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INTELLIGENCE MEMORANDUM

1953 SOVIET AGRICULTURAL RESULTS  
FUTURE PLANS AND PROSPECTS

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FOREWORD

The analyses and conclusions presented in this memorandum are based on Soviet press material published during the period from August 1953 through March 1954. The commodity and livestock number estimates are based on an analysis of published statistical material, crop condition reports, and weather data. Previous evaluations of the new agricultural program by Embassy Moscow and the Department of State were also used.

Although additional information on the general subject of this memorandum has become available since the completion of writing, as of 23 July 1954 none of that information materially alters the conclusions reached.

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1953 SOVIET AGRICULTURAL RESULTS, FUTURE PLANS, AND PROSPECTS

Summary

By the end of 1953 the production of most crops and most species of livestock in the USSR had failed to reach prewar levels. The acreage sown to crops in 1953 was less than 1 percent larger than that in 1940, and the yields of most crops had failed to increase. 1953 production of major food crops, such as grain and potatoes, fell below that of the previous year, and livestock numbers increased only slightly. In the face of these negative factors was the fact that the population had been increasing for a number of years at the rate of about 1.5 percent annually. Recognition of the fact that agricultural development has not kept pace with population growth and of the need for improving the quality of the diet of an industrially expanding society appears to be the basis of the new programs to increase agricultural production.

Within the first year after the death of Stalin the USSR had adopted a series of measures designed to effect a rapid improvement in Soviet agriculture. These included a series of incentive measures -- a downward revision in the level of agricultural taxes, a reduction in delivery quotas levied on collective farmers, and increases in the prices paid by the state to collective farms and farmers for obligatory deliveries and for government purchases; increases in capital investment, largely in farm machinery and fertilizer; the establishment of permanent cadres of technically trained personnel at machine tractor stations; and continuance of the pressure to improve farm practices.

In addition to the positive measures adopted by the government during 1953, such projects as the shelter-belt programs and the Williams crop rotation system have been curtailed, and most, if not all, of the irrigation projects auxiliary to the "great construction projects" have been cancelled.

Through the 1953-54 fall and winter, there was a concerted effort by the party and the government to expedite various parts of the new program, and in February a definite grain-acreage

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expansion program was publicly announced. The expansion of acreage into the virgin and unused lands is the most spectacular phase of the new program, but other phases are more significant. Apparently there will be large-scale changes in the structure of sown acreages for all important agricultural regions. The modification of the rotation system, causing a reduction in sown grasses, and the partial abandonment of the principle of regional self-sufficiency will be the two most significant factors and will bring about sharp changes in inter-regional acreage patterns. In general, the emphasis will be on an increase in grain production.

It is still too early in the implementation stage of the "new course" to predict an upward trend in the productivity of land and labor in the agricultural economy of the USSR. Expansion of acreage will give a short-term increase to over-all production, assuming no adverse weather conditions, but short-term measures can only delay the time when a general rise in crop yields and livestock productivity will be needed to sustain a growing population at present consumption rates. An even greater rise will be required to improve the diet. In order to bring about adequate long-term production, increased inputs of machinery, fertilizer, and skilled manpower will be essential. Ultimate determination of the success of the "new course," however, lies with the peasant -- the actual producer -- and his reaction to the new incentive measures.

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## I. Introduction.

Soviet propaganda has attempted to create the impression that the USSR is a land of vast and rich agricultural resources. That the land mass is vast cannot be denied. That the agricultural resources are rich is a claim that is open to question. Only a little more than 10 percent of the USSR proper\* is classified as tillable, and only a small proportion of the tillable land has a good balance of the factors favoring high production. To generalize, the areas of adequate precipitation are also the areas of poor soil

\* Excludes acquired territory.

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and short growing seasons. The areas of uncertain or deficient precipitation are areas having the best soil. A vast portion of Central Asia and Siberia has poor soil and is subject to various climatic extremes generally unfavorable to crop production. Circumscribed as it is by these natural limiting factors, the arable area of the USSR cannot be extended greatly beyond the currently estimated 157 million hectares without encountering marginal or submarginal growing conditions.

Soviet crop yields have always ranked among the lowest in the world, but the large acreage devoted to crops, especially the cereals, has always made the USSR a world leader in the production of wheat, rye, barley, and oats.

In the pre-collectivization period, Russia's requirements for most agricultural products were met from its own production. Small quantities of rice, tea, and some minor food products were imported. During the same period, Russia was the world's leading exporter of wheat, rye, barley, and oats.

The interwar period was a time of declining exports for the USSR. Collectivization had disrupted production in the early 1930's; war stocks were increased in the late 1930's; and to the present time the growth of the population, especially the urban population, has put heavy demands on crop production. During the past 40 years the population has grown at a greater rate than that at which the cultivated acreage has been enlarged. It has been estimated that the area seeded to crops in 1913 amounted to .84 hectares per capita. It had declined to .80 in 1938 and to about .73 in 1953.

Production of agricultural crops may be increased by extending the cultivated area and by increasing the yield per unit of land. While the Soviet government has used both methods, the extension of the area under cultivation has been the traditional and easiest way to keep a semblance of balance between the production of crops and the needs of the population. The expansion of acreage is becoming increasingly more difficult and costly as the limits of cultivation are approached. Since the early 1930's, emphasis has been put on increasing total production by raising yields through the use of improved strains of seed, greater use of fertilizer, and improved techniques. The use of improved materials and the adoption of new

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agricultural techniques in a country as large and diverse as the USSR is a slow process. Even in the US there has been but little increase in the yields of small-grain\* crops in the past 50 years.

Although the USSR satisfies more than two-thirds of its caloric requirements with cereal crops, livestock and industrial crops are also important, and both have received considerable attention from the Soviet planners.

Under the Soviet regime, industrial development has been favored over agriculture. Capital investments, grants, subsidies, and manpower priorities have all been in favor of industry. This allocation of capital and labor has resulted in a disproportionately slow rate of growth in the output of agriculture. The disparity between the two sectors became particularly apparent as agriculture failed to provide the foodstuffs considered necessary for direct consumption and the raw materials for the operation of light industry.

## II. Crop Production and Livestock Numbers, 1953.

### A. Food and Fibers.

Table 1\*\*\* gives the estimated production of major food crops and fibers in the USSR, 1951-53.

As a result of relatively adverse weather conditions, 1953 production of the two most important food crops, grain and potatoes, fell below that of 1952. Grain production suffered not only from an estimated 12-percent drop in yields but also from a slight drop in acreage. Cotton, the most important fiber, was favored by better growing conditions, and the estimated raw (unginned) production was at a postwar high.

### B. Livestock Numbers.

Two of the three livestock categories showed some increase in 1953 over 1952, but cattle numbers had not recovered from the setback in the winter of 1952-53. Table 2\*\*\* gives livestock numbers in the USSR, 1952-54.

\* Wheat, rye, barley, and oats.

\*\* Table 1 follows on p. 5.

\*\*\* Table 2 follows on p. 5.

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Table 1  
 Estimated Production of Major Food Crops and Fibers  
 in the USSR  
 1951-53

	Million Metric Tons		
	1951	1952	1953
Grain	82.4	91.8	80.7
Potatoes	59.5	69.7	66.4
Sugar Beets	21.5	22.0	22.3
Cotton (Raw)	3.5	3.2	3.6
Wool (Grease Basis)	.160	.165	.175

Table 2  
 Livestock Numbers in the USSR  
 1952-54 a/

	Million Head as of 1 Jan		
	1952	1953	1954
Cattle	58.8	56.6	56.8
Swine	26.7	28.5	30.0
Sheep and goats	107.5	109.9	113.0

a. 1952 and 1953 livestock numbers are official census figures from Soviet sources, but the USSR has changed the published livestock census date from 1 January to 1 October, making it rather difficult to compare 1952 with 1953. Summer and fall numbers are always considerably higher than winter numbers because of heavy slaughtering in the October-December period. The 1 Jan 54 data are extrapolated estimates from 1 Oct 53 official data.

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III. Measures for Increasing Agricultural Production, 1953.

Within the first year after the death of Stalin the Soviet government adopted a series of measures designed to effect a rapid improvement in Soviet agriculture. Without changing the institutional framework of socialized agriculture as incorporated in the collective farm, state farm, and machine tractor station, the Soviet government has abandoned certain policies and modified others, but for the most part the government has re-intensified the drive to have the peasants produce more food, feed, and fiber within the broad institutional framework of the past 25 years by better use of many of the previously approved techniques and methods.

The general tenor of the "new course" was first indicated in Minister of Finance Zverev's report to the Supreme Soviet on 5 August 1953. Three days later, before the same body, Malenkov gave additional details. Without a specific indictment of the inadequacy of agricultural production, Malenkov implied that current output is insufficient and that "our immediate task is...in the next two or three years to secure the creation in our country of an abundance of foodstuffs for the population and of raw materials for light industry."

Malenkov then outlined the corrective measures to be applied in bringing about an "upsurge" of production. These included a series of incentive measures, such as a downward revision in the level of agricultural taxes, a reduction in delivery quotas levied on collective farmers, and increases in prices paid by the state to collective farms and farmers for obligatory deliveries and for government purchases; increases in capital investment in agriculture -- largely in farm machinery and fertilizer; the establishment of permanent cadres of technically trained personnel at machine tractor stations; and, of course, a continuance of the pressure to improve farm practices.

The newly elected First Secretary of the Communist Party, Khrushchev, a month later filled in the general framework with an indictment of the agricultural economy and gave further details of the new incentive and capital investment programs.

In comparing the slow growth of postwar agricultural production to the relatively rapid progress made in industry, Khrushchev claimed

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an over-all production increase of 10 percent in 1952 over 1940. While this modest increase in itself indicates the lagging of the agricultural economy, even this claim is believed to be inflated.\*

After the publication in early September 1953 of a decree issued by the Central Committee of the Party and Khrushchev's report on which the decree was based, three supplementary decrees were issued elaborating on particular segments of the original decree. These three supplementary decrees covered the livestock, potatoes and vegetables, and machine tractor stations sectors with no further elaboration on the important grain and technical crop section of Khrushchev's report. It was not until February and March of 1954 that further details of plans for the expansion of production of grains and technical crops were given.

A. Changes in Investment.

There can be little doubt that there has been a sweeping reappraisal in the past year by Soviet leaders of agricultural performance, plans, and prospects. Certain technical procedures that were considered dogma up to the time of Stalin's death have been abandoned or modified. The most spectacular negative changes have come about from the cancellation or modification of those two well-advertised programs, the plan for the "transformation of nature" and the irrigation schemes of the "great construction projects." That drastic reductions have been made in these two programs is implied by the conspicuous absence of reference in the press and is confirmed by all the measures adopted since last August.

The shelter-belt program, first announced in 1948 and publicized as a keystone to increments in crop yields in the drier regions, has apparently now been curtailed after a large investment in the planting of some 2.6 million hectares of trees. As a corollary to the "transformation" program, the use of the famous Williams

\* Assuming that current procurement prices were used in weighing the individual commodity productions in calculating the aggregate, the high-value technical crops, such as cotton and sugar beets, which have shown relatively large increases since 1940 would distort the over-all index because of the low procurement prices for such an important commodity as grain.

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crop rotation system that had been part of official dogma from Moscow has recently been severely criticized and probably will be modified.

At least part of the irrigation schemes of the "great construction projects" were dropped during 1953. The largest of the irrigation projects, the Great Turkmen Canal, has definitely been eliminated, and there is evidence that work will be suspended on the irrigation networks of the other four projects.

All of these highly propagandized projects were parts of the over-all program for mitigating the effects of drought. After a realistic appraisal of such costly and questionable inputs, the current regime was willing, apparently, to switch the allocated resources to more practical schemes that may raise agricultural output in the immediate future. Most of these new inputs are designed to arouse the interest of the peasant and to provide him with more of such items as tractors, machinery, and fertilizer.

B. Incentive Measures.

One of the basic reasons for the low labor productivity and the consequent low output of agricultural workers is the lack of Zainteresovannost' (interestedness) on the part of the peasant. To increase the initiative of the peasant, the government has adopted a series of incentive measures.

Prices for obligatory deliveries for livestock, livestock products, and potatoes and vegetables have been increased, 25 percent for certain vegetables and up to 450 percent for livestock on the hoof. Prices for livestock products sold to the government beyond obligatory deliveries are to be increased by 30 to 50 percent. Although these percentage increases will be applied to an extremely low base resulting in the new procurement prices remaining low, the current prices may be high enough to encourage at least the individual collective farmer to sell to the state a greater proportion of the output from his private plot.

Apparently the price schedules for grain, the most important crop, have not been changed, and thus the major source of income to agriculture remains at its previous low level. The rates of obligatory deliveries for livestock products from the privately owned sector

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have also been lowered to give to individuals further encouragement to retain at least a cow.

As far as obligatory deliveries from the collective farms are concerned, the government will now "demand" that established norms for deliveries be strictly observed. In the past this principle has been violated by state procurement organizations when, to compensate for the underfulfillment of delivery goals by the lower producing collectives, higher rates were imposed upon the higher producing collectives despite fixed norms for given regions. Although Khrushchev previously implied that this practice had been carried on without the knowledge of Soviet officials, violation of the hectare-norm principle was accepted practice throughout the postwar years, especially in grain. Every year up to 1952 the central press carried letters and telegrams, from various provinces and addressed to Stalin, announcing the fulfillment of grain deliveries and usually declaring that "voluntary" deliveries over and above the plan had been made. Thus the government was able to fulfill the over-all delivery quotas by penalizing higher yielding provinces to counterbalance a bad crop year in other provinces. It remains to be seen if in the future Soviet officials do not ask for "voluntary" deliveries from the better producing farms, rayons, and oblasts.

To the peasant the first concrete indication, in terms of rubles and kopeks, that the government was again changing its "attitude" came at the time of the Supreme Soviet Session in early August. A new tax law that reduced the over-all tax yield from 20 to 25 million collective farm households by 43 percent in 1953, with further reductions in 1954, was adopted at that time.

Besides the reduction in tax rates on private holdings, there has been a simplifying of assessment methods. Under the old law, collective farm households were assessed on the basis of the types of produce grown, with a separate assessment for livestock. The new system incorporates a fixed rate of assessment per one-hundredth of a hectare of land in the private plots, regardless of the type of crop, and -- most important of all -- eliminates the separate tax on livestock. This new method of assessment will encourage farmers to grow more valuable crops and to own livestock.

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An added incentive for those peasants who do not own cows (about 45 percent of the households) comes with a reduction of tax rates of 50 percent in 1953 and 30 percent in 1954. This supposedly will give enough added income to the individual household to permit the purchase of a calf or young heifer.

The peasant working on the collective farm may decide that the new and less stringent policy concerning his private holding will result in a greater return for his work time than will work for the collective farm. In order to discourage such a decision, the government has included a penalty that increases by 50 percent taxes and obligatory deliveries of livestock products on a collective farm household if one of its members fails, without good reason, to work the minimum number of work days set by collective farm statutes.

C. Increased Inputs.

It has been pointed out that as part of the reappraisal of the general agricultural situation, the government has curtailed or abandoned certain costly projects such as the shelter-belt scheme and large-scale irrigation projects. Apparently the savings from such delayed or abandoned investments will now be directed to increasing the availability of other inputs such as mechanized draftpower, machinery, fertilizer, and trained manpower.

Rates of delivery of tractors from 1954 to 1957 will average annually about 40 percent greater than 1953 deliveries. In the last quarter of 1953, the annual rate of deliveries of both tractors and grain combines had increased by 7 percent over the 1953 rate as a whole. Besides more mechanized draftpower, the government wants to increase labor productivity in such unmechanized sectors as potato and vegetable growing and animal husbandry by providing large amounts of specialized machinery used in those sectors. Not only will there be the advantage of increased labor productivity from the use of a larger tractor and farm machinery park, but, probably most important of all, there will be improved timeliness of operations. The previous practice of completing certain field operations long after the initiating date has undoubtedly aggravated the harvest losses.

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One of the most realistic proposals of the "new course" is the provision for a large increase in output of mineral fertilizer. Production goals were set for 1959 and 1964 at 17 and 29 million tons respectively. While this plan indicates a rational appraisal of the type of input needed, it would mean an increase in 1953 plant capacity of 3 times by 1959 and 5 times by 1964. It is believed that such goals cannot be attained unless the USSR is willing to give disproportionate emphasis to construction of mineral fertilizer facilities -- to the detriment of other areas of the economy. Production has already fallen behind the rate necessary to fulfill the modest goal of 6.6 million tons set for 1955,\* the last year of the Fifth Five Year Plan. To meet the Plan, there will have to be a 24-percent increase in production in both 1954 and 1955, compared to increases of 7 percent, 8 percent, and 9 percent for the last three years. It is not considered likely that the Plan goal will be attained.

In the manpower area, the new program points toward increasing the number of skilled personnel of the managing class of the machine tractor stations and collective and state farms, of agronomic and animal husbandry specialists at the farm level, and of skilled and semi-skilled labor for machinery operation. All of the various manpower programs are calculated to reverse the tendency of the most skilled and best educated collective farm members to leave the farms and take more lucrative jobs in industry, and also to move agricultural specialists away from desk jobs "closer to production tasks." Although criticism of the personnel program was severe throughout the 1953-54 fall and winter months, recent claims indicate that plans are being fulfilled, at least in gross numbers.

The government's attention is now centered on improving the quality of the collective farm chairmen, who -- Khrushchev now readily admits -- are selected or dismissed by Party and government organs. The confirmation of this procedure, heretofore implied, in naming collective farm chairmen does away with the pretense incorporated in the collective farm statutes of "election" of the chairmen by vote of the collective farm members.

In the organizational sphere, the machine tractor station as an agency for technical assistance, political control, and

\* Excludes ground phosphorite and Thomas slag which, undoubtedly, have been included in the 1959 and 1964 goals.

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mechanization of Soviet agriculture has been considerably strengthened by the new program. Many of the new policies affecting machine tractor stations reflect the years of government neglect of the agricultural economy. Such changes as the creation of a permanent staff of tractor drivers and other machine operators, the payment of these workers directly by the machine tractor stations instead of by the collective farm,\* and the permanent attachment to the machine tractor stations of agronomist and other specialists will center more than ever in the machine tractor stations the "responsibility" for the carrying out of production tasks on the collective farm. Besides having a greater economic responsibility, the machine tractor station is to be the center of political control. The reorganization of the rayon Party apparatus now going on will place in each station one of the rayon Party secretaries, who will head a group of experienced party workers (instructors) carrying out political work in the collective farms served by the station. These moves in the organizational field are intended to delineate better the chain of responsible command and to eliminate the problem of pinpointing the blame for production failures.

D. Initial Implementation, October 1953 - March 1954.

From 1 October 1953, the date of the last supplemental agricultural decree, to early March of 1954, there has been a constant barrage of press commentary and conferences and a mass effort by the Party and government to "explain the decisions... to the working people of towns and villages." Using the medium of editorials, conferences, and meetings, the government has carried on a campaign of badgering officials throughout the organizational pyramid, from Moscow to the remote rayons, to carry out this or that part of the new program. Although criticism was rather severe, certain plans, particularly in the personnel area, were declared to have been completed after earlier press comment indicated that such programs as the transfer of specialists were not being carried out.

At a meeting of editors in late November 1953, Khrushchev took the opportunity to criticize officials in the lower echelons of the Party for shortcomings in carrying out the agricultural program. At this meeting Khrushchev probably set the tone for the

\* Although the latter still contributes to the wage fund.

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type and intensity of criticism to be used by the central authorities in pushing the new program. The "new look" in criticism is more mundane and free swinging than in the past, getting to specific points more directly with less verbiage and generalization. This is typical of the more realistic attitude of the Soviet leaders.

With unusual candidness, Khrushchev accused some officials of having an "aristocratic attitude" toward agriculture and of underestimating its importance. He also criticized the party organs for not selecting the best available men to be the chairmen of collective farms.

In January and February 1954, separate conferences of machine tractor stations and state farm workers and "foremost" agricultural workers of the RSFSR were held in the Kremlin. These meetings were used as sounding boards to "disclose existing shortcomings" and to "propagate leading experience in the struggle for carrying out the decisions."

In December 1953, the now deposed First Secretary of the Kazakhstan Party, Z. H. Shayakhmetov, gave first indications that an expansion of acreage in the dry steppelands was being considered. In an article in the Republic press, he said there was a possibility of the expansion of 6 million hectares of sown acreage in the northern areas of Kazakhstan. An article in an agricultural weekly in early January 1954 also discussed the problems involved in expanding acreage on virgin and unused lands.

In early March, a decree adopted by a plenum of the Central Committee was published under the title, "For the Further Increase in Output of Grain in the USSR and the Bringing of Virgin and Unused Land Under Cultivation." Two weeks later Khrushchev's report, on which the decree was based, was published. The "decision" and the report were used as vehicles not only for a fuller explanation of the grain acreage expansion program but also to fill in the details on raising yields of grain crops and yields and production of technical crops and on the changes in planning as well as to bring up to date a report on the progress, or lack of progress, made in the agricultural program.

In the personnel field, Khrushchev claimed successes in the transfer of engineers, technicians, and machine operators and

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in the posting of responsible Party workers at the farm and machine tractor station level; a reduction in the death rate of livestock by one-third during the winter season; acquisition by individual owners of more livestock; and a greater 1953 rate of procurement by the government of meat, milk, wool, and vegetables.

E. Grain Problems and Acreage Changes.

Last August, a few minutes after telling the Supreme Soviet that "our country is fully supplied with grain," Malenkov gave an indirect interpretation of what he meant by "fully supplied." He said, "We are obliged to secure a further and more rapid increase in production of grain, bearing in mind that this is necessary for our country not only in order to satisfy the growing requirements of the population for bread, but also for a rapid development of animal husbandry and the supply of grain to areas which produce industrial crops." A month later Khrushchev gave a further clue as to this interpretation when he said, "In general, we meet the country's grain requirements in the sense that our country is provided with bread, that we have the necessary state reserves and that we are able to engage, within certain limits, in export transactions." Khrushchev then went on to describe current supplies of feed grains as inadequate.

Malenkov and Khrushchev were both obviously talking in a static sense\* when referring to the solution of the grain problem, and then they switched to a frame of reference that included the dynamics of population growth and the need for improving the quality of the diet by consumption of more animal products. As Soviet officials are now more pragmatic about agricultural affairs, they undoubtedly realize that the completely unrealistic plans for greatly increasing production of grain via the yield route could not be attained in a few years.

Khrushchev's report, and the Plenum decree in early September 1953, spoke mostly in generalizations about the need for greater production of grain and technical crops and included only plans for changes in acreage patterns affecting a minor part of the

\* Static in the sense that grain availabilities were sufficient to sustain the population during the 1953-54 consumption year with the present dietary pattern.

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total sown acreage. The fact that a supplemental decree pertaining to grain and technical crops was not published last fall gave further indication that plans concerning acreage patterns in general and grain acreage specifically had not at that time been formulated.

At a Kremlin conference of agricultural workers in February 1954, first indications were given that acreage patterns were to be changed, although earlier press references in December and January had referred to possible acreage expansion in the dry steppelands. Further data were given in the March reports.

Over-all grain acreage has remained about constant the last three years and by 1953 was still about 3 percent below prewar.\* The government now plans to expand grain acreage, at least temporarily, some 15 to 20 percent until there occurs a rise in grain yields, which -- according to Khrushchev -- "has been and remains the main method of increasing the production of grain."

In indicating the need for more grain, Khrushchev also gave a well-stated definition of what he means when he says, "grain is the basis of the agricultural economy." In listing the needs, he gives priority to the following:

1. Bread, Bread Products, Flour, and Groats.

An important phase in the "new course" will be the continuation of the trend toward increased consumption of "white" bread produced from wheat in place of the coarse, black rye bread, the traditional bulk product in the Russian diet. This improvement of the quality of caloric intake from grain products also includes more wheat flour, which was placed on unrestricted sale for the first time last year, and more groats, consumed as porridges and cereals.

The planners must also reckon with the dynamics of population growth which will require another 5 million or 6 million tons of food grains by 1960.\*\* During the consumption year from

\* Postwar boundaries. Total acreage in 1940 was 110.4 million hectares and in 1953 106.6 million hectares.

\*\* Based on an estimated population in 1960 of 234.7 million and a grain consumption rate of 230 kilograms per capita.

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1 August 1953 to 31 July 1954, as was true the two or three preceding consumption years, there was enough grain available to sustain the current estimated consumption rate of 215 to 230 kilograms. The Soviet officials want to decrease this high rate of consumption (usual tell-tale sign of a poor diet) by making available more animal and vegetable products. At the same time they hope to improve the quality of that part of the diet coming from bread products by substituting ever increasing amounts of wheat bread, wheat flour, and groats for the coarse rye grain products. A greater availability of bread grains will also allow the lowering of flour extraction rates, which will increase the quality of the bread produced.

2. Supplementing of State Grain Reserves.

The Fifth Five Year Plan calls for the doubling of state reserves. It is assumed that grain reserves will also be increased proportionately as part of the over-all reserve program. Because most yield-stabilizing projects such as shelter-belt and irrigation projects have been deflated or abandoned, the possibility of severe crop failures resulting from drought remains a serious threat. The Soviet planners must then keep in reserve greater quantities of agricultural products in case of crop failure -- at least until new measures have been taken to give greater stability to grain production. Such measures would include increased acreages and yields of grain crops in the podzolic soil districts where amounts of precipitation are adequate.

3. Grain for Livestock.

There is obviously a great need for more grain both to sustain increasing numbers of livestock and to increase the now low productivity rates of milk, meat, wool, eggs, and other products. While there has been a 20-percent increase in wheat acreage compared to 1940, feed-grain acreage (barley, oats, and corn) has decreased 20 percent; livestock numbers have remained about the same. Feed-grain acreage will expand in the next two or three years, and although most of this expansion will be the replacing of perennial grasses in the dry areas, there may be some substitution of feed grains for other grains -- for example, barley in place of rye in the Upper Volga Valley. This will be particularly true if the scheme for expansion of spring wheat acreage on the virgin and unused lands is successful.

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In rationalizing the substitution of feed grains for perennial grasses, Khrushchev said that in 1952 state farms' grain yields amounted to 10.2 centners per hectare (c/ha), or 1,420 fodder units per hectare, as compared to a yield of only 11 c/ha, or 550 fodder units per hectare, for perennial grasses sown on state farms. In order to arrive at an adequate balance of hay to feed grains, the planners will probably emphasize the relegation of sown grasses to the poorer yielding lands and also the more careful harvest of wild hay.

4. Greater Grain Requirements for Regions Growing Technical and Other Crops.

With the expansion of non-grain-crop acreage in those regions best suited for these crops, there will undoubtedly be some reduction in grain acreage. The planned expansion of acreages of such crops as cotton, flax, sugar beets, and vegetables will result in some grain-acreage substitution by these crops. These measures naturally will require a greater importing of food and feed grains into the deficit grain-producing regions. In effect, this implies a modification of the regional "self-sufficiency" principle.

5. Expanding the Export of Grain.

The USSR will export an estimated 2 million tons of grain during the 1953-54 trade year as compared with 2.4 million tons the previous year. This order of magnitude has been the general pattern for the last five years. In order to finance the large projected increases of consumer goods and other imports and to back up claims of intentions to increase trade with the West, there will be a need for greater quantities of grain, both wheat and feed grains, for export.

The most spectacular and widely publicized facet of the change in acreage patterns has been the program for expanding food-grain acreage in the areas of "inadequate rainfall." The 1954 plan calls for the expansion of spring-wheat and millet acreage on 2.3 million hectares of virgin and unused land in 1954 and on 13 million hectares in 1955. This expansion, by itself, will increase over-all grain acreage 12 percent by 1954. One-third of this expansion will take place on state farms. Most of this acreage will

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be sown along the southern and eastern periphery of the traditional spring-wheat belt, where both soil and climatic conditions are adverse for stable yields. In these dry steppelands of chestnut soil and 10 to 15 inches of rainfall, the USSR can expect 2 almost complete crop failures every 5 years. In the first crop year, a probable soil moisture reserve in this area will provide better than the usual 60-percent chance of getting a "normal" crop. Apparently Khrushchev considers a yield of 10 to 11 centners per hectare to be the standard. The Plenum adopted the maximum variant of 14 to 15 c/ha, resulting in an estimated production of 18 million to 20 million tons in 1955. Probably a more realistic average yield would be on the order of 5 c/ha, giving a total production increment of 6.5 million tons, an increase from this part of the overall grain program of 6 to 7 percent of the total grain output.

At best, the USSR can expect to sustain this part of the grain expansion program for only a few years. This general area of dry steppelands was the scene of the so-called "grain factory" undertaking during the First Five Year Plan. First projected in the spring of 1928, the state farm "grain factory" project was finally launched by the government in 1930. After first-year success, the result of very good weather conditions, the project failed the two following years when very low yields were produced after "enormous investments by the state" (Stalin, Seventeenth Party Congress). In 1933 the sown acreage on these large grain farms in the drier regions was greatly restricted. In 1939 there again was planned an expansion of grains in the dry regions. Instead of in spring wheat, however, this venture was in winter grains -- expansion of winter wheat in the Middle and Lower Volga in the fall of 1938 and a plan for the increase of the more drought-resistant winter rye in Siberia and Kazakhstan in 1939. In April 1940, the government again announced a 3-year plan for the expansion of general grain acreage by 4.3 million hectares in the eastern regions, mostly in the semi-arid zone. Evidence is lacking as to the outcome of these expansion projects in the immediate prewar period, although wartime exigencies required an expansion of winter rye acreage in this area.

In cultivating these new lands, the inputs involved will have some effect on the rest of the agricultural economy, most significantly in the machinery sector and perhaps in the skilled manpower sector. In his report to the Plenum at the end of

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February, Khrushchev said, "This year most tractors, combines, and other machines delivered to agricultural areas will be sent to the areas of new lands." The tractors allocated to the new project will be the general-purpose caterpillar types, the KD-35 and S-80. Although the rest of the agricultural economy is relatively well supplied with this type -- compared with the great need for the universal, or row-type, tractors, the traditional grain-growing regions such as the Ukraine could well use more of the caterpillar tractors to improve the timeliness of seasonal operations.

The total of 1.8 million tractor horsepower to be allocated to the "new areas" will constitute about 10 percent of the horsepower in the present tractor park but somewhat less than 10 percent of the total tractor numbers.

There are two alternatives to the direct allocation of tractors from new production scheduled for agriculture or from the existing machine tractor stations and state farm tractor parks. A part of the 1.8 million horsepower could be obtained from the scheduled 1954 new-tractor allocation of 1.4 million horsepower to the non-agriculture sectors or by transferring tractors from construction projects.

Probably of greater importance in terms of machinery inputs will be the problem of utilization and maintenance of tractors in the new areas. Apparently the task of obtaining spare parts remains a weak link in the operation of tractor and farm machinery parks. Throughout the agricultural economy there is a shortage of maintenance facilities, primarily of repair shops equipped with machine tools.

The other important input is the labor force. Although it is estimated that the total labor force required for the entire project will not exceed 400,000 (less than 1 percent of the total agricultural labor force), there will be a serious drain on the skilled or semi-skilled labor force that will manage the farms and operate and repair the machinery. Although the badly depleted technician force of the existing network of machine tractor stations and the collective and state farms has been "reinforced" since the last crop season, the rest of the agricultural economy is hardly in a position to supply experienced machine operators, agronomists, or engineers without weakening their own operations. Khrushchev,

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however, not only calls on industry and urban centers to supply manpower, but he also expects the present system of farms and tractor stations to supply qualified specialists even to the point of "appointing to the new state farms the best directors, chief engineers, and chief agronomists from the old state farms... ."

A less spectacular but probably more productive program in the long run will be the "carrying out of the large-scale reclamation of large areas of meadows, marshy land, poorly productive meadows, and pasture lands in the central and northwestern areas of the country." In these areas of adequate precipitation, real achievements can be made if, after reclaiming the land, sufficient inputs of lime (to correct the acidity of the soil) and of mineral and organic fertilizers are used.

The rationalization behind the expansion of grain acreage on the virgin and unused lands\* in the dry area is open to speculation. Probably one or more of the following factors were of paramount importance:

- a. A desire to obtain greater quantities of wheat to replace the loss of food grains -- a loss resulting from the replacement by other crops of food-grain acreage in traditional regions.
- b. The need to provide a production substitute required by the abandonment of those irrigation projects that were scheduled to result in an increase in wheat acreage.
- c. The realization that planned increases in grain yields were not going to be even partially realized with the present inputs and that, consequently, there must be a temporary expansion\*\* of wheat acreage -- an expansion which would continue until the change to more rational inputs (lime and fertilizer) could become effective in raising yields of grains grown in areas of adequate precipitation.

\* "Unused" or fallow lands are defined as those lands that have not been plowed for a period of 2 to 25 years and are now covered with wild grass; "virgin" lands are those lands abandoned for over 25 years. It is also claimed that lands will not be utilized that have an annual precipitation of less than 250 millimeters (10 inches).

\*\* No official indication has been given that this is to be a temporary program.

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d. A possible need for a rapid increase in reserves of food grains, an increase dictated by an undefined national "contingency" such as preparation for hostilities.

F. Change in Acreage Patterns.

The need for drastic changes in acreage patterns midway in the Fifth Five Year Plan results mostly from a combination of (1) the failure to achieve even partially the planned increases in the yields of such important crops as grains, oilseeds, flax and perennial grasses, and (2) the necessity for more than lip service to increasing consumption rates and to improving the quality of the national diet.

In the planning so far announced, there have been apparent two trends which indicate modification or abandonment of dogmas previously accepted. Those dogmas included the so-called grass-field rotation in all important non-irrigated agricultural regions of the country and regional self-sufficiency in supplying food for the local population.

The doctrine of incorporating sown grasses in the crop-rotation system was adopted in the late 1930's, but did not become widely enforced until after the war. In its simplest form, this doctrine was a matter of setting up a 7- to 10-year rotation which included two or three years of grasses, preferably perennial grasses.

The widespread use of grasses was first emphasized because of the need for hay. Since the late 1930's the emphasis has been on the allegedly beneficial effect of rotation grass on soil structure and fertility and, thus, the raising of yields. Apparently ignoring the negative results of the use of such a system in climatically analagous areas of the US and Canada, the Soviet leaders endorsed the indiscriminate use of grass in rotations in dry areas as well as humid areas. As a result, valuable feed-grain and food-grain acreage was replaced with grasses that supposedly would raise yields of grain and at the same time provide large quantities of high-quality hay for livestock. Neither of these two "benefits" resulted. Not only have grain crops in rotation with grasses in the dry steppes of the Ukraine and North Caucasus not shown an upward trend in yields over the last ten years, but also there has been a decrease in feedstuffs available for livestock.

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Khrushchev indicated very low yields of hay and declared that perennial grasses yield "much less fodder than the feed-grain crops in the Southern Ukraine, North Caucasus, Volga Valley, Siberia, the Southern Urals and Northeastern oblasts of Kazakhstan."

According to the new program, there will be a sharp reduction of perennial grass acreage in these areas, which will allow the expansion of other crops on 4 million hectares, most of which will probably be sown to feed grains such as corn, oats, and barley.

Throughout the new program for a change in sown acreages, there are indications that the principle of regional self-sufficiency has been pushed to the background in favor of intensifying the production of those crops best fitted to certain soil and climate areas. The modification of the principle of self-sufficiency may cause a rather sharp change in inter-regional acreage patterns.

Generally speaking, there appears to be planned a large increase in feed grain acreage; an increase in wheat acreage, but not a large increase in wheat production; increases in acreage of potatoes and vegetables and of most technical crops; and a decrease in low-yielding perennial grass acreage. This scheme of acreages is hopefully geared to provide the country with a better quality diet in the next two or three years without waiting for crop yields to rise.

In the final analysis -- regardless of the technical accuracy of the planning -- the success of the new agricultural program will mostly depend upon the peasant -- the actual producer -- and his reaction to the incentives offered by the government.

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