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## THE POSSIBILITIES OF AGRICULTURE IN U.S.S.R.

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A DISCUSSION of the agricultural possibilities of the Soviet Union must take into consideration, first of all, the vast extent of the territory of that country and the extreme variety of conditions with regard to climate, soil, and topography.

If the vastness of the territory of the Soviet Union is considered, the extent of the land that is cultivated will appear comparatively limited.

The total area of the U.S.S.R. is 1,945 million hectares exclusive of Central Asia S.S.R. Of this, 1,058.9 million hectares have been utilized in one way or another. Plowland accounts for 189.4 million hectares; meadows, pastures, and land occupied by farm buildings, 194.9 million hectares; while forests and wooded lands cover 674.6 million hectares.

The rest of the country, 886.1 million hectares, is not suited for agriculture without preliminary reclamation work on a large scale. It should be indicated, however, that this portion includes an area of about 191.5 million hectares which has not been explored, and there are no data available for a conclusion as to its nature. Tundra occupies 269.9 million hectares.

A glance at the agricultural map published by the Institute of Applied Botany, of Leningrad, will show first, a very large area under cultivation in the southern part of the U.S.S.R., whereas from Moscow to the north only a small, almost negligible portion of the land is cultivated.

The territory of the U.S.S.R. may be divided into five parts, namely, Northern U.S.S.R., Siberia, Far Eastern U.S.S.R., Kazakhstan, and Southern U.S.S.R.

Northern U.S.S.R. includes several provinces with a total area of 407.4 millions of hectares. The utilization of the land in the various provinces is shown in table 1.

Only a negligible portion of the territory is cultivated, while very extensive areas are either covered by forests or are not suited for agriculture.

We entertain, however, great hopes in regard to the future expansion of agriculture in this part of the U.S.S.R. It has been demonstrated at our experimental stations that it is possible to

produce barley, oats, flax, and grass in the Far North. The best of our milch cows (Kholmogori cow) likewise come from the Far Northern provinces.

In Siberia, conditions are very similar to those in the region just described. Of the total area of 405.9 million hectares, only 20.1 million are cultivated, while 93.9 million hectares are in forests, 66 million hectares are "tundra," and 23 million hectares are under pastures, meadows, and so forth. The remainder, or 202.9 million hectares, is unclassified land and of this 125 million is unexplored land.

Table 1. Utilization of Land by Provinces, Northern U.S.S.R.

Province	Total area	Plow-land	Area under hay and pastures	Forest and wooded lands	Unimproved lands
Northern provinces.....	112.2	1.3	3.8	62.1	45.0
Karelia.....	14.7	0.1	0.2	9.1	5.3
Leningrad.....	33.2	2.6	3.6	12.5	14.5
Western province.....	16.5	6.0	4.3	5.4	0.8
Moscow.....	16.1	6.2	4.0	4.9	1.0
Ivanovo-Vosnesensk.....	12.3	3.2	2.9	5.4	0.8
Nizhni-Novgorod.....	26.8	8.7	3.1	13.0	2.0
Ural.....	175.6	11.4	9.5	28.8	125.9
Total.....	407.4	39.5	31.4	141.2	195.3

Here we expect to be able, within a few years, to treble the area under crops, through large capital investments and reclamation work on an extensive scale; further expansion will require considerable investments in reclamation, clearing of forests, and of rocky lands, and so forth.

Far Eastern U.S.S.R., including the Yakut and Buriat regions, comprises a total area of 696.8 million hectares. Of these only 4.5 million hectares are cultivated. It is true that the entire Yakut region is mountainous, and that only a small portion of the land can be used there for agricultural purposes. Even of this, however, only a very insignificant part is actually cultivated, the increase in crops being interfered with in this part of the Soviet Union by the scarcity of the population.

Forests cover 399.3 million hectares in this region, while 11.0 million hectares are under pastures and hay. The area unsuited for cultivation is estimated at 282 million hectares.

In the Kazakstan, which has a total area of 206.2 million hec-

tares, only 19 million hectares are under cultivation. On the other hand, as much as 77 million hectares is grazing land. Forests cover but a very small area in this province (11.2 million hectares). Land not suited for agriculture forms an area of about 99 million hectares.

With the aid of the tractor we expect to bring about in this region a considerable expansion of crop acreage at the expense of grazing land. Enormous capital investments will eventually be required here for irrigation.<sup>1</sup>

Southern U.S.S.R. is largely devoted to agriculture. Forests are few and there is but little land that is not suited for agriculture. The utilization of land by provinces in this area is given in table 2.

Table 2. Utilization of Land by Provinces, Southern U.S.S.R.

Province	Total area	Plow-land	Pastures and so forth	Forests and wooded lands	Not suited for agriculture
Ukraine.....	43.4	29.9	6.4	3.4	3.7
Crimea.....	2.6	1.5	0.5	0.3	0.3
Northern Caucasus.....	29.2	14.6	7.7	3.2	3.7
Middle Volga Region.....	23.7	15.0	3.6	3.5	1.6
Lower Volga Region.....	32.8	13.4	14.7	1.0	3.7
Central Black Soil Zone.....	19.2	13.5	2.8	1.7	1.2
Tartar Republic.....	6.7	4.0	1.1	1.1	0.5
Bashkir Republic.....	15.2	5.4	2.7	5.9	1.2
Total.....	172.8	97.3	39.5	20.1	15.9

A further increase in crops will be brought about in this region through the combination of small scattered strips of land and the elimination of boundaries which now divide them, and through the reclaiming of lands now unsuitable for agriculture.

There is still some land available in this region for an expansion of agriculture which is relatively accessible. Further progress here, however, will be brought about chiefly through the adoption of intensive methods of cultivation, as there is an abundant supply of labor which is better suited to intensive farming than in any

<sup>1</sup>No figures are available in regard to the distribution of land according to utilization in the other Central-Asiatic territories of the Soviet Union, or in Transcaucasia. The total area of each of the different regions is as follows:

Transcaucasia .....	17.9 million hectares
Uzbek Republic .....	17.1 million hectares
Tazhdik Republic .....	14.2 million hectares
Turkmen Republic .....	44.4 million hectares

other part of the Soviet Union. This region also has the best developed net of railways and it includes a number of large cities and industrial centers. There will be a growing market here for vegetables, fruit, poultry, dairy products, and so forth.

In the northern part of the Soviet Union, both in Asia and in Europe, railway development is an urgent need. Work is about to be started on the construction of the Great Northern Trunk System, which will extend from Murmansk to the Pacific coast. It is also planned to construct a railway across Kazakstan, which will greatly facilitate the settlement of the Steppe regions in that area.

It is safe to estimate that within the next two years the total

Table 3. Estimated Increases in Crop Area Within Two Years, by Regions, U.S.S.R.

Region	Estimated increase within 2 years (millions of hectares)
Ukraine.....	2
Northern Caucasus.....	5
Lower Volga.....	5
Siberia.....	8
Kazakstan.....	9
North (Europe).....	12
Central Black Soil Zone.....	1
Other regions.....	7
Total.....	49

area under crops in the Soviet Union will be increased by about 49 million hectares. This will be achieved without any very great capital investment, in as much as the land to be utilized is well adapted to cultivation. The estimated increase in crop acreage in each of the several regions is given in table 3.

There are great possibilities ahead of us for increasing crop acreage. It is not at all unlikely that within the very near future the area under crops will be doubled, while that under pastures will be trebled.

Among the factors that make this rapid growth possible should be listed, first, the abolition of private ownership and the nationalization of land. This has made it possible to do away with boundary strips and to eliminate many obstacles which would have otherwise been unsurmountable. The collectivization movement

abolishes boundary lines and puts an end to petty ownership and small-scale farming. It also permits the substitution of tractors, combines, and other modern machinery for the more primitive means of production.

Another factor has been the importation on a large scale of agricultural machines and tractors from abroad and the development of domestic production of agricultural equipment. A tractor plant has been constructed in Stalingrad, and work in it has been started; two additional plants are under construction, in Kharkov and in Cheliabinsk. There has also been an increasing production of tractors in old plants. There are two plants under construction for the production of combines, in Dnepropetrovsk and in Novosibirsk. The mechanization of agriculture has made it possible to cultivate enormous stretches of territory which could not be utilized formerly. Of particular significance has been the expansion of agriculture in the arid regions.

Of no small importance has been the increase in the size of farm units, both as a result of collectivization and of the establishment of state farms. What the small farm could not possibly achieve has become practicable for the large-scale farms.

In this respect the organization of state farms has been of especial importance. To assist them in their exploration work the government has founded a special institute for the investigation of new areas for agricultural purposes.

It is thus seen that the U.S.S.R. is bent upon expanding agricultural production. Apprehension has been voiced by some lest this expansion would result in the dumping of agricultural products on the world market. I should regard those apprehensions as unfounded. Prior to the war, and to the revolution, the people of Russia were under-nourished. Now, since the revolution and the redistribution of land, they have been consuming much more. Yet their standards of consumption are still low when compared, for instance, with those of the American people. Our main object therefore, is that of increasing domestic consumption. It should also be remembered that the industrial population is growing at a very rapid rate in our country and that the demand for agricultural products is expanding accordingly. The capacity of the domestic market for agricultural products may, therefore, be expected to increase from year to year and to absorb a very substantial portion of the increased output.