pasture land must also have expanded. The cattle population in Lithuania and Belorussia increased at about twice the average rate for the areas under review.

The substantial price increases announced by the state for procurements of meat and other products in mid-1962 led to an expansion of herds in 1963. The central zone increased numbers by almost 20 per cent and in Belorussia the increase was almost 15 per cent. Unfortunately the harvest in 1963 was most disappointing and this signalled a shortage of fodder. The extent of the shortfall can be gauged from the reduction of the cattle population everywhere, with the single exception of Lithuania.

There is some evidence of a switch-over from grain to more valuable crops in the areas being examined. Sugar beet in the central zone increased over the period 1958–64 by just over 110,000 ha. Technical crops in Belorussia in 1964 were 20 per cent up on 1958, but this only represented 50,000 ha. Flax sowings in the same republic in 1964 were 40,000 ha more than in 1958.

An explanation of why grain sowings dropped in the central zone, Belorussia and the Baltic states was provided by Khrushchev at a CC plenum in January 1961 :

> It had been decided not to procure grain in some *raiony*. The reason for this was to permit the areas involved to retain the grain they produced so that they could use it to develop animal husbandry, grow more technical crops and generally raise agricultural production all round. However, the decision was understood quite differently at local level. It was reasoned that since the government did not want the grain, there was no need to produce it. Hence grain output fell. *Oblasti* such as Vladimir, Kostroma, Tula, Yaroslavl, Kalinin, Smolensk and Novgorod became net importers of state grain.

It is instructive to note that the authorities expected the various regions to expand animal husbandry even though, at the prevailing prices, it was generally a loss-making sector of the farm economy. This was underlined by K. T. Mazurov, First Secretary of the party in Belorussia, at the CC plenum in March 1965. He pointed out that farms had operated at a loss since two-thirds of their marketable output was made up of meat and livestock products, which were being produced at a loss. It had proved impossible to cover losses on meat with other products. Hence incomes in Belorussia had been depressed and there was little incentive to raise output.[2] Mazurov may have been thinking of the Khrushchev period as a whole. Incomes from meat and livestock products must have risen substantially after the price increases of mid-1962. Nevertheless, even the new procurement prices were still below the production costs of the kolkhozes.[3]

The rise in retail prices which accompanied the increase in the procurement price led to disturbances in Rostov *oblast*. These events led to a freezing of retail prices for meat and entailed large state subsidies. They are estimated to have reached 10,000 million roubles by 1970.

Table 8.3 sheds some light on the livestock situation. On average there was a 10 per cent increase in the cattle population. Belorussia and Lithuania registered an increase of about a fifth. Procurement prices for livestock products did not cover production costs in Belorussia, as Mazurov pointed out. Nevertheless, the cattle popula-

tion grew at twice the average rate for the areas under review. The growth took place only in the public sector: there were 117 cattle per 100 kolkhoz households in private ownership in 1958, but by 1962 the figure had dropped to 109. The situation in Lithuania was comparable. On the same basis as above, the number of cattle dropped from 147 in 1958 to 136 in 1962.[4]

TABLE 8.3 Livestock
(thousands)

	1959	*1961*	*1963*	*1964*	*1965*
RSFSR, North-West	1,916	2,099	2,289	2,146	2,173
Archangel *oblast*	258	270	292	289	294
Vologda ,,	486	532	573	545	541
Leningrad ,,	255	276	317	303	297
Novgorod ,,	286	314	336	317	326
Pskov ,,	423	492	544	483	505
Central Zone	5,209	5,310	6,255	5,811	5,986
Vladimir ,,	292	298	330	326	340
Ivanovo ,,	232	253	274	263	257
Kostroma ,,	261	280	298	280	287
Belorussia	3,361	3,666	4,123	4,111	4,242
Lithuania	1,046	1,223	1,328	1,364	1,384
Latvia	843	938	994	919	998
Estonia	452	494	532	520	548

Source: *Narkhoz* for the various years.

TABLE 8.4 Buckwheat

	1950	*1958*	*1960*	*1962*	*1963*	*1964*
Sown Area ('000 ha):						
RSFSR,						
Central Zone	669·9	444·7	331·2	663·2	508·1	261·8
Belorussia	294	176	131	175	96	65
Latvia	17	12	4	4	2	1
Global output ('000 tonnes):						
RSFSR,						
Central Zone	272·1	128·4	121·1	209·9	66·1	114·9
Yield (centners per ha)	4·1	2·9	3·6	3·2	1·3	4·4

Brezhnev, at the CC plenum in March 1965, revealed that the authorities were having difficulty in providing the population with sufficient groats. Table 8.4 shows the decline of buckwheat. As can be seen, buckwheat sowings declined until 1960. Khrushchev complained about this at the CC plenum in January 1961 and the sowings

for 1962 were double those of 1960 in the central zone. The very poor harvest of 1963, when the average yield was only 1·3 centners per ha, hardly enough to recover the seed expended, had its effect on the following year. Nevertheless a very high yield, 4·4 centners per ha, was recorded in the central zone. Belorussia follows the same pattern. Sowings in 1962 were up on 1960 but then a steep decline set in.

Brezhnev's reply to the neglect of buckwheat was to raise the procurement price to 300 roubles a tonne, equal to that paid for rice.

Millet followed the same course as buckwheat under Khrushchev. Its sown area in the central zone dropped from 208,400 ha in 1950 to 21,700 ha in 1960, but climbed to 100,500 ha in 1962 only to decline thereafter. Its procurement price was raised to 110 roubles per tonne in 1965.

Khrushchev's insistence on maize and sugar beet as the main fodder crops boded ill for the areas under review. Sugar beet is not grown as a feed crop outside the USSR. The yields attained by the central zone are seldom two-thirds of the RSFSR average. Sugar beet yields in the North Caucasus, the Ukraine and Kirgizia are substantially higher than in the RSFSR as a whole.

Despite Khrushchev's enthusiasm for sugar beet, price incentives were withdrawn after the excellent harvest of 1958. Prices were only raised again in 1963, a very poor year indeed.

The traditional fodder crops in the central zone, the Baltic states and Belorussia, namely oats, barley, grass, hay and potatoes, were not favoured by the First Secretary. In Estonia, to take one example, barley is the best crop. Yet it was included in the blanket designation of barley as a low-yielding crop. The traditional fodder crops are superior to maize and sugar beet, but this was ignored, and the only result could be not only neglect of these crops but also poorer feeding for livestock. It is not surprising that morale suffered and that young people especially left the farms to seek a higher standard of living in the towns. At the March 1965 plenum the First Secretary of the party in Kostroma *oblast*, L. Ya. Florentev, gave some details. He stated that in the Stalinist era and afterwards, much had been done to alienate the peasant from the land. Peasants in many parts of the country, especially the non-black earth zone, had ceased to care about the land and had tried to reduce the sown area and to write off land. In many areas the land affords a poor living and peasants can easily secure a higher standard of living in a town. Florentev rhetorically asked what the incentive for greater production was when many of the most important products in kolkhozes and sovkhozes were produced at a loss. This meant that the more

that was produced and sold to the state, the greater the loss. These conditions prevailed widely in the non-black earth zone. The result of such a price policy was that the peasant concentrated on his private plot, since rewards there were higher than those achieved from social labour.[5]

The drain of agricultural labour from the rural areas to the towns is a trend which is not exclusive to Kostroma *oblast*. Indeed it is found everywhere in the Soviet Union and in almost every country in the world. The rewards from the private plot greatly influence the decision to emigrate to an industrial centre. This is especially so when the private ownership of livestock and the private marketing of animal products are restricted.

The sale of MTS machinery to kolkhozes after 1958 was a heavy burden for those farms where income was not very high. The impact of this policy was felt throughout the country, but was especially hard on the areas under review. This was another factor which depressed farm incomes and consequently labour payments, thus affecting morale. An indication of the predicament that the farms were in can be gleaned from the bald fact that in the five years before 1965, global agricultural production in Smolensk *oblast* increased by only 1 per cent. Production of many field crops was below pre-war levels.[6]

The sovkhozisation drive affected the areas under review to a considerable extent. The proportion of land in the state sector in Moscow *oblast* in 1961 rose to over 85 per cent. In the central zone as a whole the area farmed by sovkhozes rose from about 5 per cent in 1954 to about 35 per cent in 1961. In Belorussia the state farm sector only accounted for about 2 per cent of the land in 1954, but it had risen to almost 30 per cent by 1961. Lithuania only doubled the state farm sector over the same period (it was still less than 20 per cent in 1961). Sovkhozes had to take over the financial burdens and this certainly brightened the picture a little for many farm workers.

Necessary inputs were difficult to obtain. The production of mineral fertilisers more than doubled between 1956 and 1964, but farms in Pskov *oblast* and others in the central zone were receiving significantly less fertilisers in 1964 than in 1957. Crops such as flax, a favoured one from the administration's point of view, require large doses of mineral fertilisers to secure large yields. The areas under review are especially suited to its cultivation.

Flax is a labour-intensive crop and the fact that labour was becoming more scarce must have affected it. Capital inputs, such as machinery for flax cultivation, could have altered the situation, but the necessary machines were in short supply.

Farm machinery was always in short supply and these areas were unlikely to have more than a fraction of their demands met. At the plenum in March 1965, G. S. Zolotukhin, First Secretary of Tambov *oblast*, stated that during the last few years of the Khrushchev era no lorries were delivered to his *oblast*. Only about a half of the grain combines necessary were available and current requests by farms for tractors and seeders were being under-fulfilled by up to 80 per cent.[7] Part of the blame for this can be put on the need to produce more ensilaging and maize-harvesting machines. Khrushchev lamented in early 1961 the shortage of these machines.

Farm officials were under great pressure here as elsewhere, especially after 1958, and from the foregoing one can say that their lot was not to be envied. Khrushchev liked to introduce a few horror stories to enliven the proceedings from time to time, and the following one relates to a kolkhoz in Moscow *oblast*:

> Three years ago N. V. Malikov was chairman of our kolkhoz. He drank increasingly during work time and let the farm go to rack and ruin to such an extent that he was sacked. Feeling insulted by the kolkhozniks he didn't do any work for a year, stayed at home and laughed at the kolkhozniks. That's the kind of communist Malikov is.[8]

The good peasants who sent these details to Khrushchev had every right to complain. One trusts that it was an isolated case.

Scientists as well as administrators had doubts about the advisability of investing in the non-black earth zones. One of them, Professor Nazimov, believed that since production costs there were high it was not worth investing more since this would make production even more expensive.[9] Nazimov certainly had little faith in the region and, given the performance achieved over the period 1958–64, he may have been right. However, one could object that the high production costs were due in part to low prices, bad agronomic practices forced on the region from Moscow, low inputs of fertilisers and machinery, and low labour morale due to depressed labour payments. The region has potential, but it received little encouragement and understanding during the Khrushchev era.

NOTES

1 Zemsky, op. cit., pp. 28–9. Zemsky is not alone in believing that the areas under review have potential from an agricultural point of view. A famous predecessor was Pryanishnikov.

2 *Plenum Tsentralnogo Komiteta KPSS, 24–26 Marta 1965 g.* (Moscow, 1965) pp. 73–4.

3 Naum Jasny, 'The Failure of the Soviet Animal Industry—I', *Soviet Studies*, vol. xv (1963–4) p. 214.
4 The areas under review were designated by Khrushchev as specialised centres of animal husbandry in a note to the party Presidium, dated 31 January 1963.
5 *Plenum . . . 24–26 Marta 1965 g.*, p. 176.
6 Ibid., pp. 8–9.
7 Ibid., p. 54.
8 Khrushchev, op. cit., vol. v, p. 88.
9 *Plenum . . . 24–26 Marta 1965 g.*, p. 146.

9 The Virgin Lands since Khrushchev

The passing of primacy in party and state from Khrushchev to Brezhnev and Kosygin in October 1964 was bound to have repercussions on the rural sector of the economy. The ebullient V. V. Matskevich, banished to northern Kazakhstan in 1960, was recalled to Moscow to resume his duties as USSR Minister of Agriculture. Under his forceful guidance the Ministry was to regain much of the influence it had lost during Matskevich's spell in Kazakhstan. The First Secretary of the CC of the CPSU, L. I. Brezhnev, had had first-hand experience of the virgin lands in Kazakhstan and was no stranger to the controversies which had raged on the agrarian front during the Khrushchev years. Brezhnev and Matskevich were, at long last, able to put the new land project in perspective and at liberty to adopt a policy influenced more by economic and agricultural criteria than by political.

Resentment at the favoured treatment afforded the virgin lands had been particularly strong in the non-chernozem zone. This got as far as the government newspaper *Izvestiya*.[1] Reaction against the virgin lands was such that some people even suggested that they had outrun their usefulness.[2] Removing machinery and abandoning the virgin land regions of Kazakhstan were even proposed. Virgin Land *krai* disappeared in October 1965.

The neglected non-chernozem zone was accorded favoured treatment and received an investment boost in 1965. Matskevich supported a reversion to the more traditional crops and cropping patterns. Attention was showered on this zone throughout 1965.

The dismissal of Khrushchev led to the vindication of the systems developed by Baraev and Maltsev. Clean fallow became respectable once again. Baraev became the leading scientific authority on agronomical problems in the virgin lands. His views were adopted by the Lenin All-Union Academy of Agricultural Sciences in early 1966.[3] Nevertheless, the proponents of inter-tilled crops continued to defend their views and assailed the proportion of arable given

over to clean fallow (up to 40 per cent) as too high. Baraev favoured the methods adopted in Canada which he had seen at first hand. Matskevich shared his views on clean fallow. Baraev's tenacious opponent, G. A. Nalivaiko, was saddled with responsibility for damage occasioned by wind erosion in the Altai in April 1967 and removed.

The failure of the 1965 Soviet harvest to come up to expectations resulted in more investment being accepted as imperative. The state promised 41,000 million roubles in the 1966–70 Five-Year Plan. Kolkhozes were to come up with an additional 30,000 million roubles. Intended state investment came to 30 per cent more than the total for the Khrushchev years of 1954–64. The poor harvests of 1963 and 1965 shocked the planners into according agriculture some priority, a position it has retained ever since.

A. I. Kosygin did not attempt to gloss over the realities of the situation in Kazakhstan and the Russian Federation at the XXIII Party Congress in March–April 1966. He advised the USSR Ministry of Agriculture and the Councils of Ministers of the Russian Federation and Kazakhstan to pay special attention to the situation in the virgin lands, where the fields were full of weeds and a considerable area was subject to erosion.[4] To reassure everyone that there was no decision in the offing to withdraw from the new lands, P. P. Lobanov, the President of the Lenin All-Union Academy of Agricultural Sciences, expressed his firm conviction that the virgin lands had enormous potential and if farmed scientifically would provide consistent yields.[5] He made no attempt to obscure the lamentable state of much of the sown area in the new lands and blamed bad management and agronomy for it. By implication he justified the original decision to cultivate so much virgin land in the east.

The decision had been taken to regard the virgin lands as a permanent grain-growing area, and this implied that help would be forthcoming during the 1966–70 Five-Year Plan.

In May 1966 L. I. Brezhnev announced a massive national ten-year land improvement plan with the aim of expanding the sown area by 22–24 million ha. This amounted to increasing the arable land area by just over 10 per cent. This admitted tacitly that the goal of 180 million tonnes of grain in 1970 could not be achieved without expanding the sown area.

Previous to this, in April 1966, Tass announced that it was planned to increase the area sown to wheat in Kazakhstan by 25 per cent in a year's time. It also reported that it was planned to sow the new wheat areas with a variety which was impervious to frost.

This was a surprising announcement, since V. V. Matskevich, USSR Minister of Agriculture, at the XXIII Party Congress, had

envisaged that the grain area in Kazakhstan would be reduced slighty owing to the need to provide more clean fallow and to allow crop rotation.[6] Certainly nothing like this expansion has taken place since 1966. The other report, that a special variety of wheat had been produced which is impervious to the cold, is so surprising that it requires clarification before one can pass judgement on it.

In line with the goals set in the 1966–70 Five-Year Plan, the Kazakh party Central Committee and Council of Ministers announced a massive programme of investment devoted to land reclamation in July 1966. According to a report on Radio Alma-Ata, 1,535 million roubles were to be spent during the Five-Year Plan on hydraulic engineering projects, attendant services and land reclamation.

It was also planned to extend the irrigated area to at least 450,000–500,000 ha between 1971 and 1975. The aim was to create larger wheat- and other crop-producing regions in the area between the Volga and the Ural rivers and in the Irtysh river basins and a rice-producing region in the Amu-Darya river basin and the lower reaches of the Ili river.

High hopes were placed on the virgin lands in the 1966–70 Five-Year Plan. Specialists went on record expressing their confidence that large harvests could be gathered in. To what extent were their prognostications justified by actual results? Detailed information is available on Kazakhstan, and the following concentrates on this very important virgin land area (see Table 9.1).

TABLE 9.1 Kazakh Agriculture, 1965–72

	1965	*1966*	*1967*	*1968*	*1969*	*1970*	*1971*	*1972*
Global grain production (millions of tonnes)	7·6	25·6	14·4	19·5	21·6	22·2	21·1	29·0
Procurements (millions of tonnes)	2·4	17·0	8·2	11·7	11·0	13·4	12·3	17·4
Average yield (centners per ha)	3·1	10·8	6·3	8·4	8·8	9·8	9·4	12·5

Source: *Narkhoz* for the various years.

The miserable 1965 harvest, the worst ever, underlined once again that dry farming zones are not capable of guaranteeing consistent harvests. Those who favoured cutting back on the sown area in virgin land areas were provided with more evidence to back their point of view. Given the fact that any shortfall in the Soviet harvest had to be met by importing North American grain, and paying in hard currency, the likelihood of the party and government reducing the sown area in the new lands was slim. The argument that it was

agronomically and economically advisable in the short term, and especially in the long term, to retire considerable amounts of the marginal land from cultivation and that any grain deficit should be made good by purchasing on the world market may be rational, but no Soviet government would allow itself to become hostage to the world grain market for part of its population's needs. The goal of Soviet agriculture is to produce all the foodstuffs necessary for the well-being of the Soviet population. A few imports may embellish the diet if the opportunity arises. Anyway, if the Soviet Union relied on the world market for significant amounts of grain each year, prices would rise and make inroads in Soviet hard currency reserves. No, the party and government were as beholden to the new lands as Khrushchev. They had to be cultivated more carefully, it is true, but they had to make their contribution to the Soviet grain harvest. The option to abandon the virgin lands after a few bad harvests was not open to Soviet policy-makers.

The 1966–70 Five-Year Plan set the ambitious target of 21–22 million tonnes of grain annually in Kazakhstan. This target had previously been attained only in very good years, the last occasion being 1964. Table 9·1 shows that the harvest achieved this goal on three occasions. The average harvest over the plan period was a creditable 20·7 million tonnes. The 1969 harvest would have been higher if it had not been for the fact that part of the harvest was not gathered in. Procurements, set at a level of 9·6 million tonnes per annum,[7] surpassed this goal comfortably and averaged 12·3 million tonnes annually. Kazakhstan, in 1966, had to repay a 700,000 tonne seed loan granted by the state after the disastrous harvest of 1965.[8] Average yields were 8·8 centners per ha over the period 1966–70. This is almost 20 per cent higher than for the period 1954–64.

According to Soviet calculations, grain in Kazakhstan during the plan period was produced at just below the 1961–4 average cost.

How did the various *oblasti* in Kazakhstan fare in their struggle to raise yields and lower costs? The three *oblasti* which had the greatest success in raising yields over the period 1966–70 were Kustanai, Kokchetav and North Kazakhstan, all in the former Virgin Land *krai*. Nevertheless, about 30–40 per cent of farms in the republic did not fulfil their plan for grain production.[9] How then did Kazakhstan manage to get so near the planned level of global grain production? Simply by using the old Khrushchevian method of expanding the sown area. For instance, the 1969 sown area was 2·5 million ha above the planned level.[10] The Russian Federation adopted the same course, the sown area there increasing by 1·2 million ha in the virgin land regions.[11] The extra area was

cultivated at the expense of clean fallow, reminiscent of the decade before 1964.

How successful has Baraev been in having his ideas actually put into practice on farms? Writing in the party newspaper in 1967, he put the area being cultivated by ploughs without mouldboards in Kazakhstan and some other virgin land areas at 12·5 million ha.[12] This is less than half the area which should be cultivated by his special plough. Part of the reluctance to use his plough was obviously due to the fact that it was simply not available in sufficient quantities to cultivate all virgin land areas. The effectiveness of the new method of cultivation can be tested against the incidence of wind erosion. The area affected by wind erosion in 1965 in Virgin Land *krai* was estimated at 5 million ha.[13] This appears to refer to arable land. The worst affected *oblasti* in the *krai* were Kustanai and Pavlodar. Kustanai *oblast*, over the period 1966–70, increased yields, and clean fallow there was put at 16–18 per cent of arable.[14] This is quite near Baraev's suggestion of 20 per cent and more. A report on Pavlodar *oblast* stated that wind erosion there had been overcome.[15] This appears to be over-optimistic but, of course, it depends on the definition of wind erosion adopted. Baraev, in his published comments, has made it clear that the battle for clean fallow has not yet been won. The old adage that clean fallow means lost cropland is as prevalent as is a new one – if herbicides are available, then dispense with clean fallow.

The year 1971 was not so good as the preceding year, but 1972 turned out to be a record. Kazakhstan produced its highest-ever harvest and yields too reached a new high. The value of the Kazakh harvest, and indeed that of some other virgin land areas, was enhanced by the fact that the traditional grain-growing areas of the USSR produced very disappointing harvests owing to drought. Had it not been for virgin land grain, the Soviet Union would have been forced to buy even more grain on the world market.

If farmed correctly, the virgin land areas are capable of producing 1–1·5 tonnes of grain per hectare. This compares favourably with dry farming zones in North America and Australia.

NOTES

1 See the 19 Jan and 28 Apr 1964 editions. Cf. Hahn, op. cit., p. 142.
2 *Vestnik Selskokhozyaistvennoi Nauki*, no. 3 (1966).
3 *Selskaya Zhizn*, 1 Feb and 2 Mar 1966.
4 *Pravda*, 6 Apr 1966.
5 Ibid., 7 Apr 1966.
6 Ibid., 2 Apr 1966.

7 Ibid., 31 Mar 1966.
8 *Kazakhstanskaya Pravda*, 23 Jan 1966.
9 *Pravda*, 2 Aug 1970; *Izvestiya*, 1 July 1970.
10 *Selskaya Zhizn*, 20 Apr 1969.
11 *Pravda*, 31 Mar 1969.
12 Ibid., 16 Feb 1967.
13 *Moskva*, no. 2 (1968) p. 167.
14 *Pravda*, 2 Aug 1970.
15 Ibid., 4 Aug 1969.

Conclusion

Nikita Sergeevich Khrushchev has left an indelible imprint on Soviet agriculture. He will be remembered for his many campaigns and démarches. To misquote a well-known book : was Khrushchev really necessary? Those who voted to remove Khrushchev from his position as First Secretary of the party in October 1964 certainly had no qualms about answering this question in the negative. One of the factors which contributed to his downfall was his failure, during the last five years of his reign, to match promise and performance. On the agricultural front will he be remembered only as a defeated general?

The man was nothing if not original. He made more innovations than were good for any system of agriculture, planned or unplanned. However, it is true to say that the main innovation, the virgin land campaign, because of its fluctuating fortunes, rendered other démarches inevitable.

One of Khrushchev's dreams was to make the Soviet fields bloom. If he could solve the grain problem he would be riding high. If Kazakhstan and other parts of the east could take over the burden of producing a major part of the bread grains needed to feed the population, then the Ukraine and the North Caucasus could be switched over to producing high-grade fodder for the animals which were so desperately needed to meet the consumer demand for animal products. From his previous experience in the Ukraine, Khrushchev knew what the chief fodder crop had to be : maize. His craze for maize led him to counsel absurd things. The virgin lands were not able to accept single-handed the burden of providing the bulk of the grain for human consumption. Therefore the desperately needed maize had to be grown in other places besides the Ukraine and the North Caucasus. Owing to the inherent drawbacks of any campaign, he was required to advocate its cultivation in areas patently unsuitable.

The disappointments of the harvests after 1958 obliged him to attack the *travopole* system since he needed a larger sown area. This was justified only in areas of adequate precipitation but was inadvisable in the virgin lands. He needed maize, so he promoted inter-

tilled crops. He needed higher yields since virgin land was difficult to find, so he promoted intensification and the expansion of the production of mineral fertilisers. He found so much fraud and double dealing (a direct result of his pressure to produce results or get out) that he reorganised the administration ceaselessly and even split the party into functional wings.

Was his whole agricultural opus doomed from the start? Would Malenkov, if given the chance, have out-performed Khrushchev? Malenkov wanted intensification in 1953; Khrushchev wanted it only in 1964, when everything else had failed.[1]

The burden of this book is that Khrushchev's bold démarche in going east in 1954 was correct. There was land available for exploitation. Its stored-up fertility offered the possibility, indeed the probability, of good initial yields.

One of the points made by Malenkov was that the land frontier had been reached and therefore the existing cultivated area had to be cropped more intensively. Mineral fertilisers would greatly facilitate this task. His views were influenced by Academician D. N. Pryanishnikov, who only gained recognition in the last years of the Khrushchev era.

Malenkov, despite his senior position, was not very well informed on agricultural affairs. He was wildly optimistic at the XIX Party Congress when he gave the harvest as 8,000 million poods. Had that been the barn yield (it was the biological yield), then he would indeed have been justified in claiming that the grain problem had been solved. The figure was even too high as a statement of the biological yield. He was by training an engineer and his interests in the rural sector of the economy were never really developed. He was outmanoeuvred rather easily by Khrushchev on the agrarian front.

It was rather premature for him to promise a large increase in fertiliser production. It would have involved heavy capital expenditure at a time when the Soviet Union was struggling to recover fully from a devastating war. Many peasants in the occupied areas had taken the opportunity of increasing their private plots during the war. Collectivisation had only been completed in some parts a few years before 1953. The number of kolkhozes had been drastically reduced during the last years of Stalin's life. Surely rises in output were to come through better management. Every available rouble had to go into the heavy and defence industries. There was a deeply ingrained suspicion of the peasant. Why provide him with industrial inputs when the machinery could be used to produce other things? Anyway, the soil maps available were mostly based on the teachings of Vilyams and there were few specialists trained to use mineral fertilisers efficiently.

Why not import fertilisers, assuming they were available? Objectively speaking, this could have been done. This, however, has to be squared with the desire of the Soviet Union to be autarkic. Given the present political system, the Soviet government is reluctant to become dependent on an outside source for anything. The fortress mentality, the struggle for supremacy and lack of self-confidence which manifests itself sometimes encourage a conservative attitude towards products which are not high on the list of priorities and which could be produced in the Soviet Union itself.

The main reason against stepping up fertiliser supplies to the farms was, however, the decision adopted by the party in 1948. Then the *travopole* system, championed by Lysenko and others, had finally received the party imprimatur and was made an obligatory part of the transformation of nature scheme. One of the main planks in the *travopole* system platform is that the way to increase yields is by improving soil structure. The system frowns on the use of mineral fertilisers. The scientific establishment had swung round to Vilyams' theory and Malenkov would have encountered great opposition from most scientists.

Khrushchev's initial goal of 13 million ha of new land was quite reasonable. However, he allowed his optimism to run away with him when he increased the goal to 28–30 million ha. Even this huge undertaking was added to later. Had he advised a gradual assimilation of new land, he would have achieved greater success. His urgent pleas for more and more cultivated land forced all good husbandry norms out of consideration.

It is astonishing to discover that the scientific study of the virgin lands took place after the party decree to assimilate new land was published. Khrushchev was having his cake and eating it. He knew that the subsequent report could be favourable to him. He had luck on his side. His gamble paid off, at least until 1958. Had it not been for the good harvests he would possibly have been ousted in June 1957.

The thinking behind most of his reforms – the decision to go east, the anti-*travopole* campaign, the maize campaign, etc. – was fundamentally correct. Where Khrushchev went wrong was to take everything to excess.

Khrushchev's touchstone was the Ukraine. If something flourished there, it would flourish elsewhere. The most blunt example of this philosophy was the maize craze. Perhaps his greatest weakness was that since he had often been proved right in the Ukraine he would be proved right in the end everywhere else as well. A serious charge, to which he can only plead guilty, was his consistent refusal to heed Baraev and other specialists concerning

the possibility of wind erosion on a large scale. Why, one may ask, was Khrushchev so blind when he had the evidence of the damage erosion can cause in the United States, Canada and elsewhere before his eyes? One can only reply that he was in reality very ignorant of American experience. He was perhaps too sanguine when it came to socialist agriculture. Surely it would not repeat the mistakes of capitalist agriculture.

His attacks on the *travopole* system and low-yielding crops, his promotion of inter-tilled cropping and later his switch to mineral fertilisers and intensification were all tacit admissions that the virgin land scheme had run out of steam. Their initial fertility had been consumed, so it was time to raise production by other means.

The virgin lands came out of the Khrushchev period with mixed fortunes. Their grain was produced at a higher cost, of course, but at least they kept on producing it. Since 1964, with the exception of 1965, their performance has been quite creditable. The virgin lands are a viable undertaking, if managed correctly.

Khrushchev did not solve the other great problem of the period, animal husbandry. It is still a high-cost branch of Soviet agriculture. However, it is giving way to over-optimism if one expected the First Secretary to solve this perennial problem. He made a bold attempt to cut the Gordian knot of fodder and only partially succeeded.

There is no doubt that the average kolkhoznik and sovkhoznik benefited under Khruschev. In the kolkhozes, wages, in part, were paid monthly to be followed later by a guaranteed monthly wage (1966). A fervent believer in the virtues of socialist agriculture, Khrushchev sometimes undid with one hand the good he had done with the other. He had phases of anti-kolkhoznik and pro-kolkhoznik policy. The good years were, not surprisingly, those before 1958. Afterwards he was sometimes obliged to try and squeeze as much social labour out of the kolkhozniks as possible and to do this he had to restrict them on their private plots. The counter-productive nature of his policy was recognised by his successors when they removed many of the restrictions, soon after taking office.

Khrushchev possessed a biting wit a well as a quick temper. Vain, given to flights of fancy and liable to over-hasty judgements, he was likely to embrace policies which, in retrospect, were not wise. His context was Soviet politics. In a one-party state, opposition manifests itself in factional in-fighting. Khrushchev often found himself on the defensive. Could it not be said that some of his agricultural policies were a response to objections articulated by his opponents? Was he led into adopting measures which had to be diametrically opposed to those of his adversaries? Had the option been there,

would he not, in a quieter moment, have utilised some of the proposals of his opponents?

This is particularly apposite to the virgin land decision. Malenkov revealed his hand and proposed an increase in inputs in the traditional farming areas in order to increase the food available for the population and the raw materials, deriving from agriculture, for industry. He favoured the transfer of some of the means of production in heavy industry to light industry, in order to increase the amount of consumer goods available. To justify this, he maintained that the heavy industry base of the economy had been laid and the opportunity now presented itself to concentrate more resources in the other parts of the economy.

Khrushchev countered by espousing an extension of the sown area in the east. To him the land frontier had not been reached. Mineral fertilisers, propagated by Malenkov, would prove too expensive to manufacture. Why expend resources on them when there was fertile virgin land waiting for the plough? Khrushchev sided with the 'metal-eaters' and declared that heavy industry must not be tampered with. How were living standards to be raised? Khrushchev's answer was that hitherto agriculture had been mismanaged and that the time had now come to release the productive capacity of the farmers. The virgin land enterprise would lead to a great expansion in grain production. This in turn would permit an acceleration in the availability of animal products. Light industry would receive a greater and greater quantity of raw materials originating from the farm. Life would become richer and the amelioration would be based on agricultural expansion.

On the face of it, Khrushchev seems to have taken Malenkov's proposals and, owing to the exigencies of power politics, been forced to espouse their opposites. Reality is not so simple. Khrushchev's eyes had focused on Kazakhstan and Siberia long before Malenkov made his agricultural policy public. Certain parts of European Russia, then, were not under cultivation. There was new land to be tilled near at hand. The large areas, however, were further afield. Material was published before August 1953 advocating the tilling of free land in the east. Experiments were being conducted, in the spring of 1953, in areas which were later included in the virgin land drive. Lysenko, Khrushchev's favourite agroscientist, was casting his eyes over the untilled steppes at the same time. Agriculture, that perennial, irascible stepchild of the Soviet Union, posed many serious problems. The party functionary who discovered the solutions to some of the tasks would be in a powerful position. Success in agriculture promised great rewards in party and state. Khrushchev was nothing if not ambitious. In order to overcome Malenkov

he did not merely adopt contrary policies. He was an original thinker when it came to the revivification of the rural sector. Nevertheless, it is true to say that once embarked on his course he was forced into taking some measures to absurd extremes. Here, one may argue that, given the framework of power politics, he was inveigled into blind alleys and had he not been under such pressure he would not have adopted so many radical measures. The desperate need to achieve results, especially after 1958, forced him to confront his adversaries with more and more radical solutions. One can certainly maintain that the course of the virgin land policy was influenced adversely by political in-fighting. Too much was expected too soon. The performance of the new lands, especially since 1965, reveals that grain can be produced there regularly, albeit at higher cost than in the traditional farming areas of the European part of the USSR. However, it is not true to say that agricultural policy after 1958 was hare-brained and ill-advised. Many of the démarches adopted were inherently sensible: the anti-*travopole* policy, the advocacy of inter-tilled crops, the continuing accent on maize, the extension of mineral fertiliser production, the switch to intensification during the last year of the Khrushchev era. Politics and economics are inextricably entwined in the Soviet Union. It is not possible to maintain that a particular policy was entirely motivated by one or the other. Just as in everyday life, the truth is often a bit of both.

Taken as a whole, Khrushchev's efforts in the agricultural sphere must be judged as having enjoyed relatively little success. However, he initiated reforms which have fundamentally altered both the location and the practices of Soviet agriculture. Even his very failure after 1958 to measure up to the goals of the Seven-Year Plan ensured more investment for agriculture. There is nothing like a few harvest failures to shake some extra investment out of the planners. Khrushchev initiated the policy of allocating more resources to agriculture. The sums being expended on the rural sector of the economy in the 1970s, would, if he were alive make him green with envy. Present and future generations will have to pay for the mistakes perpetrated by party and government in the past.

The travails of Khrushchev can be likened to those of the Irishman caught in a bog. He maintained that had it not been for the bog, he would never have got stuck!

NOTE

1 In retirement, Khrushchev provided the following justification of his policy of extensive agriculture: 'In principle, I'm in favour of the intensive development of agriculture but it requires both a highly advanced farm labour force and enormous material resources. We had neither. The people who advocated intensification rather than extensification were mistaken in thinking that we could bypass or shortcut the process of accumulating sufficient resources and qualified personnel.' Talbott (ed.), op. cit., p. 122.

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