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The 1983 Soviet Grain Crop: Assessing the Outlook

An Intelligence Assessment

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The 1983 Soviet Grain Crop: Assessing the Outlook

An Intelligence Assessment

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Office of Soviet Analysis

Comments and queries are welcome and may be
directed to the

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[redacted]

The 1983 Soviet Grain Crop: Assessing the Outlook

Key Judgments

Information available as of 17 May 1983 was used in this report

Moscow's 1983 grain harvest target of 238 million tons already appears well out of reach because of problems with the winter grain crop—which normally accounts for about one-third of total grain output. Even so, a crop of perhaps 220 million tons—55 million tons larger than last year's estimated output—is still possible if excellent weather persists through the end of the crop season in October.

The role of the United States as a source of grain for the USSR in marketing year 1984 is not yet clear. Because the USSR has diversified grain suppliers, we believe Moscow will have little trouble meeting the bulk of its import needs from non-US sources. A large grain surplus and weak demand in the world market are putting pressures on other exporters to sell more to the Soviets. Thus, Moscow could probably meet its import needs without recourse to the United States even if this year's harvest falls 10 percent below best case condition

The Soviets will be in a strong position to bargain for advantageous terms in its negotiations with the United States for a new Long-Term Grain Agreement (LTA). They recently accepted the United States offer to begin negotiations on a new accord to replace the one expiring on 30 September 1983. A new agreement would assure Moscow multiyear access to US grain should tight conditions return to the world market. Unless a new agreement is negotiated, Moscow will probably continue its policy of treating the United States as a residual supplier. Although prospects for US exports would be more promising if negotiations are successful, we believe there is little chance that the United States will regain its past dominance in the Soviet grain market any time soon.

[redacted]
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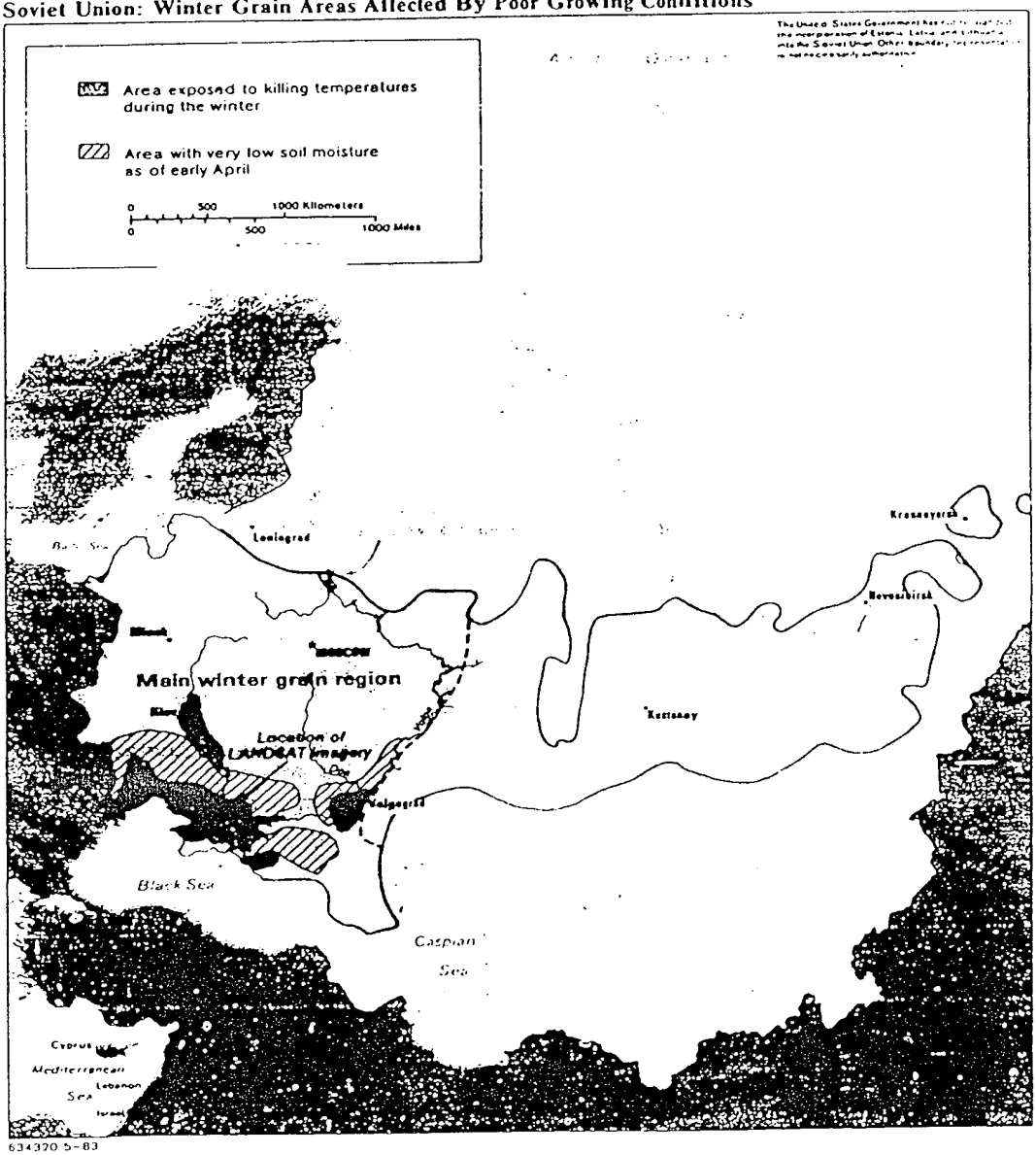
May 1983

Figure 1
Soviet Union: Winter Grain Areas Affected By Poor Growing Conditions



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The 1983 Soviet Grain Crop: Assessing the Outlook

Last year's poor grain harvest in the USSR—the fourth in a row—coupled with below-plan output of other crops, again thwarted Moscow's efforts to substantially improve food supplies and reduce dependence on Western grain—two longstanding goals reaffirmed by the new leadership. We estimate that the 1982 grain output totaled only 165 million tons,[1] slightly above the previous year's crop—unofficially reported at 158 million tons—but nearly one-third below target. Output of the principal nongrain crops—sugar beets, potatoes, vegetables, and sunflowers—increased compared with 1981, but production of these crops, except for vegetables, nevertheless was also well below plan.

Because of these disappointing results, no appreciable increase in per capita consumption of some of the more important quality foods was realized in 1982. Moreover, meat production stagnated at the 15-million-ton level for the third straight year. This stagnation combined with somewhat reduced meat imports and population growth of 0.8 percent caused per capita availability of meat to fall roughly 1 percent in 1982 from the 1981 level. Although some slight improvement occurred in the per capita availability of milk, fruit, potatoes, eggs, and vegetables, consumption of these foods remained at or below levels reached in the late 1970s and well below levels implied by 1982 output plans.

Failure of the agricultural sector to meet planned output levels during the first two years of the current five-year plan (1981-85) puts added significance on the 1983 grain crop. Whether the Soviets begin making headway on improving food supplies and reducing grain imports will depend almost entirely on the outcome of the harvest. Poor grain harvests during the past four years have forced the USSR to import nearly 150 million tons of grain at a cost of roughly $20 billion primarily to maintain the livestock herds.

[1] The 165-million-ton figure should be considered our best estimate of last year's Soviet grain harvest, but one that is subject to error. The maximum range of error in our grain crop estimate over the past four years has been ± 8 percent.

With record cattle and hog inventories this year, Moscow needs a good grain crop to stem the downward trend in animal productivity (slaughter weight and milk yields), one of the principal factors contributing to the poor current food situation.

General Secretary Andropov's endorsement of Brezhnev's Food Program—which calls for increased output of quality foods over this decade—underscores the new regime's deep concern about the country's agricultural situation. Even so, no new major agricultural policies have been announced thus far during his tenure. Indeed, in a recent speech, Andropov only reemphasized the need to fully implement the existing decisions of the May 1982 Central Committee Plenum on agriculture. Like Brezhnev, Andropov continues to rely on improving agricultural performance and importing farm products rather than increasing retail food prices to close the gap between domestic supply and consumer demand for quality food. However, some leadership waffling on the traditional commitment to stable food prices has occurred in recent months.

Crop Development to Date

Following a poor start, the outlook for the 1983 Soviet grain crop has brightened in recent weeks. Prospects for winter grains, sown mostly in the European USSR in the fall for harvest the following June and July, have been reduced by prolonged unfavorable weather conditions in several major producing regions. The spring grain crop—which normally accounts for about two-thirds of total grain production—is off to one of the best starts ever.

Winter Grain Crop. Based on our analysis of crop conditions in early May 1983, winter grain production is likely to be somewhat below the estimated annual output of 60 million tons averaged during 1978-82. We estimate that winter grains were sown on about 32.5 million hectares, about 10 percent below plan.

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Table 1
USSR: Winter Grains [a]

	1978	1979	1980	1981	1982	1983
Area						
Sown (*million hectares*)	36.9	33.0	36.9	34.0	35.5	32.5 [c]
Harvested (*million hectares*)	32.2	26.5	32.6	29.3	31.9	27.5 [c]
Winterkill [b] (*percent*)	13	20	12	14	10	15 [c]
Production (*million tons*)	85.9	49.6	63.1	55.0 [c]	55.0 [c]	60.0 [d]

[a] Winter wheat, rye, and barley.
[b] Percentage difference between sown and harvested area. Includes some acreage used for forage.
[c] Estimated.
[d] Upward limit

and one of the smallest areas sown in a decade. This shortfall was caused by near-drought conditions last fall in important winter wheat areas of the southern Ukraine, the North Caucasus, and the southern Volga Valley, areas that typically produce approximately 30 percent of the total winter grain crop. Continuation of the dry weather through the winter and early spring will reduce winter grain yields as well. Analysis [redacted] indicated that many winter grain crops in the southern European USSR either perished during the winter or emerged from dormancy in poor condition. Stands were thin, growth was uneven, and many fields were being resown with spring grains. Dry soil conditions were evident across much of the region, corroborating meteorological data. The poor prospects in the southern European USSR are partially offset by more favorable conditions farther north; uniform plant growth and good soil moisture were observed.

Spring Grains. Because of the unfavorable outlook for the winter grains, spring grains—sown in April and May and harvested in late summer and fall—will play a larger-than-usual role in determining the size of the 1983 grain crop. At this point in time, the spring grain outlook is quite good. Spring arrived two to three weeks early this year, enabling the annual spring sowing campaign to get off to one of its fastest starts ever. By the end of April, the amount of grain planted was nearly double that of a year ago and second only to the 1975 record. During the past two weeks the pace of sowing slowed considerably because planting was drawing to a close in the European USSR and as usual had not yet begun in the main spring wheat areas east of the Ural Mountains. Nevertheless, if Soviet farmers maintain a normal pace for the next few weeks, nationwide spring sowing targets should be easily fulfilled. More importantly, completion of planting ahead of schedule in the west has increased the likelihood that most plants there will flower before the summer's hottest weather. Unusually hot, dry weather at flowering—the time when maximum potential grain yields are determined—often causes plant sterility and reduced yields. Early planting also reduces plant vulnerability to frost damage in the fall.

Outlook for Grain Production

With little more than half of the spring grain crop planted, it will be months before a reliable forecast of 1983 Soviet grain production can be made. Potential grain yields can be affected at almost any time during the crop season:

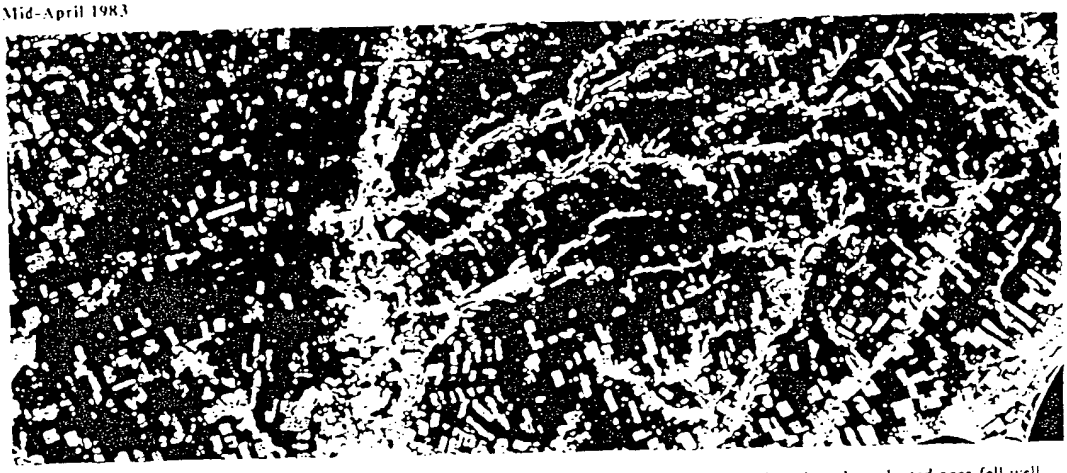
- In May during the completion of planting.
- In June and July, when winter and spring grains reach a crucial stage of development.
- In August and September as the grain crop is harvested.

Nevertheless, given current prospects for a winter grain harvest of somewhat less than 60 million tons, Moscow's 238-million-ton target is already well out of reach. In 1978, when a record 237 million tons of grain were harvested, winter grain output totaled 86 million tons, one-third more than any other year. A winter crop approaching that magnitude will be impossible to achieve in 1983 because of the small area sown and crop damage already sustained.

Even though total Soviet grain production in 1983 will fall short of plan, a bumper harvest, perhaps as high as 220 million tons, could result if spring grain output comes close to the 1976 record of 163 million tons. Although by no means assured, such a performance is possible given the crop's good start and the possibility

Figure 2
Eastern Ukraine: Winter Grainfields

Mid-April 1983



Unusually dry weather since last fall in the southern European USSR has sharply cut prospects for the 1983 winter wheat crop—which normally accounts for nearly four-fifths of Soviet winter grain output. The lack of red color on LANDSAT imagery acquired this spring in the eastern Ukraine corroborates Soviet press reports and meteorological data that planted area fell well short of plan and that crop development has been poor. By comparison, in the scene below from 1978 the number of winter grainfields is approximately one-third greater and the more uniform red tone of fields is indicative of a well-developed crop

Late April 1978

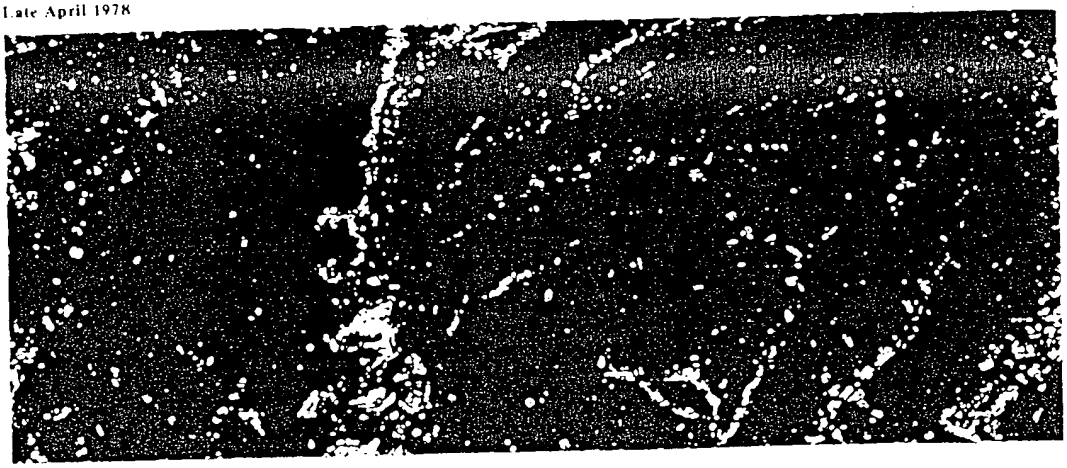
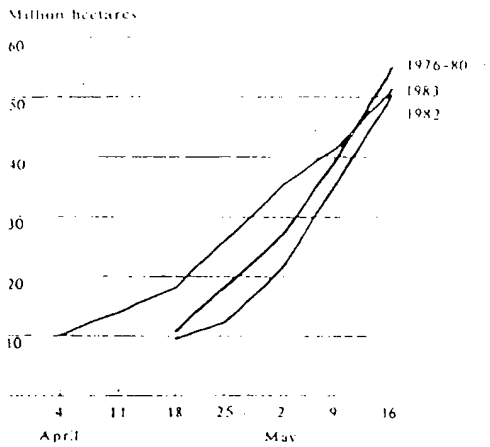


Figure 3
USSR: Pace of Spring Grain Sowing



that growing conditions will remain good through the summer. Should the weather deteriorate markedly, however, especially in the key spring grain areas of the Volga Valley, the Urals, and Kazakhstan, the USSR would suffer an unprecedented fifth consecutive poor harvest. The key change would be a shift to hot, dry weather during flowering.

Even if the crop comes in at 220 million tons, the USSR would still be 5-10 million tons short of the amount of grain we believe necessary to meet domestic consumption requirements, that is, to maintain current levels of seed, food, and industrial use, as well as to secure the grain needed to meet planned output targets for meat, milk, and eggs.[1] This estimate assumes that the mix of feed does not change. To the extent that the share of grain in livestock rations declines—a shift noted late in 1982 as record quantities of forage crops such as haylage and silage were harvested—this shortfall could be reduced, perhaps by as much as 5 million tons. Because Moscow has already lined up imports of about 10 million tons of grain for the upcoming marketing year (MY) which begins on 1 July, a 220-million-ton crop would, at a minimum, fully meet domestic needs and may well allow the Soviets to start rebuilding grain reserves depleted by poor harvests over the last four years. Any additional grain imports Moscow lines up, including purchases from the United States, would either go into stocks or be used to bolster the livestock sector, again assuming that domestic production is 220 million tons

Grain Imports Uncertain

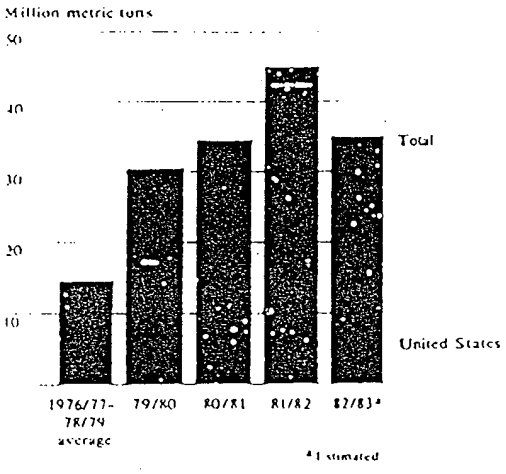
Soviet grain imports during MY 1984 (1 July 1983–June 1984) will depend primarily on the outcome of the 1983 grain harvest and whether or not Moscow chooses to rebuild grain stocks. If grain production does not recover this year and the Soviets find it necessary to continue to import large amounts of foreign grain in MY 1984, they will be faced with fewer economic and logistic import constraints than in the past:

- Moscow's recent acquisition of at least 12 additional pneumatic grain unloading towers will boost available grain discharge capacity at Soviet ports to 6.2 million tons per month—1 million tons higher than the record 5.3 million tons imported in May 1982. Seasonal shortages of grain railcars, which have prevented full use of port equipment during the months June-November for many years, will still exist, however.

- Soviet trade performance in 1982 allowed Moscow to improve its hard currency position. This improvement was due primarily to sharply increased revenues from oil sales, although a reduction in expenditures on grain imports also contributed. Should the USSR wish to continue using short-term credits to facilitate its grain purchases, funds should be available through Western financial institutions. Moscow may need to rely more heavily on these credits in MY 1984 if continued weak energy prices in 1983 put pressure on hard currency earnings.

[1] Because the USSR measures grain production from the field before cleaning and drying, our bunker weight estimate of output must be reduced by an average of 11 percent to be comparable to the standard weight measure used for seed, food, imports, and other uses. The discount varies according to moisture conditions prior to and during harvest and to crop size, and thus can become either larger or smaller than the 11-percent average as the season advances. Our preliminary estimates indicate a standard weight grain crop of roughly 200 million tons (given a bunker weight crop of 220 million tons) and consumption needs of 205-210 million tons.

Figure 4
USSR: Grain Imports



The Soviets will continue to benefit from a buyer's market in world grain in MY 1984. Although it is too early to predict grain output in the major exporting countries, large carryover stocks are expected to keep supplies abundant and prices weak. So far, only the United States has officially announced plans to limit production through its payment-in-kind (PIK) and acreage reduction program[1]

Production decreases in the United States and possibly Canada, coupled with an expectation of somewhat higher grain prices in MY 1984, however, may stimulate increased plantings by other US competitors

[1] For a detailed discussion, see forthcoming DDI Intelligence Assessment, *World Grain Markets in the 1980s: The Impact of Government Policies*

Moscow should be able to satisfy most of its import needs by purchasing from non-US sources. The Soviets are assured of about 10 million tons of grain through long-term accords with Argentina, Canada, and Eastern Europe. Some 3 million tons may also be available through a protocol agreement signed with France. Multiyear grain agreements facilitate the task of Soviet economic planners by assuring Moscow of a steady supply of grain in the future. In addition to these guaranteed sales, Moscow could expect to buy roughly another 10 million tons from these sources before turning to the United States or buying grain piecemeal from small exporters. Indeed, total Soviet grain purchases from US competitors during the last two marketing years averaged about 28 million tons per year and could probably equal that amount in MY 1984 unless Canada or Argentina suffer major crop shortfalls

LTA Implications

The amount of grain to be sold to the USSR by the United States remains a major unknown. Moscow probably will continue its policy of treating the United States as a residual supplier in MY 1984 unless a new US-USSR Long-Term Grain Agreement is signed before the current accord expires on 30 September 1983. The USSR recently accepted the US offer made last month to negotiate a new accord. The Soviets have repeatedly expressed their desire to widen the current 6- to 8-million-ton purchase range in a new agreement. According to [redacted]

Soviet trade officials would also be amenable to raising the minimum purchase commitment above the current 6-million-ton level. How far the Soviets are willing to go remains uncertain, but Soviet trade officials have indicated that Moscow would be willing to negotiate a new minimum purchase commitment as high as 10 million tons. Because of Moscow's decision to diversify grain suppliers following the 1980 US embargo of grain sales to the USSR, we believe there is little chance that the United States will regain its past dominance in the Soviet grain market, even if a new agreement is negotiated

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Appendix A

A Look Back at the 1982 Crop Year

The Soviet Union suffered its fourth consecutive grain shortfall in 1982. Although the crop season opened on an optimistic note, the outlook turned sharply downward in late spring. Unusually cool, wet weather at that time curtailed sowing operations in the central and northern regions of the European USSR. Later, prolonged drought during June and July encompassed much of the spring grain area east of the Volga Valley, thereby sharply reducing potential yields.

In 1982 for the second year in a row, Moscow remained silent on the size of its grain crop. At the November 1982 party plenum—a forum occasionally used to release such information—General Secretary Andropov stated only that the 1982 harvest was perceptibly larger than the one in 1981, but gave no figure for either year. The 1982 grain number was also omitted from the annual plan fulfillment figures. Our best estimates of 1981 and 1982 Soviet grain production continue to be 158 and 165 million tons, respectively

Adverse weather in 1982 impacted less on other crops. With the exception of cotton, still at a near-record level, output of the major nongrain crops—sugar beets, potatoes, vegetables, and sunflowers—increased over 1981. Even so, production for all of these crops, except for vegetables and cotton, was well below plan and the production of sugar beets and potatoes was below the 1976-80 average.

Despite the poor grain crop, Soviet grain imports during the marketing year that ends on 30 June (MY 1983) probably will total some 35 million tons, considerably below the previous year's record of 45 million tons. This cutback will impact most heavily on US grain exports to the Soviet Union. It now looks as though total Soviet purchases of US grain will be little more than the 6 million tons of grain stipulated under the US-USSR LTA—far short of the 15.4 million tons purchased during MY 1982.

Table 2
USSR: Major Crop Production

Million tons

	1976-80 Average	1979	1980	1981	1982
Grain	205.1	179.2	189.1	158.0 •	165.0 •
Sugar beets	88.7	76.2	81.0	60.6	71.0
Sunflowers	5.3	5.4	4.6	4.6	5.3
Potatoes	82.6	91.0	67.0	72.0	78.0
Vegetables	26.3	27.2	27.3	25.6	29.0
Cotton	8.9	9.2	10.0	9.6	9.3

• Estimate.

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Appendix B

Forecasting Soviet Grain Production: The CIA Approach

The CIA monitors Soviet agriculture year round. In what has become known as the [ ] approach, data from three types of sources—weather stations, collateral [ ] are used to forecast annual grain production in the USSR.

Daily weather reports from some 1,100 to 1,400 weather stations in the USSR are used in an agronomically based crop-growth simulation model to produce grain yield estimates. At the beginning of each crop season, it is assumed that ideal growing conditions will produce the maximum potential yield. As conditions deteriorate, this maximum yield is reduced in each affected area. The model not only screens the data for extreme moisture and temperature values but also evaluates overall environmental conditions for their effect on final grain yields. Model yield estimates are evaluated and adjusted by a multidisciplinary team—including agronomists, remote sensing specialists, meteorologists, agricultural economists, and geographers—using collateral information [ ]

Collateral information includes, among other things, historical crop data published by the USSR, articles on current crop conditions and weather reports published in the Soviet press, and agricultural situation reports [ ]