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**USSR: A Third Consecutive
Crop Failure**

An Intelligence Memorandum

~~Secret~~

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USSR: A Third Consecutive Crop Failure

Summary

Grain production in the Soviet Union will probably amount to only 170 million tons this year. This, the Soviets' third consecutive poor grain harvest, will fall some 35 million tons below the 1976-80 average and 65 million tons below the 1981 target.

Since early June, a devastating drought has spread through key spring grainlands, causing Soviet crop prospects to plummet. Since mid-July alone, mounting evidence of the effects of the drought has twice persuaded us to reduce our estimate of likely 1981 grain production, from 190 down to 180 million tons, and now down to 170 million tons. Our assessment has been reinforced by preliminary crop-area statistics which suggest that this year's total harvested grain area may be the smallest in nearly a decade.

Except for cotton, all of the other major crops—sugar beets, sunflowers, vegetables, and potatoes—have also been hurt by the prolonged drought, although potatoes are still expected to rebound from last year's dismal output. Production of hay, haylage, and silage this past spring and early summer was generally good, but the subsequent heat wave will probably cause yields from the second cutting to drop sharply.

In an attempt to cover as much of the grain production shortfall as possible with foreign grain, the USSR might be able to import up to 45 million tons of grain during the current marketing year (July 1981–June 1982). Imports of at least 10 to 15 million tons will be needed from the United States, however, if Moscow is to secure that much grain.

Even with such imports, it appears that the leadership will be hard pressed to keep per capita consumption of meat and other high-quality foods at current levels. Distress slaughtering of livestock would temporarily ease the

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demand for grain and boost meat supplies, but only at the cost of increasing the need for imported Western grain in future years, since herds must ultimately be rebuilt. Moscow's growing reliance on imports of Western grain and other agricultural products may make it less inclined to risk confrontation with the West, although on matters like the Polish question, political and security considerations will ultimately prove decisive.

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USSR: A Third Consecutive Crop Failure

With more than half of the grain area now harvested, there is little doubt that the USSR is headed for another major crop failure. The heat wave that was originally centered in the Volga valley and western Siberia expanded steadily over the past six weeks. By early August nearly two-thirds of the total grain area had experienced moderate to severe drought conditions. Despite a near-average winter grain harvest, we have reduced our estimate of total grain production this year to 170 million tons—the worst crop since 1975 and the second worst in more than a decade. Even with ideal weather conditions from now through the end of the harvest, heavy spring grain losses cannot be averted.

Recent Weather

Weather during July and early August provided almost no relief from the drought that began in early June. An unusually stable high-pressure system blocked the flow of northerly air into the western grainlands, resulting in conditions hotter and drier than normal in the European USSR. Soil moisture has been severely depleted, and much of the region east of Belorussia and the central Ukraine is desiccated. Moreover, the last week of July was the hottest and driest period of the summer. A major *sukhovey* (hot, dry winds lasting for several days) blasted the southeastern portion of the European grain area. At the same time, temperatures from the Baltics to the Black Sea ranged from 35 to 40 degrees Celsius (95 to 105 degrees Fahrenheit). Hot, dry weather also prevailed east of the Ural Mountains, although parts of northern Kazakhstan and western Siberia received near-normal rainfall.

The dominant summer weather pattern responsible for the damaging conditions in July began to break up in early August. Although the center of the grain belt was still hot and dry in mid-August, temperatures moderated in most northern grain areas, and there were afternoon rainshowers in other parts of the grain belt.

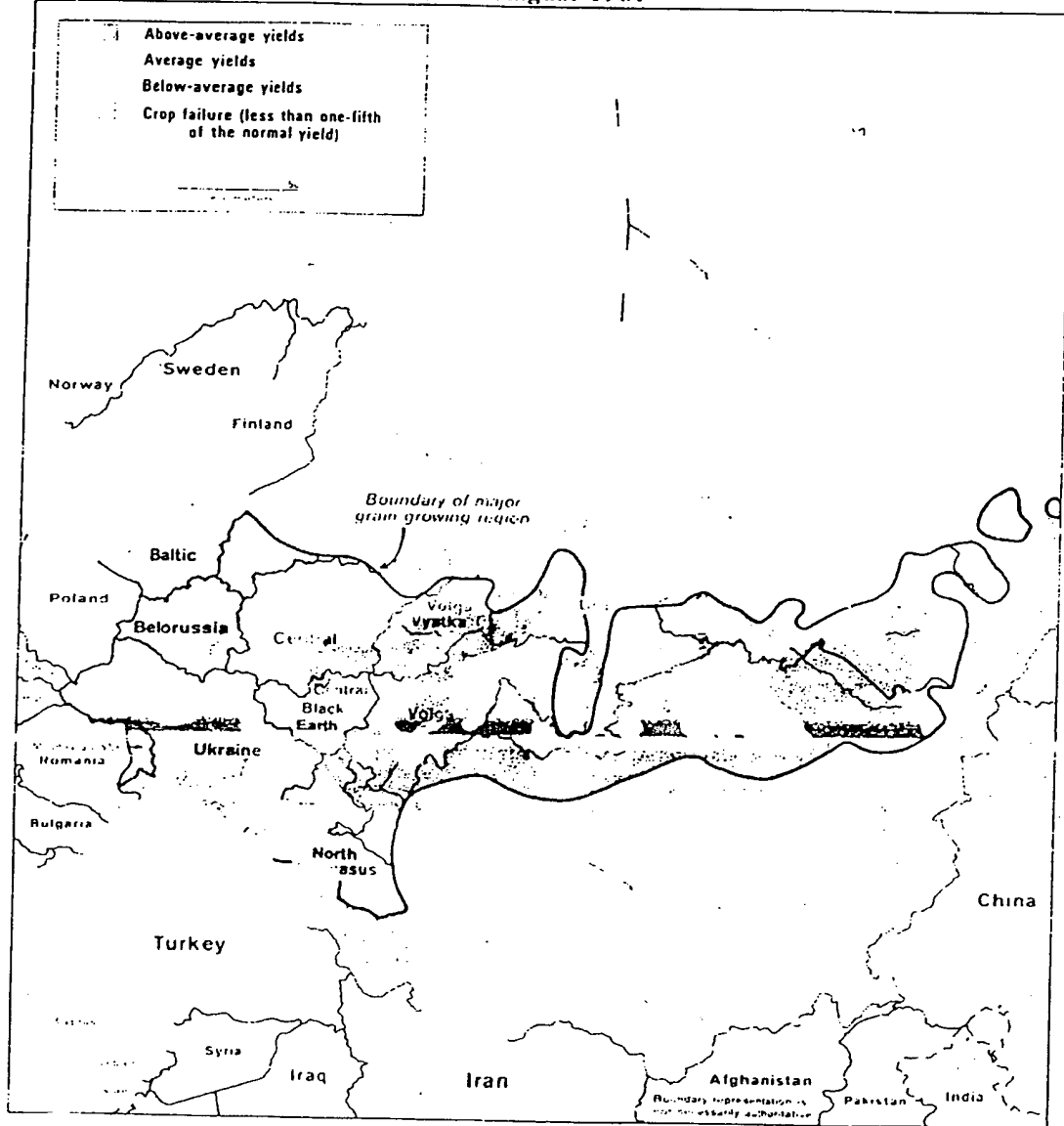
Damage to Grain

The drought did little damage to the winter grain crop, most of which was beyond the critical growth stage when the hot, dry weather started. Consequently, we expect winter grain production to be near the 64 million tons averaged in recent years.

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USSR: Estimated Grain Yields, Mid-August 1981



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Table 1

Million Hectares

USSR: Progress of Grain Harvest

	1976-80 Average		1981	
	Cut	Threshed	Cut	Threshed
13 July			12.2	6.1
20 July	17.1	11.0	22.7	14.3
27 July	24.2	16.6	35.0	28.7
3 August	34.6	26.5	46.6	42.1
10 August	46.5	37.0	57.2	53.0

In contrast, the drought has severely damaged spring grains. By mid-June, soil moisture levels had become critically low in several major spring grain areas—the lower Volga Valley, parts of the Don River Basin, and the borderlands of Kazakhstan and West Siberia. As a result, yields of spring-planted barley and wheat will be reduced to less than half of optimum.

From mid-June through July the drought spread even wider, causing considerably more crop damage. LANDSAT [] shows that the areas now affected include the eastern Ukraine and all of the central economic regions of the Russian Republic. The drydown has been equally extensive east of the Ural Mountains. [] that only parts of northern Kazakhstan and some contiguous cropland in West Siberia have adequate soil moisture. As a result, we do not expect spring grain production to exceed 106 million tons, about 35 million tons below the average of recent years and 56 million tons below the record 1976 crop.

In mid-July we forecast a 1981 grain harvest of 190 million tons. In early August we reduced our estimate to 180 million tons as the area affected by drought expanded. Our latest estimate that total production is likely to amount only to some 170 million tons is based on the following:

- Recent LANDSAT [] [] which reveals the full extent of the drought in both the European USSR and the "new lands" region. [] that yields in northern Kazakhstan, a major spring wheat producing area, have been cut to only average levels, reducing 1981 grain production from this area alone by some 6 million tons.

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Table 2 Million Tons

USSR: Grain Production

Type	1971-75 Average	1976-80 Average	1978	1979	1980	1981 Estimate
USSR total	181.6	205.1	232.4	179.2	189.2	170
Wheat	88.9	99.7	120.9	90.2	98.1	85
Coarse grains ^a	82.7	95.2	105.6	81.4	80.9	77
Other ^b	10.0	10.2	10.9	7.6	10.2	8
Major republic						
RSFSR	102.9	113.8	136.5	91.8	105.0	87
Ukraine	40.0	43.2	50.6	34.0	38.3	42
Kazakhstan	21.7	27.5	27.9	34.5	27.5	22

^a Mainly corn, barley, oats, millet, and rye.

^b Rice, pulses, buckwheat.

- Meteorological data indicating that an intense *sukhovey* struck during the last week of July. The areas most severely affected were in the southeastern Ukraine and the North Caucasus, which are the highest yielding parts of the corn belt.
- Ground and air observations ² Although Moscow has somewhat curtailed regional travel this year, valuable information has still been obtained concerning grain prospects in areas where the impact of the drought was less obvious from other sources.
- Preliminary crop-area data published at the end of July in the formal Soviet report on midyear plan fulfillment. These data suggest that in 1981 the harvested grain area may be as much as 5 million hectares (4 percent) below average.¹
- Harvesting results through mid-August that indicate the harvest is well ahead of the schedule of the last few years and close to that of 1975, another year in which drought severely cut yields. This summer's frequent high temperatures forced grain plants in many areas to race through their normal growth cycle; the result will be smaller grain heads, lighter kernels, and lower yields.

¹ The small harvested area results mainly from two developments: first, owing to shortages of quality seed, especially corn and barley, the total area sown to grain crops this year was smaller than usual; second, because of drought damage, more fields than usual were turned over to grazing cattle this year, instead of being allowed to mature and eventually being harvested.

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Even if conditions are excellent from now through the rest of the harvest, the crop will probably not exceed much more than 170 million tons. On the other hand, if spring grains that are now in advanced stages of ripening in the Urals, northern Kazakhstan, and western Siberia were exposed to another spell of extremely high temperatures, or if harvest problems should arise, production might even be 5 million tons or so lower.

Other Major Crops

The drought conditions of the past two months have also taken their toll on most other major crops. Except for cotton, output of all of these crops will be below planned levels. The output of sugar beets, sunflowers, and most hay and other forage crops is expected to be especially disappointing.

Sugar Beets

After averaging more than 95 million tons during the 1976-78 period, sugar beet production fell markedly in 1979 and 1980. This year's sugar beet harvest will not be much better, probably only some 80 million tons. More importantly, the sugar content of beet plants could well be lower this year; temperatures above 30 degrees Celsius severely retard sugar accumulation in the tap roots of the plant.

Sunflowers

We estimate production this year will be roughly 5 million tons—about 6 percent below the average of the past five years but nearly 25 percent below the 1981 target. Although early season crop development was reportedly good, a long-term disease problem plus a reduction in sown area will continue to depress output.

Potatoes

The outlook is still good. We estimate that production will reach roughly 85 million tons, a few million tons above the 1976-80 average but below the estimated 1981 goal. Output will be up sharply from the 67-million-ton level of last year, when farmers were forced to abandon harvesting operations because of severely waterlogged fields.

Vegetables

Production will likely be 26 to 27 million tons—slightly above the recent average but less than this year's 28-million-ton target. In the main drought area of the European USSR yields of some vegetables, particularly carrots and cucumbers, will be considerably lower. By contrast, in much of the Ukraine, Belorussia, and the Baltic Republics yields should be better than average.

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Table 3

Million Tons

USSR: Production of Major Nongrain Crops

	1971-75 Average	1976-80 Average	1978	1979	1980	1981 Estimate
Potatoes	89.8	82.5	86.1	91.0	66.9	85.0
Sugar beets	76.0	88.4	93.5	76.2	79.6	80.0
Sunflowers	6.0	5.3	5.3	5.4	4.7	5.0
Vegetables	23.0	26.0	27.9	27.2	25.9	26.0/27.0
Cotton	7.7	8.9	8.5	9.2	10.0	9.5

Forage Crops

The prolonged drought in the European USSR has severely affected the total production of hay, haylage, and silage. The first cutting of grasses was good. Starting in late June, however, prospects changed abruptly: the second cutting of forage crops will be sharply reduced. A continuation of the heat wave would preclude any late-season rebound.

Cotton

Cotton remains the agricultural bright spot. Despite heavy replanting in the late spring, we now expect the cotton harvest to exceed the 1981 goal of 9.2 million tons. Growing conditions this summer have been ideal, and yields—even in the late-planted areas—should be somewhat above average.

**Implications of
Agricultural Shortfall**

A grain crop of 170 million tons would fall far short of the Soviet Union's domestic grain requirements. Although there is considerable uncertainty concerning the total Soviet grain import capacity, we estimate that, in an attempt to cover as much of the production shortfall as possible with imports, the USSR could bring in a record 45 million tons during the current marketing year (July 1981–June 1982). Imports of at least 10 to 15 million tons will be needed from the United States, however, if Moscow is to secure that much grain.² Under the recent extension of the US-USSR Long-Term Grain Agreement, without prior consultation the Soviets can buy from the United States as much as 8 million tons of grain for delivery during the period 1 October 1981–30 September 1982.

² A month ago we suggested the Soviets would need only 5-10 million tons of US grain to reach a 45-million-ton import goal. Since then, we have been able to estimate more precisely the amount of non-US grain likely to be available to the Soviets. As a result, we have concluded they will probably need more US grain than we originally suggested.

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Even record imports of grain (as well as other agricultural products) will not fully compensate for the production shortfall. Thus, Moscow may be unable to avoid a reduction in herd inventories. Distress slaughtering would temporarily increase meat supplies but only at the expense of future production, for the herds would have to be rebuilt sooner or later. In the interim the USSR would be forced to continue importing very large quantities of foreign grain and other farm products—mostly from the West—in order to avoid a serious deterioration in the daily diet.

The increasing Soviet need for imported grain and other agricultural products may make Moscow less inclined to risk confrontation with the West. Although political and security considerations will weigh most heavily in any decision to intervene militarily in Poland, Soviet anxiety over continued access to Western grain after such an action can only have been heightened by the continuing bad news on the agricultural front.

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