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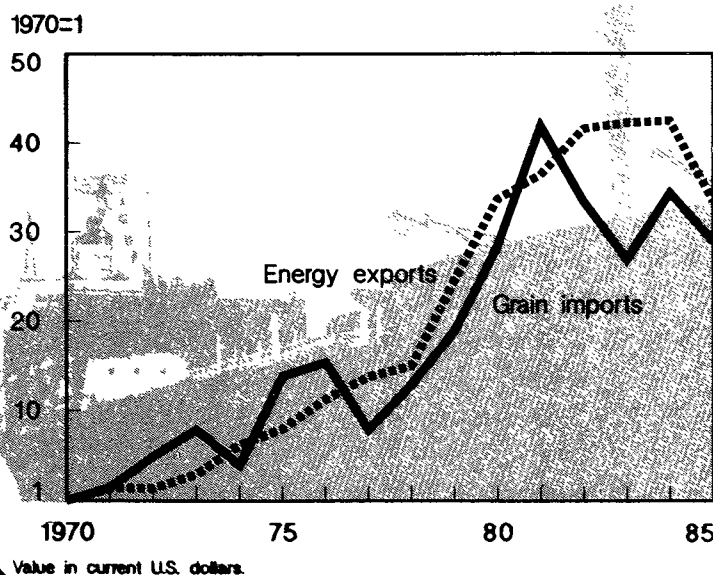
Situation and Outlook Report

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Soviet Grain and Energy Trade Index



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Situation Coordinator

Kathryn Zeimetz (202) 786-1710

Principal Contributors

Thomas Bickerton
Carolyn Duff
Yuri Markish

Edward Cook
Robert Koopman
Dennis Miller

Emily Moore

International Economics Division, Economic Research Service
U.S. Department of Agriculture, Washington, D.C. 20005

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SUMMARY

Insufficient information on the extent of contamination in the USSR resulting from the Chernobyl accident limits the ability to forecast effects on Soviet agriculture and trade. Thus, the supply, use, and trade forecasts in this annual report on Soviet agriculture have not been adjusted to reflect any possible effects of the accident.

Despite renewed Soviet purchases of U.S. soybeans, the value of U.S. agricultural exports to the USSR may decline again in 1986 due to a continued drop in grain and cotton exports. In 1985, sales of U.S. farm goods to the Soviet Union fell almost \$1 billion to \$1.9 billion, as a sharp drop in wheat exports more than offset increased corn exports.

The Soviet Union failed to meet minimum 1984/85 purchase requirements under the U.S.-USSR Long Term Grain Agreement. The Soviets bought 15.9 million tons of corn during the 1984/85 agreement year (October/September), but only 2.9 million tons of wheat, missing the 4-million-ton minimum. U.S. wheat sales during the 1985/86 agreement year are running at the slowest pace since the first agreement became effective in 1976. As of May 15, purchases totaled only 153,000 tons, less than 4 percent of the agreed-upon minimum. In contrast, the 4-million-ton corn requirement has been more than met, with purchases exceeding 6.3 million tons as of May 15.

The value of Soviet agricultural imports from all sources fell more than \$1 billion in calendar 1985 to an estimated \$17.6 billion. The decline parallels the estimated \$1-billion drop in USSR grain imports. Grain import value fell primarily because of the drop in world grain prices. Import volume probably rose slightly, displacing 1984 as the calendar year with the second largest grain imports. The large volume of grain imports in both 1984 and 1985 reflects the record 55.5 million tons of grain imported during the 1984/85 marketing year.

The Soviets were able to cut back on grain expenditures at a fortuitous time. Grain imports are largely financed by hard currency, but Soviet hard currency earnings were down in 1985, due to reduced petroleum earnings. Other major import items, such as sugar,

meat, fruits, and vegetables, primarily do not involve hard currency arrangements.

Soviet outlays for agricultural imports may decline further in 1986, again primarily because of decreased hard currency expenditures for grain. Grain import volume in calendar 1986 could be down as much as 25 percent because of larger grain and forage crops last year and decent early season prospects for this year, as well as the desire to save hard currency. The value of imports likely will fall more than volume because of anticipated decreases in world grain prices.

The most recent Soviet reports indicate that gross agricultural output in 1985 was the same as in the preceding 2 years. Increased output of grain, oilseed, cotton, and livestock products was offset by declines in potato, sugarbeet, fruit, and vegetable production, and a drawdown of animal inventories. The value of gross agricultural output stagnated in 1985 partly because the low 1984 grain harvest and the severe 1984/85 winter created a poor feed situation early in the year.

Entering the summer of 1986, the Soviets face somewhat better agricultural prospects than a year earlier. The livestock sector went into the 1985/86 winter with larger feed supplies, and though livestock inventories were down somewhat on January 1, the quality of herds was probably improved by culling. The mild and short 1985/86 winter was in sharp contrast with the previous winter, further helping the livestock sector. The outlook for crops is not quite as good. Plantings of winter grains were down in the fall of 1985 and winterkill was probably higher than in the 1984/85 winter. However, soil moisture recharge over the winter was the best in several years and the arrival of springlike weather was earlier than in 1985. As of May 9, the 1986 Soviet grain crop was forecast at 190 million metric tons.

Organizational changes in the agro-industrial complex and continued emphasis on worker and manager accountability may also contribute marginally to improved quality and more efficient use of resources by Soviet agriculture. In late 1985, the Soviets combined agriculture and food processing under a super ministry to promote

cooperation between the two sectors. The super ministry, however, was not extended to include the agricultural input industries, which remain in the high-priority industrial sectors. The 27th Party Congress held in February 1986

and a major decree in March gave no indication that the Soviet Union may be moving away from its dependence on central planning to control the economy, including the agricultural sector.

AGRICULTURE A POOR PERFORMER

Soviet economic performance improved in 1985 (in national income terms) despite poor performance in the agricultural, transportation, and construction sectors. Agricultural output stagnated for the second year in a row, while transportation and construction grew only 1.6 and 0.2 percent. Industrial output (3.9 percent), services (6.5 percent), retail trade (4.2 percent), and communications (5.0 percent) continued to account for most of the growth in the economy. Soviet economic growth in 1986 will likely be somewhat higher than in 1985, due to the milder 1985/86 winter and the short-term stimulus to the economy provided by personnel changes implemented during the past year.

Industrial performance in 1985 was led by the machine building and metalworking industry, which is playing a key role in Soviet plans to rebuild and re-equip existing enterprises rather than build new ones. The industry posted a 7-percent increase, and output of agro-industrial related machinery rose even more. Other strong performers were the chemical and petrochemical industry and the power industry.

Poor performances were turned in by ferrous and nonferrous metallurgy, fuel (except for gas, up 9 percent), construction materials, and light industry. The fuel industry's poor performance (mainly oil output, down 3 percent), combined with the decline in world oil prices, could impose a hard currency squeeze, slowing the rapid import growth of recent years. Construction materials' poor growth is not a recent phenomenon and is largely responsible for the rebuilding and re-equipment campaign. Light industry's anemic growth does not bode well for the recently announced consumer goods campaign to supply more and better goods to the Soviet people. Labor productivity in industry and transportation increased, but at a slower pace than in 1984. Capital productivity

in industry likely declined faster in 1985 than in 1984, but still less than the 1981-85 average of 3 percent.

Consumer Demand Outpaces Consumption

Real per capita income increased 2.5 percent in 1985. Average wages of workers in the state economy increased 2.8 percent, collective farm workers' incomes rose 3.6 percent, and savings deposits increased by 9.3 percent. The continued rapid growth in savings suggests that wage and income increases continue to outstrip consumer goods availability, further lessening the incentive effect of wage increases. Retail trade in food products, particularly livestock products, reportedly grew at a slower rate in 1985. Nonfood retail trade growth was generally higher than in 1984. Retail commodity sales remain split between food and nonfood items at 50.3 and 49.7 percent. On a per capita basis, retail commodity sales have grown faster than real income during the past 15 years, but both have risen at significantly slower rates during the 1980's. Prospects do not appear any brighter in 1986 than in recent years as growth rates in the light and consumer goods industries are likely to continue to lag behind those of the rest of the economy.

During 1980-84, average prices in the state retail network reportedly increased 3.9 percent, with food prices up 6.8 percent and nonfood prices up 2 percent. The food price rise is somewhat misleading though, as prices of basic foods remained unchanged, but alcohol prices increased dramatically, 19 percent during 1980-83 alone. The fact that the food price index rose 6.8 percent while food prices hardly changed and only alcohol prices increased significantly indicates how much alcohol is sold at the retail level. Gorbachev's anti-alcohol campaign decreased the volume of alcohol sales, but not necessarily their value, in 1985.

There are problems with the index as an indicator of food price movements. The index

only covers prices in the state retail network, neglecting price changes in the cooperative network and collective markets, which historically account for 30 percent of total retail food sales, and where prices move more freely than state prices. Further, food price increases in the state retail network are reportedly often disguised by reclassifying goods as higher quality or new; hence, the price index will not reflect the higher prices of these "new" goods.

During the recent 27th Party Congress, some discussion took place as to the need for prices to more correctly reflect supply and demand conditions. No specific proposals were put forward suggesting retail food price increases; however, bread prices were singled out as one example where current retail prices were too low, encouraging waste and uneconomical use. State retail prices for basic foods are not likely to be increased in the near future, so excess demand for food products will continue. However, recent policy changes could result in more foodstuffs being sold outside the state retail network, at higher prices, essentially raising the effective price of food to consumers. Prices for nonfood, nonessential items could be raised with fewer political repercussions than food prices, bringing supply and demand more into line for these products, while soaking up some of the excess purchasing power now in the hands of Soviet consumers.

Economic Experiment Expanded

The economic experiment begun in 1984 was expanded to include 26 more republic level ministries in 1985. The experiment now encompasses approximately one-fourth of all industrial production. The experiment reduces the number of central directives by about 50 percent, to six. The remaining directives, which depend on the industry branch, include output (as determined by contracts at the beginning of the year), labor productivity, quality of goods, production cost reductions, technical change parameters, and centrally financed investments. The ratio between wage growth and labor productivity growth is also centrally determined. Clearly, enterprises operating under the experiment are not free to maximize profits and remain substantially under the control of central planners. The ministries operating under the experiment all

reported improved fulfillment of plan targets, but those critical of the experiment claim this is because experiment enterprises are ensured the necessary inputs, while enterprises not covered under the experiment continue to suffer input shortages. In 1986, the experiment is to be extended to cover 50 percent of all industrial output. The expansion will likely be claimed a success, but the net effect on output will be marginal at most.

The Chernobyl Accident and Soviet Agriculture

The Soviets experienced an accident at the Chernobyl Nuclear Power Plant on April 26, 1986. Assessment of the effects of the accident on Soviet agriculture is difficult because of the lack of key information on the nature and extent of possible radiation contamination and the actions the Soviets have taken to deal with possible contamination. The forecasts in this report have not been modified because of the gaps in information critical to such assessment. The following briefly characterizes Soviet agriculture in several areas that were potentially exposed to wind- and waterborne contamination and summarizes the information released by the Soviets that is relevant to agriculture.

The plant lies at the extreme northern border of the Ukraine, near Belorussia and about 60 miles north of Kiev. Weather conditions when the accident occurred suggest areas immediately around the site were exposed to surface contamination, although subsequently a larger area was potentially exposed to wind- and waterborne contamination. From April 26 until April 30, surface winds primarily blew towards the northwest over Belorussia and the Baltics. After briefly shifting to the east on April 30, the wind blew generally towards the southwest and south for the next several days towards the bulk of the Ukraine.

At first, Soviet information focused on a 30-kilometer zone around the plant. There were reports that people were evacuated from the zone and conflicting releases about whether livestock were slaughtered or evacuated. A report 3 weeks after the accident stated that no agricultural work was being done within 60 kilometers of the plant while the soil was being decontaminated.

Outside these zones agricultural operations were proceeding normally, according to reports. The Soviet media have issued little information concerning quarantine procedures for agricultural products.

Oblast level data provide some perspective about agriculture in the general area of Chernobyl. Most of the area of four oblasts, Gomel, Kiev, Chernigov, and Zhitomir, lies within 200 kilometers of the plant site. The four oblasts account for about 4 percent of total Soviet agricultural output, 3 percent of grain output, 4–5 percent of meat and milk production, and about 10 percent of sugarbeet production. Gomel is one of the six Belorussian oblasts. Belorussia normally produces about 3–4 percent of Soviet grain, 15 percent of potatoes, and 6 percent of meat and milk. The Ukraine's 25 oblasts, of which Kiev, Chernigov, and Zhitomir are three, normally produce 20–25 percent of Soviet grain, meat, milk, and potatoes, 60 percent of sugarbeets, and 45 percent of sunflowerseeds.

Agro-industrial Sector Reorganized

In late 1985, the Soviets undertook a major reorganization of the agro-industrial sector that centralized the sector by eliminating the Ministry of Agriculture, four agriculture-related ministries, and one state committee to form the State Agro-industrial Committee (Gosagroprom). Gosagroprom's goal is to force improved coordination and cooperation on member ministries, something the Food Programs' agro-industrial associations could not do. The goal may be partially attained because all members of Gosagroprom report to one chief, whose sole responsibility is to improve the entire sector's performance. Thus, petty tutelage and self-interest among agro-industrial participants should be reduced and more energies focused on improving the sector's performance (see special article).

Agro-industrial Sector Performance Mixed

Agricultural output in 1985 stagnated at 135 billion rubles in 1973 prices (208 billion rubles in 1983 prices) for the second consecutive year as the crop and livestock sectors showed no net improvement. Agricultural output for 1986 is targeted to grow nearly 6 percent. However, growth of 2–4 percent is more realistic given a relatively

mild winter and average weather throughout the rest of the year. Other factors that should help agricultural growth in the short run are the organizational changes in agro-industrial management and increased emphasis on improved discipline and productivity in the labor force. While agriculture will continue to receive large quantities of inputs, Soviet planners see decreased losses during harvest, transport, storage, and processing as the quickest and cheapest way to expand food supplies.

Despite the output stagnation, farm profits increased 7 percent, to 21 billion rubles in 1985. With overall output unchanged and procurement prices relatively stable (only the price of hard wheat changed significantly), the increase in profits came either from lower production costs or from changes in the composition of overall output in favor of more profitable commodities. Historical trends suggest that production costs rose by at least 3 percent overall, implying that improved grain, cotton, and sunflowerseed harvests were highly profitable for Soviet farms.¹

Sown Area Falls as Fallow Increases

Crops were sown on 210.3 million hectares in 1985, down 1.1 percent from a year earlier, and the lowest since 1973. Fallow area continued to increase, reaching 21.3 million hectares. The expanded fallow area reflects Soviet planners' desire to reverse the trend of declining soil fertility. Past policies encouraged maximum short term crop production, allowing improper cultivation techniques. The use of poorly designed, excessively heavy machinery and low-quality agrochemicals resulted in severe erosion, disease and insect infestations, and soil compaction problems on a significant portion of cropland. To effectively implement the current fallow policy, Soviet authorities found it necessary to decrease plan targets for those farms with severe soil problems, allowing them to decrease sown area. Thus far the effort to increase fallow area has been successful, but Soviet press reports suggest that much of the fallow land is neglected and in poor shape, decreasing the effectiveness of the fallow program. The Soviets have reached their goal of 20–22 million hectares and will likely concentrate on improving the condition of existing fallow land.

An additional 1.4 million hectares of reclaimed land was commissioned during 1985. Total reclaimed area used for agricultural purposes, at 33 million hectares, is reported to have changed little over the past few years, according to the journal *Ekonomika sel'skogo khozyaistva*.² However, according to *Narodnoye khozyaistvo SSSR* (Narkhoz), the figure has increased to more than 35 million hectares. The data in the Narkhoz indicate that 66 percent of annual reclaimed land commissionings are added to the stock of reclaimed agricultural land. Of the remaining 34 percent, 9 percent goes to nonagricultural use and 25 percent represents previously reclaimed land that has fallen into disrepair. The journal figures imply a much higher rate of previously reclaimed land falling into disrepair, nearly equal to annual additions. Soviet policymakers recently announced that priority will be given to reconstruction and restoration of previously reclaimed land now in disrepair. Still, new commissionings are planned at 1.3 million hectares for 1986, only 7 percent less than in 1985.

The Soviets complain that yields on only one-third of irrigated lands reach projected levels. They have also admitted that comparisons of returns between irrigated and nonirrigated land have been inflated to the former's advantage because higher-value crops are sown on irrigated land.³ All mention of the massive river diversion schemes was dropped from the final version of the Basic Guidelines for Economic, Social Development adopted at the 27th Party Congress in March 1985. The fact that such an important document fails to discuss these projects suggests that they are no longer being actively considered. Still, the Soviets continue to spend large sums on reclaimed land. Investment to finance the reconstruction and continued addition of newly reclaimed area is planned to increase 36 percent during 1986, to 12.2 billion rubles.

The Soviets continue to modernize their agricultural sector to increase output, and also to increase productivity. In the early 1980's, a program called industrial crop technology (ICT) emphasized the modernization of cultivation of technical crops such as cotton, oilseeds, and sugarbeets. In 1983, a similar program tagged intensive technology was initiated for grains. In 1986, intensive

technology is to be used on over 25 percent of the grain area. The success of these programs is determined by the availability of manufactured inputs and the ability of farmers to understand and follow the new and frequently more demanding agronomic practices.

Energy Use in Agriculture Climbs

Energy consumption in Soviet agriculture continues to rise rapidly. Consumption of electric power rose 9 percent in 1984, with similar growth expected in 1985. Soviet fuel consumption per million rubles of agricultural output rose 2.1 percent annually during 1976-80, increasing to 3.2 percent during 1981-84.⁴ Gasoline and diesel fuel deliveries to agriculture were planned at 60.5 million tons in 1985, roughly 10 percent of total Soviet oil production.⁵ (Fuel use in agriculture may be overstated, as some of the fuel allocated to agricultural use is likely traded on the black market and not used for agricultural purposes.) The Soviets are trying to encourage fuel conservation on farms through improved coordination of field operations and a shift from gasoline to diesel equipment. A major impediment to increased fuel efficiency is the fact that farm machinery is not designed to be fuel-efficient and the benefits of conservation to farms are not obvious in terms of increased profits. Complicating any conservation effort is the fact that farm managers have little say in the fuel efficiency of the equipment they purchase. The machine building industry, a separate entity from the agricultural sector, produces agricultural equipment and has little incentive to increase the fuel efficiency of its output. Central planners recently had to order the industry to improve the fuel efficiency of tractors and combines by 10-12 percent over the next 5 years.

Agrochemical and Machinery Output Up

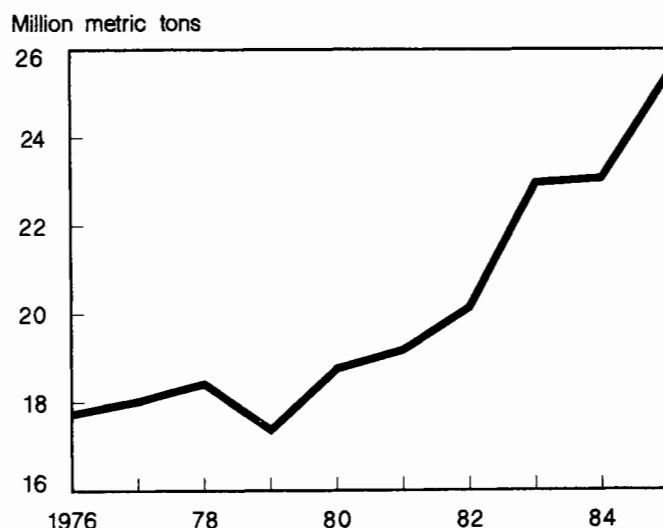
The industries providing agricultural inputs generally performed well above plan in 1985 and may post even greater gains in 1986. Production of mineral fertilizers rose 8 percent, and, more importantly, a larger proportion of the increased production was allocated for domestic use rather than for export (table 1). Grains and forage crops received priority for the increased deliveries. Deliveries of mineral fertilizers increased 26

Table 1--Production and deliveries of mineral fertilizers to agriculture, USSR

Year	Total	Nitrogen	Phosphate	Ground phosphate rock	Potash	Trace elements
1,000 metric tons 1/						
Production						
1966-70 average	10,379	4,210	2,030	955	3,177	7
1971-75 average	17,877	7,248	3,451	1,032	6,138	8
1976-80 average	23,328	9,283	5,300	828	7,910	7
1981	25,998	10,705	6,059	777	8,449	8
1982	26,738	11,593	6,283	774	8,079	9
1983	29,733	13,014	6,644	773	9,294	8
1984	30,808	13,328	6,929	776	9,776	9
1985	33,200	2/ 14,490	2/ 7,390	2/ 780	2/ 10,530	2/ 10
Deliveries						
1966-70 average	8,452	3,520	1,847	857	2,221	7
1971-75 average	13,802	6,209	2,978	904	3,703	8
1976-80 average	18,063	7,632	4,460	827	5,137	7
1981	19,176	8,383	5,098	781	4,905	9
1982	20,152	9,038	5,344	771	4,991	8
1983	22,977	10,302	5,691	774	6,201	9
1984	23,080	10,279	5,858	767	6,167	9
1985	25,400	2/ 11,430	2/ 6,460	2/ 780	2/ 6,720	2/ 10

1/ Nutrient weight basis. Nitrogen--20.5 percent N, phosphates--18.7 percent P₂O₅, ground phosphate rock--19 percent P₂O₅, potash--41.6 percent K₂O. 2/ Estimate.

Figure 1
Fertilizer Deliveries to USSR Agriculture



percent between 1982 and 1985 (figure 1). Over the same period, the application rate of mineral fertilizer on small grains increased 33 percent and the area of small grains receiving mineral fertilizers increased 20 percent (table 2). Continued increases in production and deliveries are anticipated throughout 1986. January-March output of mineral fertilizers was up 11 percent over the first 4 months of

Table 2--Application of mineral fertilizer to selected crops, USSR 1/

Year	Grain excluding corn	Corn for grain	Cotton	Sugar-beets	Potatoes
Rate Kilograms per hectare					
1974	40	124	367	299	229
1975	42	155	391	399	280
1976	47	145	393	459	254
1977	48	135	395	469	274
1978	51	180	433	483	287
1979	49	192	410	451	274
1980	51	215	417	438	274
1981	51	211	417	425	278
1982	54	182	384	445	284
1983	NA	NA	NA	NA	NA
1984	65	232	372	482	305
1985	72	200	376	455	293
Share fertilized Percent					
1974	48	94	98	98	91
1975	48	94	99	99	93
1976	50	92	99	99	94
1977	52	89	99	99	94
1978	54	94	99	99	94
1979	53	94	97	99	93
1980	57	95	94	99	93
1981	58	94	100	99	93
1982	59	93	100	99	93
1983	NA	NA	NA	NA	NA
1984	68	96	99	99	95
1985	71	94	98	99	95

1/ Nutrient weight basis.

Source: *Vestnik statistiki*, various issues.

1985. Although fertilizer availability is increasing, the inadequate quality of many formulations and coordination of fertilizer applications with other cultivation practices compromise the effectiveness of fertilizers in the USSR.

Pesticide production was up only 3 percent in 1985 despite a critical need for pest control. Furthermore, pesticide production in the first 4 months of 1986 was down 3 percent. A recent article in a journal on grains provides a perspective on the effectiveness of Soviet weed control efforts. Of 143 million hectares of recently inspected cropland, about 99 percent showed weed infestation, and 64 percent evidenced heavy infestation.⁶ The high level of weed infestation means that critical fertilizer supplies are feeding a sizable weed population.

The volume of manufactured inputs to agriculture continues to increase, but their productivity remains below potential because of the low technological level, poor quality, and lack of necessary variety (table 3). The Minister of Machinebuilding for Animal Husbandry and Fodder Production was dismissed despite a 10-percent increase in production in 1985, reportedly for relying on the production of older, less productive, but easier-to-produce models. These problems largely reflect a lack of coordination and accountability between input manufacturers, service organizations, and farms. Since the early 1980's, a number of programs have been introduced to improve this coordination and accountability. The latest reorganization of the agro-industrial complex in late 1985 is partly a result of the failure of the earlier

measures to bring about the desired improvement. Although the agrochemical and repair service organizations are included in Gosagroprom, the ministries responsible for the production of agricultural inputs remain under separate authority. Gosagroprom may influence the input industries to respond more to agriculture's needs, but significant improvement is not likely in 1986.

To improve the domestic supply of agricultural machinery, the Soviets have increased imports and decreased exports of agricultural equipment. Imports of agricultural machinery and equipment increased 23 percent in value between 1980 and 1984, while the value of tractor exports dropped 33 percent and exports of other agricultural equipment and machinery fell 15 percent. Over 90 percent of trade in farm equipment is with the Council for Mutual Economic Assistance (CMEA) countries.

Labor Productivity Up Slightly

The reported 1.4-percent improvement in the socialized sector's labor productivity in 1985 is difficult to reconcile with the combined output stagnation and a stable level of agricultural employment in the socialized sector of around 23 million. Wage growth, at 3.6 percent, once again surpassed productivity growth, despite efforts to link them more closely. Expansion of the brigade and team systems, currently viewed as the way to link wage and productivity growth, continued though the exact figures have not yet been reported. In 1984, brigades and teams worked on 47.6 percent of arable land and accounted for 17 percent of the agricultural labor force,

Table 3--Tractors, grain combines, and trucks: Inventories, deliveries, and scrapping rates, USSR 1/

Year	Tractors			Grain combines			Trucks		
	Inven- tories	Deliv- eries	Scrapping rate 2/	Inven- tories	Deliv- eries	Scrapping rate 2/	Inven- tories	Deliv- eries	Scrapping rate 2/
	Thousands		Percent	Thousands		Percent	Thousands		Percent
1966-70 average	1,821	293	12.6	578	94	13.8	1,105	133	NA
1971-75 average	2,189	333	12.3	661	90	12.3	1,282	220	13.6
1976-80 average	2,495	361	12.9	701	108	14.3	1,527	268	15.4
1981	2,598	354	12.4	741	105	11.9	1,653	268	13.2
1982	2,649	350	11.5	771	110	10.8	1,699	268	13.4
1983	2,697	373	12.3	794	116	12.1	1,725	3/ 285	15.2
1984	2,755	382	12.0	822	116	11.0	4/ 1,750	4/ 280	14.8
1985	4/ 2,815	393	12.1	4/ 848	111	10.3	4/ 1,782	4/ 286	14.5

NA = Not available. 1/ Inventories are for the end of the year. 2/ Equal to deliveries minus change in inventories divided by inventories at the end of the preceding year. 3/ *Ekonomika sel'skogo khozyaistva*, no. 1 (1984), p. 4. 4/ Estimate.

more than double the previous year. Substantial growth was expected in 1985 and is expected again in 1986. Capital productivity in agriculture likely declined again in 1985, probably at a rate comparable to 1984's 5.7 percent. Soviet plans to slow the decline of capital productivity in agriculture through slower investment growth have been unsuccessful because of unexpectedly high nonstate investment by farms and output stagnation.

Food Industry Growth Lowest in 5 Years

The food industry's 1985 performance was the worst in 5 years, as its 1.1-percent growth fell significantly from 1984's 3.8 percent. The Soviets have attempted to maintain food industry growth in the face of stagnation in the agricultural sector by increasing the share of total agricultural output procured by the state. For the first time since the implementation of the Food Program, the food processing sector received a larger share of available investment funds in 1984. The share was probably larger in 1985 as well. Modernizing and re-equipping the food industry are vital to the success of the Soviet Food Program, particularly with respect to improving foodstuff availability and quality. With an improvement in agricultural production and more resources from increased investment, the food industry should show more rapid growth in 1986.

Agriculture's Investment Share To Fall

Total investment in the agro-industrial sector was slightly more than 55 billion rubles (31 percent of total investment funds for the economy), practically unchanged from 1984, and 2 billion rubles under plan. Total economywide investment, at 179 billion rubles, was 2 percent over plan. In the past, actual agro-industrial complex (APK) investment generally exceeded plan because of larger-than-planned increases in investment from nonstate sources.

Preliminary figures indicate that industries serving agriculture bore the brunt of 1985's APK shortfall. The agricultural sector actually increased its share of total APK investment, from 82 to 83 percent in 1985, despite plans to decrease its share to 78 percent. Thus, with total investment falling short of target and agriculture's share

increasing, the other sectors of the APK likely fell short of their planned investment amounts.

The unbalanced development of the APK appears to continue as agriculture receives most of the available investment funds and the industries serving agriculture get the residual. This year could be the first in which there is significant progress towards increased investment in agriculturally related industries. Emphasis is being placed on storage facilities and other harvest-preserving inputs. Agriculture's share is once again supposed to decrease, and the overall APK's share of total investment funds is also expected to decline slightly. The percentage of investment going to reconstruction and re-equipment of existing enterprises is planned to increase from 30 to 50 percent over the course of the 12th Five Year Plan.

Investment within the agricultural sector followed recent trends of increased investment in cultural facilities, schools, and other so-called nonproductive purposes, while the share of investment allocated to construction of new livestock facilities declined. Surprisingly, the share of investment allocated to tractors and other new equipment has declined for the past 2 years, a trend not consistent with the Food Program. No explanation is readily apparent, especially since production of tractors and equipment continues to grow at relatively high rates. [Robert Koopman and Yuri Markish (202) 786-1710]

1985 Weather Produces Mixed Results

In general, weather was more favorable for agricultural production in 1985 than in 1984. Soil moisture recharge over the winter in most of the European USSR was greater than in 1984. The conditions for fall-sown grains were the best in the last several years. Despite a severely cold winter, winterkill of grains was likely no more than average because of good hardening conditions in the fall. The cold adversely affected the livestock sector and fruit trees, however.

Cold weather continued in the USSR through the spring, causing planting and fieldwork delays. Seedbed preparation for spring grains may have suffered somewhat since farmers had less time before the arrival of optimum planting dates. The gradual

snowmelt provided abundant moisture in the northern grain areas. Moisture recharge in the Black Soils, Volga Valley, and much of the Ukraine, although better than in 1984, was still below normal.

Except for one hot dry spell in the southern Urals and the western New Lands in June, and a sukhovey in the North Caucasus in July, major growing regions were free of the severe drought that devastated the 1984 grain crop. On the contrary, cooler-than-normal weather posed some problems for crop development and harvesting. In the New Lands, grain matured 1 week to 10 days later than normal. The harvest was delayed in most grain areas. Weather in Central Asia in 1985 was favorable. The cotton crop had an abundance of moisture.

The late maturation of the 1985 crops hampered sowing of winter grain crops in the fall. Soil moisture, however, has been above normal in all of the winter grain areas except the southern Ukraine and the North Caucasus. Hardening conditions for winter grains were mixed and not as good as in the fall of 1984. In the northern areas, gradual declines in temperature allowed winter cereals to become well hardened. Hardening conditions were not as good in the south, particularly in the southern Ukraine and the North Caucasus. Two warm spells in December and January brought grains in these areas out of dormancy, further reducing winter hardiness.

Above-normal precipitation in the New Lands in the winter may help get spring grains off to a good start, although, as always, timely rains during the growing season are critical for a good crop in this semi-arid area.

FEED SUPPLIES UP IN 1985; LIVESTOCK BENEFIT IN 1986

The most recent Soviet reports indicate that gross agricultural output, at 135 billion rubles in 1985, was the same as in the preceding 2 years. The reported lack of improvement conflicts somewhat with preliminary Soviet estimates in late 1985 that output would be 2.1 billion rubles higher than 1984, and is contrary to the usual pattern of upward revisions in estimates as subsequent reports are released. The lower-than-expected estimate in early 1986

may reflect adjustments in accounting required after the yearend livestock inventory reports showed that animal numbers in the private sector were not as large as anticipated. Some observers suggest that the output figure is being manipulated to provide a lower base against which to judge performance in 1986—the first full year with Gorbachev as general secretary. Another possibility is that the figure eventually will be revised upward as in previous years. The value of gross agricultural output stagnated partly because the low 1984 grain harvest and the severe 1984/85 winter created a poor feed situation early in 1985.

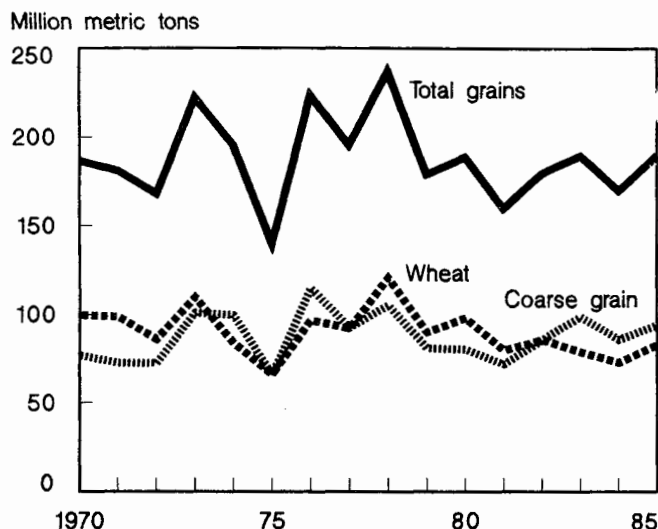
Entering the summer of 1986, the Soviets face a better outlook for overall agricultural production than a year earlier. On the positive side, the Soviets went into the 1985/86 winter with better feed supplies than in 1984/85. Also grain stocks were rebuilt an estimated 11 million tons beginning in 1983/84. While livestock inventories were down somewhat, the quality of cow herds was probably improved by culling. Furthermore, the 1985/86 winter was mild and short compared with the year before, which helped the livestock sector and provided for an earlier start on spring cultivation. Soil moisture supplies for crops are better than in 1985, which was already much improved from 1984. Supplies of inputs will be larger in 1986. Furthermore, organizational changes in the agro-industrial complex and continued emphasis on worker and manager accountability may contribute marginally to improved quality and more efficient use of resources.

On the negative side, the mild winter did not necessarily put winter crops off to a better start, as good snow cover in 1984/85 protected grain against the severe cold. In addition, the winter grain area is smaller for the 1986 crop as the late 1985 harvest and wet conditions set back fall planting. Increasing plantings of spring grains to make up for the reduced winter grain area may complicate spring field work.

Improved Agronomics a Priority for Grains

The Soviets have been making improved agronomic practices the top priority for increasing grain production. Soil moisture

Figure 2
USSR Grain Production



conditions at the start of the spring were the best in recent years, and enhance the effectiveness of the increased fertilizer applications which are part of the new program. In 1985, improved agronomic practices contributed somewhat to the estimated 20-million-ton increase in production (figure 2). However, better weather than the 1984 drought-plagued season was the primary reason for the 12-percent increase in output. The Soviets would like to increase domestic grain use in 1986 to push meat output and increase feeding efficiency. However, unless the increase can be obtained solely from domestic production increases, it is unlikely that consumption of grain in the USSR will exceed 1985/86's estimated 218 million tons by more than a few million tons.

Better Weather, Inputs Offset Drop in Area

Soviet grain area in 1985, according to preliminary reports, was 1 percent below 1984 and the smallest area since 1971 (table 4). The reduction reflects the Soviet decision to intensify grain production on a smaller area as a means of bolstering output. Clean summer fallow area increased from 20.1 million hectares in 1984 to 21.3 million in 1985. Most of the reduction in area occurred in barley, oats, and pulses. The corn-for-grain area increased 14 percent to 4.48 million hectares, the largest area since 1964.

Generally better weather and the increased use of intensive technology allowed

the Soviets to boost grain yields by an estimated 13 percent over 1984. An estimated 15-percent increase in wheat yields may have resulted in the best wheat crop in 3 years. Coarse grain yields rose an estimated 10 percent. Miscellaneous grain yields are estimated to be the highest since 1978.

Despite a severe winter, winterkill was within the long term average of 15-18 percent, primarily because of good hardening conditions in the fall of 1984. Thus, winter grain yields are estimated to have risen more than 8 percent. Improved moisture availability, which resulted from heavy snow cover, boosted yields particularly in the marginal spring wheat areas that had been stricken with drought in 1984. Cold temperatures in the summer in the Ukraine and the North Caucasus caused late and uneven corn ripening. Sukhovey conditions in July in the North Caucasus also stressed the crop. As a result, corn yields are estimated to have declined 6 percent.

In addition to the increase in production, the quality of the 1985 grain crop was reportedly better than in 1984, probably a result of better weather conditions in the prime areas for producing milling quality grains. Also, the use of intensive technology, particularly the concentration of nitrogen fertilizer applications, may have boosted protein content of cereals.

Although the Government did procure larger amounts of high quality wheat, higher procurement prices and bonuses for hard and durum varieties occurred too late in the summer to have affected cultivation practices. However, they probably helped to raise government procurements of quality grains in two ways. First, the higher prices may have encouraged farms to take more care in harvesting, sorting, and cleaning grains. Second, they may have encouraged farmers to take risks—to chance depending upon the state system for feed grain supplies and to sell their quality grains to the state rather than use them or hold them in reserve.

Soviets Limit Grain Fed in 1985

Soviet grain utilization for 1985/86 is estimated to be the same as last year's 218 million tons (table 5). Seed, industrial, and food uses combined were 79 million tons. The

Table 4--Area, yield, and production of grain, USSR

Year	Wheat			Rye	Barley	Oats	Corn	Other 1/	Total grain
	Winter	Spring	Total						
1,000 hectares									
Area									
1966-70 average	18,280	48,894	67,174	11,505	20,331	8,680	3,517	10,876	122,083
1971-75 average	18,443	43,025	61,468	8,500	28,370	11,310	3,596	10,743	123,987
1976-80 average	20,471	40,240	60,711	7,714	34,011	12,080	2,969	10,421	127,905
1981	20,305	38,927	59,232	7,551	31,781	12,470	3,545	10,980	125,559
1982	20,438	36,840	57,278	9,829	29,706	11,489	4,161	10,549	123,012
1983	16,850	33,973	50,823	10,334	31,679	12,389	3,894	11,690	120,809
1984	17,956	33,105	51,061	9,420	30,426	12,806	3,919	11,980	119,612
1985	17,996	32,269	50,265	9,520	29,058	12,604	4,482	12,010	117,939
1986 2/	16,500	32,500	49,000	9,000	29,000	12,800	5,000	12,200	118,000
Metric tons per hectare									
Yield 3/									
1966-70 average	1.96	1.11	1.34	1.12	1.50	1.38	2.72	1.16	1.37
1971-75 average	2.26	1.10	1.45	1.35	1.53	1.31	2.84	1.19	1.46
1976-80 average	2.48	1.22	1.64	1.41	1.62	1.42	3.22	1.21	1.60
1981 2/	1.97	1.03	1.35	1.26	1.18	1.20	2.26	.91	1.27
1982 2/	2.30	1.06	1.50	1.42	1.38	1.35	3.24	.95	1.46
1983 2/	2.22	1.22	1.55	1.35	1.70	1.37	3.08	1.20	1.57
1984 2/	2.23	1.00	1.43	1.42	1.38	1.27	3.19	1.06	1.42
1985 2/	2.44	1.21	1.65	1.47	1.62	1.37	3.01	1.25	1.61
1986 4/	2.42	1.23	1.63	1.48	1.61	1.40	3.30	1.15	1.61
1,000 metric tons									
Production									
1966-70 average	35,888	54,304	90,192	12,834	30,454	11,938	9,558	12,585	167,561
1971-75 average	41,590	47,345	88,935	11,493	43,289	14,812	10,215	12,810	181,554
1976-80 average	50,725	48,948	99,673	10,880	55,150	17,161	9,568	12,595	205,027
1981 2/	40,000	40,000	80,000	9,500	37,500	15,000	8,000	10,000	160,000
1982 2/	47,000	39,000	86,000	14,000	41,000	15,500	13,500	10,000	180,000
1983 2/	37,400	41,600	79,000	14,000	54,000	17,000	12,000	14,000	190,000
1984 2/	40,000	33,000	73,000	13,400	42,100	16,300	12,500	12,700	170,000
1985 2/	44,000	39,000	83,000	14,000	47,200	17,300	13,500	15,000	190,000
1986 4/	40,000	40,000	80,000	13,300	48,300	17,900	16,500	14,000	190,000

1/ Includes millet, buckwheat, rice, pulses, and miscellaneous grains. 2/ USDA estimates. 3/ Yields may not calculate exactly, due to rounding. 4/ USDA forecast.

feed use estimate for 1985/86 is in line with the revised estimates for the previous 2 years. Last year, grain-for-feed estimates for 1983/84, 1984/85, and 1985/86 were reduced to 120, 121, and 121 million tons based on new Soviet information on concentrates fed. The main reason for the lack of growth in feed use of grain is the expansion of roughage production and improved handling and storage capacities for nonconcentrate feeds. Because of the revisions in feed use, stock change estimates were revised upward.

Total Soviet grain imports for July/June 1985/86 are forecast at 29 million tons, a 48-percent drop from a year earlier. Primary reasons for the drop are the bigger grain crop and improved forage supplies in 1985, and stock building in recent years. Wheat imports are expected to exceed coarse grain imports this marketing year despite the larger supplies

of milling quality wheat in the Soviet Union. The Soviets have imported feed quality wheat, displacing coarse grain imports.

Low Winter Plantings

The area sown to winter grains in the fall of 1985 reached only 32.8 million hectares, about 2 million short of the plan. Lags in sowing were mainly the result of a late harvest and delayed fieldwork, particularly in the northern winter grain area. As a result of the fall sowing shortfall, and slightly higher-than-average winterkill, the U.S. Department of Agriculture's (USDA) May estimate of winter grain area is 26.5 million hectares. This is the smallest area since 1972, and about 3 million hectares below last year.

Despite the decline in winter grain area, total grain area is estimated at 118 million

Table 5--Supply and use of grain, USSR 1/

Year beginning July 1	Produc- tion 2/	Trade		Avail- ability	Utilization						Stock change 3/
		Imports	Exports		Seed	Indus- trial	Food	Dockage- waste	Feed	Total	
Million metric tons											
Total grains 4/											
1976/77	223.8	11.0	3.3	232	29	4	45	31	112	221	+11
1977/78	195.7	18.9	2.3	212	28	4	45	29	122	228	-16
1978/79	237.4	15.6	2.8	250	28	4	46	28	125	231	+19
1979/80	179.2	31.0	0.8	209	28	4	46	22	123	223	-14
1980/81	189.1	34.8	0.5	223	27	4	47	28	119	225	-2
1981/82	160.0	46.0	0.5	206	27	4	47	16	116	210	-4
1982/83	180.0	32.5	0.5	212	27	4	47	18	117	213	-1
1983/84	190.0	32.9	0.5	222	27	4	47	21	120	219	+3
1984/85	170.0	55.5	1.0	224	27	4	47	19	121	218	+6
1985/86	190.0	29.0	1.0	218	27	4	48	18	121	218	0
1986/87	190.0	30.0	1.0	219	27	4	48	19	121	219	0
Wheat											
1976/77	96.9	4.6	1.0	100	15	1	35	14	28	93	+7
1977/78	92.2	6.6	1.0	98	15	1	35	14	44	109	-11
1978/79	120.8	5.1	1.5	124	14	1	35	14	43	107	+17
1979/80	90.2	12.0	0.5	102	15	1	35	11	53	115	-13
1980/81	98.1	16.0	0.5	114	15	1	36	15	48	115	-1
1981/82	80.0	19.5	0.5	99	15	1	36	8	42	102	-3
1982/83	86.0	20.2	0.5	106	15	1	36	9	45	106	0
1983/84	79.0	20.5	0.5	99	15	1	36	9	36	97	+2
1984/85	73.0	28.1	1.0	100	15	1	36	8	36	96	+4
1985/86	83.0	16.0	1.0	98	15	1	36	8	36	97	0
1986/87	80.0	16.0	1.0	95	15	1	37	8	34	95	0
Coarse grains 5/											
1976/77	115.0	5.7	2.0	119	12	3	7	16	78	116	+3
1977/78	92.6	11.7	1.0	103	11	3	7	14	74	109	-6
1978/79	105.0	10.0	1.0	114	12	3	7	13	79	114	0
1979/80	81.0	18.4	0	99	12	3	7	10	68	100	-1
1980/81	81.0	18.0	0	99	11	3	7	12	67	100	-1
1981/82	72.0	25.5	0	98	11	3	7	7	71	99	-1
1982/83	86.0	11.3	0	97	11	3	7	9	68	98	-1
1983/84	99.0	11.5	0	110	11	3	7	11	77	109	+1
1984/85	86.0	26.9	0	113	11	3	7	10	80	111	+2
1985/86	94.0	12.0	0	106	11	3	7	9	76	107	0
1986/87	98.0	13.0	0	111	11	3	7	10	80	111	0

1/ All are USDA estimates and forecasts except production 1976-80. Rounded to the nearest million tons, except for production and trade data. Totals may not add due to rounding. 2/ Calendar year basis. 3/ Difference between availability and total utilization. 4/ Includes wheat, coarse grains, buckwheat, rice, pulses, and miscellaneous grains. 5/ Includes rye, barley, oats, corn, and millet.

hectares, about the same as 1985. The reduction in winter grain area means that the Soviets will have to sow a larger area to spring grains than in 1985. USDA estimates that spring grain area will be 91.5 million hectares, compared with 89.3 in 1985. The early arrival of spring has helped Soviet farmers cope with the heavier load of spring fieldwork. Spring planting progress as of early May was running significantly ahead of last year's pace.

Wheat area is forecast at 49 million hectares, down 1.3 million from 1985. Coarse grain area is estimated to increase a million

hectares because of higher corn for grain area and reseeding of winterkilled areas to spring barley. The Soviets will likely maintain or marginally increase the area of miscellaneous grains, particularly pulses.

Intensive Technology To Be Expanded

The Soviets continue to emphasize the use of intensive technology as a means of boosting grain production in 1986. In 1986, intensive technology is planned to cover 31.3 million hectares of grain area, up from 21 million last

year. The Soviets report that they will concentrate the technology on corn and spring wheat.

It is difficult to measure the success of intensive technology during the last growing season. In the winter of 1984/85, the Soviets claimed that the new methods would provide an additional 16-18 million tons of grain. In a later statement, during the harvest, they placed additional grain production at only 10 million tons. More recently, they have been citing a 16-million-ton increase because of the intensive technology. However, many areas where the technology was concentrated, such as the North Caucasus and the Black Soils, reported particularly poor harvests, perhaps in part because of poor soil moisture conditions. The generally higher soil moisture supplies throughout this past winter could make the agronomic practices more effective in 1986. However, inadequate quality of the fertilizer preparations and lack of coordination between input industries and farms will limit the method's effectiveness. In addition, expansion of intensively managed areas will probably mean that inputs will be diverted from the nonintensive plots.

Early Season Production Prospects Mixed

USDA's May estimate of Soviet grain production in 1986 is 190 million tons. Winter grain production will likely be down as higher yields are not expected to offset the sizable area shortfall. Spring grain production may be up because of larger area and generally better early spring moisture supplies. The anticipated drop in winter wheat production is expected to keep 1986 wheat production below 1985's. Coarse grain production may increase as higher corn and barley production offset reduced rye output. The early season forecast was made with only 40 percent of spring grain planted and unknown weather conditions for the rest of the growing season.

The 1986 harvest, the first in the 12th Five Year Plan, will likely miss by a wide margin the plan target, which calls for average annual output of 250-255 million tons. The Soviets are officially holding to this high goal, which was originally set during the development of the 1982 Food Program and is consistent with the ambitious 11th Five Year Plan (1981-85) target of 238-243 million tons annually. Cereal production during 1981-85,

however, averaged only an estimated 178 million tons, more than 25 million below the 1976-80 average and close to 60 million tons below the 1981-85 target. The low grain output in the past 5 years resulted as yield gains failed to offset declines in area. [Emily Moore (202) 786-1710]

Record Feed Supplies in 1985/86

Production of nongrain feeds in 1985 reached a record, which allowed nearly a 2.4-percent increase in total feed supplies in 1985/86 without an increase in grain used for feed (table 6). Significantly larger harvests of silage crops, hay, and haylage more than balanced a decline in the potato crop and accounted for the increase. The improved feed situation and milder winter in 1985/86 have set the stage for a recovery of Soviet livestock production this year. Feed availability per animal is now the highest it has been in recent years and should result in higher productivity per head in 1986. Early prospects are good for further increases in feed supplies in 1986/87.

Reduced Reliance on Grain Feeding

Since the late 1970's, the USSR has succeeded in reducing the share of grain in animal rations. Between 1979/80 and 1985/86, supplies of succulent and coarse feeds increased an estimated 27 percent, while concentrate feeds—primarily grain—remained unchanged. In addition, the quality of Soviet coarse and succulent feeds improved over the period.⁷ The improvements in nongrain feed supplies were achieved through large investments in machinery and facilities for harvesting, handling, and storing feeds. In addition, roughage crops have received more fertilizer in the last few years, and a large share of newly introduced irrigated and drained lands continue to be devoted to roughage crops.

The larger quantity and improved quality of roughages allowed a reduction in concentrate feeding to cattle. Since 1982, the amount of concentrates expended per unit of liveweight gain for cattle in the socialized sector declined by more than 25 percent.⁸ The substitution of roughages for concentrates in cattle rations has held back improvement in feed conversion efficiency and average daily weight gain, two important indicators of

Table 6--Soviet feed supplies by type in oat-unit equivalent, January 1 standard animal units, and feed per standard animal unit

Units	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85 1/	1985/86 1/
Million tons							
Total feed	392.5	396.6	384.1	413.2	427.2	428.1	438.5
Coarse 2/	76.4	82.4	80.7	86.3	94.0	88.3	97.5
Pasture	61.7	61.2	61.4	62.6	64.0	63.8	64.6
Succulents 3/	81.9	84.1	76.5	96.4	98.7	103.7	103.8
Concentrates 4/	172.5	168.9	165.5	167.9	170.5	172.3	172.6
Million units							
January 1 total animal units 5/	148.7	149.4	150.8	153.4	156.3	157.0	156.5
Tons							
Feed per standard animal unit	2.64	2.65	2.55	2.69	2.73	2.73	2.80

1/ Preliminary. 2/ Includes hay, haylage, and straw. 3/ Includes silage, green chop, potatoes, feed roots, melons, and beet pulp. 4/ Includes grain, millfeeds, oilmeal, fish and animal meal, grass meal, feed yeasts, and whole and skim milk. 5/ In terms of cows, conversion ratios as follows: Cattle (other than cows) 0.6, hogs 0.3, total sheep and goats 0.1, horses 1.0, and poultry 0.02.

productivity (table 7). Soviet feed conversion ratios remain high compared with those of most industrialized nations and exceed U.S. levels by roughly 40 percent. Soviet planners continue to stress the need to reduce the amount of feed expended per unit of production if medium term goals in the livestock sector are to be attained.

Protein Shortage Remains a Problem

Inadequate protein in feed rations remains "an extremely weak link" in Soviet livestock production.⁹ A number of steps have been taken to improve domestic protein supplies. The area sown to peas, alfalfa, clover, and other high-protein leguminous crops has expanded at the expense of lower-protein

grass crops. Production of single cell protein increased over 50 percent between 1980 and 1984 and production of limiting amino acids also increased.

In total, these steps have not significantly reduced the protein shortage, particularly in light of smaller imports of oilseeds and oilseed meals since 1983. This in turn has had a negative impact on Soviet mixed feed production. Though plans call for 5.7-percent annual growth in mixed feed production during the 1980's, between 1980 and 1984 production increased just 3.9 percent per year.¹⁰ Soviet mixed feeds are produced at both industrial large scale plants, formerly under control of the Ministry of Procurement, and at small scale localized plants, formerly under the Ministry of Agriculture. Production at local level plants has been particularly disappointing, increasing at less than half the planned rate since 1980. These plants draw largely upon local feed supplies, but are deeply dependent on state deliveries of protein additives to balance ration formulations. The shortage of protein additives has also had a negative impact on the quality of mixed feeds produced in the large industrial plants.¹¹

Will Concentrate Feeding Increase?

General Secretary Gorbachev has placed increased emphasis on "intensive" growth in

Table 7--USSR feed-conversion coefficients (kilogram of oat-unit equivalent/kilogram of output)

Product	1970	1980	1982	1983	1984
Beef	11.5	13.4	13.4	13.2	13.5
Pork	9.2	9.2	9.2	8.8	8.8
Milk	1.4	1.5	1.6	1.6	1.6
Broilers 1/	4.6	4.3	4.0	4.1	NA
Eggs 1/	2.8	2.0	2.0	1.9	NA

NA = Not available. 1/ Pfitseprom system (state poultry industry) only. Eggs--oat units per 10.

the livestock sector; meaning increased production per head of livestock rather than expanded inventories of low productivity animals. So far in the 1980's there has been little improvement in feeding efficiency, and average daily weight gain increased a mere 2 percent for both cattle and hogs in 1985.¹² Successful implementation of the Soviet livestock growth strategy will require much larger supplies of protein meal and quite possibly an increased share of concentrates in cattle rations.

Feed Production Outlook Good

The success in increasing nongrain feed supplies in recent years is due in large part to the very low priority previously accorded to roughage crop production. Starting from a relatively low yield base in the late 1970's, a strategy focusing primarily on increasing material inputs for roughage crop fields, without necessarily improving their quality or the coordination of their use, has brought positive results that had previously been exploited for higher priority crops, such as grain, sugarbeets, and oilseeds. Continued reliance on this traditional input-quantity strategy should result in further increases in roughage crop production in the next few years.

Early season prospects for the 1986 feed harvest are good. Last year's roughage crop was record large despite a late spring. The more normal spring this year, combined with likely increased use of fertilizers and plant protectants could result in larger production in 1986. Barring significant summer drought, as occurred in 1981 and 1984, total feed supplies for 1986/87 could increase roughly 2-3 percent--about the same as in 1985/86. Despite renewed soybean imports from the United States, the Soviet protein shortage, estimated by Soviet agricultural specialists to approach 13 million tons of soybean meal equivalent, will remain large.
[Edward C. Cook (202) 786-1710]

Livestock Growth To Increase in 1986

Soviet livestock product output is expected to increase roughly 1-2 percent in 1986, following less than a 1-percent increase in 1985. Larger feed supplies entering the year and a milder winter will contribute to

higher production this year. Except for poultry, animal inventories as of January 1 were slightly lower than the previous year. The Gorbachev policy calls for increased production per head, but progress will likely be modest in the short run. Livestock production in 1986 could rise more than 2 percent with very good summer forage conditions and a much larger feed crop harvest in the fall. Of major livestock products, meat production should show the most rapid growth rate and milk production the slowest.

Inventory Growth Slows

Since 1980, Soviet livestock inventories--in terms of standard animal units--have increased at a much slower rate than during the 1960's and 1970's. Though occasional tight feed supplies in the early 1980's were a contributing factor, a shift in livestock management policy has probably been more important. The new policy calls for growth to be achieved through larger production per head rather than through larger inventories of low productivity animals. As a consequence, Soviet investment in new livestock housing thus far in the 1980's is well below rates in the 1970's. Under General Secretary Gorbachev, the shift to this "intensive" growth strategy may become more pronounced. In the last 2 years, farm managers have been given greater leeway in culling unproductive cows. Despite a 2.5-percent decline in cow inventories in the last 2 years, average milk yields increased enough to generate continued growth in milk production.

In 1985, Soviet livestock numbers actually declined slightly due to reduced emphasis on inventory growth and problems with overwintering feed supplies (table 8). Feed supplies in 1984/85 were no better than the previous year despite record grain imports. An unusually severe winter and delayed spring unexpectedly pushed up feed requirements, leading directly to a decline in hog numbers. Seasonally adjusted drawdowns in hog inventories in the socialized sector began in December 1984 and continued into the summer before herd rebuilding began. During 1985, private plot livestock inventories probably remained generally unchanged, except for a decline in cow numbers.

Table 8--January 1 livestock numbers and animal units, USSR

Year	Cattle		Hogs	Sheep	Goats	Horses	Poultry	Total animal units 1/
	Total	Cows						
Million head								
1971	99.2	39.8	67.5	138.0	5.4	7.4	652.7	130.5
1976	111.0	41.9	57.9	141.4	5.7	6.4	734.4	136.5
1981	115.1	43.4	73.4	141.6	5.9	5.6	1,029.3	149.4
1982	115.9	43.7	73.3	142.4	6.1	5.6	1,067.5	150.8
1983	117.2	43.8	76.7	142.2	6.3	5.6	1,104.5	153.4
1984	119.6	43.9	78.7	145.3	6.5	5.7	1,126.1	156.3
1985	121.0	43.6	77.9	142.9	6.3	5.8	1,143.0	157.0
1986	120.7	42.8	77.6	2/ 140.4	2/ 6.1	2/ 5.8	2/ 1,160.0	2/ 156.5

1/ In terms of cows. Conversion ratios as follows: Cattle (other than cows) 0.6; hogs 0.3; total sheep and goats 0.1; horses 1.0; and poultry 0.02. 2/ Estimate.

Table 9--Production of principal livestock products, USSR

Year	Meat 1/						Milk	Wool 2/	Eggs
	Total	Beef and veal	Pork	Mutton, lamb, and goat	Poultry	Other			
1,000 metric tons									
1966-70 average	11,583	5,187	4,327	992	853	224	80,553	NA	35,840
1971-75 average	14,004	5,985	5,394	972	1,335	318	87,446	425	51,427
1976-80 average 3/	14,843	6,827	5,009	882	1,835	290	92,662	442	63,133
1981	15,199	6,627	5,220	846	2,255	251	88,874	460	70,855
1982	15,368	6,618	5,273	816	2,425	236	91,044	452	72,409
1983	16,449	7,011	5,760	837	2,596	245	96,463	462	75,110
1984	16,985	7,244	5,927	866	2,686	262	97,906	4/ 465	76,482
1985	4/ 17,100	5/ 7,400	5/ 5,800	5/ 850	5/ 2,800	5/ 250	4/ 98,200	4/ 442	4/ 77,000

1/ Carcass weight, including fat. 2/ Physical weight. 3/ Revision based on the average published in Narodnoe khozyaistvo SSSR 1982 (National Economy of the USSR 1982). Is not consistent with average derived from last published figures for each year. 4/ Preliminary Soviet figure. 5/ ERS estimate.

Output Creeps Upward in 1985

Marginal increases were achieved in meat, milk, and egg production in 1985, according to initial Soviet data (table 9). Early data show meat production increased a mere 0.7 percent to 17.1 million tons. In the last 3 years, the Soviet Central Statistical Administration revised upward initial meat production data by summer. Based on feed supplies and other available information, only a modest upward revision--say to 17.2 million tons--if any, is considered likely this year. Poultry and beef accounted for last year's gain in meat production, while pork and mutton production declined. Herd rebuilding in the second half of the year caused hog slaughter to decline from 1984 levels.

Meat production in the socialized sector grew an estimated 2.5 percent to 12.5 million tons, whereas private sector production probably declined 4 percent to 4.6 million tons. Lower hog numbers at the beginning of 1985 caused the drop in meat production in the private sector. In the last few years, contract arrangements have expanded between the socialized sector and private livestock raisers. Under this system, livestock are "loaned" to private plot holders for raising but remain the property of the socialized sector. The decline in hog numbers registered in the private sector during 1984 and the resultant drop in private sector meat production in 1985 could in part be a result of this accounting shift.

Milk production increased 0.3 percent. Milk yields, increasing an estimated 1.7 percent, accounted for the higher production. Milk yields rose for the fourth straight year and are now 11 percent higher than in 1981. Soviet milk yields have fully recovered the decline registered between 1977 and 1981. In 1985, milk production in the private sector probably fell slightly because of fewer cows and no improvement in private sector yields. Egg production rose just 0.7 percent, the smallest increase since 1976. Some upward revision in the initial 1985 production data for milk and eggs is possible, particularly for eggs.

Larger Share of Output Sold to State

State purchases of livestock products increased more than production in 1985, consistent with the pattern of recent years. Meat sales advanced 1.1 percent, milk sales by 2.9 percent, and egg sales by 2.4 percent. The State is interested in purchasing an increased share of farm output to improve food supplies in the retail trade network. At the same time, reducing livestock weight loss and waste of livestock products during transport from the farm to processing enterprises is viewed as a viable alternative to costly increases in production. Partially for these reasons, the State enacted major procurement price increases in 1983 and in recent years has reduced the responsibility of farms to deliver livestock and livestock products to procurement agencies. Currently, about 30 percent of livestock for slaughter is purchased at the farm, with transportation arranged by the procurement agency. This is roughly double the 1981 amount.¹³

Higher state purchases allowed industrial meat production to increase 1 percent in 1985 to 10.8 million tons. Production of whole milk products expanded 4 percent to 29.8 million tons, while industrial production of butter remained at 1.5 million tons.

According to a preliminary report delivered by General Secretary Gorbachev, there was little change in per capita consumption of major livestock products in 1985.¹⁴ Per capita meat consumption in the USSR remains well below consumer demand at current prices and ranks low among European nations. In 1985, Soviet per capita meat consumption (including edible fats and offals) reportedly remained at the 1984 level of 60 kilograms (table 10). Because of the very modest growth in production, per capita milk consumption (including the whole milk equivalent of butter, cheese and other milk products) reportedly increased by just 1 kilogram to 318 kilograms. According to preliminary estimates, egg consumption rose 1.6 percent to 260 eggs per person.

Need To Increase Growth Rates

Some rebound in livestock inventories, except for cows, is expected in 1986 because of the record 1985/86 feed supplies. However, emphasis during the next few years will be on increasing production per head. For cattle, this will mean trying to achieve higher slaughter weights and for hogs, shorter finishing times. According to Soviet specialists, it's simply too expensive in terms

Table 10--USSR consumption norms of selected food products and per capita consumption

Year	Meat and fat	Fish and fish products	Milk and milk products 1/	Eggs 2/	Sugar	Vegetable oil	Potatoes	Grain 3/	Vegetables and melons	Fruit and berries
Kilograms										
1950	26	7.0	172	60	11.6	2.7	241	172	51	11
1960	40	9.9	240	118	28.0	5.3	143	164	70	22
1970	48	15.4	307	159	38.8	6.8	130	149	82	35
1980	58	17.6	314	239	44.4	8.8	109	138	97	38
1981	57	18.0	304	247	44.5	9.1	104	137	99	40
1982	57	18.4	295	249	44.5	9.3	110	137	101	42
1983	59	17.4	313	256	44.3	9.6	109	134	102	44
1984 4/	61	17.5	319	258	44.0	9.5	108	133	102	45
1990 plan	70	19.0	330-340	260-266	45.5	13.2	110	135	126-135	66-70
Consumption norm 5/	82	18.2	405	292	40.0	9.1	110	115	130	91

1/ Including milk equivalent of butter. 2/ Number. 3/ Flour equivalent. 4/ Data from *Vestnik statistiki*, No. 3, 1986, p. 57. 5/ *Narodnoe blagosostoyanie SSSR (National Welfare in the USSR)*, 1983, p. 165.

of livestock housing, labor, and feed expenditures to attempt to increase holdings of low productivity animals.¹⁵

Given the current set of retail prices, meat demand is well in excess of supply, resulting in localized rationing and consumer dissatisfaction. Recently, the State has indicated a willingness to allow a greater share of meat to be sold through the cooperative retail network and collective farm markets, where prices are higher than in state retail stores. However, the predominant share of meat will continue to be sold in the state stores at prices that have remained generally stable for over 20 years. Because of the unwillingness to balance quantities supplied and demanded of meat through major retail price increases, the State has set itself the task of increasing meat production 4.2 percent a year through 1990, more than double the rate of the first half of the 1980's. In this context, the plan target for meat production in 1986—up a mere 1.2 percent to 17.3 million tons—is incongruous; production would have to rise 4.8 percent a year for the remainder of the decade if the 1990 target is to be attained.

In 1986, Soviet meat output should increase by about 1.5–2 percent with the largest increase in poultry meat, and small increases in beef and pork production. Because of the lack of growth in livestock inventories, meat production increases in 1986 will depend upon larger productivity per head. Larger overall feed supplies and the modest improvement in protein availability from increased domestic oilseed production, larger soybean imports, and further increases in single cell protein production should boost production this year.

Larger beginning year feed supplies should also allow milk production to increase in 1986 despite reduced cow numbers. Milk production is projected to rise approximately 1–1.7 percent. Major improvements or declines in this summer's forage supplies compared with last year's will certainly affect the outcome. Continued emphasis on reducing milk losses in transportation, processing, and distribution, and reducing the share of on-farm feeding of milk should cause retail supplies of milk and milk products to rise more than milk production. Over 60 percent of skimmed milk and buttermilk production in the USSR is fed to livestock.¹⁶ The 1986 plan for the milk

industry calls for a 6-percent increase in the share of these products directed to human consumption. Increases are also planned for cheese production.¹⁷ Production of whole milk products is slated to decline slightly. Emphasis is being placed on improved packaging of milk products to reduce losses in the retail network. Possibly because of improved vegetable oil supplies, industrial butter production is planned to remain unchanged at 1.5 million tons.

Egg production is the only major livestock product running ahead of medium term plan guidelines. For this reason, growth is expected to remain modest in the next few years. Egg production increases in 1986 should be comparable to the 1–2 percent increases of recent years. [Edward C. Cook (202) 786–1710]

Oilseed Output Increases in 1985

Soviet oilseed output rose an estimated 9 percent in 1985 to over 11 million tons (flaxseed included). More than three-fourths of this jump is due to a significant resurgence in sunflowerseed production; the remainder is attributed to a larger cottonseed crop (table 11). Compared to the average annual output of the 1970's, the size of the 1985 oilseed crop is good; however, it is far below the 1973 record of almost 12.8 million tons.

Soviet oilseed output in 1986 will likely remain near 11 million tons. Oilseed area is expected to be relatively unchanged from 1985's 9.7 million hectares because possible further expansion of rapeseed and soybean

Table 11—Oilseed production, USSR

Year	Sun-flower seed	Cotton-seed 1/	Soy-bean	Other 2/	Total
1,000 metric tons					
Averages					
1971–75	5,974	4,295	471	249	10,989
1976–80	5,310	4,720	529	214	10,773
1981	4,678	5,279	491	151	10,599
1982	5,341	5,094	536	262	11,233
1983	5,063	4,815	560	265	10,703
1984	4,520	4,755	469	1/ 180	1/ 9,924
1985	5,230	4,889	1/ 465	1/ 245	1/ 10,829

1/ Estimate. 2/ Does not include oilseeds from fiber flax and hemp.

area may offset decreases in area planted to other oilseeds. Yields may continue to improve marginally as the Soviets expand the area under ICT. Good soil moisture conditions in the major sunflowerseed areas through the summer could further enhance the benefits of ICT.

Sunflowerseed Production Rebounds

Sunflowerseed output rose 16 percent and was the largest since 1982. Part of the increase resulted from a larger harvested area because the Soviets did not have to reallocate sunflower fields for fodder use as in 1984 when the USSR experienced a grain shortfall. Sunflowerseed area increased 4 percent, according to the Soviets. Still, sunflowerseed area remains significantly below the average 4.8 million hectares sown during the late 1960's. The national yield in 1985 of 1.29 tons per hectare was the highest since 1978. The higher yields may be a signal that the Soviets are finally starting to reduce the level of sunflower disease.

USDA estimates that 1985 cottonseed output rebounded to 4.89 million tons. (The Soviets report only seed cotton.) Good harvest weather improved yields and more than offset a 1-percent decrease in area. Although output rose by 134,000 tons over 1984, it remains below the estimated annual average of 5.2 million tons during 1980-83. Yields remained relatively low at 1.47 tons per hectare. During 1980-82, yields averaged 1.63 tons per hectare.

Soybean output in 1985 declined for the second year in a row to an estimated 465,000 tons. Production in the RSFSR, where about 70 percent of the crop is produced, declined a reported 4,000 tons. Lower output is entirely attributed to a continuing reduction in area. Soviet farm managers have failed to respond to the exhortations of officials since 1981 to expand soybean output. For example, Soviet soybean area in the Far East alone was targeted to reach 890,000 hectares in 1985. However, area for the entire USSR declined to just 738,000 hectares, the smallest in a quarter of a century. Soybean area in the RSFSR in 1985 was more than 100,000 hectares less than 5 years ago.

Rapeseed also has been targeted for expansion. Production rose an estimated 27

percent to roughly 70,000 tons in 1985. Much of this increase is attributed to an expansion in area from 109,000 to 123,000 hectares. Nevertheless, the pace of the expansion continues to be below the expectations of Soviet agricultural officials.

Countersales As an Incentive

To stimulate farm interest in oilseed production and sales to the State, the March 1986 resolution outlined terms under which farms would be paid for sunflowerseeds and soybeans in the form of oilseed meal cake and mixed feeds. Countertrade terms were announced earlier for rapeseed. Barter with processed feeds is believed to be a better incentive because money does not necessarily provide access to goods, given the shortages in Soviet markets.

The countersale terms are better for the premium varieties of sunflowers, such as "Pervenets," a high olein variety. The pace of introducing improved varieties of sunflowerseed is behind schedule. Improved hybrids occupied only 37 percent of the planned 1.5 million hectares in 1985; "Pervenets" only 41,900 hectares. One reason for the slow progress is the lack of hybrid seed. Although 17,500 tons of such seed was to be produced in 1984, output reached only 14,700 tons and more than one-half of this was considered to be unsuitable because of low quality.

The expansion of the hybrids and stricter adherence to proper crop rotation may help the Soviets to bring mold, mildew, and broomrape disease problems under control. Because of the attempt to improve rotation practices, sunflowerseed area is likely to remain at about 4.0-4.1 million hectares in 1986. Output is expected to be only about two-thirds to three-fourths of the unrealistic 7.4-7.5 million-ton target for the 12th Five Year Plan (1986-1990).

Cottonseed output in 1986 could rise 1-2 percent as the Soviets either stabilize or marginally cut back on cotton area. As inputs are concentrated on the remaining area, yields should increase. Although Soviet authorities are calling for extremely large increases in soybean and rapeseed output, the area sown to these two oilseeds is expected to increase only 1-2 percent in 1986. Soybeans and rapeseed

yields are expected to remain relatively flat at best as their area expands. Soybean output will likely be about one-fifth to one-fourth of the targeted output of 2.2-2.3 million tons; and rapeseed output, about 5-7 percent of the 1.5 million-ton target for 1986-90.

Meal and Oil Output Up

With the improved 1985 Soviet oilseed crop and significantly higher soybean imports, domestic oilseed meal output in 1986 is expected to approach 4.3 million tons (soybean meal equivalent). In 1985, oilseed meal production was an estimated 3.4 million tons (soybean meal equivalent). Vegetable oil output should rise by more than 15 percent to 2.8-2.9 million tons. Sunflowerseed oil will account for more than half of processed vegetable oils. Cottonseed oil will make up another one-fifth of production. Because of

increased domestic production, Soviet vegetable oil imports in 1986 are expected to decline 6-8 percent.

[Thomas Bickerton (202) 786-1710]

Sugarbeet Output Declines in 1985

Sugarbeet production in 1985 decreased 4 percent on the 10,154 farms that cultivate this crop (table 12). Weather in the major producing areas reduced yields by 2 percent and sown area declined an estimated 2 percent to 3.4 million hectares. The drop in domestic beet production and raw sugar imports, contributed to a 6-percent decline in annual Soviet refined sugar production in 1985. Overall refined sugar output fell to 11.8 million tons (table 13). In 1985, 323 plants made up the sugar processing industry, two less than in 1983.

Table 12--Area, yield, and production of selected crops, USSR

Year	Seed-cotton	Sugar-beets	Sun-flowers	Fiber flax 1/	Potatoes	Vegetables	Fruit, berries, grapes
1,000 hectares							
Area							
1966-70 average	2,527	3,582	4,837	1,341	8,238	1,440	4,753
1971-75 average	2,810	3,527	4,474	1,234	7,953	1,601	4,855
1976-80 average	3,043	3,745	4,471	1,156	7,020	1,629	4,804
1981	3,168	3,633	4,235	946	6,854	1,703	4,795
1982	3,188	3,526	4,250	1,014	6,856	1,715	4,809
1983	3,192	3,491	4,266	1,063	6,882	1,725	4,830
1984	3,347	3,463	3,907	1,064	6,830	1,744	4,463
1985	3,316	3,411	4,053	1,014	6,432	1,665	2/ 4,500
Metric tons per hectare							
Yield 3/							
1966-70 average	2.41	22.8	1.32	.34	11.5	13.2	2.0
1971-75 average	2.73	21.7	1.32	.37	11.3	13.7	2.6
1976-80 average	2.93	23.6	1.19	.34	11.8	15.2	3.2
1981	3.04	16.8	1.10	.28	10.5	15.0	3.6
1982	2.91	20.2	1.25	.41	11.4	16.5	3.8
1983	2.89	23.4	1.18	.44	12.0	16.1	3.8
1984	2.58	24.6	1.15	.38	12.5	17.0	4.2
1985	2.64	24.1	1.29	.35	11.3	16.8	2/ 4.0
1,000 metric tons							
Production							
1966-70 average	6,099	81,118	6,389	458	94,813	19,472	9,710
1971-75 average	7,667	75,984	5,974	456	89,782	22,974	12,393
1976-80 average	8,932	88,732	5,309	393	82,571	26,313	15,177
1981	9,636	60,844	4,678	263	72,139	27,096	17,287
1982	9,282	71,371	5,341	414	78,185	29,993	18,372
1983	9,212	81,845	5,063	471	82,908	29,486	18,392
1984	8,619	85,251	4,520	404	85,515	31,538	18,543
1985	8,750	82,100	5,230	352	73,000	28,000	2/ 18,000

1/ Flax grown for fiber and fiber production. 2/ ERS estimate. 3/ Soviet reported yields vary from calculated yields in some instances.

Table 13--USSR sugar production and trade 1/

Year	Industrial production		Imports			Exports refined
	Total	Of which from beets	Raw		Refined	
			Total	From Cuba		
1,000 metric tons						
1966-70 average	10,203	8,638	2,082	2,081	2	1,097
1971-75 average	9,694	7,771	2,154	1,812	82	249
1976-80 average	10,854	7,370	3,845	3,374	439	139
1981	9,491	5,900	4,190	3,090	963	169
1982	12,070	6,800	6,161	4,224	1,115	247
1983	12,394	8,000	4,797	2,966	1,129	152
1984	12,464	7,900	4,972	3,508	732	189
1985	11,800	2/ 7,200	2/ 4,700	2/ 4,200	2/ 550	2/ 275

1/ All data on refined basis except raw imports. The factor for converting raw to refined is 0.92.

2/ Estimate.

Sugarbeet production in 1986 could fall in the 80-86 million-ton range if weather conditions through the growing season are average or better. Yields are highly variable in the USSR; during 1981-85 they ranged between 16.8 and 24.6 tons per hectare. Largely because of yield variability, sugarbeet output has ranged from 61 million tons to 85 million over the last 5 years. Sugarbeet sown area is expected to remain at about 3.4 million hectares. Since 1981, sown area has trended downward, falling 6 percent. Soviet policy has been directed toward gradually removing from production those lands least suited to sugarbeet cultivation. This policy may have contributed to the improved yields that were achieved in 1984 and 1985 of 24.6 and 24.1 tons per hectare, respectively, which are the two highest since 1978. In addition, yields may have benefited from increased application of technology. Although ICT is to be used on about three-fourths of the sown area in 1986, the Soviets report that more than 80 percent of sugarbeet sowings are of the monoseed variety that often produces less hardy seedlings and results in sub-par harvests.

Other problems further reduce the quantity and quality of sugarbeets transported to processors. For instance, sizable losses occur when beets are shipped long distances from growers to processors. More than one-half of beet producing areas are located up to 50 kilometers from sugar processing plants; 26 percent, from 50 to 100 kilometers; and 16 percent, more than 100 kilometers. This situation could be corrected if farmers located close to processors would increase the share of arable land to sugarbeet cultivation. [Tom Bickerton (202) 786-1710]

Cotton Reverses 4-Year Decline

Soviet cotton production rose to 8.75 million tons (seed cotton basis) in 1985, reversing a 4-year decline. Although this is only a 1.5-percent increase over 1984, yields per hectare advanced nearly 3 percent as cotton area declined. Fiber outturn is expected to grow 3.5 percent over 1984 due to higher quality and an improved ginning rate (table 14). Despite the improved performance, Soviet cotton exports are not expected to exceed 1984 exports, but imports should decline while domestic availability rises slightly.

Weather was average in the Soviet cotton growing republics, causing no major difficulties. Irrigation water was plentiful due to a large snowpack in the mountains. Cotton area declined by 31,000 hectares, likely a result of overexpansion in 1984. Future growth in cotton area will be limited by both Soviet policy and water availability.

Table 14-- USSR lint cotton production and trade 1/

Year	Production	Imports	Exports	Domestic sup-plies 2/
1,000 bales 3/				
1978/79	11,907	354	3,756	8,505
1979/80	12,833	296	3,770	9,359
1980/81	13,498	153	4,070	9,581
1981/82	13,277	110	4,295	9,092
1982/83	11,939	400	3,300	9,039
1983/84	12,065	783	3,202	9,400
1984/85	11,876	800	3,200	9,476
1985/86	12,100	500	3,100	9,600

1/ USDA estimates. Year beginning August 1.

2/ Production minus net exports. 3/ 480-pound bales.

Currently, Soviet plans give priority to fodder crops on newly irrigated land in Central Asia. Water resources in the area can support the current rate of irrigated area expansion for only another 4 to 5 years.¹⁸ The highly controversial Sibiral river diversion scheme, despite strong support from Central Asian interests, now appears to be postponed indefinitely as final documents from the 27th Party Congress delete any mention of it. Plans call for increased cotton production to be achieved through improved yields and higher ginning rates, not area expansion. Raw cotton production in 1986 should climb to 8.8-8.9 million tons, assuming average weather.

Cotton quality improved again in 1985 because of the continued high percentage of handpicking, bringing the estimated ginning rate into line with the long term average of 30 percent. The 1984 Uzbek experiments that tie the final 10 percent of the payment to fiber outturn and consolidate the ginning industry with the farms, appear responsible for increased handpicking and improved cotton quality. Although handpicking is reported to raise labor costs and overall production costs by 17-20 percent, cost growth has slowed significantly since 1982, with labor's share declining slightly.¹⁹

To reverse the handpicking trend while maintaining cotton quality, the State Committee on Prices initiated payment premiums for machine-picked cotton in Uzbekistan that falls in the first or second lint grades only. The Uzbek experiments tie in well with the Soviet goal of increased fiber outturn with minimal area expansion. These experiments are being extended to the other major cotton producing republics in 1986 as they conform well with the current nationwide reorganization of the agricultural sector. Recent reports indicate that consolidation of the ginning and farming sectors under the new administrative structure has already occurred in Turkmenistan and Tadzhikistan.

Per capita cloth availability continued its 3-year rise, reaching almost 47 linear meters in 1985, after remaining stable at around 43-44 linear meters for a number of years. Cotton cloth's share of total cloth availability remains around 70 percent. The recent growth in cloth availability in the face of poor cotton harvests and slow growth in domestic

production has been achieved through rapid growth in net imports of cotton cloth, as well as some cotton fiber imports for use in the domestic textile industry. Synthetic fiber production declined slightly in 1985 following years of growth. Still, synthetic fiber production has grown faster than total cloth availability, suggesting a growing share of synthetic fiber in total cloth composition. Because recent blending rates of manmade and natural fibers are not available, it is difficult to determine the exact contribution of synthetics to overall cloth production.

Manmade fiber production is likely to rebound from 1985 as long as the necessary petroleum inputs are available. Manmade fibers are to play an expanding role in increasing per capita cloth availability, reflecting the worldwide shift to natural and manmade fiber blends. Soviet plans call for the construction of two large artificial fiber plants in Blagoveshchensk and Kursk in the next few years.

GRAINS CAUSE SOVIET FARM IMPORTS TO DROP

The value of Soviet agricultural imports probably fell more than \$1 billion to \$17.6 billion in 1985. The decline parallels the estimated \$1-billion drop in USSR expenditures for grain imports (table 15). The drop in the value of grain imports is primarily

Table 15--Summary of USSR agricultural imports, by value 1/

Commodity	1983	1984	1985 2/
Million dollars			
Grain and products	5,363	6,991	5,800
Sugar	4,025	4,318	4,300
Livestock and products 3/	2,722	2,026	1,950
Fats and oils	469	758	700
Fruits, vegetables, and nuts	1,304	1,243	1,200
Tobacco and products	923	879	900
Oilseeds and oilmeal 4/	945	360	450
Other	1,991	2,269	2,300
Total	17,742	18,844	17,600

1/ Derived from USSR official data converted at \$1.35 in 1983, \$1.23 in 1984, and ERS estimates converted at \$1.20 in 1985. 2/ Estimates. 3/ Revised to include furs, raw hides, wool, and animal fats including butter. 4/ Estimates. Includes minor revisions in 1983 and 1984 estimates.

the result of a fall in world grain prices. The volume of Soviet grain imports probably rose slightly, displacing 1984 as the calendar year with the second largest grain imports.

The large volume of grain imports in 1984 and 1985 reflected the record import requirements in the 1984/85 grain marketing year. The Soviets imported almost 56 million tons of grain during that period as they sought to relieve tight feed supplies caused by the poor 1984 harvest, record livestock

Table 16—USSR agricultural imports, by value

Commodity	1982	1983	1984
Million dollars 1/			
Wheat	3,911.1	3,880.0	4,607.9
Barley	350.9	180.8	169.8
Corn	1,503.1	855.7	1,735.5
Other grain	55.8	3.9	85.5
Sorghum	299.3	226.9	217.0
Wheat flour	256.9	96.9	94.7
Rice, milled	343.8	118.3	80.5
Subtotal	6,720.9	5,362.5	6,990.9
Animals for slaughter	182.9	169.2	113.4
Breeding animals	7.6	9.6	14.9
Meat and meat products	1,430.0	1,369.7	1,092.3
Milk and milk products	153.6	92.1	84.6
Egg and egg products	29.1	29.4	22.7
Animal fats including butter	346.6	423.8	287.8
Wool	548.7	564.9	354.6
Furs	2.1	3.5	2.6
Raw hides	44.6	60.2	53.5
Vegetables and potatoes	447.5	423.7	406.4
Fruit and berries, fresh	496.5	463.2	408.3
Fruit, dried	135.8	97.9	99.2
Fruit and berries processed	246.0	210.7	207.3
Nuts	127.3	108.0	121.2
Sugar, raw	3,968.9	3,760.4	4,170.3
Sugar, refined	397.6	264.9	147.6
Coffee, cocoa, tea	496.9	632.7	881.8
Spices	38.1	37.4	46.6
Beverages	789.0	801.1	842.8
Tobacco, raw	383.2	322.6	291.5
Tobacco products	536.3	600.6	587.8
Oilseeds	456.7	398.9	237.4
Oilseed meal 2/	387.7	546.1	123.1
Natural fibers	85.4	351.7	334.1
Vegetable oils	441.0	312.3	526.2
Technical fats and oils	193.2	156.7	231.6
Seed and planting materials	175.1	168.1	163.9
Total	19,268.3	17,741.8	18,844.4

1/ USSR official data converted at \$1.38 in 1982; \$1.35 in 1983 and \$1.23 in 1984.

2/ Estimates. Includes minor revisions in 1982, 1983, and 1984 estimates.

inventories, and a cold winter. Between January and June, the Soviets imported an estimated 57 percent of their 1985 wheat purchases and an estimated 74 percent of the year's coarse grain purchases. Grain imports between July and December were much lighter because of improved Soviet grain, fodder, and oilseed production in 1985.

The Soviets reversed the pattern that has held since 1981 of importing more wheat than coarse grains on a calendar year basis (tables 16 and 17). They imported 5 million more tons of coarse grains than wheat in first-half 1985. The change in grain mix may have been linked to the poor Soviet coarse grain crop in 1984.

The decreased expenditures for grain occurred at a fortuitous time for the Soviets. Grain imports are largely financed by hard

Table 17—USSR agricultural imports, quantities of principle items

Commodity	1982	1983	1984
1,000 metric tons			
Wheat 1/	21,096	23,001	28,162
Barley 1/	2,665	1,582	1,392
Corn 1/	11,461	6,433	12,429
Other grain 1/	342	12	—
Sorghum	2,709	2,078	1,990
Wheat flour 2/	1,260	548	579
Rice, milled	859	323	150
Subtotal	40,392	33,977	44,702
Meat and meat products 3/	939	985	805
Shell eggs 4/	526	530	451
Wool, scoured	125	147	90
Hides and skins 4/	1	2	1
Vegetables, fresh	174	181	158
Vegetables, canned	454	412	445
Fruit, fresh	1,158	1,123	1,100
Fruit, dried	126	85	103
Sugar, raw	6,161	4,797	4,972
Sugar, refined	1,115	1,128	732
Coffee	48	37	48
Cocoa beans	115	162	150
Tea	73	77	95
Tobacco	124	101	103
Cotton lint	26	177	166
Oilseeds	1,582	1,422	696
Oilseed meal 5/	1,661	2,411	530
Vegetable oil, edible 6/	866	708	696

1/ ERS estimates; official USSR sources report only value. Includes minor revisions in 1982 and 1983 estimates. 2/ Flour in wheat equivalent at 72 percent. 3/ Does not include live animals. 4/ Million pieces. 5/ ERS estimate. 6/ Does not include linseed oil.

currency. Soviet hard currency earnings may have been down substantially in 1985. The Soviets ended 1985 with an estimated \$827-million (689 million rubles) trade deficit with the Western industrialized countries (table 18). Other major items on the Soviet

agricultural import bill, such as sugar, animal products, and fruits and vegetables, primarily involve nonhard currency arrangements (table 19). In 1985, the Soviets imported 5.5 million tons of raw sugar, about 10 percent higher than in 1984. Raw sugar imports probably accounted for more than 90 percent of total Soviet sugar imports. More than 50 percent of raw imports probably came from Cuba at prices substantially higher than from other suppliers. The Soviets pay the higher prices to support the Cuban economy. Soviet refined sugar imports in 1986 are likely to remain near the 1985 level, which is estimated at 0.5 million tons (raw value). The bulk of Soviet refined sugar imports generally comes from the European Community (EC).

In the last 2 years, the USSR has taken steps to reduce hard-currency expenditures on livestock products. The share of meat imported under bilateral trade agreements with CMEA nations and China increased from slightly over half in 1983 to an estimated 70

Table 18--USSR foreign trade

Direction	1983	1984	1985
Billion rubles			
Exports to	67.9	74.4	72.5
socialist countries 1/	37.7	42.1	44.3
Western industrialized countries	19.7	21.3	18.6
developing countries	10.5	11.0	9.6
Imports from	59.6	65.3	69.1
socialist countries 1/	33.7	38.2	42.2
Western industrialized countries	18.7	19.6	19.3
developing countries	7.2	7.5	7.6

1/ Includes Eastern Europe, Cuba, Mongolia, North Korea, PRC, and Vietnam.

Table 19--Major suppliers of selected agricultural goods to the USSR in 1984

Commodity	Quantity	Supplier and share
	1,000 metric tons	(Percent)
Grain and products 1/	44,702	United States (38), Canada (22), Argentina (15), France (10), Australia (5), Hungary (2), and others (8).
Sugar 2/	5,306	Cuba (61), Brazil (14), France (7), Australia (6), FRG (3), Philippines (1), Belgium (1), and others (7).
Fresh/frozen red meat	552	Hungary (15), Romania (14), France (10), Argentina (7), Mongolia (7), New Zealand (5), Finland (3), and others (39).
Poultry	114	Hungary (57), Romania (13), Bulgaria (11), and others (19).
Hides and skins 3/	1	Netherlands (48), United States (36), Mongolia (14), and others (2).
Wool, scoured	90	Australia (46), New Zealand (20), Argentina (11), Mongolia (9), Uruguay (7), Afghanistan (5), and Syria (2).
Soybeans	615	China (53), Argentina (24), United States (23).
Soybean meal 4/	400	Brazil (12), and others (88).
Fresh fruit	1,100	Hungary (23), Cuba (13), Bulgaria (9), Poland (8), Greece (6), China (5), and others (36).
Dried fruit	103	Afghanistan (40), Turkey (13), Romania (7), Iran (5), and others (35).
Fresh vegetables	158	Bulgaria (54), Vietnam (11), Egypt (8), Poland (8), Romania (7), and others (12).
Cotton lint	166	United States (64), Syria (14), Egypt (7), Greece (4), Sudan (3), Afghanistan (1), and others (7).

1/ Grain includes all major grains, rice, and flour in wheat equivalent at 72 percent. 2/ Total Soviet sugar imports in terms of refined value converted at 0.92. 3/ Million pieces. 4/ Estimate.

percent in 1985. Imports of livestock products that continued from Western sources were generally at bargain prices. Trade agreements for beef from the EC and mutton from New Zealand have been reported with prices of \$900 or less per ton. At the same time, beef imports from Argentina and poultry imports from all Western sources have been eliminated.

The value of Soviet livestock and livestock product imports in 1985 probably declined slightly but remained close to \$2 billion. Larger imports of wool were more than balanced by lower average livestock product prices, particularly for butter and meat. Total Soviet meat imports in 1985 probably remained unchanged at about 800,000 tons, with larger imports from China, smaller imports from Argentina, and constant or slightly increased imports from Eastern Europe. Further declines in butter prices in 1985 reduced the value of Soviet butter imports as the USSR took advantage of very low prices from the EC. The EC supplies more than half of Soviet butter imports of roughly 200,000 tons. Lower domestic wool production caused Soviet wool imports to increase an estimated 50 percent in 1985. Shipments from Australia, which supplies about half of Soviet wool imports, increased strongly. Imports from New Zealand, the Soviets' number two supplier, probably showed a modest increase.

Decline in Grain Imports To Continue

The value of Soviet agricultural imports may decline again in 1986 primarily because of decreased hard currency expenditures for grain. Grain imports in calendar 1986 could be down by as much as 25 percent in volume because of increased grain and forage output in 1985, the good early season production prospects in 1986, and the desire to save hard currency. (As a result of these factors, the Soviets are expected to hold grain imports to about 30 million tons for the 1985/86 and 1986/87 marketing years.)

The value of grain imports in calendar 1986 will likely drop even more because of anticipated decreases in world grain prices. Although expanded supplies by several new sources of coarse grains and opportunities to save hard currency because of lower coarse grain prices may encourage the Soviets to maintain a high proportion of coarse grain imports, the proportion is likely to be below 1985's.

Increased soybean imports, most of which will likely come from the United States, will use up some of the hard currency saved on grains. The Soviets must carefully weigh hard currency expenditures even in the high priority agricultural area, as some estimates suggest that Soviet hard currency earnings from energy exports may fall as much as \$9 billion in 1986.

Sugar imports will continue to account for a significant share of Soviet consumption (almost 30 percent). Total sugar imports could rise 4-8 percent over 1985 as the Soviets attempt to maintain supplies despite lower domestic sugar output. Imports could be less, however, if Soviet authorities succeed in reducing alcohol consumption.

In 1986, the USSR will continue to rely on bilateral trade agreements and discount prices from Western suppliers, particularly the EC, for livestock product imports. EC meat shipments were bolstered by a 175,000-ton sale, primarily of French beef, for delivery through April 1986. Further sales of highly subsidized EC beef to the USSR in 1986 are considered likely. Meat imports from China also are expected to increase. A recently signed bilateral trade agreement for 1986-90 calls for average annual Chinese shipments of 115,000 tons of frozen and canned pork, compared with the 1983-84 average of 62,000 tons. Interest in Western supplies of breeding animals and materials could well increase further in 1986.

The value of Soviet livestock product imports from all sources is expected to decline moderately in 1986, primarily because of smaller wool imports with the anticipated recovery in domestic wool production. The volume of meat and egg imports is not likely to increase and could fall slightly. Butter imports may remain stable because of larger domestic vegetable oil supplies.

Agricultural Exports Stable

As in the last 3 years, Soviet agricultural exports in 1986 are likely to range between \$2.1 and 2.3 billion (tables 20 and 21). Exports in 1985 are estimated at \$2.2 billion. As usual, sales of natural fibers, primarily cotton, accounted for almost one-half of USSR agricultural export earnings in 1985. Cotton

Table 20--USSR agricultural exports, by value

Commodity	1982	1983	1984
Million dollars 1/			
Wheat	337.2	296.3	265.0
Barley	5.9	5.1	6.1
Corn	41.4	23.3	32.8
Oats	2.7	1.7	1.4
Other grain	5.9	---	---
Flour-milling products and pulses	160.9	102.2	128.3
Subtotal	554.0	428.6	433.6
Meat and products	48.0	40.8	40.3
Milk and products	43.3	48.4	41.5
Animal fats including butter	59.0	68.5	70.3
Wool	33.2	17.7	14.6
Furs	121.8	106.1	124.4
Raw hides	23.0	4.5	8.0
Vegetables, fruit and nuts	43.2	48.3	44.4
Sugar, refined	97.2	46.5	58.0
Confectionaries	9.9	8.6	7.7
Beverages	87.3	83.5	72.6
Tobacco products	5.8	8.3	6.0
Oilseed, tobacco and other raw materials	67.9	74.0	92.5
Natural fibers	1,465.6	1,218.8	1,036.4
Vegetable oils	67.0	55.2	61.0
Technical fats and oils	6.6	7.4	3.7
Seeds and planting materials	42.2	41.1	38.2
Total	2,775.0	2,306.3	2,153.2

-- = Negligible or none. 1/ USSR official data converted at \$1.38 in 1982, \$1.35 in 1983, and \$1.23 in 1984.

exports in 1986 should remain near 1985's estimated 688,000 tons. Over 70 percent of cotton exports are generally destined for Eastern Europe. Ranked second in terms of sales were Soviet exports of grain and grain products, which in recent years have been primarily directed to Cuba and Poland. Soviet sugar exports, which are primarily destined for Afghanistan, Vietnam, Mongolia, and Yemen, are expected to decline by about 10 percent.

U.S. FARM EXPORTS TO USSR FALL

All of the \$860-million decline in 1985 U.S. exports to the USSR occurred on the agricultural trade side (table 22). U.S. sales of farm goods to the Soviet Union fell by almost \$1 billion to about \$1.9 billion. The decline resulted from a sharp drop in U.S. wheat

Table 21--USSR agricultural exports, quantities of principle items

Commodity	1982	1983	1984
1,000 metric tons			
Wheat 1/	1,772	1,689	1,614
Rye 1/	36	---	---
Barley 1/	44	45	50
Corn 1/	315	175	235
Oats 1/	16	12	9
Flour 2/	338	292	331
Groats	229	125	210
Pulses	39	47	61
Subtotal	2,789	2,385	2,510
Meat and products	33	25	27
Butter	15	17	17
Hides and skins 3/	1,520	954	1,684
Sugar, refined	247	152	189
Tea	17	26	30
Cotton, lint	949	774	642
Flax tow	8	8	13
Vegetable oil, edible	114	110	106
Starch	16	20	25

-- = Negligible or none. 1/ ERS estimates; official USSR sources report only value. Includes minor revisions in 1982 and 1983 estimates. 2/ Flour in wheat equivalent at 72 percent. 3/ Thousands. Revised to include pig skins.

exports to the USSR, which more than offset increased corn exports. In 1986, the value of U.S. agricultural exports to the USSR may fall further. The renewed purchase of U.S. soybeans may not offset further declines in Soviet imports of U.S. grains. U.S. cotton exports to the Soviets, which fell more than \$100 million between 1984 and 1985, may fall another \$50 million, as the Soviets continue to increase production of high quality cotton fiber.

Meetings' Goal To Improve Trade

The value of U.S.-Soviet trade fell despite several major meetings in 1985 to improve commercial relations between the two countries. The Joint U.S.-USSR Commercial Commission's (JCC) Experts Working Group met in Moscow in January to discuss the status of bilateral trade, obstacles to expanded trade, and areas in which trade expansion would be beneficial. Secretary of Commerce Baldrige attended the May JCC meeting in Moscow, at which 20 potential trade projects were identified by the United States and 30 by the Soviet Union. Areas

Table 22--U.S. trade with the USSR 1/

Year	U.S. exports		U.S. imports	
	Total	Agricultural	Total	Agricultural
Million dollars				
1972	542	430	88	4
1973	1,191	920	204	5
1974	609	300	335	9
1975	1,834	1,133	243	7
1976	2,306	1,487	214	8
1977	1,621	1,037	221	11
1978	2,250	1,687	529	12
1979	3,604	2,855	873	15
1980	1,510	1,047	432	10
1981	2,430	1,665	357	12
1982	2,589	1,855	229	11
1983	2,002	1,473	341	10
1984	3,283	2,878	556	11
1985 2/	2,422	1,908	409	9

1/ No adjustments made for transshipments.

2/ Preliminary.

under consideration included food processing and agribusiness, irrigation equipment, and agricultural chemicals. The U.S.-USSR Trade and Economic Council, a nongovernmental organization of U.S. businesses and Soviet foreign trade organizations, met in Moscow in December. Secretary Baldrige participated along with other U.S. Government officials and 350 U.S. business leaders.

Soviets Renege on Grain Agreement

The Soviet Union failed to meet the minimum purchase of wheat required under terms of the U.S.-USSR Long Term Grain Agreement for October/September 1984/85 by 1.1 million tons (table 23). The Soviets, however, did buy 15.7 million tons of U.S. corn during the agreement year, substantially exceeding the agreement minimum for corn. The shortfall in Soviet wheat purchases was the first Soviet breach of a grain pact since the first agreement became effective in 1976. The Soviets have occasionally failed to purchase specified amounts of Argentine and Brazilian soybeans.

The Soviet Union claimed that it reneged on the agreement because U.S. wheat prices were not competitive with those of other suppliers. The Soviets asserted that the contract was void since it specifies purchases at "market prices prevailing" for wheat and

corn. In addition, the Soviets objected to being excluded from the Export Enhancement Program (EEP). The USSR also suggested that since it had purchased almost 16 million tons of U.S. corn during the agreement year, it had more than fulfilled its part of the pact.

Opportunities to conserve hard currency may have motivated the Soviet import decision in 1985. Argentine and EC wheat prices were lower than U.S. prices. Although market quotes show that Canadian wheat prices were higher than U.S. prices for similar classes, the Canadians took large steps to boost the quality of their wheat exports. Quality problems with U.S. wheat may also have been responsible for the Soviet decision to renege. The Soviets have complained about smutty and insect-infested U.S. grain, although the problem does not appear to be solely associated with wheat or with U.S. grains. In 1985, a U.S. team held discussions with the Soviets on grain quality. Fumigation experiments on Soviet vessels and a thorough review of U.S. grain standards may have resolved some of the differences of opinion on U.S. grain quality.

As of May 15, the Soviets had taken only 153,000 tons of U.S. wheat for the October 1985/September 1986 agreement year, with no outstanding sales on the books. In the past 6 years, the USSR covered an average of 78 percent of its wheat liftings from the United States between October and March. If the pattern continues this agreement year, the

Table 23--U.S. grain exports to the USSR

Year 1/	U.S. offer to sell	USSR purchase from U.S.		
		Wheat	Corn	Total
Million tons				
1976/77	2/ 8	3.1	3.0	6.1
1977/78	15	3.5	11.1	14.6
1978/79	17	4.0	11.5	15.5
1979/80	3/ 25	2.2	5.8	8.0
1980/81	14	3.8	5.7	9.5
1981/82	23	6.1	7.8	13.9
1982/83	23	3.0	3.2	6.2
1983/84	22	7.6	6.5	14.1
1984/85	22	2.9	15.7	18.6
1985/86 4/	22	.2	6.2	6.4

1/ Grain agreement year--October/September.

2/ Soviets were also told that the 1976 U.S. grain crop could meet needs in excess of this.

3/ U.S. offer later withdrawn. 4/ Purchases reported as of May 15, 1986.

Soviet Union will purchase substantially less than 1 million tons of U.S. wheat. It is possible that the Soviets are waiting for price drops resulting from changes in the U.S. loan rates before making major purchases.

While wheat exports to the USSR in the 1985/86 agreement year are far below usual levels, the Soviets made large corn purchases early in the agreement year. The agreement requires the Soviets to buy at least 4 million tons of corn and 4 million tons of wheat annually, and an additional 1 million tons of grain for a total of 9 million tons. By late January, U.S. exports of corn to the USSR already exceeded 6 million tons, which covered the corn requirement and the additional 1-million-ton grain requirement. The agreement has an alternative provision that permits the Soviets to meet the final million-ton requirement by substituting soybean and/or soybean meal at the ration of 1 ton of soya for 2 tons of grain. Large Soviet soybean purchases in January 1986 mean that the Soviets can also meet the additional million-ton grain requirement for the 1985/86 year using the alternative provision.

U.S. Share of Soviet Grain Market Falls

The low level of U.S. wheat exports during the agreement year continued through the last quarter of calendar 1985. Thus, the United States lost a large share of the Soviet import market during calendar 1985 (figures 3 and 4). U.S. wheat exports declined sharply from 7.6 million tons in 1984 to 1.1 million in 1985 (tables 24 and 25). As a result, U.S. wheat exports are estimated to account for only 5 percent of total Soviet wheat imports, down from 27 percent in 1984. The major gainer in the Soviet wheat market was Argentina, which supplied an estimated 24 percent, compared with 10 percent in 1984. Improved Argentine loading facilities and relatively low Argentine prices may have been responsible for the increase. The EC also made gains in the Soviet wheat import market, capturing an estimated 21 percent of the market, compared with 14 percent in 1984. French export subsidies were the primary reason for the increased EC shipments. Australia's market share increased slightly while Canada's remained about the same.

Figure 3
USSR Wheat Imports

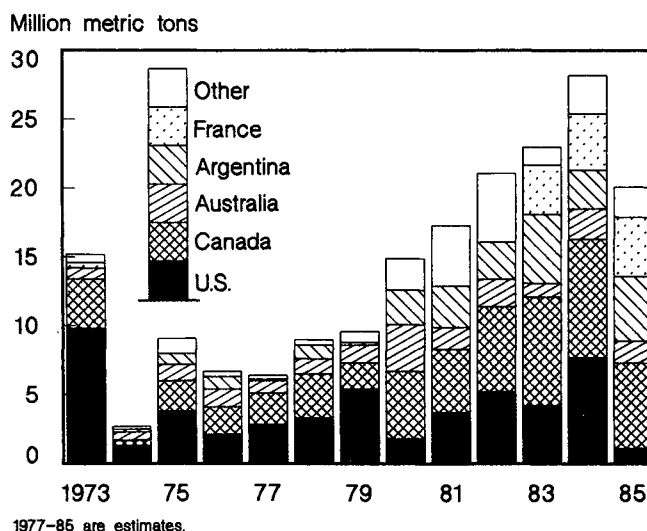
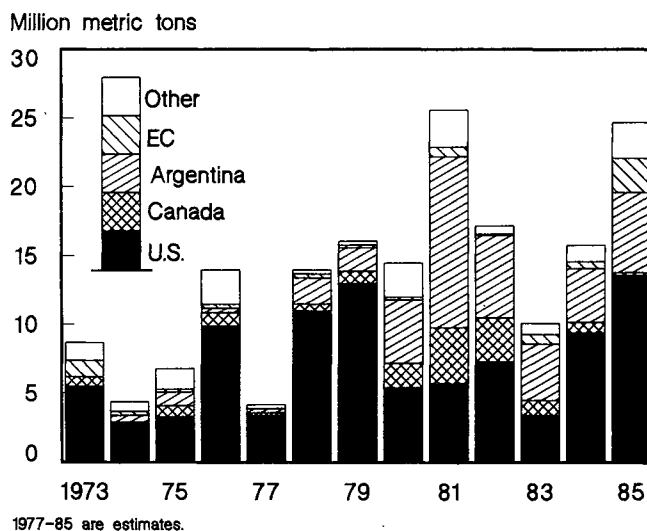


Figure 4
USSR Coarse Grain Imports



U.S. coarse grain exports to the Soviet Union increased by 23 percent to 13.05 million tons in 1985. However, because the Soviets diversified the sources of coarse grain in 1985, the U.S. share of the USSR market fell from an estimated 59 in 1984 to 53 percent. Argentina's share remained constant and Canada's declined from 5 to 1 percent. The Soviets moved to nontraditional suppliers. China shipped the USSR about 1 million tons of corn. Another relatively new coarse grain supplier was Thailand. The share of barley shipments from the EC also increased from 1984.

Table 24--U.S. agricultural trade with the USSR,
by quantity

Commodity	1983	1984	1985
Thousand metric tons			
Exports 1/			
Wheat	4,836.3	7,646.3	1,068.1
Corn	3,032.0	10,615.4	13,045.1
Soybeans	568.7	46.2	--
Vegetable oil	--	15.0	39.5
Cattle hides 2/	0.4	0.3	--
Almonds, shelled	1.0	8.6	28.2
Cotton, excluding linters	45.0	99.6	45.2
Tallow, inedible	54.5	55.5	80.1
Tobacco, raw	0.1	0.1	1.1
Imports			
Tea	0.6	0.4	--
Casein and mixture	0.3	0.2	0.1
Tobacco, unmanufactured	0.2	0.1	--
Beverages 3/	0.3	0.3	0.7
Cotton, excluding linters	0.3	--	--

-- = Negligible or none. 1/ Including transshipments through Canada, Belgium, the Netherlands, and West Germany. 2/ 1,000 pieces. 3/ Excludes fruit juices. Million liters.

Table 25--U.S. agricultural trade with the USSR
by value 1/

Commodity	1983	1984	1985
Million dollars			
Exports 2/			
Wheat	800.6	1,170.8	162.3
Corn	404.4	1,450.4	1,540.7
Soybeans	159.5	14.0	--
Vegetable oil	--	9.1	27.2
Cattle hides	10.6	10.2	--
Fruit, nuts, and berries	3.0	24.5	67.7
Cotton	72.2	167.4	63.6
Tallow, inedible	21.5	29.7	38.1
All other	1.1	1.5	8.2
Total	1,472.9	2,877.6	1,907.8
Imports			
Casein and mixture	.6	.2	.1
Furskins	8.3	10.2	7.8
Other animal products	.1	--	--
Tobacco fillers	.3	.2	.1
All other	1.1	.5	.6
Total	10.4	11.1	8.6

-- = Negligible or none. 1/ With minor revisions in various commodities, 1982-84. 2/ Including transshipments through Canada, Belgium, the Netherlands, and West Germany.

The U.S. share of the Soviet coarse grain market may decline again this year, but still approach 50 percent. Large coarse grain crops in Argentina and the Soviets' attempt to diversify coarse grain supplies could limit any growth in U.S. market share. The lack of Soviet purchases and U.S. wheat shipments during first-quarter 1986 indicates that the United States may not gain a larger portion of the Soviet wheat market in 1986. Although Soviet purchases may pick up in June when lower U.S. loan rates come into effect, Australia, Argentina, and the EC will all likely to attempt to maintain their shares through pricing policies.

New Grain Pacts Limit U.S. Market Share

Despite the USSR's failure to fully meet the specifications for the U.S.-USSR Long Term Grain Agreement in 1984/85, the Soviets continue to use long term agreements as a means of guaranteeing about 20 million tons of cereals annually. The Soviets' trade negotiations in 1985 and thus far in 1986 indicate that they are interested in maintaining ties with old suppliers while diversifying the sources of grain imports. The terms of the new agreements also suggest that the Soviets are looking for more flexibility in their grain buying arrangements.

The Soviets reached agreement on a new grain pact with Canada calling for minimum purchases of 30 million tons between August 1986 and July 1991. The new pact should ensure that Canada will continue to capture a large share of the Soviet wheat market, although the agreement gives the Soviets added flexibility. The new agreement does not specify volumes for each of the agreement years or grain type. Soviet purchases from Canada in the past have exceeded agreement levels. Imports have consisted primarily of milling quality wheat.

The USSR and Argentina reached agreement on a new grain pact for 1986 to 1990. The terms are the same as the last agreement, calling for Soviet purchases of 4 million tons of coarse grains annually between January 1986 and December 1990. The Soviets do not have a wheat agreement with the Argentines, although they purchase about 4

million tons of Argentine wheat annually. A large corn crop and aggressive pricing policies should guarantee Argentina a large share in the Soviet coarse grain market in 1986. The reduced Argentine wheat crop will likely mean a decline in Argentina's wheat market share.

The Soviets are unhappy about the large trade deficits they generally carry with Western grain exporting countries. They continually seek ways to develop more balanced trade with the United States, Argentina, and Canada. Soviet efforts to ameliorate the continuing large trade deficit with Argentina appear to have had some success in 1985 negotiations. Under terms of the new trade agreement, the Argentines are required to purchase \$500 million of Soviet goods over the next 5 years. Still, this will fall far short of offsetting the value of Soviet grain imports, which, at current prices, would exceed \$25 billion over the period.

The Soviets and the PRC reached agreement on a new trade protocol for 1986-90. The agreement requires the USSR to buy 7 million tons of corn over the 5-year period. The Chinese agreement is a further Soviet attempt to diversify its coarse grain sources. The United States and Argentina have dominated the Soviet coarse grain import market, accounting for an average of over 75 percent of Soviet coarse grain imports during 1979-85.

The Soviet Union does not have long term grain pacts with the EC and Australia. However, in 1986, these countries will likely remain major grain suppliers to the USSR. The EC may increase its share of the Soviet wheat market somewhat because of the continuing low price of EC grain, the EC's large grain stocks, and the reduced wheat crop in Argentina. EC feed wheat will likely satisfy some of the Soviet demand for feed grains, although EC barley sales to the USSR continue strong. Australia's wheat market share may more than double in 1986. Australia's near record exportable surpluses, low wheat prices, and weak currency should make Australian wheat attractive in 1986.

U.S. Soybeans Exported to USSR in 1986

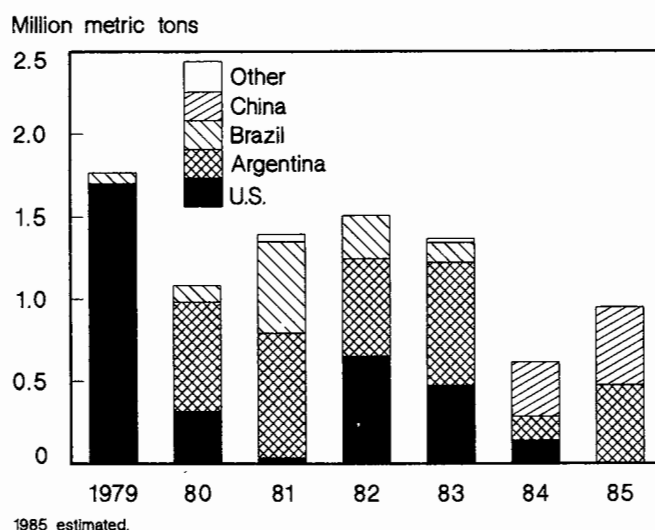
Increased Soviet imports of oilseeds, oilmeal, and vegetable oil in 1985 reflected the USSR's poor 1984 oilseed crop. Oilseed

imports increased by almost 50 percent to 1 million tons. Of the estimated 950,000 tons of soybeans imported in 1985, roughly half was supplied by Argentina and half by the PRC. Oilmeal imports also rose and possibly approached 1 million tons.

Increased domestic oilseed production in 1985, however, may not be reflected in a decline soybean imports in 1986. Soviet soybean purchases soared during the first 3 months of 1986. The rate of purchases is expected to slow, but total Soviet soybean imports may approach a record 2.5 million tons for the year. The Soviets apparently have reversed policy and decided to renew feed protein imports to reduce the chronic protein feed shortage. Even in years of good domestic production, the shortage approaches 13 million tons (soybean meal equivalent), according to the Soviets. Negotiations are reported underway to build several soybean processing plants in the USSR, valued at \$100 million. The negotiations indicate that the USSR intends to further reduce its feed protein shortage, probably through larger soybean imports.

The United States is expected to be the primary Soviet soybean supplier in 1986. During first-quarter 1986, the USSR purchased 1.5 million tons of U.S. soybeans. The USSR did not import any U.S. soybeans in 1985, although it generally bought large amounts in most years since the mid-1970s. The U.S. share of the Soviet soybean market exceeded 96 percent in 1978 and 1979 (figure 5).

Figure 5
USSR Soybean Imports



However, since the partial suspension of U.S. farm product sales to the USSR in 1980, the Soviet Union has diversified its sources of supply through longterm agreements with Argentina (1980-85 and 1986-90), Brazil (1982-86), and China (1986-90). Soybeans are included in the U.S.-USSR Long Term Grain Agreement, but no minimum purchase level is stipulated.

Argentina and China are likely to provide the Soviets with about one-half million tons each in 1986. Argentina renewed for 5 years its commitment to provide the USSR with 500,000 tons of soybeans annually from 1986-90. China has a commitment to provide 2.6 million tons during 1986-90. Brazil, the Soviets' other primary supplier, is experiencing difficulty with its soybean crop and may once again fail to ship any soybeans to the USSR despite its long term agreement. The Brazil-USSR agreement calls for deliveries of 2.5 million tons from 1982 to 1986.

Soviet meal imports in 1986 may drop somewhat below the 1985 level as the Soviets rely on heavy soybean imports to improve the protein content of feeds. The Soviets are believed to experience spoilage problems when they handle large quantities of imported soybean meal, and they have not bought U.S. soybean meal since 1979. The Soviets reportedly prefer pelletized meal of the type that Brazil produces because it is more resistant to spoilage as it moves through the USSR's inefficient distribution system. The Netherlands are believed to be willing to provide small shipments at prices competitive with large orders from other suppliers, which also helps the Soviets deal with their distribution problems.

Soviet vegetable oil imports may decline to less than 800,000 tons in 1986 because more oil can be processed from the higher 1985 domestic oilseed crop and sharply higher 1986 soybean imports. Vegetable oil imports in 1985 likely approached the record 866,000 tons of 1982. Most of the imports likely came from the USSR's regular suppliers such as Malaysia for palm oil and Argentina for sunflowerseed oil. The United States exported only 39,500 tons of vegetable oil to the USSR in 1985.

U.S. Cotton Exports to the USSR Fall

The U.S. share of Soviet cotton imports declined from 45 percent in 1984 to 36 percent in 1985, likely because of relatively high U.S. prices and the Soviet view of the United States as a residual supplier. Soviet imports were estimated at 147,000 tons in 1985, down 11 percent from 1984. Soviet cotton imports may decline further in 1986 because of an expected rise in domestic production.

The U.S. share of total cotton imports was unusually high in 1983-85. The Soviets will likely maintain some cotton trade with the United States to keep trade relations active, but the U.S. share is expected to decline as the Soviets decrease import needs from the high levels of 1983-85 and return to traditional suppliers. U.S. exports to the USSR were substantial in 1983-85 because of poor Soviet production and the inability of the traditional suppliers (Egypt, Sudan, Syria, and Afghanistan) to meet the increased Soviet import requirements.

Teams Visit USSR Under Cooperation Pact

Exchanges under the U.S.-USSR Agreement on Cooperation in the Field of Agriculture were renewed in 1985. President Reagan announced in June 1984 that the activities under the agreement, which had largely been suspended since the U.S. sales suspension in 1980, would resume. The 5-year agreement that was signed in 1973 has a provision for automatic extension for successive 5-year periods unless either party notifies the other of its intent to terminate the agreement. The pact was automatically renewed in 1978 and 1983. Activities under the agreement are managed by two joint working groups—one on agricultural economic research and information (AER) and one on agricultural research and technological developments (S&T) with oversight by a joint committee.

Plans were developed for 1985 and 1986 exchanges at meetings in Moscow in June 1985. Four U.S. teams traveled to the Soviet Union in 1985 for information exchanges on plant quarantine, spring wheat production, cotton production, and animal infectious disease control. In 1986, the planned U.S. teams will be concerned with feed

manufacturing technology, reforestation, winter grain production, agrochemicals, plant genetics, and biological pest controls. The Soviet teams that visit the United States will be concerned with vertical integration in agriculture, management practices, embryo transplantation, compound fertilizers, grain production in arid areas, plant genetics, irrigation, reforestation, and modeling and

computer use in agriculture.

The agreement also calls for the exchange of economic information about agriculture in both countries. The Soviets, however, refuse to provide data at the national level on Soviet grain yields, production, and import volume. The Soviets have not provided national level data on the volume of grain imports since 1976 and on grain production and yields since 1980.

11th FIVE YEAR PLAN RESULTS, PROSPECTS FOR THE 12th

Soviet agricultural performance during the 11th Five Year Plan (FYP), covering 1981-85, was the most disappointing in recent history. Significant production shortfalls occurred in oilseeds, sugarbeets, and particularly grains. As a result, Soviet agricultural imports increased to an average of \$18.6 billion per year. Despite the 11th FYP's failure, Soviet targets for the 12th FYP (1986-90) remain virtually unchanged from those released in the 1982 Food Program. Production targets for most products remain unrealistically high, while per capita consumption targets appear more reasonable.

In late 1985, the Soviets reorganized their agro-industrial management structure to improve agricultural performance. The Soviets eliminated the Ministry of Agriculture, four related ministries, and a state committee as separate entities, and formed Gosagroprom. Gosagroprom centralizes the agricultural managerial apparatus even further by concentrating the former ministries' decisionmaking responsibilities in one organization. The Soviets see two benefits to this approach: First, it forces the former ministries to coordinate their activities and cooperate in sectorwide plans. Second, it allows individual farms more freedom in decisionmaking by eliminating unnecessary, often contradictory orders from numerous ministries.

Gosagroprom follows the East German and Bulgarian approach to improving agricultural production through increased centralization and control. At this point the Soviets do not view the decentralized, market-influenced, approaches of Hungary or China as necessary, or desirable. The recent 27th Party Congress introduced only one change of significance in Soviet agricultural policy, purportedly giving the farms the authority to market above-plan production through nonstate outlets. Most of the other

policy pronouncements restated long known ideas or called for wider implementation of current programs. Following the Congress, a decree with more details on agricultural policy changes was released on March 29, 1986. The decree apparently limits "food tax" (prodna-log) type marketing to fruit and vegetables, increases bonuses for above-plan performance, and urges improved cooperation between socialist and private agricultural sectors. In all, the decree indicates little change in the operation of Soviet agriculture.

11th FYP Results Disappointing

Grain production during the 11th FYP fell 62 million tons below target and dropped below production levels achieved during the 9th (1971-75) and 10th (1976-80) FYP. Grain imports averaged 42 million tons annually, nearly twice that of the 10th FYP and three times the 9th FYP figure. Grain's share of the total value of agricultural imports increased from 24 to 35 percent between the 9th and 11th FYPs. Despite the heavy imports, total grain availability declined. Grain production is estimated to have averaged 178 million tons during the 11th FYP, requiring growth of 7.2 percent annually to reach the 1990 target of 250-255 million tons. Even if the Soviets had managed to attain average grain production in the 205-million-ton range, as they did during the 10th FYP, growth would have to average 4.3 percent annually during the next 5 years to reach the 1990 target. In the last three FYPs, the highest growth rate achieved was 2.5 percent, during the 10th FYP. Although a consistent string of good weather would improve Soviet grain production, many other factors, such as continued problems with soil fertility, poor organization and management of farms, as well as untimely deliveries of inputs of low quality suggest that the 12th FYP grain target is overly ambitious.

Three other crops, sunflowerseed, sugarbeets, and potatoes, fell short of past production levels and were well below the 11th FYP targets. Vegetable production increased relative to the 10th FYP, but did not come as close to fulfilling the 11th FYP as it did in previous plans. Fruit and berries was the only crop category showing improvement in both production and plan fulfillment over past FYPs. Despite the crop sector's failure to meet plan targets during the 11th FYP, total imports of nongrain crops and related products grew only 7.8 percent annually, compared with 26.2 percent annually during the 10th FYP. Not surprisingly, growth in per capita consumption of nongrain crops reached its highest rate during the 10th FYP and dropped off sharply in the 11th.

Production targets for nongrain crops during the 12th FYP remain relatively high. Only the sugarbeet target shows significant downward adjustment, from 102-103 million tons to 90-92 million. Still, sugarbeet production will have to increase 2.4 percent annually to reach target. Historically, sugarbeet production has fluctuated widely, experiencing declines in both the 9th and 11th FYPs. The 1990 target for vegetable oil production requires growth of 7.2 percent annually over the 1981-85 average, very unlikely given historical growth rates of less than 3 percent annually between the 9th and 11th FYPs. Sunflowerseed production must grow 9 percent annually to reach the 1990 target, but average production has declined in each of the last three FYPs.

The livestock sector performed more consistently than the crop sector during the 11th FYP. Meat, milk, and egg production surpassed that of previous FYPs and came closer to plan fulfillment than the crop sector. Production, however, benefited from large grain imports and policy changes emphasizing the increased use of nongrain feeds. Still, plan fulfillment of meat production dropped from 98 percent during the 9th FYP to 94 percent during the 11th.

Meat imports during the 11th FYP were nearly twice the average for the 10th FYP, and three times that of the 9th. Meat imports played an important role in maintaining growth in per capita meat consumption. Between 1971 and 1984, per capita meat consumption grew 1.4 percent annually, meat

production less than 1 percent, and meat imports 7.5 percent. Clearly, growth in Soviet meat consumption in recent years relied heavily on imported grain for domestic livestock production and imported meat for direct consumption. Meat production is targeted at 21 million tons for 1990, requiring 4.2 percent annual growth over the 1985 level. With recent growth averaging under 2 percent per year, the 1990 target appears unattainable. The 1990 target for per capita consumption of meat could be more closely approached, however, with moderate improvement in production and continued import growth.

Milk production grew only 2 percent over the 10th FYP average, the slowest growth in the last 3 FYPs. After an initial decline in 1981 and a marginal increase in 1982, output picked up significantly in 1983-85, resulting in a net increase in production. The 1990 target of 104 million tons appears reasonable, requiring growth of only 1.3 percent annually, the rate attained during the 10th FYP. Egg production was the only major agricultural commodity to fulfill its 11th FYP target. Egg production has historically overfulfilled targets and should easily reach the 1990 target of 80 billion pieces.

Agriculture's poor performance during the 11th FYP was partially offset by a 57-percent increase in agricultural commodity imports. Agriculture's share of total imports, however, did not rise much, as the Soviets raised total imports by 53 percent over the same period. The large import growth paralleled increased hard currency earnings from Soviet oil and gas exports. A question that remains unanswered is whether Soviet planners desired to maintain agriculture's share of imports, or would have preferred to use the hard currency earnings for more technology imports. A stated goal of the Food Program is agricultural self-sufficiency, and clearly the Soviets did not come close to attaining it during the 11th FYP. Whether agriculture's share of total imports declines or not depends, in part, on the success of the Food Program and Gosagroprom in stimulating production. During the 12th FYP, Soviet consumption goals appear less demanding than their production goals. Still, the Soviets will not achieve self-sufficiency during the 12th FYP

and will continue to import substantial quantities of agricultural and food commodities.

Organizational Restructuring

The Soviets have made two recent attempts to improve the agricultural sector's performance: The Food Program of 1982 and more recently, the creation of Gosagroprom in 1985. The Food Program was formulated as a response to the increasingly poor performance of agriculture during the 9th and 10th FYPs. It sets long range goals and guidelines for the development of the agro-industrial sector. The program emphasizes the need for balanced development of all APK sectors and a more integrated approach to overall management. Gosagroprom, building on the foundation of the Food Program, attempts to more fully integrate the APK management apparatus through increased centralization of decisionmaking.

The main goals of the Food Program include increasing production, slowing the growth of production costs, and reducing import dependence for agricultural commodities, particularly grains. The Food Program's combination of economic policy changes (such as more balanced investment among APK sectors, increased procurement prices, use of the collective contract to improve labor productivity, and tying individual sectors' production bonuses to the entire sector's performance) and administrative reorganization (most importantly the RAPO, which brings together management from all sectors of local APKs to improve coordination and cooperation) was to be implemented immediately and to ensure the fulfillment of the 11th and 12th FYPs.

By mid-1985, it was clear that the Food Program's administrative restructuring was not completely effective at improving coordination among APK sectors. The RAPOs had very little power to enforce collective decisions on unwilling members. Many RAPO decisions were heavily influenced by powerful special interest groups who dominated other members. Some of the economic policies of the Food Program were adversely affected by the failure of the RAPOs. For example, the balanced development of the APK clearly had not occurred, as RAPOs, though responsible for identifying the needed redistribution of

funds, have no real authority to implement the redistribution. This lack of authority to implement Food Program policies and the ineffectiveness of voluntary cooperation and coordination led to the establishment of Gosagroprom.

Gosagroprom is effectively a superministry formed from five formerly independent agro-industrial ministries and one state committee, and parts of two other reorganized ministries. The former ministries contained in Gosagroprom have more incentive to work together as they report to one boss, who is responsible for the sector's combined performance. Gosagroprom has the authority of a ministry with respect to planning and resource allocation among its components and does not have to rely on voluntary cooperation between members. Undoubtedly, some degree of conflict will remain between the former ministries. The extent to which this remains a problem depends on the ability of the Gosagroprom chairman to coerce cooperation between members. In addition, the agro-industrial complex (consisting of Gosagroprom, and the ministries of Grain Products, Food Industry, Land Reclamation and Water Resources, and the State Committee for Forestry) continues to be planned and financed as a single entity. Although planning and financing of the APK as a single entity is not new, the formation of Gosagroprom clearly creates a dominant organization in terms of size and influence in the sector's planning process. Thus while the four non-Gosagroprom members of the APK are essentially separate organizations, their actions will be heavily influenced by Gosagroprom's needs.

Gosagroprom, though correcting some of the RAPO's flaws, remains an imperfect centralizing authority. Gosagroprom's members and range of influence extends primarily over agricultural and food processing ministries, only two of the APK's three sectors. Gosagroprom's ties with agricultural input industries are through the State Committee for Supply of Production Equipment for Agriculture, effectively the monopoly supplier of agricultural inputs. The ministries responsible for the production of agricultural inputs remain outside of Gosagroprom's direct influence. These ministries are in high-priority industrial sectors (machinebuilding and metalworking,

and chemicals and petrochemicals) and as such, are likely to have a great deal of independence. Without direct influence over them, Gosagroprom and the APK will probably continue to have difficulty getting these ministries to produce agricultural inputs of the required type and quality and with the timeliness agriculture requires.

Gosagroprom still represents a considerable centralization of decisionmaking authority in the agro-industrial sector despite its lack of influence over the input sector. Thus, the Soviets continue to emphasize adjustment to their centralized system rather than introducing market-type reforms. Western observers note that reliance on the centralized system results in poor productive efficiency and irrational resource allocation.

While countries such as Hungary and China experiment with the use of market forces to improve agricultural production and efficiency, the Soviets currently reject such an approach as unnecessary and unreasonable. Instead, the Soviets view the successes of East Germany's and Bulgaria's highly centralized agriculture as proof that their system can work if adjusted properly. Soviet agriculture's performance during the 12th FYP will be very important in judging the success or failure of this strategy. Should Gosagroprom fail to significantly improve agricultural production, the Soviets might have to consider alternative approaches to further centralization.

27th Party Congress and Agriculture

The 27th Party Congress meeting in March 1986 gave no indications of the Soviet Union moving away from central planning as its vehicle for economic growth. The major development relating to agriculture is the reappearance of Lenin's prodnalog, where the state allows farms to keep above-plan output for its own use or sell it to the state, to the collective market, or to the cooperative system. This change may stimulate production, as prices in collective farm markets and cooperatives tend to be higher than state procurement prices. In addition, increased marketing through these outlets could help relieve market pressures, which have forced up collective farm prices, while effectively raising the realized price of food products without officially increasing state retail prices. However, the March 29th decree

indicated that prodnalog type policies are limited to fruit and vegetable marketing (see below). Other developments included the elimination of any mention of the massive river diversion schemes, and the acceptance of the preliminary 12th FYP as final, with no significant changes.

General Secretary Gorbachev's speech at the Congress called for doubling agricultural output during the next 5 years, and considerably increasing per capita consumption of meat, milk, vegetables, and fruit. Gorbachev stated that the easiest, most efficient way to accomplish this goal is to curb losses and waste incurred during harvesting, storage, transportation, and processing. Current consumption levels could be increased up to 20 percent, at a cost of 2 to 3 times less than achieving the gain through output expansion.

In line with the Food Program, calls were made for further integration of the agro-industrial sectors and increased integration of agricultural research organizations with farms that use their results. The use of contracts specifying goods to be delivered, timetables for delivery, prices, and penalties for nonfulfillment are to be expanded, though no specific dimensions were given. Also, the brigade and team systems for labor remuneration are to be expanded to cover even more of the agricultural labor force. The teams are supposed to receive all of the necessary inputs, including land, for the life of the contract.

Overall, the congress produced few new or imaginative approaches to the problems facing Soviet agriculture. Only the rebirth of Lenin's prodnalog was unexpected and not already in operation to some degree. Prodnalog represents some loosening of central authority, though only at the marketing level. For prodnalog to work effectively, compulsory or plan figures must be low enough to allow for substantial independent sales. The prices offered by nonstate sources can not be overly restricted (currently the state sets maximum prices for collective markets and the cooperatives), and must be high enough to stimulate a supply response by farms.

The state also needs to allow for the development of a flexible distribution network to fill potential requirements for marketing through nonstate sources. If marketing their above-plan output proves difficult, farm managers may decide to just sell it to the state. Further, even if the state provides enough incentives and flexibility, the effectiveness of prodnalog could be hampered by problems such as poor soil conditions, poor input quality and selection, as well as storage and transportation deficiencies. Prodnalog, however, has the potential for increasing agricultural output significantly because it relies on direct incentives to farms. Quantifying this potential is difficult, but clearly prodnalog could have a greater effect than all the recent organizational changes combined.

March 29 Decree Outlines Policy Changes

A decree released on March 29, 1986, detailed Soviet agricultural policy changes through 1990. The decree made no direct mention of Gorbachev's prodnalog policy initiative. Some of prodnalog's basic tenets

did appear, but only with respect to fruit and vegetables, commodities already heavily marketed by the cooperative and private sectors. The decree also detailed plans to use state procurement price bonuses of 50 percent for production levels exceeding those actually attained during 1981-1985. Even greater bonuses, 100 percent, will be paid if production exceeds the 1986-1990 plan figures.

Further, local authorities are now allowed to set fruit and vegetable prices to help balance supply and demand conditions in local markets. The decree also emphasized the role of private producers in helping to alleviate shortages of agricultural goods, and urged local authorities and farms to increase assistance and cooperation to private producers. However, numerous official proclamations for increasing the private sector's role have been issued since 1982, apparently with little effect, and a similar fate could befall this decree. In all, the decree does not suggest radical changes for Soviet agricultural policies or performance. [Robert Koopman (202) 786 1710]

THE USSR HARD CURRENCY CONSTRAINT AND AGRICULTURAL TRADE

Declining Soviet petroleum production and sinking international prices have raised questions about the Soviet Union's ability to earn enough hard currency to sustain agricultural imports from the West. Grain and oilseed imports are of special interest as they made up as much as 35 percent of the value of all Soviet agricultural imports in 1985. Western countries supplied 94 percent of Soviet grain imports in 1985; the United States exported 14.1 million metric tons of grain valued at \$1.7 billion.

Though year-to-year variations in Soviet grain production may explain short run variations in agricultural imports, the availability of hard currency and changing grain/oil terms of trade may account for the upward trend in grain imports through the 1970's. The figure on the cover depicts the close relationship between the rate of change in Soviet hard currency earnings and the rate of change in the value of Soviet grain imports. Recent developments in Soviet oil production, in the demand for Soviet oil and

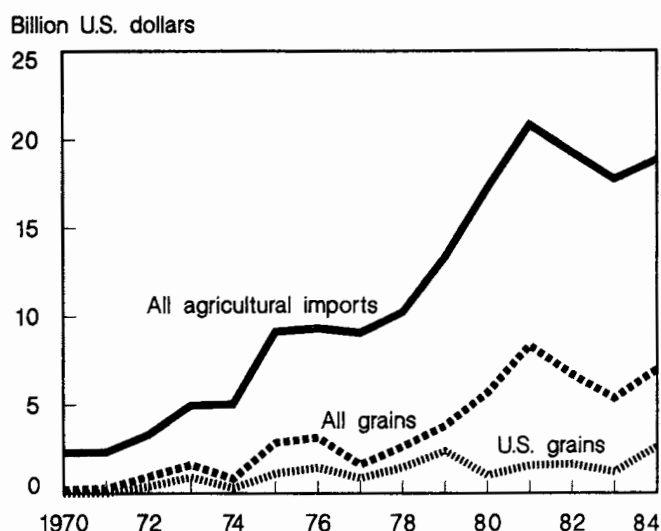
gas exports, and in the terms of trade for energy commodities and grain could portend major adjustments in Soviet trade in agricultural commodities, especially grain.

Farm Imports Show 7-Fold Rise Since 1970

Soviet agricultural output posted overall gains since 1970, but not enough to meet consumer demand. Soviet leaders increased agricultural imports to upgrade diets. Agricultural imports increased from \$2.3 billion in 1970 to peak at \$20.9 billion in 1981 (figure 6). The value of Soviet grain imports advanced 40 times from 1970 to peak at \$8.4 billion in 1981.

Prior to the 1970's, the Soviets were net grain exporters. In years of low domestic feed supplies, the Soviets forced adjustment in the domestic livestock sector which included reduced feed rations and animal inventories. Beginning in 1972, the Soviets consistently turned to grain imports to maintain stability in the livestock sector when domestic feed

Figure 6
Soviet Agricultural Imports



output declined. Only countries in the West, most notably the United States, had large and dependable supplies. The Soviet ruble, however, is not a convertible currency, so the Soviets were required to pay for Western grain with hard currency.

The Soviets imported an estimated 391 million tons of grain at an estimated cost of \$46 billion (nominal value) between 1970 and 1985. Average annual imports rose from \$2.1 billion in 1973–78 to \$6.2 billion in 1979–84. The United States sold the Soviets 138.5 million tons of grain valued at \$18 billion during 1973–85. Soviet energy exports largely financed these massive imports.

Windfall from Energy Exports

Soviet petroleum and natural gas production trended upward through the 1970's and into the early 1980's. In 1970, the Soviets produced 7 million barrels per day (mbd) of petroleum. By 1983, production peaked at 11.8 mbd, the highest ever produced by any country. In 1970, the Soviet Union produced 7.0 trillion cubic feet (tcf) of natural gas, and by 1984, production had nearly tripled to 20.7 tcf.

These high rates of production allowed the Soviets to increase the volume of oil exports 2.5 times between 1970 and 1984. Gas exports rose from .037 billion cubic meters (bcm) to 31.81 bcm over the same period. Even more important for increasing Soviet

export earnings were the world energy price increases. Along with other non-OPEC petroleum producers, the Soviet Union took full advantage of the large international petroleum price increases set by OPEC. The international price quadrupled in 1973–74, and doubled in 1978–1979.²⁰ The price of natural gas, a substitute for petroleum, also trended upward. Thus the Soviets benefited from selling large volumes of petroleum and natural gas at high international prices.

Large energy earnings allowed the Soviets to not only raise imports of other commodities from the Soviet bloc allies, but also to greatly increase their imports from the West. Hard currency earnings from petroleum exports went from \$430 million in 1970 to \$15.1 billion in 1984, a 35-fold increase (figure 7). During the same period, hard currency earnings from natural gas sales increased from \$14 million to \$3.8 billion (figure 8). In 1984, petroleum made up 58 percent of Soviet hard currency earnings and natural gas, 14.5 percent, for a total of 72.5 percent of all hard currency earnings.

The increases in world grain prices through the 1970's were far outdistanced by the increases in world oil and gas prices. Figure 9 catches the fourfold increase in the price of petroleum relative to the price of the Soviet corn and wheat basket from 1973 to 1974. Furthermore, the consequent increase in the prices of the grain basket is shown by the flattening in the grain/oil terms of trade from 1974 to 1975. But after 1975,

Figure 7
Soviet Petroleum Exports to the West

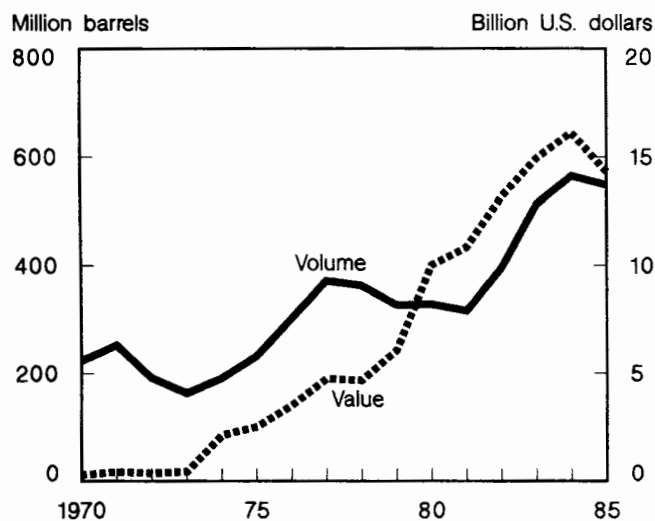
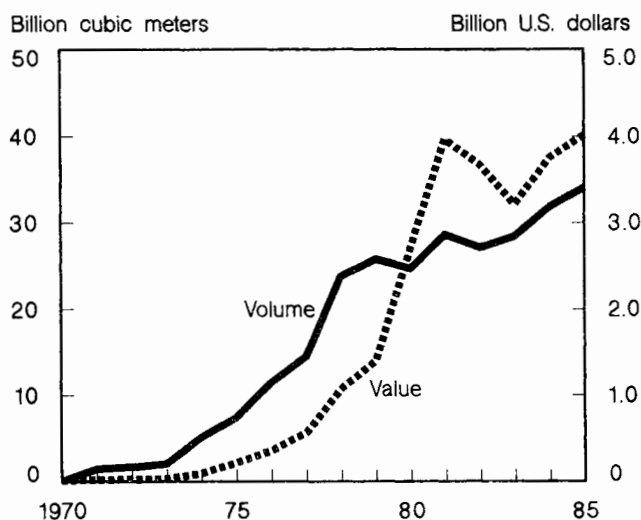


Figure 8
Soviet Natural Gas Exports to the West



the grain/oil terms of trade rose until 1982 when the relative price of petroleum and the price of the Soviet imported basket of these two grains remained roughly the same.

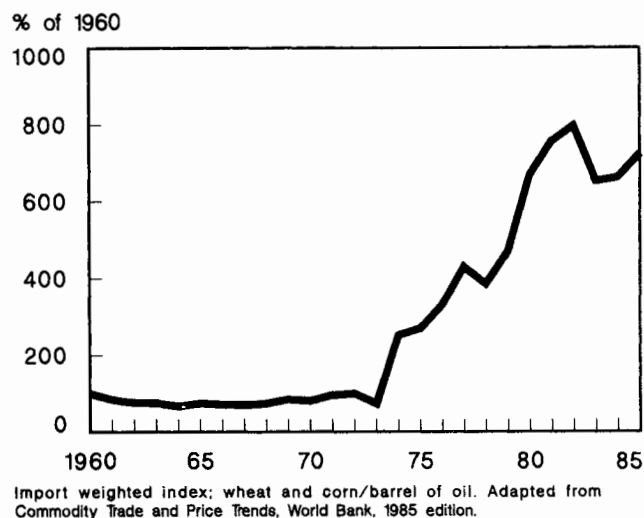
Future of Soviet Agricultural Imports

Soviet farm output will not likely meet the 12th Five Year Plan goals. Grain production will likely average more than 40 million tons below plan. Meat production may miss the 1990 goal by 5 years even with grain imports averaging over 30 million tons a year. Per capita meat and fruit and vegetable consumption will still be well below Soviet planners' goals, consumer expectations, and the levels attained even in many East European countries. Agricultural import requirements through 1990 will not likely fall below those of 1981-1985. Lagging Soviet energy production, slow progress in domestic energy conservation in the USSR and Eastern Europe, lagging demand for energy in Western Europe, and low world energy prices, however, may force the Soviets to make some difficult choices concerning the level of agricultural and nonagricultural imports and the composition of each.

Culmination of Energy Problems

Several major problems threaten to lessen the productivity of the Soviet Union's petroleum sector. These problems include the use of poor drilling equipment, oil wells ruined by excessive rates of production, labor shortages, the location of new wells in more

Figure 9
Grain-Oil Terms of Trade, USSR



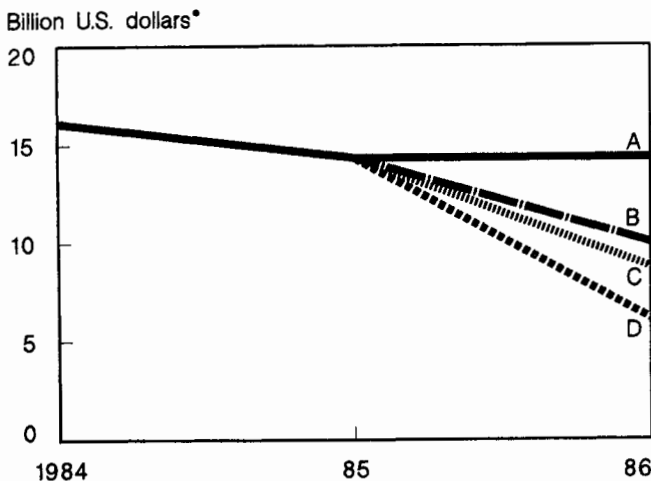
Import weighted index: wheat and corn/barrel of oil. Adapted from *Commodity Trade and Price Trends*, World Bank, 1985 edition.

distant and inclement areas, escalating production costs, and shortages of consumer goods.²¹ From 1984 to 1985, petroleum production fell 3 percent. Planned investment in 1985 in the petroleum sector was increased by 31 percent over 1984, indicating that Soviet authorities thought the problem was serious.²²

The Soviets are more likely to cut back on petroleum exports to the West than to members of CMEA. The Soviets indicated this preference during first-quarter 1985 when they reduced exports to Western Europe by 30 percent and to Eastern Europe by only 7 percent.²³ Then, concerns about disruptions of petroleum supplies from Iran to Eastern European countries prompted the Soviets to divert petroleum to Eastern Europe from Western markets.²⁴ Furthermore, the depressed price of oil in early 1986 made sales of petroleum to Western markets even less attractive to the Soviet Union, which is considered one of the world's highest cost petroleum producers.²⁵ One high-ranking Soviet scientist, Stanislav Schatalin, suggested in early March that the Soviets might even buy petroleum from the West to take advantage of low prices. At the same time, he assured both Eastern and Western purchasers that oil exports would remain at present levels.²⁶

Figure 10 presents a range of estimates of Soviet hard currency earnings from petroleum sales in 1986. Line A shows the hard currency revenue from oil sales if the price and volume of exports to the West remain unchanged from 1985. Line B shows the effect of a 30-percent

Figure 10
USSR Hard Currency Revenue from Petroleum



* Adapted from CIA data; Commodity Trade and Price Trends, World Bank, 1985 edition; and Petroleum Intelligence Weekly.

drop in sales volume (that some analysts are expecting for 1986, according to the *Petroleum Intelligence Weekly*) with the price remaining the same as the OPEC crude weighted price average for the first 9 months of 1985. Line C shows the effect of a drop in price to \$16 per barrel with sales volume remaining at 1985's level. Finally, line D uses estimates by Wharton Econometric Forecasting Associates and other analysts to show the possible combined price and quantity effects of both drops in volume of petroleum sold and price per barrel.²⁷ Soviet hard currency export earnings could fall by as much as \$8-9 billion from 1984. Put in perspective, this shortfall is 29 to 33 percent of the value of total Soviet hard currency imports in 1984. It is also as much as the Soviet Union has ever paid for grain imports in any year.

How long Soviet hard currency earnings from petroleum sales to the West will remain depressed is not certain. There are, however, several important considerations. It may be as long as 15 years before Soviet oil production shows significant growth again.²⁸ Prices may take as long to recover. In a survey of 78 petroleum specialists, the vast majority indicated that the real price of petroleum will reach the 1980 price or double it by 2000.²⁹ Although energy conservation has become a major concern, Eastern Europe and the Soviet Union's petroleum requirements are likely to grow and therefore divert petroleum supplies from the world market.³⁰ Natural gas production, though increasing, is not likely to

make up for losses in other sectors.³¹ Soviet gold sales rose from \$1.3 billion in 1983 to \$3.1 billion in 1985. Such increases in gold sales are not enough to cover the likely shortfall in petroleum revenues.³²

Since 1981, international petroleum prices have declined even more rapidly than the cost of the corn-wheat basket. The fall in the petroleum price alone, without considering likely reductions in exports, portends considerable difficulty for the Soviet Union to sustain imports from hard currency countries.

This analysis suggests that the severity of the hard currency shortfall will push the Soviets to become even more sensitive to prices for agricultural imports to save hard currency. It also suggests the Soviet hard currency squeeze was first felt in 1985 and that it may have been one of the reasons why the Soviets violated the terms of the U.S.-USSR Long Term Grain Agreement in 1984/85.

In the short run, the Soviets may turn to the international credit markets to sustain their accustomed level of imports. If price and production problems persist, the credit markets will not be promising options over the long run. This is because credit availability depends very much upon a country's ability to repay loans on terms available in an essentially competitive international financial market. Another hard currency export that promises approximately the same revenues as petroleum is not on the horizon. This may raise doubts of potential creditors about the Soviets' ability to repay debt, particularly considering the size and number of loans that would be required. Until now, however, there is no evidence that the Soviet Union has encountered any difficulty in acquiring loans.

There are at least three implications of this investigation. First, if the United States is to maintain high levels of agricultural sales to the Soviet Union, it can only do so by offering the Soviets even more competitive prices than before the Soviets encountered their hard currency problems. Second, the possible decline in Soviet grain imports could result in increased competition in other import markets. Third, the tightening of the Soviet hard currency situation and the Soviets' failure to purchase the full amount of wheat under the U.S.-USSR Long Term Grain

Agreement raise questions about the ability and willingness of the USSR to meet the terms of its agricultural purchase agreements with Western countries. [Dennis Miller (202) 786-1710]

FOOTNOTES

¹ Livestock production, while also up from 1984, historically has not been as profitable as crop production.

² *Ekonomika sel'skogo khozyaistva*, no. 1 (1985), p. 6 and no. 1 (1986), p.5.

³ *Voprosy ekonomiki*, no. 12 (1985) p. 81; *Pravda*, 2/12/86.

⁴ *Ekonomika sel'skogo khozyaistva*, no. 1 (1986), pp. 7-8.

⁵ *Planirovaniye i uchety v sel'skokhozyaistvennykh predpriyatiyakh*, no. 2 (1985), pp. 2-6.

⁶ *Zemledeliye*, no. 12 (1985), p. 12.

⁷ *Planovoye khozyaistvo*, no. 5 (1985).

⁸ *Planirovaniye i uchety v sel'skokhozyaistvennykh predpriyatiyakh*, no. 2 (1985).

⁹ *Sel'skaya zhizn'*, 10/25/85.

¹⁰ *Agitator*, no. 22 (1985). Translated in Foreign Broadcast Information Service, *USSR Report: Agriculture*, JPRS-UAG-86-002, 1/16/86.

¹¹ *Zhivotnovodstvo*, no. 10 (1985).

¹² *Pravda*, 1/26/86.

¹³ *Zakupki sel'skokhozyaistvennykh produktov*, no. 12 (1985) and *Myasnaya industriya*, no. 5 (1985).

¹⁴ *Pravda*, 9/11/85.

¹⁵ *Planovoye khozyaistvo*, no. 2 (1985).

¹⁶ *Planovoye khozyaistvo*, no. 12 (1985).

¹⁷ *Molochnoye promyshlennost'*, no. 1 (1986).

¹⁸ As told to the author during meetings in Uzbekistan with a Deputy Minister of Agriculture and later repeated at a meeting with specialists from the Central Asian Institute of Hydro Supply Network for Cotton, October 1985.

¹⁹ The 17-20 percent figure was reported in an article in *Cotton, Review of the World Situation*, ICAC, Washington, D.C. Soviet figures published in *Narodnoye khozyaistvo*, however, do not support this contention.

²⁰ Dermot Gately, "A Ten-Year Retrospective: OPEC and the World Oil Market," *The Journal of Economic Literature*, vol. xxii (September 1984) no. 3, pp. 1100, 1104.

²¹ See Arthur A. Meyerhoff, "Soviet Petroleum: History, Technology, Geology, Reserves, Potential and Policy," in Robert G. Jensen, Theodore Shabad, and Arthur W. Wright, eds., *Soviet Natural Resources in the World Economy* (Chicago: University of Chicago Press, 1983), pp. 306-362.

²² Cited in Patrick Cockburn, "U.S. Companies Set to Agree Soviet Deals," *Financial Times*, December 12, 1985, p. 3.

²³ Kate Thomlinson, *International Economic Review*, U.S. International Trade Commission, February 1986, p. 7.

²⁴ Maurice Samuelson, "Soviet Oil Sales to West May Decline," *Financial Times*, October 8, 1985, p. 2.

²⁵ James Tanner, "Smaller U.S. Oil Producers Dropping Out 'Real' Oil Price is Elusive Figure," *Wall Street Journal*, 2/19/86.

²⁶ Patrick Blum, "Moscow May Restrain Oil Output," *Financial Times*, March 6, 1986, p. 26.

²⁷ Adapted from a Wharton estimate cited in Celestine Bohlen, "Moscow Feels Hard-Currency Pinch," *Washington Post*, January 31, 1986, p. A21.

²⁸ Meyerhoff, p. 358.

²⁹ This is from a 1983 conference of the International Energy Workshop sponsored by the International Institute for Applied Systems Analysis (IIASA). Seventy-eight respondents

from around the world, including oil companies, government agencies, international organizations, universities and research institutes were polled and results summarized by Alan Manne and Leo Schrattenholzer. Cited in Gately, p. 1105.

30 CIA analysts, "East European Energy Outlook through 1990," in Joint Economic Committee, Congress of the United States, *East European Economics: Slow Growth in the*

1980s, (Washington, D.C.: Government Printing Office, October 28, 1985), pp. 303-317.

31 Frederick Kempe, "Radical Economic Change Needed in Soviet Union, Top Aide Says," *The Wall Street Journal*, March 6, 1986, p. 29.

32 Leslie Dienes, "Soviet Energy Policy and Fossil Fuels," in Jensen, et al., p. 287.

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