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CENTRAL INTELLIGENCE AGENCY
Office of Economic Research

Status of the Soviet Grain Crop
as of the End of June

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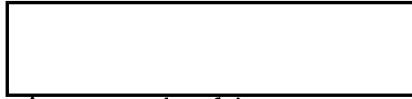
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MEMORANDUM FOR:



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SUBJECT:

ER IB 73-4

Data contained in ER IB 73-4 is inaccurate. This IB has been superseded by ER IB 73-8.

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Status of the Soviet Grain Crop
as of the End of June

A record sowing of spring grains in the USSR has more than offset last fall's shortfall in the sowing of winter grains, raising the total grain area in 1973 to its highest level since 1965.

So far the weather has been generally favorable for the development of both winter and spring grains. On the basis of sown area and the weather through June, and with average weather in July, the total gross grain harvest could amount to a record 194 million metric tons (157 million tons of usable grain). The spring grains, however, will be in a critical stage of development through July, so estimates of total grain production still embody a good deal of uncertainty. Hot, dry weather in July could reduce the prospective crop appreciably, while, on the other hand, timely rains would go far toward ensuring a record harvest.

Even with a record harvest, the Soviets will need as much as 15 million tons of grain imports to cover domestic and foreign requirements. If weather conditions turn out to be below average in the next few months, they could be in the market for even more grain in a year when world grain prices are at record highs. So far this year they have bought about 9 million tons, of which 7 million tons was purchased in the United States.

Note: Comments and queries regarding this publication are welcomed. They may be directed to

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Discussion

Spring Sowing Campaign a Success

1. The USSR has completed a record sowing of spring grains. The total seeded by all farms was about 104 million hectares, 8 million hectares more than the amount sown in 1972 and 14 million more than the average sown in 1966-71 (see Table 1).

Table 1

USSR: Area Planted to Grain¹

| | Million Hectares | | |
|---------------|---------------------------|-------|------|
| | Annual Average 1966-71 | 1972 | 1973 |
| Total | 121.4 | 120.1 | 128 |
| Winter grains | 31.2 | 24.1 | 24 |
| Spring grains | 90.2 | 96.0 | 104 |

1. The sown areas reported for 1966-71 and 1972 are from official post-harvest statistics. These figures generally are about 1½% less than the area announced in mid-summer, mainly because some of the summer grain area is used for forage rather than being harvested for grain.

2. Last fall, because of dry weather, only about 28 million hectares of winter wheat, rye, and barley were seeded -- 20% below the average for the previous five years. With a normal amount of winterkill and some feeding of immature grain to livestock, probably only about 24 million hectares of winter grain will be harvested -- far less than the average of 30 million hectares in 1966-71.* The successful spring sowing campaign, however, more than compensates for the deficit in winter grains. Indeed, the total area sown to grain is the largest since 1965.

* Winter grains generally account for about one-fourth of total harvested grain acreage but about one-third of total grain production. Spring grains account for the remainder.

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3. Spring sowing increased particularly in the RSFSR, where the fall drought had most hindered the sowing of winter grains (primarily winter wheat and winter rye). As in 1972, the strategy was to sow relatively more area to feedgrains (barley, oats, and corn) than to the lower yielding spring wheat. This policy, which is designed to provide maximum support for Brezhnev's livestock program, risks slighting domestic requirements for bread-grains.

The Condition of the Crop

4. Plentiful rain in April and May and an early spring revived the winter grains, which had been threatened by a dry, cold winter. By 30 June the accumulated precipitation in the winter grain districts since last fall was greater than normal and far larger than last year (see Table 2). Nevertheless, the moisture conditions for the winter grains were not as good as those that prevailed in 1970 when the USSR harvested its best crop.

5. US agricultural attaches, after traveling through a representative portion of the Ukraine, Moldavia, the North Caucasus, and the Central Black Earth regions, have confirmed Soviet claims that the winter grains are coming along well and that few fields had to be reseeded because of winterkill. As of late June, the only potential problem for the winter grains was the damage caused by the heavy rains in the Ukraine and North Caucasus in late May. The Soviet press reports that "in many areas cereal crops have been flattened by rains, and great skill and ability will be required from the machine operators to harvest them without any wastage." On the other hand, harvesting of winter grains has been completed in Central Asia and southern Kazakhstan, where "excellent" crops are said to have been gathered. Because crop development is advanced this year, harvesting of winter grains will begin 8-10 days earlier than normal in the North Caucasus and the southern Ukraine, and almost all of the USSR's winter grain crop should be harvested by late July.

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Table 2
 Cumulative Precipitation in Winter and Spring Grain Areas¹

| | Millimeters | | | | | | | |
|-----------------|----------------|----------------|----------------|-------------|----------------|----------------|----------------|-------------|
| | Winter Grains | | | | Spring Grains | | | |
| | Annual Average | | Annual Average | | Annual Average | | Annual Average | |
| | <u>1961-73</u> | <u>1970-71</u> | <u>1972</u> | <u>1973</u> | <u>1961-73</u> | <u>1970-71</u> | <u>1972</u> | <u>1973</u> |
| October - March | 248 | 303 | 208 | 248 | 207 | 261 | 197 | 217 |
| April - June | 140 | 161 | 139 | 170 | 123 | 149 | 134 | 144 |
| Total | <u>388</u> | <u>464</u> | <u>347</u> | <u>418</u> | <u>330</u> | <u>410</u> | <u>331</u> | <u>361</u> |

1. Average rainfall in each of 27 crop districts, weighted by the crop district's share in production of winter or spring grains in 1966-70.

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6. Favorable weather as well as improved organization also seems to have given the spring grains a reasonable start. According to the Soviet press, "the sowing campaign has been outstanding for its high rates and good quality of work. Nearly everywhere, the weather conditions were favorable for the emergence of sturdy seedlings." The generalization applies in the main to the European USSR; in Kazakhstan and Siberia the weather was frequently "capricious," and planting was delayed toward the end or somewhat beyond the optimum periods.

7. Rainfall was more than adequate in many of the spring grain areas through the end of June. Total rainfall in April, May, and June was larger than in any of the last 13 years except for 1970, the all-time record crop year. By 30 June the total accumulated rainfall in the spring grain regions since last September exceeded the average of the last 13 years by 9%. Apparently, May rains were so heavy in certain areas that they interfered with planting. According to a Soviet "agricultural expert," rain caused "extensive and possibly very extensive damage" to corn in major growing areas, where the corn had to be sown as many as three times. Complaints have also been heard that the weather is stimulating the growth of weeds.

8. The spring grains, however, are in a very critical stage. They need adequate rainfall and cool temperatures in June and July, but in the first 20 days of June it was extremely hot and drier than usual in much of the New Lands area of the Urals, Siberia, and northern Kazakhstan. The last 10 days of June brought some relief in the form of above-normal precipitation and cooler temperatures. Nevertheless, a return in July to high temperatures (which speed up evaporation and can shrivel grain in the heading to ripening stage) and little rainfall could erode the USSR's present expectation of a harvest substantially better than the harvests of 1970 and 1971 (see Table 3). Last year, Siberia and Kazakhstan (which usually produce almost 30% of the total grain crop) had excellent harvests, and a marked decline in production in 1973 in these regions would go far to offset the expected recovery in yields in the Ukraine and the European USSR.

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Table 3

USSR: Grain Production

| | Million Metric Tons | |
|------------------------|---------------------|--------------------------------|
| | Gross Production | Net Production ¹ |
| Annual average 1961-65 | 130 | 106 |
| Annual average 1966-69 | 163 | 131 |
| 1970 | 187 | 150 |
| 1971 | 181 | 148 |
| 1972 | 168 | 134 |
| 1973 Plan | 197 | 160 |
| Forecast ² | 194 | 157 |

1. Estimate of usable grain, which excludes excess moisture, wastage, and trash.

2. Assumes average rainfall and temperatures in July.

Outlook for Production

9. On the basis of the sown area, the weather through June, and average July rainfall and temperatures, the gross grain harvest could be about 194 million tons, or 157 million tons of usable grain.* This would be a record crop, although somewhat less than the 1973 goal of 197 million gross tons.

10. The harvest of winter grains has already started, and all of the early reports speak of good to excellent yields -- a confirmation of the high production forecast for the North Caucasus and southern Ukraine. In the spring grains area, however, the July weather will determine the size of the standing harvest, while the conditions in August and September will decide whether the grain will ripen in time to be threshed before winter sets in. The dependence on July conditions can be illustrated by estimating average July rainfall and temperatures for each crop district from official

* The estimates are derived from weather-yield regressions for all grains in 27 crop districts covering the years 1961-71 (see the Appendix).

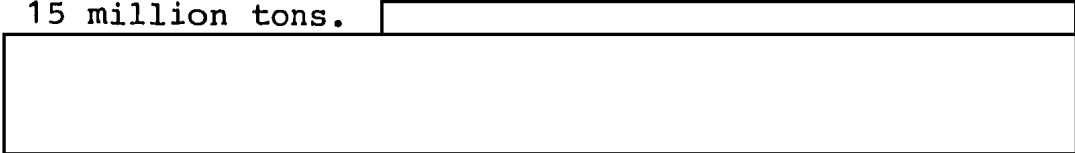
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Soviet long-range weather forecasts. The above-normal temperatures and below-normal precipitation predicted in these forecasts, when incorporated in the estimates of yields, reduce the total expected grain harvest from 194 million to 174 million gross tons.

Grain Imports

11. Even if a record crop of 194 million tons is harvested, the USSR will still need substantial grain imports to meet domestic and export requirements in fiscal year (FY) 1974, perhaps as much as 15 million tons.



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12. During March and April the USSR chartered enough world shipping to carry 10 million tons of grain annually from North American ports to the Black Sea in addition to the 9 million to 10 million tons available from its own fleet. So far this year, new Soviet grain purchases have amounted to about 9 million tons for delivery by the end of FY 1974. Of this, some 7 million tons will come from the United States, and more than one-half of the total will be wheat. Some of these purchases are slated for delivery this summer and fall and, therefore, should probably be viewed as covering shortfalls in the 1972 crop. Thus, more than 6 million tons must still be purchased to cover estimated requirements for FY 1974.

13. It appears that the USSR has not contracted for much grain recently, probably a result of several factors. World grain prices are at record highs, and the US grain export controls introduce an additional uncertainty. Moreover, the USSR will probably wait and see what the July weather will be. If July is hot and dry, significantly reducing crop prospects, it will need even larger imports than originally anticipated.

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APPENDIX

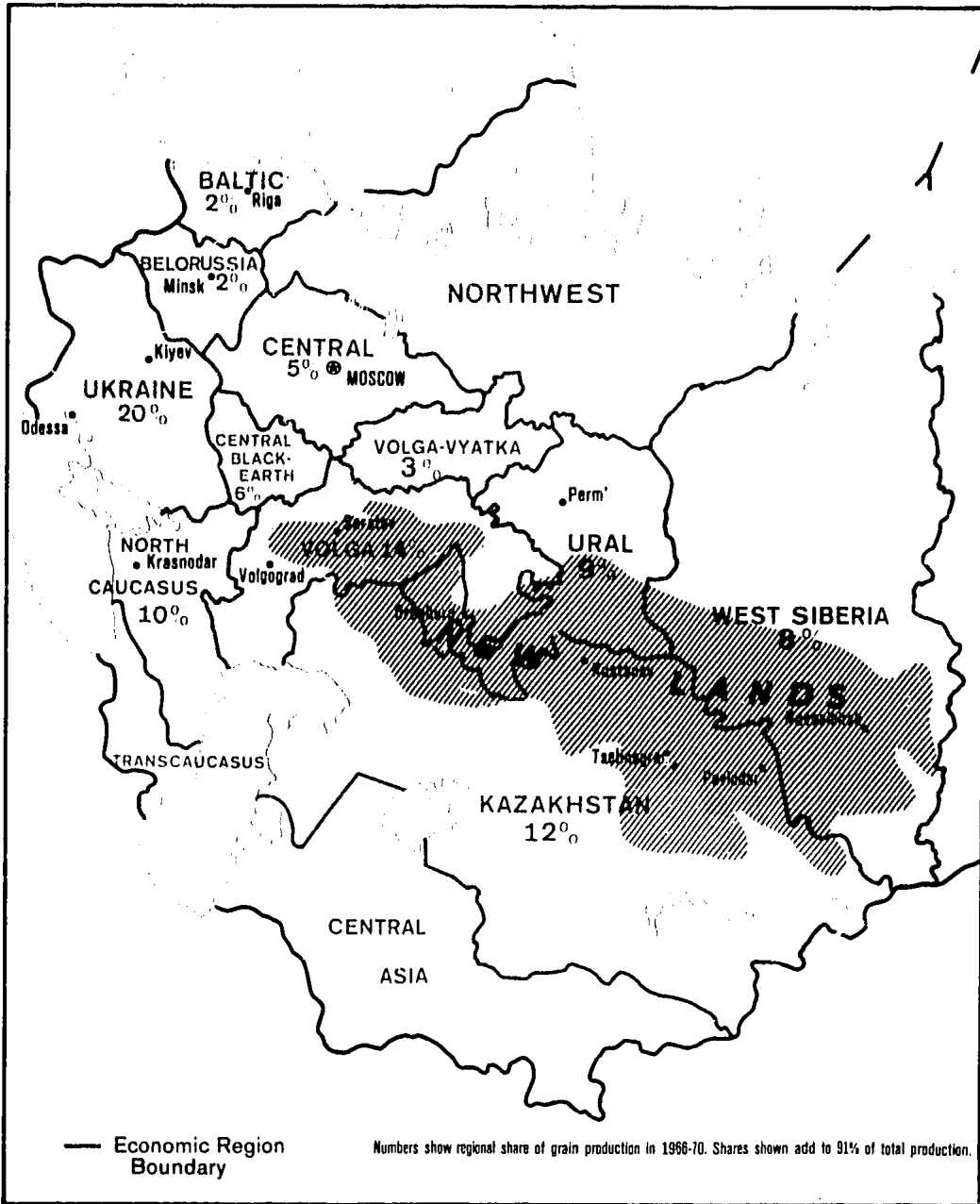
Derivation of Harvest Prediction for 1973

The predicted grain harvest for 1973 is based on a linear regression model which estimates the influence of weather and a time trend on grain yields in each of 27 crop regions in the period 1961-71 and uses the results to forecast a yield for each region in 1973. The weather variables used in this analysis include cumulative precipitation from September through March and monthly precipitation and average monthly temperatures from April through July.* For those regions in which no statistically significant relationship between time and grain yields can be determined, the model considers only the influence of the weather variables in forecasting yields for 1973. For six additional regions, forecast yields are derived from time trends alone because weather data are not available for these regions.

The forecast yields for all 33 regions are then multiplied by estimates of the 1973 harvest area to obtain the predicted harvest of 194 million gross tons of grain. Because the model does not account for all the variation in yields (e.g., weather in August-September as well as variations resulting from changes in fertilizer usage and sowing and harvesting techniques, etc.), there is still a good deal of uncertainty in the forecast of total production. On the basis of the standard error of the aggregate forecast, there is one chance out of three that the total grain crop will be either less than 187 or more than 200 million gross tons.

* Temperature and precipitation data for July 1973 were estimated as the average for July in the period 1961-72.

Major Grain Growing Regions in the USSR



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