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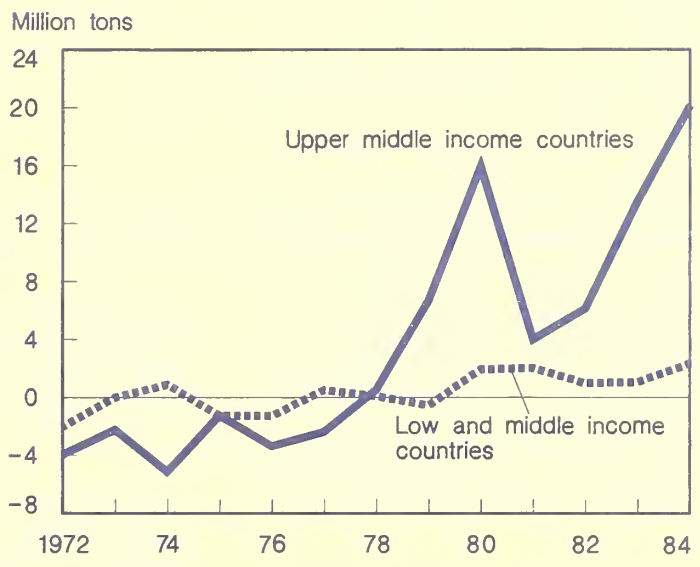
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Situation and Outlook Report

Net Coarse Grain Imports in the LDC's



Higher income developing countries
boost world feed grain demand.

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Note: Tons are metric, dollars are U.S., and rice is on a milled basis unless specified otherwise.

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SUMMARY

World meat production is expected to grow around 1 percent in 1986, as a marginal decline in beef, veal, lamb, and mutton will be more than offset by increased pork and poultry meat. Demand for meat and meat products is increasing most rapidly in the middle-income countries, and those countries are prime prospects for U.S. coarse grain exports. Growth in per capita meat demand reflects income sufficient to permit discretionary spending within the food budget. Countries where meat demand is growing faster than coarse grain production are likely to turn to world markets for imports, much of which could come from the United States.

Although the developing countries contain half the world's coarse grain area, they produce only about one-fourth of global output because of low yields. In the early 1970's, these countries produced more coarse grain than they consumed. Use currently exceeds production by more than 11 percent, and livestock feed accounts for more than 40 percent of consumption. The upper-middle-income countries within this group have been the driving force in shifting the developing world from net exporters of coarse grains to net importers.

Despite the potential for increased future exports, fiscal 1986 U.S. coarse grain exports are expected to have fallen more than \$3 billion. Nearly half the decline was from a large drop in demand by the USSR. Also, many traditional U.S. coarse grain competitors had larger supplies to export, and the dollar was still strong against their currencies. U.S. exports of livestock, poultry, and dairy products are expected to have risen in fiscal 1986, and probably exceeded coarse grain exports in value for the first time since 1961.

Sub-Saharan Africa's 1985/86 cereal production exceeded 60 million tons, up from the drought-reduced 45 million of the previous year. While this year's feed and food crops are threatened by locusts and grasshoppers, as well as drought, civil wars, and internal distribution problems, 1986/87 food supplies are not expected to be reduced to the 1984/85 low.

Recent data show that nearly 85 percent of the increase in foreign fertilizer demand occurred in 17 countries. These countries, including major U.S. export customers and competitors, increased fertilizer consumption more than 9 percent annually in 1983/84 and 1984/85, about one-and-a-half times the average for all foreign countries.

WORLD ECONOMIC CONDITIONS

Global Assessment

Growth Will Be Moderate But Balanced

Lower oil prices spreading through the world economy initially appear to be moderating world economic growth in 1986, as reduced petroleum revenues constrain import demand from oil exporters. However, this immediate impact is likely to be reversed next year as lower oil prices stimulate growth among oil importers.

World economic growth in 1986, projected near 2.6 percent in real terms, compares with 2.9 in 1985, and 4.3 percent in 1984. World growth is likely to improve next year, as broad-based adjustments to lower oil prices and related effects take hold. However, growth is not expected to reach the rapid pace of 1983-84. On the other hand, economic growth in the coming 3-5 years is likely to prove more sustainable than in 1983-84 because a more balanced expansion is expected among Europe, Japan, the United States, Asia, and Latin America.

Major contributions to this expansion are likely to come from at least three sources:

- o Higher real incomes brought about by lower oil prices should increase consumption generally next year, with additional import stimulus from stronger currencies in Europe and Japan. Beyond 1987, if lower oil prices are sustained, improved growth is likely in both industrial and developing countries--notably the industrializing Asian countries.
- o Second, recent declines in interest rates should raise domestic investment and consumption in industrial economies--particularly Europe--as well as lighten developing countries' debt service.
- o Third, a more competitive dollar should provide additional stimulus to U.S. exports, raising U.S. income and growth and so augmenting world economic activity.

In the past year, 50-percent declines in world crude oil prices have increased real income for many countries, as the previous stimulus for the world economy--U.S. import demand--fades. Petroleum prices fell from a 1985 average of \$28 a barrel to \$14 by August 1986 for North Sea oil, and below \$12 for Mideast crude.

Lower Interest Rates Boost Economy

Lower oil prices have allowed central banks in the industrial countries to loosen monetary policies slightly, prompting significant declines in interest rates worldwide. The U.S. Federal Reserve discount rate fell from 9 percent in mid-1984 to 5.5 in August 1986. This compares with a peak of 14 percent in 1981. Official discount rates in Japan and Germany are both at historic lows of 3.5 percent, while interest on commercial Eurodollar deposits stands around 6 percent, half of 1984 highs.

Fiscal stimulus to promote future growth has been precluded by attempts to reduce government budget deficits in Japan, Germany, and the United States. These governments are lowering interest rates in an attempt to focus growth on private demand rather than government spending.

Private consumer and investor spending plans must change before demand growth increases. These decisions take longer to provide fiscal stimulus than government fiscal stimulus.

Lower Dollar Stimulus

The decline of the dollar should also raise U.S. economic activity in coming years--in turn supporting world growth--and provide secondary trade effects by fueling U.S. imports. The dollar has fallen more than 30 percent against major world currencies between its peak in February 1985 and August 1986. The lower dollar makes dollar-priced goods less expensive to countries with appreciating currencies, particularly Japan and Europe.

The steady appreciation of the dollar between late 1980 and early 1985 gave foreign exporters over 4 uninterrupted years to expand markets with lower-priced goods in the United

States. However, the recent 18-month dollar depreciation has put steady pressure on foreign exporters to cut profit margins or costs to maintain their U.S. market share, and compete with U.S. exports on world markets.

Developing Country Growth Differs Widely

Developing country contribution to world growth will be minimal in 1986, leaving most world growth to come from the industrial economies, particularly Europe. Developing country income may improve in 1987 as key debt burdens are rescheduled and export markets pick up.

Growth rates among developing countries, however, are expected to differ widely between Asia, Latin America, the Middle East, and Africa. Income growth in Asia should continue rising, with large trade surpluses in Taiwan, Korea, Hong Kong, and Singapore.

Generally, low growth in Latin America is heavily influenced by the negative growth rates in Mexico where the decline has caused immediate problems. Heavy reliance on oil export revenues has severely constrained Mexico's ability to repay its external debt on schedule. While most OPEC oil exporters do not have the large external debt that Mexico has, some are already drawing upon assets invested abroad to cushion shortfalls in export revenue, slowing world trade as a result.

Lower oil prices will of course constrain growth among other oil exporters. Continued low prices for other commodities will also slow growth in African countries heavily dependent on raw material exports. Economic growth in Africa and the Mideast is thus expected to be negative this year and minimal next.

However, poor regional growth can mask individual country differences. For example, a large Brazilian trade surplus is hidden by slow growth in other Latin American countries. Also obscured are currency reforms in Argentina and Brazil designed to foster lower inflation partly by capitalizing on the drop in oil prices. Argentine inflation is expected to decline below 100 percent this year (compared with 672 in 1985) and Brazilian inflation in 1987 may reach 50 percent (compared with around 220 in 1984 and 1985).

Dollar Exchange Rates

Central bank policies of the major industrial countries have kept the dollar fairly stable since spring, both through direct exchange market intervention and through interest rate policies. However, unilateral reductions in the U.S. Federal Reserve discount rate to 6 percent on July 10 and to 5.5 on August 21 have eased U.S. interest rates below foreign ones, undercutting the value of the dollar.

Japanese and German aversion to lowering official discount rates under historic lows of 3.5 percent would indicate further dollar declines as U.S. interest rates subside. However, sharply curtailed Japanese growth due to the 40-percent appreciation in the yen against the dollar between February 1985 and August 1986 could persuade Japanese officials, despite repeated denials, to lower the discount rate once again—following three reductions already this year.

Strong domestic growth in the second quarter of 1986 compared with the first gives Germany less reason to lower interest rates again. Nonetheless, the increasing value of the mark may lead German officials to reduce interest rates to maintain demand for German exports.

In June, the dollar strengthened against competing agricultural currencies such as the Canadian and Australian dollars. The Australian dollar in particular fell severely, from about A\$1.38 per U.S. dollar in May to

Foreign currency units per U.S. dollar

Year	Mark	Yen	Pound	Guilder	Can\$
1980	1.818	226.4	.4299	1.987	1.169
1981	2.257	220.2	.4983	2.492	1.198
1982	2.427	248.8	.5722	2.669	1.233
1983	2.554	237.4	.6597	2.853	1.232
1984	2.847	237.6	.7517	3.209	1.295
1985	2.942	238.3	.7790	3.319	1.365
1986					
Jan.	2.437	199.8	.7014	2.746	1.407
Feb.	2.330	184.8	.6999	2.632	1.404
Mar.	2.276	178.6	.6809	2.565	1.400
Apr.	2.268	174.7	.6671	2.560	1.387
May	2.226	166.9	.6564	2.505	1.375
June	2.232	167.4	.6625	2.513	1.389
July	2.148	158.1	.6631	2.422	1.380
Aug.	2.060	154.1	.6726	2.324	1.388
Sep. 1/	2.042	154.8	.6776	2.304	1.386

1/ Preliminary.

more than A\$1.63 by August, as traders reacted skeptically to Australia's recent attempts to correct its large U.S. dollar debt and trade deficit. [Ted Wilson (202) 786-1688]

World Shipping

Charter Market Situation and Outlook

The charter market continues to suffer from an overall downturn in worldwide trading. Decreased demand for shipping services has caused significant excess shipping capacity and low freight rates. During the summer, freight rates are traditionally the lowest of the year. However, freight rates this August were exceptionally low, averaging 23 percent below a year ago (except for the U.S. Gulf to Venezuela route).

The outlook (based on levels implied by freight rate futures trading activity) is for rates to increase. Rates are projected to strengthen somewhat by fall and to continue to increase during 1987. While rates are expected to increase by next summer, they will be significantly lower than in 1985 and earlier.

Shipbuilding has been reduced compared with previous years and the demolition of vessels about equals the 1985 record. Assuming these trends continue, the excess capacity in the world fleet should significantly decrease by 1987, boosting overall freight rates.

Maritime Bills Pending in Congress

There are two maritime bills pending in Congress that probably would increase the cost of transportation services used by agricultural exporters. It is unlikely, however, that any new maritime-related legislation will be enacted before this session of Congress ends. The bills involve:

- o *Bilateral cargo sharing agreement.* The bill currently before the House Merchant Marine Subcommittee would, if enacted, require the President to negotiate bilateral cargo-sharing agreements with nations whose trade with the United States exceeds 1 percent of total waterborne U.S. commerce and with less than one-third of that trade moved on

Baltic freight index, grain components, and rate projections

Month	BFI	U.S. Gulf to			U.S. N. Pacific to
		Belgium	Japan	Venezuela	S. Japan
1985		Dollars per metric ton			
	Jan. 1985 = 1000				
Aug.	718.2	5.78	10.00	7.08	7.08
Sep.	739.5	6.28	10.75	7.88	7.02
Oct.	866.5	8.33	14.46	9.95	9.00
Nov.	906.5	8.07	13.50	10.39	9.38
Dec.	916.5	8.53	13.08	12.79	8.65
1986					
Jan.	897.5	7.75	13.10	13.04	8.63
Feb.	827.5	6.92	12.00	8.32	8.70
Mar.	734.0	5.99	10.09	7.14	8.25
Apr.	732.0	5.75	10.50	6.72	8.45
May	658.0	5.86	8.50	6.67	7.16
June	663.0	5.84	9.00	7.93	6.81
July	584.5	4.44	7.75	8.03	6.23
Aug.	556.0	4.38	7.78	8.71	5.25
Spot BFI rates on					
Aug. 15, 1986		4.59	8.37	8.73	5.54
Projections 1/					
Rate implied by futures price					
	Oct. 1986	5.68	10.35	10.79	6.85
	Jan. 1987	5.92	10.79	11.25	7.14
	Apr. 1987	6.22	11.33	11.81	7.50
	July 1987	5.78	10.53	10.97	6.97

1/ Formula for projected rates was developed by Barry D. Parker, Man International Futures, Inc.
Source: Baltic Freight Futures Exchange

U.S.-flag vessels. At least 26 countries would be affected by this initiative, which is expected to increase the cost of shipping services.

- o *Port and waterway development.* Legislation to fund port and inland waterway development has passed both the Senate and House and is presently at the conference committee stage. The Senate version includes provisions for user charges to cover part of port development costs and for local entities to pay for 50 percent of channel deepening beyond 50 feet. In contrast, the House version proposes a larger share of funds coming from the Federal Government and authorizes more developmental projects. Both the House and Senate would impose ad valorem charges on cargo moving through the port. [Kay L. McLennan (202) 786-1620]

Fertilizer

Prices Decline; Foreign Use Rises

Growth in world demand for chemical fertilizers during the fertilizer year ending July 1985 slowed significantly, in essence because flat consumption trends in the United States were not offset sufficiently by growth in the rest of the world. Consumption growth outside the United States slowed slightly, from 7.7 percent to 5.1, but for the second consecutive year remained above long-term trends. Consumption during 1984 through 1985, and early 1986, was sustained by lower international prices, which declined 20 to 23 percent from June 1984 to June 1986, or slightly more than the 18-percent drop in cereals and cotton lint prices.

Moderate declines in global consumption are forecast for 1986, and modest increases in yearly use are likely during the rest of the eighties, according to the Fertilizer Working Group sponsored jointly by the Food and Agriculture Organization of the United Nations, the U.N. Industrial Development Organization, and the World Bank. Fertilizer price changes should continue to reflect movements in international cereal crop prices and, to a lesser extent, energy prices.

Foreign Regional Use Trends Diverge

Global consumption trends since June 1983, which were broadly consistent with longer-term trends, masked marked differences in regional growth patterns, and these contrasts became even more distinct during the last 2 years. Four countries and one country group, accounting for 44 percent of fertilizer use outside the United States during 1971/72, increased consumption nearly 8 percent annually through 1982/83 and more than 9 percent annually during the next 2 years. These countries, in order of relative importance of additional chemical fertilizer nutrients used during 1982/83, compared with 1971/72, were: China, a group of 13 developing countries that are major foreign exporters and importers of cereals and oilseeds (Algeria, Argentina, Brazil, Burma, Egypt, India, South Korea, Mexico, Morocco, Pakistan, Sudan, Tunisia, and Turkey), the USSR, Australia, and Canada. Other foreign countries, on the average, attained respective increases in fertilizer consumption of only 2.1 and 2.5 percent yearly.

The countries with the higher growth in fertilizer use accounted for nearly 85 percent of the increase in fertilizer demand in the rest of the world during 1983/84 and 1984/85. Rapid growth in demand in these countries since the early seventies, and the acceleration in demand since June 1983, were in marked contrast with corresponding developments in the United States. U.S. fertilizer consumption increased 2.2 percent yearly during 1971/72 through 1981/82, or less than one-half the global rate, and slowed to 0.3 percent yearly through 1984/85.

Relative growth rates in U.S. and foreign fertilizer consumption since the early seventies generally were consistent with contemporary foreign developments in crop price/fertilizer cost ratios, where such comparisons were possible. [Richard C. Taylor (202) 786-1705]

U.S. AGRICULTURAL TRADE

The U.S. agricultural trade position has deteriorated once more in fiscal 1986. Forecast at \$26.5 billion, agricultural exports are expected to reach their lowest in nearly a

decade. Imports are likely to achieve a record value for the third consecutive year. In May 1986, the United States recorded an agricultural trade deficit for the first time since 1971.

Export volume in fiscal 1986 is expected to fall to 108 million tons, 15 percent below fiscal 1985 and nearly 60 million below peak shipments in fiscal 1980. In large part, the decline is due to importers delaying purchases

in anticipation of lower 1986/87 prices for major U.S. export commodities. Feed grain exports are expected to fall more than \$3 billion, in part attributable to a large drop in demand by the largest 1985 feed grain customer, the Soviet Union. In addition, most traditional U.S. feed grain competitors had increased supplies to export in 1985/86 and the dollar remained at peak strength against competitors' currencies.

In contrast, importers' delays have not affected U.S. animal and animal product exports in fiscal 1986, and export prices for several such commodities have risen, as have volumes. As a result, animal and product exports are expected to rise and exceed coarse grain exports in value for the first time since 1961. [*Stephen MacDonald (202) 786-1621*]

WORLD COMMODITY DEVELOPMENTS

Grains

Global 1986/87 grain consumption, at 1,618 million tons, is expected to be up 30 million (2 percent) from 1985/86 but remain about 30 million below production. Feed use is forecast to show little change and will account for 37 percent of total grain. The percentage fed jumps to 46 percent if rice is excluded, with 19 percent for wheat and 64 for coarse grains.

During the last 25 years, world grain has almost doubled, growing at a compound annual rate of 2.7 percent. Feed use has grown 3.1 percent and in 1985/86 was more than double the 283 million tons of the early 1960's. Growth in total grain consumption for the centrally planned and developing countries, at 3.2 percent annually, was more than double the rate of gain in the developed countries. Feed use, however, showed an even sharper difference in growth--1.7 percent for the developed, 4.5 for the centrally planned, and 6.5 for the developing countries.

Slightly under half the total feed use is in the major grain importing countries, paced by the Soviet Union, Eastern Europe, and the EC-12. Feed use among the major foreign grain exporters is much lower.

The major grain importers in total will likely feed about 290 million tons of grain in

U.S. agricultural export values 1/

Commodity	1983	1984	1985	1986 F
Billion dollars				
Grains and feeds	15.2	17.4	13.3	9.5
Wheat and prod.	6.2	6.8	4.5	3.4
Rice	.9	.9	.7	.6
Feed grains and products	6.6	8.2	6.9	3.8
Oilseeds and prod.	8.9	8.8	6.2	6.5
Soybean cake and meal	1.4	1.2	.8	1.1
Soybeans	5.9	5.7	3.9	4.2
Soybean oil	.5	.6	.6	.3
Livestock prod.	3.0	3.5	3.3	3.5
Poultry prod.	.5	.4	.4	.4
Dairy prod.	.4	.4	.4	.4
Horticultural prod.	2.7	2.6	2.6	2.7
Cotton, incl. linters	1.7	2.4	1.9	.7
Tobacco	1.5	1.4	1.6	1.5
Other	.9	1.1	1.5	1.3
Total	34.8	38.0	31.2	26.5

1/ Fiscal year. F = forecast.

U.S. agricultural import values 1/

Commodity	1983	1984	1985	1986 F
Billion dollars				
Competitive				
Dairy & poultry prod.	.8	.9	.9	.9
Meat & meat prod.	2.1	1.9	2.2	2.2
Other animal prod.	1.0	1.1	1.1	1.1
Fruits, nuts & vegetables	2.3	3.0	3.5	3.5
Oilseeds & prod.	.5	.8	.8	.7
Sugar & related prod.	1.2	1.5	1.3	1.0
Wines & malt beverages	1.3	1.5	1.6	1.7
Other	1.6	1.5	1.5	1.8
Noncompetitive				
Bananas & plantains	.6	.7	.8	.8
Coffee, green & processed	2.8	3.3	3.2	4.2
Cocoa beans & prod.	.8	1.1	1.3	1.2
Rubber & allied gums	.6	.9	.7	.6
Other	.7	.7	.8	.8
Total	16.3	18.9	19.7	20.5

1/ Fiscal year. F = forecast.

Wheat: World production, consumption, and net exports

Country	1984/85			1985/86			1986/87 P		
	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.
Million metric tons									
Major exporters									
United States	70.6	31.4	37.9	66.0	28.6	24.7	57.7	29.3	31.3
Canada	21.2	5.2	19.4	24.3	6.2	16.7	31.0	5.5	19.5
Australia	18.7	3.7	15.3	16.0	3.2	15.9	15.0	3.1	14.5
EC-12	82.8	59.5	12.9	71.7	59.9	12.4	70.2	59.1	12.4
Argentina	13.2	4.6	8.0	8.5	4.4	6.1	9.6	4.5	4.6
Turkey	13.3	13.6	-5	12.7	13.8	-9	14.0	14.0	-1
Major importers									
USSR	73.0	96.1	-27.1	83.0	97.7	-14.7	76.0	97.0	-18.0
China	87.8	95.2	-7.4	85.8	92.4	-6.6	87.5	94.5	-7.0
Eastern Europe	42.0	40.0	+1.5	37.8	38.8	-9	39.9	40.8	-1.3
Other W. Europe	4.5	3.4	+8	4.1	3.4	+6	4.2	3.5	+7
Brazil	1.9	6.3	-5.4	4.3	6.8	-2.5	4.3	6.9	-2.8
Mexico	4.2	4.4	-5	4.4	4.7	-1	4.5	4.9	-2
Other Latin Am.	2.0	8.6	-6.8	2.2	8.5	-6.5	2.3	9.1	-6.7
Japan	.7	6.3	-5.3	.9	6.3	-5.2	.9	6.3	-5.3
India	45.5	43.1	0	44.2	43.9	+5	47.0	46.1	+4
South Korea	--	3.0	-3.1	--	3.1	-3.0	--	2.8	-2.7
Indonesia	0	1.5	-1.6	0	1.4	-1.4	0	1.6	-1.6
Other Asia	16.8	25.1	-7.8	17.4	24.6	-7.7	19.9	26.5	-7.2
Egypt	1.8	8.5	-6.6	1.9	8.5	-6.7	1.9	8.7	-7.0
Morocco	2.0	4.2	-2.5	2.1	4.2	-1.9	3.3	4.5	-1.5
Other N. Afr./ME	9.9	25.4	-15.0	13.2	26.1	-12.1	12.6	26.8	-14.4
Other Africa	3.2	8.4	-5.5	2.9	8.1	-4.7	3.4	8.6	-5.2
Residual	.5	.4	-7	.3	.1	-2.0	.4	.2	-2.4
World	515.6	497.9		503.7	494.7		505.6	504.3	

Trade on July-June years. -- = negligible. P = projected.

Rice: World production, consumption, and net exports

Country	1984/85			1985/86			1986/87 P		
	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.
Million metric tons									
Major exporters									
United States	4.4	1.9	1.8	4.4	2.1	2.1	4.1	2.2	2.5
Thailand	13.1	8.8	4.0	13.0	9.0	4.4	12.9	9.1	4.0
Pakistan	3.3	2.4	1.0	3.0	2.2	1.0	3.4	2.3	.9
China	124.8	123.9	.9	117.9	117.2	.8	121.8	121.1	.8
India	58.6	57.0	.2	61.0	60.3	.2	60.0	60.8	.2
Burma	9.3	8.8	.5	9.3	8.7	.6	9.4	8.8	.6
Japan	10.8	10.2	--	10.6	9.8	--	10.1	9.7	--
Italy	.7	.3	.4	.7	.3	.4	.8	.3	.4
Australia	.6	.1	.4	.5	.1	.4	.5	.1	.3
Major importers									
Indonesia	25.9	25.2	+4	26.5	26.2	+3	26.5	26.5	--
South Korea	5.7	5.5	0	5.6	5.8	0	5.5	5.6	0
Bangladesh	14.6	14.9	-.3	15.2	15.4	-.2	15.6	15.8	-.3
Vietnam	10.0	10.4	-.4	9.8	10.2	-.5	10.3	10.7	-.4
Other Asia	17.2	18.7	-1.5	18.0	19.2	-1.1	18.1	19.3	-1.2
USSR	1.8	1.9	-.1	1.8	1.9	-.1	1.8	1.9	-.1
Brazil	6.1	6.4	-.4	6.8	7.3	-1.2	6.5	7.1	-.5
Other Latin Am.	4.8	4.6	+2	4.9	4.8	-.2	4.8	5.1	-.2
Iran	.9	1.5	-.6	.9	1.6	-.7	.9	1.7	-.7
Other N. Afr./ME	1.8	3.7	-1.8	1.8	3.7	-1.7	1.9	3.9	-1.9
Malagasy	1.4	1.5	-.1	1.4	1.5	-.2	1.4	1.5	-.2
Nigeria	.9	1.5	-.4	1.0	1.3	-.1	1.1	1.2	-.2
Other Africa	1.9	4.0	-2.0	2.0	4.1	-2.1	2.0	4.2	-2.2
Residual	.7	1.9	-2.2	.7	2.2	-2.1	.6	1.8	-1.8
World	319.3	315.1		316.8	314.9		320.0	320.7	

Trade on calendar years; P = projected.

Coarse grains: World production, consumption, and net exports

Country	1984/85			1985/86 E			1986/87 P		
	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.
Million metric tons									
Major exporters									
United States	237.7	163.8	54.7	274.3	170.6	34.0	252.3	170.5	46.2
Canada	22.0	18.6	2.8	25.0	18.9	4.5	27.0	19.5	6.2
Australia	8.6	2.9	6.3	8.0	2.8	5.0	7.2	2.9	3.8
Argentina	18.6	7.2	10.6	17.6	7.8	10.3	17.7	7.3	9.9
Thailand	4.7	1.2	3.4	5.5	1.2	3.8	4.5	1.3	3.2
South Africa	8.7	6.8	-.4	8.8	7.4	1.1	9.9	7.4	1.8
Major importers									
USSR	86.0	110.9	-27.3	94.0	106.5	-13.0	86.0	104.0	-17.0
China	96.2	90.7	+5.4	84.2	78.2	+6.3	93.6	88.4	+5.5
Eastern Europe	72.9	72.7	-.3	69.4	73.5	-3.3	71.6	71.1	-.9
EC-12	89.6	85.6	-1.8	88.0	84.0	+4.4	80.3	82.2	+5
Other W. Europe	13.9	12.8	+6	13.1	12.2	+1.3	12.7	12.4	+4
Brazil	22.5	23.1	-.4	20.7	23.3	-2.0	23.1	23.2	-.6
Mexico	14.5	18.8	-4.2	14.2	18.1	-2.5	13.3	18.2	-4.8
Venezuela	1.1	2.6	-1.6	1.5	2.3	-.9	1.6	3.1	-1.5
Other Latin Am.	8.5	10.2	-1.8	8.3	10.1	-1.6	8.7	10.9	-2.2
Japan	.4	21.3	-20.7	.4	21.4	-21.3	.4	22.5	-22.1
Taiwan	.3	4.3	-4.0	.3	4.5	-4.2	.3	4.7	-4.3
South Korea	.9	4.4	-3.4	.7	4.9	-4.1	.6	4.9	-4.3
Other Asia	47.3	50.4	-2.2	45.3	48.1	-1.8	47.2	49.3	-2.4
Egypt	4.4	7.0	-1.7	4.4	6.5	-1.9	4.7	6.6	-1.9
Iran	1.3	2.7	-1.3	1.3	2.8	-1.6	1.5	3.0	-1.5
Israel	.1	1.1	-1.0	--	1.1	-1.1	--	1.1	-1.1
Other N. Afr./ME	14.6	25.3	-10.8	20.2	29.8	-10.5	20.2	30.9	-11.9
Other Africa	33.6	34.4	-1.6	37.8	38.1	+5	37.0	38.5	-.8
Residual	.7	.4	+7	.9	.5	-1.4	.9	.6	-.2
World	809.1	779.2		843.9	774.6		822.3	784.5	

Production on crop year basis, trade on October-September year. Includes corn, barley, sorghum, oats, millet, rye, and miscellaneous grains. E = estimated. P = projected. -- = negligible.

International commodity prices

Year	Wheat				Corn		Soybeans	Soyoil	Soymeal 44%	
	U.S. 1/	Arg. 2/	Can. 3/	Aust. 4/	U.S. 5/	Arg. 2/	U.S. 5/	U.S. 6/	U.S. 6/	Hamburg 7/
1977	105	100	116	113	98	93	271	524	212	240
1978	131	126	134	119	105	102	259	565	189	226
1979	162	159	171	142	118	117	278	610	160	254
1980	176	203	192	175	129	159	272	522	217	271
1981	176	190	194	175	135	139	272	464	223	269
1982	161	166	165	160	110	109	233	404	197	233
1983	158	138	167	161	137	133	269	518	222	255
1984	153	135	166	153	138	132	271	678	184	210
1985	137	106	173	141	114	103	214	596	140	171
1986										
Jan.	133	108	189	140	108	100	210	447	168	197
Feb.	131	102	183	133	105	92	207	404	169	201
Mar.	136	97	189	139	101	87	208	384	180	210
Apr.	138	96	187	137	102	86	205	389	173	205
May	128	90	185	131	106	90	205	391	174	199
June	107	85	169	114	106	90	203	369	175	191
July	103	81	160	104	85	84	200	357	179	193
Aug.	104	80	137	104	74	82	198	312	182	200

1/ No. 2 hard winter, ordinary protein, f.o.b. Gulf ports. 2/ F.o.b. Buenos Aires. 3/ No. 1 western red spring, 13.5% protein, in store Thunder Bay. 4/ July-June crop year, standard white, f.o.b. selling price. 5/ U.S. No. 3 yellow, f.o.b. Gulf ports. 6/ Decatur. 7/ F.o.b. ex-mill.

1986/87, approximately the same as in 1985/86, but down 10 million from 1984/85. Most of the use is in the centrally planned countries of the USSR and Eastern Europe, where feed use of all grains is forecast at almost 225 million tons, slightly below the 229 million record set in 1984/85.

By July 1986, Soviet state and collective farms were close to or above record inventories of cattle, hogs, and poultry. Slaughtering patterns thus far in 1986/87 show little deviation from normal. However, the estimates of Soviet grain fed indicate that feeders are slowly becoming more efficient. During the last 4 years, for example, while the forecast of grain for feed use has fallen slightly, official Soviet data indicate an increase of about 15 million head. While most of the increase is in poultry, hog numbers have risen 3 percent.

Wheat Feeding Strengthens

Global wheat feeding has grown somewhat in recent years, because of the large increases in supplies of feed-quality wheat. This may have helped to offset a small decline in coarse grain feeding. Wheat feeding increased sharply in the 1960's, tripling the early 1960's rate by 1970. Growth slowed in the 1970's and even declined in 1981. Since then, however, there has been renewed growth, and feeding is forecast at 96 million tons in 1986/87.

Many major foreign wheat export competitors—including Canada, the EC, and Australia—have vast surpluses of wheat available for export. Much of the EC supply is of feed quality, and adverse weather in recent years has created large quantities of feed wheat in Canada and Australia. As a result, the competition among feed exporters has heightened.

Countries typically feed commodities they grow well or have in abundance. Therefore, feed wheat consumption in a number of countries is a function of production. The Soviet Union feeds more wheat than any other developed nation. Also, increased supplies of Soviet feed-quality wheat have boosted wheat's price-competitive position vis-a-vis other feed grains.

Feed consumption of wheat among the major wheat importers is about 53 million tons

a year. In recent years, the USSR has diverted its domestically produced low-quality wheat crop out of food use into livestock feed, and turned to imports for higher quality wheat. Feed use of wheat in the USSR is forecast at 37 million tons in 1986/87. Residual feed use is shared among many other wheat importers.

Feed use among the major wheat exporters is forecast at 28 million tons in 1986/87, about the same as in 1985/86 and 1984/85. About 85 percent of this will be in the EC-12, where wheat feeding has increased slightly since 1984/85 as coarse grain feeding dropped. Since wheat inventories remain large and tighter controls are placed on the quality of wheat allowed into intervention stocks, additional quantities of wheat may be fed.

Wheat feeding in Canada, Australia, and Argentina continues small. The United States is expected to feed around 8.2 million tons (28 percent of total use) in 1986/87, up from last year but well below 1984/85's 11.2 million. Much of the wheat feeding in the United States comes in the summer quarter because of lower prices prior to the new-crop corn harvest in the fall.

Coarse Grain Feed Use Remains High

Global feed use of coarse grains in 1986/87 is forecast at 506 million tons, down marginally from 1985/86. Almost 85 percent of all grains fed are coarse grains—mostly barley, corn, and sorghum. While food and other nonfeed uses account for more than one-third of total coarse grain use, this is largely a function of domestic production. Most of the 100 million tons of coarse grains in world trade are for feeding.

While foreign users will account for over 90 percent of wheat feeding in 1986/87, less than 75 percent of global coarse grain feeding is outside the United States. For corn, the figure drops to about 65 percent. Foreign feed consumption in 1986/87, at 371 million tons, is about the same as 1985/86 and 1 percent smaller than 1984/85, with the decline paced by smaller use among the major importers.

The major foreign coarse grain exporters feed about as much coarse grain as foreign wheat exporters feed wheat. In 1986/87, coarse grain competitors will feed about 29 million tons, up only marginally over recent

years. Canada's feed use (mostly barley) is forecast at over 16 million tons, slightly higher than the average of the last 2 years. Canadian coarse grain production this year is forecast at record levels, which may indicate some pressure to boost feeding of domestic coarse grains and reduce imports.

Feed use in 1986/87 among the major importers, forecast at 237 million tons, will be down 1 percent from last year, and about 3 percent from 1984/85. About 40 percent of the importers' feed use is corn. Feed use of coarse grain is concentrated in the EC, Eastern Europe, Japan, and the USSR. Of these, Soviet use fluctuates the most, falling from 80 million tons in 1984/85 to 74 million in 1986/87, despite continued large Soviet coarse grain imports.

Developing Countries Feed More Grain

The developing countries account for less than one-sixth of global feed consumption, but in recent years have been the main growth market; they are expected to feed more than 90 million tons in 1986/87. Although their feed use has grown 6.5 percent annually since 1960/61, their domestic production has grown just over 4 percent. This has intensified their need to import grain for feed, a trend that is likely to continue in the coming years. Grain feeding, although only 16 percent of total cereals use in 1985/86, has steadily grown from 11 percent in 1975 and 8 in 1965. [James Cole (202) 786-1691]

Oilseeds

Record soybean, peanut, and rapeseed crops will push 1986/87 world oilseed production to a record 197.5 million tons. An expanding world livestock sector and growing meal demand will have to provide much of the support for the oilseed complex in 1986/87, since edible oil prices are projected to fall from their already depressed levels.

The weak oil market will squeeze crush margins and limit declines in meal prices. Despite a larger crush, and consumption gains in both oil and meal, 1986/87 ending stocks of oilseeds and vegetable oils will increase again. World trade in oilseeds and vegetable

oil will expand somewhat, but protein meal trade will show little growth.

Record 1986/87 carryin stocks, together with the cut in the U.S. loan rate for soybeans from \$5.02 to \$4.77 per bushel, will put downward pressure on world prices. However, most of the world's adjustment to the record oilseed supplies and low prices is occurring in the United States. U.S. acreage of all oilseeds except peanuts and flaxseed is down.

Foreign Production Up Again

Foreign oilseed production is projected to increase 5.5 percent to 137 million tons. Part of this gain is provided by a forecast recovery of soybean production in Brazil and Paraguay following last year's drought. Soybean area has increased in China, and sizable gains in global peanut and rapeseed area and production are also projected.

World soybean exports are expected to increase 5.5 percent to 27.7 million tons. If the expected recovery in Southern Hemisphere soybean production occurs, exports from that region will increase and limit growth of U.S. soybean exports.

Meal Use To Rise

World 1986/87 consumption of protein meals will rise 2 percent to a record 107 million tons. Consumption of soybean meal, nearly 60 percent of the total, is projected to increase almost 3 percent. Gains in meal consumption are greater than the expected increase in world meat production, reflecting the trend toward more intensive feeding in many areas of the world. The relatively rapid gains expected for poultry production will boost meal use, since the share of meal in the ration is larger for poultry than for other livestock.

Following the pattern of recent years, East Asia and North Africa/Middle East will show the largest increases, 7 percent or more, in soybean meal consumption during 1986/87. Consumption will increase about 2 percent in the EC-12, which now accounts for about 30 percent of world soybean meal consumption. Drought has curtailed EC rapeseed production, and soymeal prices have become increasingly attractive as the dollar drops relative to European currencies.

Soybeans and products: World production, consumption, and net exports

Country	1984/85			1985/86 E			1986/87 P		
	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.
Million metric tons									
Soybeans									
Major exporters									
U.S.	50.64	28.03	16.28	57.11	28.71	20.14	53.88	29.26	20.68
Brazil	18.28	13.13	3.10	13.40	12.30	1.00	16.50	12.80	1.65
Argentina	6.50	3.86	3.29	7.30	3.90	2.75	7.50	4.20	2.90
China	9.70	1.59	1.05	10.50	1.79	1.30	11.00	1.86	1.10
Major importers									
EC-12	.14	12.43	-12.89	.34	12.52	-12.72	.63	12.93	-12.72
Japan	.24	3.79	-4.61	.23	3.95	-4.75	.23	3.98	-4.85
Eastern Europe	.77	1.26	-.59	.53	1.36	-.90	1.63	1.43	-.79
Mexico	.55	2.00	-1.43	.75	1.73	-1.00	.50	1.85	-1.35
Taiwan	.01	1.20	-1.47	.01	1.34	-1.62	.02	1.47	-1.70
USSR	.47	1.13	-.85	.47	2.25	-2.00	.50	2.28	-2.00
Residual	5.43	5.38	-1.88	5.61	5.89	-2.20	5.42	6.36	-2.92
World	92.73	73.80		96.25	75.74		97.81	78.42	
Soybean meal									
Major exporters									
U.S.	22.25	17.67	4.46	22.69	17.24	5.58	23.01	17.60	5.35
Brazil	10.17	1.99	8.44	9.51	2.16	7.45	9.89	2.30	7.60
Argentina	3.08	.27	2.88	3.11	.30	2.90	3.35	.28	3.00
Major importers									
EC-12	9.87	18.11	-8.27	9.98	17.65	-7.71	10.28	17.99	-7.69
Eastern Europe	1.02	4.57	-3.54	1.09	4.84	-3.80	1.15	5.00	-3.88
USSR	.86	1.41	-.55	1.75	2.35	-.60	1.78	2.38	-.60
Japan	2.92	3.12	-.09	3.05	3.18	-.22	3.07	3.29	-.13
Mexico	1.46	1.50	-.08	1.26	1.38	-.05	1.35	1.38	-.05
Residual	6.55	10.68	-3.25	7.27	11.53	-3.55	7.79	12.13	-3.60
World	58.18	59.32		59.71	60.63		61.67	62.35	
Soybean oil									
Major exporters									
U.S.	5.20	4.50	.75	5.29	4.49	.57	5.36	4.60	.54
Brazil	2.46	1.55	.82	2.30	1.72	.37	2.39	1.81	.60
Argentina	.64	.07	.50	.66	.09	.55	.70	.09	.62
EC-12	2.23	1.39	.79	2.22	1.36	.83	2.29	1.45	.82
Major importers									
India	.15	.57	-.40	.17	.49	-.22	.20	.50	-.30
Pakistan	0	.19	-.17	0	.22	-.23	0	.25	-.25
Eastern Europe	.19	.38	-.20	.21	.40	-.19	.23	.39	-.17
Iran	.02	.34	-.32	.02	.35	-.32	.02	.37	-.35
Morocco	0	.13	-.12	0	.13	-.13	0	.15	-.15
Residual	2.42	3.94	-1.65	2.71	3.90	-1.23	2.83	4.07	-1.36
World	13.31	13.06		13.58	13.15		14.02	13.68	

For soybeans, consumption refers to crush. Trade and consumption on marketing year except for Brazil and Argentina which are on an October-September year. E = estimated. P = projected.

World Meal Trade Stagnant

Overall world trade in protein meal, at 33.4 million tons, is expected to grow very little in 1986/87. Soybean meal exports will drop slightly. North Africa and the Middle East, where poultry production has been expanding rapidly, and where there is very little domestic oilseed production, is, as usual, likely to be the major growth market for meal. Other regions are meeting increases in meal needs from domestic production or through larger imports of oilseeds.

With no growth in world soybean meal trade, and larger export availabilities likely in the Southern Hemisphere, U.S. soybean meal exports in 1986/87 are expected to drop about 4 percent to 5.4 million tons. [Frederic Surls (202) 786-1691]

Meat

World meat production is expected to grow around 1 percent in 1986, as a marginal decline in beef, veal, lamb, and mutton will be

more than offset by increased pork and poultry meat. While even larger declines in beef are forecast for next year, gains in the other meats will push total meat 1 percent above 1986.

U.S. meat output will grow about 1 percent in 1986, as a sharp drop in pork is offset by a small gain in beef and a substantial increase in poultry meat. For 1987, total red meat and poultry may show little difference from this year. Pork output may turn around later in the year and show a small increase for 1987. Reduced inventories will lead to a 1.4-billion-pound decline in beef production, while poultry output expands by a similar amount.

Foreign meat output will show the most strength. After gaining about 1 percent this year, it could increase 2 percent in 1987. Foreign output of beef and lamb is declining this year, but should show some increase next year along with continued gains in pork and poultry.

Government Policies Play a Major Role

World meat output continues to be pressured by a number of factors, such as weather, but domestic and trade policies of many countries remain the most potent force shaping the outlook. World trade has been restricted by import policies designed to shield domestic producers, and by attempts to boost meat output in traditional importing countries by subsidizing grains and other feed inputs. Foreign exchange constraints also continue to restrict meat or feed-ingredient imports.

On the export side, the need for foreign exchange earnings has led some countries, particularly in Eastern Europe, to export meat in spite of strong domestic demand. Also, attempts by the EC and the United States to reduce dairy surpluses have caused increased output and abnormal trade flows of beef.

Cattle Inventories Drop; Beef To Decline

Cattle inventories are decreasing mainly because of declining EC dairy cattle numbers, lower U.S. dairy and beef cattle numbers, and the effects of a drought in India. Inventories continue to build in the USSR, following a mild winter and record 1986 forage supplies. Global beef and veal production rose 2 percent

Beef and veal production

Country	1984	1985	1986 E	1987 P
Thousand metric tons				
United States	10,928	10,996	11,082	10,409
Canada	997	1,035	1,020	985
Mexico	1,323	1,339	1,252	1,298
Argentina	2,558	2,740	2,700	2,650
Brazil	2,300	2,400	2,200	2,400
France	1,936	1,845	1,805	1,868
Germany, Fed. Rep.	1,614	1,576	1,625	1,630
Italy	1,182	1,205	1,206	1,190
Total EC-12	7,900	7,840	7,739	7,758
Eastern Europe	2,471	2,550	2,397	2,371
USSR	7,244	7,400	7,600	7,700
Australia	1,248	1,338	1,381	1,390
Other	4,899	5,228	5,274	5,334
Total	41,868	42,866	42,645	42,295

E = estimated. P = projected.

last year but will be down marginally in 1986 and 1 percent next year. However, beef production in the major exporting countries while also declining in 1986 will rise next year.

Australian cattle inventories continue to build, but dry conditions that began late in 1985 and extended into this year will limit the gain. If producers expect continued declines in the Australian dollar, and higher beef prices in major markets, such as the United States, herd rebuilding could continue next year.

New Zealand's cattle numbers as of June 1 were abnormally high because a 7-week strike by meat processors earlier in the year caused a backlog in cattle slaughter. Even though better returns will encourage producers to shift from sheep to cattle production, beef output in October 1986-September 1987 will be up.

In Japan, the cattle inventory has increased due to continued strength in the beef market and lower feed prices. On the other hand, Argentina continues to liquidate herds as crops have taken over some pasture land and relegated cattle to more marginal areas. Brazil's herd, although hurt by drought, is expanding as producers withhold cattle from slaughter in protest over the Government's retail price freeze. The Government has countered this move by importing more beef, especially from the EC and the United States.

The use of growth hormones in meat production will be banned in the EC beginning

January 1987, and will be applied against imported meat and offals in January 1988. The major exporters are not yet certain how to achieve certification of hormone-free meat.

Although production by the major importers may rise almost 1 percent this year, a 2-percent drop is forecast for next year. The carryover of large beef stocks and ample output by exporters will keep trade levels high.

Inventories and Pork Production To Climb

Hog inventories rose 3 percent during 1985 and are likely to be up 2 percent this year. However, a slowdown next year in China, which has about 45 percent of the world's hog population, could lead to 1987 growth under 1 percent. While a surge in China's pork output led to 5-percent growth in world output last year, reduced U.S. outturn will result in only a 1-percent gain in 1986. Pork production may be up around 2 percent in 1987, largely because of lower feed prices.

In the EC, lower feed prices helped maintain favorable returns, prompting a 2-percent growth in hog numbers to 97 million head at the beginning of 1986. The largest gains were in the Netherlands, West Germany, and Denmark. Feed prices have remained low and inventories continue to build. While the herd may be up 2 percent by the end of 1986, growth is forecast to slow in 1987 as large meat supplies dampen prices. Thus, EC pork production may show little expansion in 1987.

Pork production

Country	1984	1985	1986 E	1987 P
Thousand metric tons				
United States	6,719	6,716	6,389	6,443
Canada	863	900	875	900
Mexico	942	865	922	936
Germany, Fed. Rep.	2,734	2,753	2,820	2,860
France	1,625	1,607	1,622	1,615
Netherlands	1,257	1,340	1,430	1,490
Total EC-12	11,100	11,187	11,495	11,551
Eastern Europe	6,473	6,546	6,676	6,681
USSR	5,927	5,900	5,850	5,850
China	14,447	16,495	17,000	17,600
Japan	1,424	1,531	1,500	1,560
Other	3,738	3,926	4,029	4,048
Total	51,633	54,066	54,736	55,569

E = estimated. P = projected.

Hog inventories in Eastern Europe, at 71 million head, were down 3 percent at the beginning of 1986. Drops in Yugoslavia, Romania, and East Germany were the main reason. While another 1-percent decline is expected by the end of the year, a marginal increase is likely in 1987. Poland's inventories rose 11 percent last year, but are expected to drop 1 percent this year and next. Continuing limits on feed imports means Eastern Europe's pork production remains largely dependent on domestically produced feedstuffs.

The Soviet Union's tight feed grain supplies led to a slight drop in hog numbers during 1985. Inventories, as well as pork output, are likely to be slightly below 1985 this year and next unless grain availabilities improve.

Although hog numbers in Japan have been steadily increasing, inventories may peak at the end of this year and decline slightly next year. Canadian hog inventories were down 3 percent at the beginning of 1986, but may rise a modest 2 percent to 10.9 million head at the beginning of 1987. Continued increases are expected next year.

Poultry Gains Accelerate

Poultry meat production is projected to rise 4 percent in 1986, about the same as last year. A 5-percent increase is forecast for 1987. Lower feed prices and availabilities of red meat have helped boost poultry meat output. Price, versatility, and publicity as a low-fat meat are some of the qualities that have helped poultry become a ready substitute

Poultry production

Country	1984	1985	1986 E	1987 P
Thousand metric tons				
United States	7,427	7,865	8,346	8,958
Canada	559	608	628	653
Mexico	646	627	608	637
Brazil	1,398	1,530	1,650	1,850
France	1,247	1,272	1,303	1,290
Total EC-12	5,219	5,312	5,417	5,450
Eastern Europe	1,928	1,943	1,978	2,038
USSR	2,686	2,700	2,750	2,800
Japan	1,309	1,395	1,399	1,424
Other	3,058	3,185	3,321	3,483
Total	24,230	25,165	26,097	27,293

E = estimated. P = projected.

for red meat in many diets. Expanding fast food industries have also increased demand for poultry products.

For many countries a quick, reasonable way to increase meat consumption has been to import poultry or build their own poultry industries. For example, the Mideast first imported large quantities of poultry meat to increase per capita meat consumption, but is now striving for poultry self-sufficiency by subsidizing feed and production inputs. Yet, attractive prices for frozen poultry offered by major suppliers have caused consumer demand to boom, allowing imports to remain substantial despite higher production.

Although the major importers' output continues to grow, the expansion may slow slightly because of lower oil revenues in the Mideast. Output in the major exporting countries continues to gain at a greater rate, but contrary to only a few years ago it is destined mainly for domestic consumption. France increased output 2 percent last year and a similar gain is expected in 1986. Next year, a marginal decline is forecast as ample supplies weaken producer prices.

Brazil's output is gaining, but only for consumption, not exports, particularly in light of the backlash to the Government's anti-inflation measures, which are reducing beef supplies on the domestic market.

Japan's output has stagnated in 1986 even with lower feed prices. The devaluation of the dollar against the yen has increased demand for imports, reduced demand for domestically produced chickens, and lowered prices. The expanding fast food industry in Hong Kong is relying on increased imports to meet its needs, following problems with domestic production because of pollution problems and a cancer scare stemming from use of growth hormones. [Linda M. Bailey (202) 786-1691]

Cotton

The world cotton glut will continue in 1986/87, keeping prices low, in spite of smaller production and larger consumption. Production will fall 6 percent from 1985/86's 79 million bales, while consumption will increase 3 percent to 76.5 million. Imports

are projected to rise 1.5 million bales to more than 22 million, the largest since the record 23 million in 1979/80. Stocks at the end of 1986/87 are expected to be down 6 percent to 44 million bales, but they will remain excessive.

Much of the adjustment will occur in the United States. U.S. area is estimated to be down 13 percent this year, and combined with lower yields, will cut production 22 percent. Foreign area and production are forecast to be off only 2 to 3 percent. U.S. exports are expected to more than triple last year's 40-year low of just under 2 million bales.

Some major producers, such as Australia, Brazil, and Mexico, have responded to excess supplies and low prices by reducing cotton area this season. But others—China, Pakistan, and India—took no specific action to discourage production. Pakistan set farm gate prices equal to last season.

Foreign Exports To Fall

With increased U.S. competition, foreign exports are expected to fall almost 2.5 million below 1985/86's 18 million bales. But many important producers will continue to export aggressively. Large exports from China and Pakistan will be influenced primarily by excessive stocks, high storage costs, the lack of storage facilities, and the need for hard currency earnings. Despite reduced production in Australia, high interest rates, burgeoning storage costs, and low domestic consumption continue to encourage exports.

The Soviet Union likely will experience greater export competition in markets outside Eastern Europe, and is expected to counter any reduction in sales to these areas with increased Eastern European shipments. Egypt should have little difficulty continuing to market added amounts of its high-quality, extra-long-staple variety. And because cotton is virtually their only exportable product, the Sudan and other African producers, such as Chad, Mali, and Burkina, will also continue to promote their exports aggressively. A few countries, particularly Brazil, Mexico, and Argentina, are expected to reduce exports because of lower production and increased domestic use of their own crop.

Cotton: World production, consumption, and net exports

Country	1984/85			1985/86			1986/87 P		
	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.
Million 480-lb. bales									
Major exporters									
United States	13.0	5.5	6.2	13.4	6.4	1.9	10.5	6.8	6.5
USSR	10.8	9.6	2.1	12.1	9.7	2.4	11.7	9.8	1.9
Pakistan	4.6	2.3	1.2	5.7	2.4	3.0	5.3	2.5	2.5
Egypt	1.8	1.5	.4	2.0	1.6	.5	2.0	1.6	.4
Turkey	2.7	1.9	.7	2.4	2.1	.3	2.2	2.1	.2
Central America	.8	.2	.5	.6	.2	.4	.4	.2	.1
Sudan	.9	.1	.6	.7	.1	.7	.7	.1	.7
Brazil	4.4	2.7	.3	3.8	3.1	.2	3.4	3.3	.1
Mexico	1.2	.6	.6	1.0	.7	.4	.8	.7	.1
India	7.9	7.1	.1	8.4	7.2	.3	8.0	7.4	.4
China	28.7	15.5	1.1	19.0	17.5	2.7	19.3	17.5	2.7
Major importers									
Western Europe	.9	5.9	-4.9	1.1	5.9	-4.8	1.1	6.2	-5.2
Japan	0	3.2	-3.1	0	3.0	-2.9	0	3.0	-3.0
Eastern Europe	.1	3.7	-3.7	.1	3.9	-3.9	.1	4.1	-4.1
South Korea	--	1.6	-1.6	--	1.7	-1.6	--	1.7	-1.7
Taiwan	0	1.2	-1.3	0	1.4	-1.4	0	1.6	-1.6
Hong Kong	0	.7	-.9	0	.7	-.9	0	.8	-1.0
Residual	9.2	6.6	+1.7	8.7	6.7	+2.7	8.6	7.1	+1.0
World	87.0	69.9		79.0	74.3		74.1	76.5	

Year beginning August 1; consumption is mill use. -- = negligible. P = projected.

Foreign Consumption To Rise

Sharply lower cotton prices, substitution of cotton for synthetic fibers, and rising global textile production will contribute to the gain in cotton consumption in 1986/87. U.S. consumption is projected to rise 7 percent, while foreign consumption is likely to show a significant but smaller gain.

Growth of foreign consumption is uneven. Textile expansion in Japan and Western Europe is being limited by relatively slow economic growth, high wage rates, and increased competition from East Asian imports in domestic textile markets. But, these major Asian textile exporters—Taiwan, Hong Kong, and South Korea—are more optimistic, since their textile trade was not further restricted by the Multifiber Arrangement negotiations and world cotton prices are low. Their cotton consumption is forecast to grow between 4 and 15 percent this year. Newer textile producers, such as Thailand and Indonesia, which face fewer import restrictions, are also expanding consumption rapidly. Since most of the countries where consumption is growing quickly this year are major cotton importers, world cotton imports will show the largest gain since 1979/80. [Carolyn L. Whitton (202) 786-1691]

Tobacco

Tobacco Output Declines

World tobacco output in 1986 is forecast at 6.6 million tons (farm-sales weight), down 4 percent from 1985, mainly due to smaller crops in China and the United States. The flue-cured crop is down 7 percent and burley 4. Oriental leaf is expected to rise 3 percent.

Drought and reduced flue-cured production quotas lowered 1986 U.S. output about 19 percent to 553,000 tons. The flue-cured crop, 55 percent of the total, is expected to decline 17 percent to 301,000 tons. The auction price for flue-cured leaf declined 5 percent in 1985 to \$1.72 a pound, and lower prices in 1986 are expected because of lower support prices.

China's planted area of 1.2 million hectares is about 6 percent lower, and output of 2.1 million tons will be approximately 7 percent less than last season's record 2.3 million. Flue-cured in China (55 percent of world output) decreased about 8 percent, due to a 7-percent decline in area. Decreases are also expected in Brazil, Italy, Pakistan, the Philippines, Canada, Poland, Pakistan, and Thailand.

Tobacco: World production, consumption, and net exports

Country	1984			1985 1/			1986 F		
	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.	Prod.	Cons.	N. exp.
Thousand metric tons 2/									
Major exporters									
United States	706	651	33	623	618	47	491	630	70
Brazil	325	140	187	321	153	200	280	155	170
Zimbabwe	111	3	87	96	3	99	102	3	99
Greece	138	35	93	143	35	79	145	36	98
Turkey	147	84	70	146	84	103	149	85	80
India	463	393	81	444	401	64	451	401	71
Italy	137	81	72	148	80	45	139	80	55
Malawi	65	2	64	69	2	65	70	2	62
Bulgaria	127	93	26	108	88	27	126	89	30
China	1,722	1,616	16	2,236	1,789	9	2,064	1,892	14
Major importers									
Germany, Fed. Rep.	6	126	-120	7	165	-158	7	137	-130
United Kingdom	0	135	-125	0	134	-114	0	136	-124
Netherlands	0	72	-63	0	80	-72	0	80	-77
Spain	36	114	-70	35	105	-66	34	107	-64
Belgium	2	37	-29	2	38	-34	2	40	-43
France	31	56	-27	31	68	-38	31	72	-41
USSR	343	405	-101	345	425	-97	345	445	-97
Japan	122	201	-67	105	191	-68	112	185	-71
Egypt	0	48	-45	0	46	-33	0	49	-51
Germany, Dem. Rep.	5	25	-20	6	26	-21	6	26	-20
Residual	1,408	1,408	-62	1,384	1,403	-37	1,400	1,411	-31
World	5,894	5,725		6,249	5,934		5,954	6,061	

1/ Preliminary. 2/ Dry weight. F = forecast.

Consumption Up in 1986

World leaf consumption in 1986 could reach a record 6.1 million tons (dry weight). China, the world's largest consumer, is expecting a 6-percent increase, reflecting a continuing rise in cigarette output. U.S. domestic consumption is rising from last year's low 618,000 tons to around 630,000 in 1986 because of an increase in filtertip cigarette sales. In major foreign exporting countries, consumption is predicted to increase 4 percent to 2.7 million tons. The major foreign importing countries' consumption is forecast to remain near 1985's 1.3 million tons, as falling consumption in West Germany and Japan about offsets increases in the USSR, the United Kingdom, France, Spain, and Egypt.

Tobacco Exports Unchanged

World exports of unmanufactured tobacco in 1986 may remain near the 1.4 million tons of 1985 because of decreased demand in developed countries. Brazil, the world's

second largest exporter, is forecast to export 170,000 tons in 1986, 15 percent less than last year because of a major drought and poor quality. Export gains for Greece, Zimbabwe, India, Canada, and Thailand will more than offset declines for Turkey, Malawi, and the Republic of Korea.

U.S. Export Value Down; Volume Up

U.S. unmanufactured tobacco exports are expected to decline 2 percent in 1986 to \$1.5 billion, with a unit value 7 percent lower than 1985's \$2.77 a pound. The volume, however, is expected to increase 4 percent to about 260,000 tons. Because of lower U.S. prices and drought in Brazil, the U.S. share of the export market may increase to 18 percent in 1986, compared with the 22-percent average of the seventies. Japan, in its fiscal year ending March 1986, increased imports from the United States 5 percent to 49,000 tons, boosting the U.S. market share from 65 percent to 67. [Charles E. Goode (202) 786-1625]

REGIONAL DEVELOPMENTS

Western Hemisphere

North American Red Meat Production Down

The livestock sectors in the United States and Canada are closely related because of similar demand conditions, production trends, and relatively free trade for many products. Trends in beef and poultry production and consumption have been similar in the eighties, although patterns in the two countries' pork sectors have diverged. Canadian grain prices likewise reflect U.S. grain prices. Canadian wheat and coarse grain prices for the 1986/87 crop year have already fallen in response to declines in U.S. loan rates.

A North American market exists for cattle and beef; the cattle cycles in the two countries parallel each other. Inventories in both countries have been declining since 1982 and are the lowest in over 2 decades. Beef production is expected to fall in Canada in 1986 and increase marginally in the United States. Reduced calf crops and beef cow inventories are setting the stage for declining production and higher prices over the next several years, until producers rebuild breeding herds. Per capita beef consumption peaked in the mid-seventies and has been stagnant in the eighties.

Hog cycles and pork production in the United States and Canada have not been as closely aligned. Canadian pork production expanded sharply during the eighties, reflecting the impact of federal and provincial stabilization programs, while U.S. production contracted. However, pork production in both countries is expected to decline in 1986. North American hog prices climbed sharply this summer, but production increases are not expected until later in 1987 due to a need to pay down debt as well as to lagged production response. Per capita pork consumption has been slipping in the eighties in both countries.

Poultry Sectors Continue Strong

In contrast to beef and pork, production and consumption of poultry has been growing in both the United States and Canada. Poultry output is expected to increase again in 1986. Canadian production and consumption growth has lagged that in the United States, because

the Canadian supply management system fixes production quotas and keeps prices higher.

U.S. broiler prices are expected to remain above a year earlier during the rest of 1986, reflecting strong consumer demand and higher red meat prices.

Large North American Livestock Trade

Trade in live animals and meat between the United States and Canada is significant, accounting for over a third of the value of agricultural trade between the two countries in 1985. Live cattle flow both ways across the border, with western Canada generally exporting feeder cattle and slaughter cows to the United States, and eastern Canada importing U.S. slaughter cattle.

However, this year Canada is exporting more slaughter steers and heifers, and fewer slaughter cows and feeder cattle. Demand for feeder cattle is high now in western Canada. Canada is a net beef exporter to the United States, although this year Canada's exports to and imports from the United States are expected to decline.

Canada is also a net pork and hog exporter to the United States, and exports have grown sharply during the eighties due to large Canadian supplies and the weak Canadian dollar. Live hog exports will fall by more than half this year following the imposition of a countervailing duty last summer, but this decline will be offset by increased pork exports to the United States. U.S. pork exports to Canada have dropped to very low levels since peaking in the late seventies.

The United States is a net poultry meat exporter to Canada. The Canadian supply management system makes Canadian prices uncompetitive in U.S. markets. Canadian import quotas for the current year are set at 6.3 percent of the previous year's production. Thus, imports have been growing along with Canadian production. U.S. exports are expected to increase slightly in 1986.

Argentine Cattle Sector Suffers

Since 1977, Argentina's beef cattle industry has been liquidating. Inventories recovered briefly between 1982 and 1984, but

beginning in 1984 slaughter increased rapidly and inventories fell. Beginning inventories on July 1, 1986, were an estimated 52 million head, down from 61 million in 1977.

The downturn in the Argentine cattle sector is due largely to the change in Europe's position from a major importer of Argentine beef to a major competitor in world beef markets. Beginning in the mid-seventies, Europe has limited beef imports, and in recent years has subsidized export sales of intervention stocks.

In addition, the cattle sector has been adversely affected as higher returns for field crops encouraged switching pastures into crops. Rising crop yields improved returns to field crops, causing loss of productivity in the beef sector when herds were relocated to marginal regions.

During 1985/86 (July/June), 13.6 million head were slaughtered, 10 percent above a year earlier. Per capita consumption increased following a 31-percent decline in prices. Slaughter rates through mid-1986 appeared to be the same as 1985. However, lower average weights and a high heifer slaughter rate have reduced supplies in 1986.

The outlook for Argentina's beef sector is unclear. Lower supplies may be a seasonal pattern or may reflect flooding in western Buenos Aires province in November 1985, resulting in additional slaughter and reduced availability of finished cattle. On the other hand, reduced supplies may indicate that the retention phase of the cycle is beginning because of the poor outlook for crop prices over the next 2 years. Export demand has also recovered somewhat, especially in the European market for choice cuts.

Per capita meat consumption, 1985

Country	Beef	Sheep	Pork	Poultry	Total
Kilograms per capita					
Argentina	82.7	2.8	6.2	10.3	102.0
Brazil	10.3	NA	3.5	6.5	20.3
Canada	41.3	.8	28.9	25.3	96.3
EC-12	23.3	3.6	36.9	15.7	79.5
U.S.	49.8	NA	29.6	31.5	110.1
Peru	5.6	1.5	2.9	10.1	20.1

NA = not available. Source: FAO.

Beef exports in 1986 are forecast at 220 million tons, down slightly from a year ago but only about half of 1970's. A main factor limiting export expansion will be domestic demand, accounting for 90 percent of production. Meat substitutes are few, so the demand for beef is inelastic. Beef consumption is high compared with other beef-producing countries.

Brazilian Meat Demand Interrupts Exports

Demand for meat in Brazil increased in 1985 and is even stronger in 1986. Demand has been partially frustrated by limited supplies, especially of beef, despite large cattle herds. Economic factors have combined with the normal reduction in slaughter associated with the dry season.

As strong domestic demand has claimed more supplies, meat available for export has declined. The seasonal nature of beef supplies has resulted in shortages of beef, and the Government has responded by importing massive supplies from the United States and the EC. These imports are controversial, because Brazil has been one of the world's largest beef exporters.

In March 1986, the Government froze prices as part of an anti-inflation reform, but beef prices were frozen at a low part of the price cycle. By June and July, beef had disappeared from store shelves. The economic reforms also made investment in agriculture more attractive, so resources that had previously been devoted to financial investments that profited from high inflation became available to expand livestock operations. This meant even fewer cattle going to slaughter. The strong economy increased the demand for meat just as the supply dried up. The Government responded by purchasing, at bargain prices, the beef stocks that the United States and EC needed to dispose of.

As beef became unavailable, consumption of pork and poultry rose, reducing their availability for export and encouraging increased production. Rising poultry and pork production has raised demand for corn and soybean meal.

Andean Poultry and Pork Output Rise

In the Andean region, poultry and pork production are the leading users of imported feeds. Poultry production is rising because growing demand is strengthening producer prices. Poultry and feed imports by Colombia and Peru are increasing, but this has not translated into increased U.S. feed or poultry exports. Colombia has met its poultry needs with contraband poultry imports from Venezuela. To alleviate shortages that occurred earlier in 1986, Peru lowered its surtax on poultry imports, but imported meat from Brazil and Chile.

Other countries in the region are limiting imports of feed ingredients. Chile's fishmeal exports rank second after copper, and output of oilseed meals is also increasing. Venezuela is producing another bumper corn crop, albeit mostly for food. Since Venezuela also has limited foreign exchange, it may be cutting back on oilseed meal and sorghum imports in the near future.

In June, the Venezuelan Government restricted soybean meal imports by taking soybean meal off the list of preferential commodities and placing it on the list of commodities to be purchased with free-market dollars (a higher exchange rate). By mid-June, Venezuela had purchased 460,000 tons of soybean meal, after a flurry of purchases made to beat the cutoff date.

Other developments in the Andean livestock sector include:

- o The Colombian cattle industry is switching from beef to dairy, because of crime on remote cattle ranches, the slowdown of contraband live cattle exports to Venezuela, and the increased consumption of milk. The rising interest in dairying has made Colombia a large participant in the USDA dairy buy-out program. During January-July, the Government of Colombia issued import permits for 1,700 head of U.S. cattle—mostly Jerseys and Holsteins. Import permits are expected to reach 3,800 head, with 3,000 from the United States.
- o Chile may be considering beef as a nontraditional export in its effort to

seek new export opportunities. Chile has also extended its 15-percent surtax on dairy product imports to March 1987 to protect its high producer prices.

- o Ecuador's dairy industry is also flourishing, and beef and pork production have increased during 1986. [*Carol Goodloe (202) 786-1663*]

Western Europe

The important feed and livestock developments in Western Europe arise from policy issues and the grain and oilseed situations, because the market for commercial feed is growing slowly. However, the current outlook for U.S. soybean exports to the EC is mixed, even though estimates for Western European grain crops continue downward and U.S. soybean prices have become more competitive.

As a consequence of an interim agreement in July between the EC and the United States, U.S. corn shipments may recover some of their initial losses resulting from Spanish accession to the EC. The agreement provides a 6-month truce for outstanding farm trade issues plaguing relations between the two sides.

U.S. Exports Hinge on Policy and Weather

This year's EC grain crop is estimated to be about 6 percent below last year's, because of drought in France, Spain, and West Germany. EC-12 grain production of about 151 million tons would still leave ample supplies for domestic use and export, and reduce the stock overhang only moderately.

Regions of France, West Germany, and Spain where farmers have been feeding grain from their own crop could import soybean meal this year to supplement their drought-reduced grain quantities. This is most likely in areas where distribution and marketing systems for grain imports are limited, and which have been severely affected by the drought. With total grain fed forecast to decline 560,000 tons to 88.6 million, soybean meal use could grow around

350,000 tons. Reduced pasture and forage could even boost demand for soybean meal above that necessary to replace grains.

Several factors, however, are holding down the potential for U.S. sales. EC livestock numbers indicate decline in the domestic market for feedstuffs. Forecast total livestock units (that is, all farm animals raised for food, summed on the basis of feed equivalents) for the EC-12 in calendar 1987 are down 1.6 percent from 1982. Declines in 1985-1987 offset some growth in the previous 2 years. The declines were mainly in cattle, primarily dairy cows, being reduced as part of policies aimed at limiting the EC's dairy surplus.

The addition of Spain and Portugal to the EC substantially enlarges the internal market for feedstuffs, but the two newcomers will mostly benefit the original EC, with its current large surpluses of grains. Also, rising EC-12 oilseed production--growing from 6.3 to 7.1 million tons between 1984/85 and 1985/86, but about constant in fiscal 1986/87--works against imports.

All oilseed crops (sunflowerseed, soybean, rapeseed) increased, with most of the gain coming in France, West Germany, and Italy. At the same time, a glut of oil on world markets is depressing crushing margins for EC oilseed-processing plants. If Brazilian soybean production recovers this season, the U.S. market share may shrink.

Tentative Progress in Trade Talks

The EC's recent expansion has intensified its budgetary concerns, in part because enlargement may increase the need for outlays for stocks and farm export subsidies. As costly as those programs are, the EC finds itself with no alternative presently, as it attempts both to accommodate the interests of its now substantial Mediterranean tier, and to maintain or expand the trade preferences it allows some non-EC Mediterranean producers competing with its own southern farmers.

Large supplies of crops in world markets are putting additional pressures on the EC. Forecast EC grain exports are down slightly from last year, at 15 million tons of wheat and 6.5 million of coarse grains. A pickup in

intra-EC trade because of extra wheat and barley exports to Spain and Portugal will compensate for EC losses on third-country markets.

However, the shift toward intra-EC trade reduces potential U.S. exports to Spain. U.S. complaints growing out of the enlargement resulted in a March 31 U.S. announcement of possible quota and tariff measures to be taken against specified EC imports (including certain cheeses, fruit and vegetable products, and alcoholic beverages). The EC responded by targeting certain U.S. products for retaliation, including soybean meal, corn gluten feed, and almonds (see the July 1986 *Agricultural Outlook* for details).

A deadlock in EC-U.S. talks ensued, the EC arguing that compensation in the industrial sector would be adequate, and the United States arguing for compensation within agricultural trade. The two sides, both wanting to avoid a major trade confrontation at GATT negotiations, managed to achieve an interim settlement as of July 2. Under it, the EC will monitor imports of corn and some other feedstuffs for the period July 1 to December 31, 1986. If Spanish imports of these feedstuffs fall below a monthly average of 234,000 tons, the EC (excluding Portugal) will permit imports equivalent to the shortfall under a reduced levy quota.

Following the July accord, a "citrus agreement" was reached on August 11. The United States is to be granted a quota for extra-quality orange exports to the EC, as well as for almonds, while U.S. tariffs on olive oil and certain cheese imports are to be reduced.

Within the same arrangement, the United States eliminated an extra duty it had imposed on pasta imports from the EC on November 1, 1985, and the EC removed its November 4 duty increase on U.S. lemons and walnuts. However, permanent settlement of the EC-U.S. dispute over subsidized EC pasta exports has yet to be achieved, and if one is not reached by the targeted July 1, 1987 deadline, the entire "citrus agreement" could be in jeopardy. [*Lorna Aldrich, Stephen Hiemstra, Miles Lambert, and Stephen Sposato (202) 786-1717*]

USSR

Due to lower grain production, the Soviet Union's agricultural production for 1986 is expected to be the lowest since 1982, according to ERS production indices. Improvements in the livestock sector are not expected to offset the effect of the reduced harvest. Grain area is estimated to be down more than 1 million hectares from last year. In addition, hot, dry weather in major grain-producing areas has stressed the crop. While the quality of some grains could be higher than usual, the grain harvest is forecast at 175 million tons, 15 million less than last year.

As an incentive to grain producers, the State Agro-industrial Committee (Gosagroprom) announced a program offering, to these farms that overfulfill grain procurement plans, the right to buy trucks, tractors, and other farm inputs. It is doubtful that this bonus system will affect grain production this year, since it was announced late in the season, but state procurements may rise.

Nongrain feed production will match or better last year's record. Dry weather in the western USSR grain regions may have caused diversion of grain to forage. Corn silage production is running at a record pace, and the hay and haylage output is expected to be good.

The livestock sector's performance mirrors the success of the nongrain feed sector. Livestock inventories on state and collective farms are running near or at record levels, except for poultry. The first half of 1986 has shown significant performance gains in this sector, reflecting an emphasis on raising output per head. Better productivity will likely result in a modest increase in milk, meat, and egg production.

Imports To Continue Decline in 1986

Soviet agricultural imports in 1986 will continue the decline of the past 2 years. Soviet official trade figures for calendar 1985 confirm ERS estimates that show total Soviet agricultural imports at \$17.7 billion, down more than \$1 billion from 1984. Shrinkage in grain trade, due to falling prices and lower Soviet grain imports, accounts for the continuing decline.

Soviet grain import requirements this calendar year are expected to drop to two-thirds of 1985's quantity, due in part to higher output of nongrain feed crops. The Soviets will probably draw down existing grain stocks that were built up following the better-than-average 1985 crop, instead of relying totally on imports to make up for this year's shortfall.

The Soviets face a serious hard currency constraint due to the drop in the price of oil, a major hard currency earner. With an estimated 25-percent drop in hard currency earnings this year, the Soviets will limit their agricultural imports from the West.

In July, the Soviets notified grain exporters of stiffer conditions for grain purchases. According to the new conditions, the Soviets would reserve the right to reject grain or charge a penalty if it does not meet contractual requirements. The seller would be responsible for fumigation or removal of the grain from the port if the Soviets rejected the shipment. In addition, the Soviets are demanding a 30-day grace period on payments for grain shipments. The stricter import requirements indicate that the Soviets are attempting to reduce problems with grain quality that they have complained about in the past. [Carolyn E. Duff (202) 786-1710]

Eastern Europe

Grain production is expected to be above average for the fifth straight year. In the southern countries (Bulgaria, Romania, and Yugoslavia), after suffering a severe drought in 1985, production of grains and oilseeds rebounded substantially in 1986. Total oilseed production in the region is likely to reach an alltime high in 1986. Overall livestock inventories continued their decline this year, but are expected to begin rebuilding in 1987. U.S. farm exports to Eastern Europe are forecast to fall slightly further in 1986.

Grain Production Second Largest

Grain production in 1986 could reach 110-112 million tons, second only to the 1984 record. Regional wheat production is estimated at nearly 40 million tons, its second best showing, while coarse grain output will remain largely unchanged from 1985.

Poland will produce a record crop this year, and output--particularly of corn--in Bulgaria, Romania, and Yugoslavia, will rise markedly following serious drought in 1985. After four successive record crops in the German Democratic Republic, production will be down slightly because of dry, hot weather. Similar weather conditions will reduce the Czechoslovakia harvest as well. Grain production in Hungary will decline over 10 percent; corn especially will suffer, as the country has experienced its worst drought in nearly a decade.

Record Oilseed Production

Total 1986 oilseed production in the region is estimated at close to 5 million tons, an alltime high, and about 10 percent larger than last year's drought-damaged crop. Rapeseed production is projected to be up markedly from 1985 and a record high. Poland, which harvested its largest rapeseed crop ever this year, is primarily responsible.

Substantially increased production of sunflowerseed in Bulgaria, Romania, and Yugoslavia largely accounts for a forecast 15-percent rise in output for the region, which, if achieved, will be a record. Soybean production will also rebound, up more than 20 percent from 1985, due again to a recovery by the same three major producers.

Livestock Sector Bottoms Out

Overall cattle and hog numbers continued their 2-year decline in 1986, albeit at a slower rate. On the other hand, sheep inventories should show a slight increase this year, in contrast to a sharp decline in 1985. Poultry flocks, one of the brighter spots, are projected to rise about 2 percent.

The region's livestock sector, having suffered a harsh winter, energy shortages, drought-reduced feed supplies in the southern countries, and rising production costs in 1985, is facing another difficult year in 1986. Continuing inadequate imports of high-protein feed components, poor export performance, high input costs, and low profitability have caused further setbacks.

To provide relief to breeders, increase incentives, and halt the costly decline in animal stocks, most East European countries

increased producer livestock prices and subsidies for farm construction, and extended tax concessions in 1986. These measures are proving only partially successful so far, and are to be continued in 1987.

The outlook for next year is for a modest recovery in the sector, with herds beginning to stabilize and gradually move upward. Overall meat production has remained unchanged again in 1986 at roughly 12 million tons, but since the major culling of herds is over and rebuilding of stocks is now beginning, slaughter numbers are forecast to decline slightly in 1987.

U.S. Exports Continue To Decline

The value of U.S. farm exports to Eastern Europe is forecast to decline marginally in 1986, after falling a dramatic 37 percent to \$479 million in calendar 1985. While the volume of U.S. grain exports will be substantially larger this year, in response to the southern countries' poor 1985 crop year, the total value of exports will be down due to falling grain prices and a significant drop in animal product sales. U.S. soybean exports may be up slightly, following crop shortfalls last year, but soybean meal sales are expected to remain low because of reduced livestock numbers and competition from Latin American suppliers. [*Christian J. Foster (202) 786-1710*]

Australia

Low world grain and oilseed prices are encouraging more livestock feeding in Australia. Grain use for feed may increase a tenth in 1986/87, following a 5-percent gain this year. Production of lupins and other legumes for livestock feed is rising rapidly.

Most of the 3 million tons of grain fed to livestock is used in the poultry and hog industries. Sheep, beef cattle, and dairy cattle are largely range-fed, often on improved pastures in rotation with crop stubble. At the end of May 1986, 230,000 head of cattle were in feedlots, up from 140,000 a year earlier, reflecting the dry summer in many beef regions and a greater acceptance of intensive feeding.

Cattle slaughter was up 8 percent in January-July 1986, largely because of dry

Australian agricultural production

Item	1983/ 84	1984/ 85	1985/ 86	1986/ 87 F
Thousand metric tons				
Crops				
Wheat	22,016	18,666	16,050	15,400
Barley	4,890	5,554	4,913	3,700
Oats	2,296	1,367	1,339	1,750
Sorghum	1,885	1,369	1,250	1,300
Oilseeds				
Winter	52	70	126	100
Summer	306	445	359	390
Lupins & field peas	516	748	707	1,100
Cotton	141	249	253	180
Livestock prod.				
Milk	6,087	6,217	6,200	6,200
Wool 1/ Meat 2/	732	814	815	833
Beef and veal	1,248	1,338	1,380	1,390
Lamb	273	317	310	280
Mutton	177	235	260	290
Pork	256	263	268	270
Poultry meat	297	345	365	385

F = forecast. 1/ Greasy equivalent. 2/ Meats on 1984-87 calendar years, 1986-87 forecast.

pastures. Slaughter rates in the last 5 months should be slightly below year-earlier levels as producers build herds. Slaughter is expected to remain near 7.3 million head in 1987.

Lamb slaughter rose 0.7 percent and sheep slaughter 20 in the first 7 months of 1986; but the pace is expected to slow in the second half. Lamb slaughter will decline in 1987 because sheep growers are emphasizing wool at the expense of prime lamb production.

The Australian hog industry has suffered from poor returns for several years. Earlier losses, together with current high capital costs and interest rates, are preventing most producers from expanding operations in response to low feed prices. However, poultry meat production may increase 5 to 6 percent in both 1986 and 1987.

Crop Prospects Improve

Winter rains improved prospects for grain and oilseed crops in most growing areas. Parts of Queensland remained dry. Area planted to oats is up about 37 percent, but other winter grain is down about 7 percent. Depending on spring rains, yields may be somewhat above average. Winter oilseed area and production are estimated down a fifth. Lupins area is up

about 28 percent, and yields should recover from last year's harvest.

Wheat Exports Record Large

Wheat exports are expected to reach a record 16 million tons in the 1985/86 marketing year, up from 15.3 million a year earlier. Exports include 3.2 million tons shipped to the USSR, 2.1 million to Egypt, and 1.9 million to China. With reduced supplies, 1986/87 exports will likely decline to 14.5 to 15 million tons. [Sally Byrne (202) 786-1611]

Japan

Outlook for Livestock Sector Mixed

Japan's beef and veal production in 1986 is estimated at 545,000 tons, a 2-percent decline from 1985. Reduced supplies due to heavy slaughter of Wagyu cattle (the native breed) last year have been partially offset by an increase in dairy cattle slaughter. In response to declining milk prices, in June, the Ministry of Agriculture, Forestry, and Fisheries (MAFF) initiated a program to cut milk production 3 percent by culling milk cows. The program is to run through March 1987.

After growing 8 percent in 1985, pork output is expected to decline 2 percent this year to 1.5 million tons. Deteriorating market hog prices prompted producers to increase the culling of sows in late 1985, causing a reduction in hog slaughter this year. Broiler output is forecast to increase only marginally in 1986, despite cheaper feed prices and stable demand. To shore up declining prices, broiler producers apparently are marketing fewer birds. In contrast, egg production is projected to grow about 2 percent from last year. Because of lower feed costs and the large government budget deficit, MAFF decided to reduce producer support prices for pork, dairy beef, and milk for processing this fiscal year.

Beef and Poultry Imports Up

Japan's beef and veal imports in 1986 are projected to increase about 5 percent to 158,000 tons (product weight), in accordance with the 1984 U.S.-Japan understanding on beef, which called for a 9,000-ton annual increase in beef import quotas through March 1988. The U.S. share of beef imports could

increase to 35 percent from 31 last year, as a result of Japan's commitment to expand grain-fed beef imports 6,900 tons yearly.

Pork imports during the first half of the year were about 16 percent ahead of a year earlier, and for all of 1986 could exceed last year's high of 190,000 tons. However, the U.S. share is unlikely to improve much because of continued strong competition from Taiwanese pork.

Japan's poultry meat imports could increase 20 percent or more this year, boosted by the stronger yen and only slight gains in domestic outturn. The United States has gained some market share due to less competition from Brazil. Because of a temporary domestic shortage of beef, Brazilians are consuming more chicken, reducing available supplies for export. At the same time, Japanese imports of boneless chicken meat from Thailand have continued to increase, encouraged by the stronger yen and the lower tariff on boneless chicken, recently reduced from 18 percent to 14.

Retail Meat Prices Decline

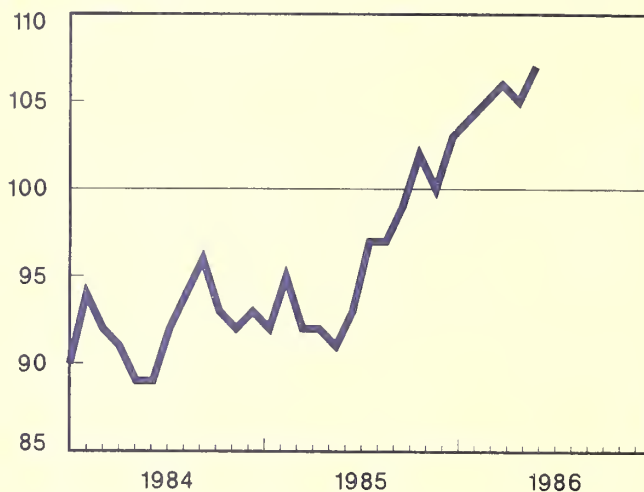
A decline in retail prices has spurred greater consumption of pork and poultry meat. In addition, to pass on exchange rate gains to consumers, MAFF has instructed the Livestock Industry Promotion Corporation (LIPC), which controls the purchase and sale of domestic and imported beef, to lower its resale prices for imported beef 12.5 percent. However, retail price reductions are unlikely to match this. Because of the price support schemes in effect for beef and dairy products, retail price declines have not fully reflected the reductions in import prices resulting from the appreciation of the yen.

Livestock Profits Continue To Rise

Stable producer prices and declining feed prices have improved profit margins for livestock producers since May 1985. Because of the higher-valued yen and lower world prices for grains and oilseeds, Zennoh—Japan's largest feed manufacturer—has successively reduced feed prices. Prices for July–December 1986 deliveries were recently cut to 56,300 yen per ton (\$363 at 155 yen/dollar) 15 percent below a year earlier. Lower feed prices have

Japan's Livestock Product/Feed Price Ratio Rising

% of 1980



encouraged slightly greater consumption of mixed feed. [Lois Caplan (202) 786-1610]

Middle-Income East Asia (South Korea, Taiwan, Hong Kong)

Economic growth in the region is expected to accelerate this year as currency realignments enhance the region's competitiveness in Japan, Europe, and the United States. The value of U.S. farm exports to the region, however, is forecast to drop about 9 percent in fiscal 1986 to \$2.8 billion. The decrease is mainly attributed to lower commodity prices and sharply reduced cotton and coarse grain exports, which are more than offsetting gains in sales of cattle hides and soybeans. In fiscal 1987, despite expected lower prices of most bulk commodities, substantially increased shipments of coarse grain and cotton will increase the value slightly.

U.S. Exports Drop in Value

Expanding livestock production and limited domestic feed supplies have made the region a large U.S. market for coarse grain and soybeans. Except for Hong Kong, which imports mostly finished livestock products, South Korea and Taiwan have large domestic livestock industries that depend heavily on imported feedstuffs. Since 1985, large livestock inventories and low feed costs have kept the region's import demand for coarse grain and soybeans relatively strong.

However, U.S. coarse grain has faced stepped-up competition from South African corn and surplus indigenous rice in the Taiwanese market, and from Thai coarse grain and Australian and Canadian feed wheat in the South Korean market. PRC corn exports to the Korean market are less of a factor this year, dropping from 1.5 million tons in fiscal 1985 to an estimated 900,000 this year. The total value of U.S. coarse grain and soybean exports to the region, forecast to drop about 7 percent from fiscal 1985's \$651 million, should increase in the next fiscal year.

Taiwan's Pork Output and Exports Rise

After an unprofitable year in 1985, Taiwan's hog industry--the country's largest livestock industry--is bouncing back. Pork exports, mainly to Japan, rose 28 percent to 37,105 tons during the first half of 1986 compared with a year earlier. Strong export performance and farmers' speculative holdings pushed hog prices up more than 50 percent. A strong yen, and Japan's concern about Chernobyl's effects on European meat, will help keep Taiwan's 1986 pork exports above last year's record 67,046 tons. Hog numbers are expected to remain at last year's record 6.7 million head.

South Korean Cattle Herd Growth Slows

During 1982-84, the Government implemented various measures to expand domestic beef and milk production. These measures included making subsidized credit available for cattle purchases, importing breeding stock, making it illegal to slaughter female cattle under 6 years of age, and requiring a minimum weight of 400 kilograms for all slaughter cattle. Beef imports were also accelerated in 1982-83 to accommodate rising demand and to allow inventories to continue on an expansionary path.

The nation's cattle inventory rose from 1.5 million head in 1982 to 2.7 million in 1985. Cattle prices began to decline in 1984. The Government then began to purchase slaughter and younger cattle for retention on cooperative farms, suspend beef and cattle imports, bar the release of imported beef from stocks, and lift restrictions on sex, age, and slaughter weight. These efforts have helped stabilize prices in 1986. [Sophia Wu Huang (202) 786-1611]

China

China's livestock industry continued to grow at a fast pace in the first half of this year, despite local reports of higher feed costs and lower meat prices. A bumper summer harvest may have improved the feed grain situation in northern and central China, but shortages will continue in southern China, where imports have been far below requirements. A shortage of foreign exchange continues to limit feed grain imports. Growth of the livestock and product sector should slow for the rest of the decade.

Growth Continued in First-Half 1986

Following rapid growth in the livestock and product sector in 1984 and 1985, red meat production, including pork, beef, and mutton, totaled 8.87 million tons for the first 6 months of this year, 15.6 percent above a year earlier. Hog slaughter, which contributes more than 90 percent of total red meat output, reached 125 million head, up 12.9 percent from first-half 1985. Milk production totaled 1.18 million tons, up 16.2 percent. Inventories of hogs and large animals, including cattle, have all grown in the first 6 months of this year.

Higher feed prices, combined with lower product prices brought on by increased marketings of live animals, particularly hogs and poultry, caused noticeable cost-price squeezes in some local livestock raising areas during first-half 1986. There are, however, some indications that the problem may improve during the second half of this year. First, feed prices have started declining in several hog-producing provinces where bumper summer harvests have been reported. Second, hog and piglet prices have rebounded recently, and third, the government procurement system apparently has been successful in coordinating orderly hog purchases in areas with surplus slaughter hogs.

Slower Growth Expected in the Long Run

Despite continued rapid growth, China's livestock sector experiences increasing adjustment problems. Elimination of fixed procurement and retail prices for livestock products, and the decline in growth of grain output, have already resulted in a cost-price squeeze in 1986. Feed manufacturing in the

next several years is expected to grow more slowly because of slower growth in grain output.

With the limited supply of manufactured feed and feed grains, partly caused by the export commitments of coarse grains to the USSR and Japan, together with the tight foreign exchange situation, China's livestock and product production will return to a modest growth rate, particularly in the south. China's seventh 5-year plan also implies that total meat production will grow only 3.7 percent annually for the 5-year period (1986-1990), with milk and eggs growing faster at annual rates of 16 and 10.5 percent, respectively. [Francis Tuan (202) 786-1616]

South Asia

Poultry Sectors Expand Rapidly

Strengthening consumer demand is contributing to rapid expansion of commercial poultry and egg production in Pakistan and India. In Pakistan, production of poultry meat and eggs has grown 17 percent and 15 percent, respectively, since 1980. India's production of poultry meat and eggs both grew about 7 percent annually.

Overall meat consumption remains very low in both countries, and mutton and beef still account for most of the meat consumed. However, commercial poultry production is now the fastest-growing sector in both countries, because of consumer preferences, growth in per capita incomes, and high profitability. Commercial producers in Pakistan have also benefited from government tax and credit incentives.

Commercial production of feeds has also grown rapidly in both countries, but the poor quality of domestic feedstuffs is a key constraint to higher growth and improved efficiency in poultry operations. Pakistan has imported small amounts of soybean meal for poultry rations, and limited domestic capacity to produce oilmeals may lead to larger imports in the future. However, India is a traditional exporter of oilmeals, with broad scope to expand domestic production.

Livestock Sectors Grow More Slowly

Production of beef and mutton in Pakistan has grown about 6 percent annually since 1980, while Indian production has grown 2 to 3. In both countries, growth has been slower than in the poultry sector, in part because of comparatively low profitability and the high investment required to establish operations on a commercial scale. Domestic forages account for virtually all feed used in beef and mutton production in both countries. India has attempted to expand its exports of beef in recent years, primarily to Middle Eastern markets, with exports between 30,000 and 60,000 tons since 1980.

India Emphasizes Dairy Development

Dairy production has been the main focus of India's livestock development efforts, with dairying benefiting from government and foreign donor investment under the Operation Flood program. Key elements of the program are organization of vertically integrated, farmer-owned milk production and marketing cooperatives, and the establishment of a "national milk grid" (distribution network) to facilitate distribution of milk from surplus to deficit areas. Milk production has expanded steadily since the early 1970's, growing at an annual rate of nearly 6 percent since 1980. Improved domestic production of fluid and dry milk has reduced requirements for donated supplies of dry milk to meet lean-season demand in urban areas. [Maurice R. Landes (202) 786-1614]

Southeast Asia

Indonesia Makes Milk Powder

Indonesia's first milk powdering plant began operating in 1985. It has helped absorb surplus fresh milk supplies and reduced powdered milk imports. Processing capacity is 120,000 liters per day, with an estimated output of 5,000 tons of milk powder annually. A U.S. agricultural cooperative recently agreed, in a joint venture, to supply dairy cattle to Indonesia for its Nucleus Estate and Smallholders project. This will supply additional fresh milk to the powdering plant. The co-op will also provide technical assistance in managing the dairy herds.

Malaysia Self-Sufficient in Poultry

Malaysia, which remains self-sufficient in poultry and pork production, produces less than half its beef and mutton, and has a limited government sponsored and subsidized smallholder dairy sector. The poultry sector has experienced sustained growth, with further gains anticipated based on population growth and rising real incomes. However, long-term growth in the pork sector is more uncertain due to ecological and religious concerns. The Government is reducing beef imports 15 percent in 1986 to protect the domestic beef industry. Imported corn, estimated at 1.2 million tons in 1985/86, mainly from Thailand, constitutes the major energy source in the estimated 1.5-million-ton output of mixed feed.

Philippines' Livestock Sector Depressed

The Philippine economic crisis continues to take its toll on livestock and poultry raisers. Depressed consumer demand, high interest rates, and rising costs are forcing small-scale producers to close or sell out to large operators. The Aquino administration's dismantling of the livestock and soybean meal trading monopolies gives producers greater control over their costs and broadens opportunities for U.S. suppliers of breeding stock, particularly cattle. Feed grain supplies, however, are restricted by an import ban, imposed in January 1986, in an effort to raise farmgate prices for corn and attain feed grain self-sufficiency. Subsequent imports of feed wheat were checked in June 1986 by reinstating import licenses for feed grain substitutes.

Thailand Doing Brisk Export Business

Thailand's exports of broiler meat, primarily to Japan, are expected to reach 84,000 tons, up 71 percent from 1985. The yen appreciation, along with lowered Japanese import tariffs on boneless poultry meat, and reduced Brazilian exports, have worked to Thailand's advantage. Thailand continues to export poultry meat to Singapore and Hong Kong and is beginning to penetrate markets in the European Community and the Philippines. Low-cost feed and rising domestic prices are encouraging poultry and hog production. Pork exports are now negligible, but rapid

modernization of production and processing may allow Thailand to become a significant competitor for Asian markets within the next 5 years. [Jitendar S. Mann (202) 786-1614]

The Middle East and North Africa

Meat Consumption Rising Steadily

Meat consumption patterns in the Middle East and North Africa have been changing in recent years. The average diet continues to improve despite financial problems from lower petroleum revenues. Pressure on governments to reduce food subsidies has met strong resistance, and the quantity of essential foods distributed through subsidized programs has increased rather than declined. In this setting, lower world prices for frozen beef and poultry imported from Latin America and the EC have provided a welcome relief for countries concerned about prices, subsidy costs, and their balance of payments.

The region's per capita consumption of beef and poultry has increased moderately in the last 3 years, pushing total meat consumption to nearly 5 million tons. Chicken accounts for nearly half of per capita meat consumption of 19 kilograms, compared with a third in the late 1970's.

Meat Output Expanding Slowly

Despite the spectacular gains for broiler output in Saudi Arabia, Iraq, and some of the Gulf countries, the region's meat output is growing at a slower pace than forecast several years ago, and in many countries, population is outstripping output of red meat. Local meat output is being encouraged through greater use of subsidized, imported feed and through policy changes favoring domestic supplies. However, gains in beef and mutton production have been difficult because of inadequate forage and irregular feed imports, as well as unreliable in-country distribution. For example, shortages of feed have slowed beef output in Egypt, Lebanon, and Iran.

On the other hand, poultry output has done well in countries where producer subsidies encouraged rapid production gains. In 1985, production in Saudi Arabia rose to about 225,000 tons, four times the 1981 level. Iraq's output rose more than 50 percent to about 236,000 tons between 1983 and 1985,

following a 41-percent rise in the procurement price to \$4.19 per kilo. The setting in these countries is more conducive to poultry farming than to raising beef cattle, because broiler operators can raise their chickens in about 2 months and leave their facilities vacant during the very hot summer.

Despite the rhetoric about meat self-sufficiency, lower world meat prices and local obstacles in organizing commercial feedlots and feed distribution systems led governments to take advantage of the lower international prices. As a result, feed grain imports—which had increased sharply in recent years and peaked at 13 million tons in 1984—declined in 1985. Governments also had concerns about the port congestion created by such large shipments. Saudi Arabia, in particular, cut purchases; its barley imports declined a fourth to 4.5 million tons.

Beef and Poultry Imports Rose

About a third of the region's total meat supply was imported during 1983–85. In 1985, imports reached a record 1.7 million tons, valued near \$2.5 billion. Beef imports doubled between 1980 and 1985, as the import price declined 40 percent. Poultry imports peaked in 1981 and 1982, declined as oil revenues fell and domestic output grew, and increased again in 1985 in response to a steep decline in poultry prices.

Lower prices for EC beef, related to sales of dairy cattle, attracted the attention of most countries in the region. The price for EC beef to the Mideast and North Africa declined steadily from \$1,464 per ton in 1980 to \$1,094 in 1984. In 1985, the EC sent 344,000 tons of beef to the Mideast and North Africa for \$408 million. This was nearly triple the volume exported to the region in 1982, 127,905 tons for \$157 million. The EC market share rose from 33 percent in 1983 to 55 percent in 1984, and the community remained the leader in 1985, with 51 percent of the 667,000 tons imported.

In 1985, Egypt was the top external market for EC beef, taking 156,214 tons for \$157.8 million, or only \$1,008 per ton. Other important markets were Saudi Arabia and Iraq, each buying over 34,000 tons, and Iran, a customer for 28,465 tons. Algeria was the

fifth major customer in the region, buying 19,082 tons, and Libya was sixth, taking 13,759.

Despite an increasingly competitive environment, it has been easier for the EC to boost its share of beef imports in countries, such as Saudi Arabia, Kuwait, and the UAE, where previous countertrade agreements were not important. In the Saudi market, the EC once held only a 20-percent share, but that rose to 60 percent in 1985. Iran and Iraq have countertrade arrangements with Brazil and Argentina, swapping oil for beef.

In addition, as the EC's output of mutton rose and its imports declined, traditional mutton suppliers such as Australia and New Zealand sought new markets, including the Middle East. Major gains were made in the late 1970's, as New Zealand mutton sales increased to Iran and the Arabian Peninsula. However, the market showed little further gain in the 1980's, because of lower prices for beef and poultry. In 1985, Iran was the top market for New Zealand's mutton, buying 184,000 tons, about four times more than the Arabian Peninsula. Australia continues to ship about 3 million sheep to the region, two-thirds to Saudi Arabia.

Poultry Imports Rebound

Regional imports of frozen chicken rebounded from 535,000 tons in 1984 to about 580,000 in 1985, a response to lower import prices. In 1986, the region will produce about 80 percent of its poultry meat requirements, but imports will not diminish because poultry continues to be priced very attractively, marketing channels continue to improve, and both per capita and total consumption keep rising.

In 1985, Brazil—which has been the principal supplier—sent 85 percent of its total frozen chicken exports of 277,000 tons to the region, including 85,000 to Saudi Arabia and 50,000 to Egypt. Brazil's \$800-per-ton price prompted record imports by Qatar, Oman, and Bahrain. Iraq bought 65,000 tons, despite gains in domestic output.

EC exports of frozen chickens to the region declined slightly in 1985 to 204,000 tons, including 97,600 to Saudi Arabia, which had purchased 114,000 in 1984. Also, smaller sales to Iran and Egypt contributed to the

decline. U.S. sales of 43,000 tons of frozen poultry through the EEP to Egypt in fiscal 1986 quadrupled the previous year's sales. For 1987, Egypt is seeking even larger quantities.

Meat Imports To Rise in 1986

In 1986, total regional imports of beef may exceed 700,000 tons, including about 200,000 by Egypt. The EC is again expected to capture half the market. Shortages of beef for export from Brazil might open an opportunity for U.S. beef sales to Egypt and Iraq, especially through the EEP. [John B. Parker (202) 786-1680]

WORLD TRADE AND FOOD POLICY

Agriculture and Trade Round Opening

Trade ministers, from 74 countries, that met September 15-20 in Punta del Este, Uruguay, decided to launch new multilateral trade negotiations (MTN), to begin not later than October 31, 1986. In a special session of contracting parties to the General Agreement on Tariffs and Trade (GATT), the ministers declared that negotiations, to be concluded within 4 years, shall aim to:

- (1) bring about world trade liberalization--especially for developing countries--by reducing and eliminating tariff and other trade barriers;
- (2) strengthen the rules of the world trading system through more effective multilateral discipline and widened trade coverage under the GATT;
- (3) improve the trading system by taking into account changing world trade patterns to include such subjects as high-technology products and the difficulties in commodity markets; and
- (4) foster more cooperative interaction between governments' trade, monetary, and economic policies affecting world growth and development.

U.S. negotiators sought to bring several priority issues into the negotiations, one of which was agriculture. The declaration indicates negotiations will take place to

expand GATT disciplines more fully to trade in agriculture.

The text on agriculture notes the need to correct and prevent restrictions and distortions in agricultural trade, including those related to structural surpluses, to reduce imbalances in world agricultural markets. The declaration further indicates that GATT members seek to liberalize agricultural trade and bring all measures affecting import access and export competition under strengthened and more effective GATT rules and disciplines.

The declaration cites that this will be done, taking into account general principles of the negotiations prefaced in the declaration, through:

- (1) improving market access through the reduction of import barriers;
- (2) improving the competitive environment by increasing discipline on the use of all direct and indirect subsidies and other measures affecting directly or indirectly agricultural trade, including the phased reduction of their negative effects and dealing with their causes; and
- (3) minimizing the adverse effects of sanitary and health-related regulations in agriculture.

US-EC Accord on Enlargement

On July 2, the United States and the EC reached a provisional agreement that forestalled increased U.S. tariffs on EC agricultural imports in retaliation for the withdrawal of tariff bindings on U.S. corn and sorghum imports into Spain. This provisional agreement is intended to ensure the continued flow of U.S. corn and sorghum to Spain. A deadline of December 31, 1986 has been set for completion of negotiations for the compensation owed to the United States as a result of the entry of Spain and Portugal into the EC.

The EC agreed to monitor certain Spanish grain imports during 1986 to ensure that imports of U.S. corn and sorghum (as well as several other feed products) do not fall below 234,000 tons per month. If they do fall below this level, the shortfall will be made up with a

reduced-levy quota, the details of which have not yet been agreed upon.

The United States and the EC have furthermore reached a separate agreement to resolve their dispute involving access for U.S. citrus exports, which will allow the United States to reduce its increased tariffs on imports of EC pasta, as part of the accord.

U.S.-Japan Farm Quota Dispute

On July 14, the United States announced it would request the GATT to determine whether Japanese quotas on imports of 12 agricultural products are consistent with the General Agreement. The quotas cover high-value agricultural products such as fruit purees, pulp, and juices, tomato sauces, peanuts, prepared beef products, certain processed milk and cream, processed cheese, certain dried beans, starches, certain sugars, and other food preparations.

In 1984, the United States reached a 2-year interim agreement with Japan not to press the dispute in the GATT in exchange for slight easing of the trade restrictiveness of these quotas. The agreement expired April 22, 1986. [Ted Wilson (202) 786-1688]

COUNTRY BRIEFS

Israeli Water Situation Worsening

For the third consecutive year, Israel has suffered from drought. Severe dry conditions in most of the country have resulted in a wheat crop failure, barley output is practically wiped out, and water restrictions have further exacerbated an already difficult agricultural situation. In March, water quotas for all users were cut 10 percent from 1985.

With grain output lower, wheat imports should increase somewhat, although marginally. The United States is Israel's leading supplier. Cotton output, already forecast lower because of falling prices, may decline more as scarce water resources are diverted.

In the citrus sector, opinions vary widely as to the drought's consequences. Following

the reduced crop of 1985/86, the upcoming crop was expected to increase. But with smaller fruit, especially during the first half of the season, it is doubtful whether production will rise. However, as long as the present water quota is held, the trees are not expected to be affected over the long term.

The outlook for the water situation during the next few years is not good. Even a plentiful rainy season cannot make up for the deficit, which results from many years of overpumping. The cut in allocations will therefore continue. The Ministry of Agriculture estimates the loss at \$40 million; other estimates are much higher. [Michael E. Kurtzig (202) 786-1680]

South African Corn Exports Recover

With grain production--estimated at 10.6 million tons--up 2 percent over 1985, and the corn crop up at nearly 8 million tons, South Africa should have a 2-million-ton surplus for export, mainly to Japan and Taiwan. Corn exports will be the largest since the severe drought of 1983. Although yellow corn production is surplus, white corn output is down to an estimated 3.3 million tons, not sufficient for domestic consumption. Imports of 200,000 tons were arranged from Zimbabwe, and further imports have been discussed but may be precluded by trade sanctions or counter sanctions.

While the 1986 wheat harvest is forecast up to 1.9 to 2 million tons, stocks are low, and the crop--already damaged by drought--still faces a locust threat. Imports in 1986/87 will be at least 300,000 tons, matching last year's 301,000, of which the United States supplied half.

Other crops have not fared well, due mainly to poor weather. The sorghum crop is down 30 percent. Oilseed output dropped nearly 7 percent and has not recovered from the drought. Peanut production dropped 33 percent to 132,000 tons, in-shell, 42 percent below the 1976-78 base period. Cottonseed and sunflowerseed production did, however, improve. Sugar production is forecast down 5 percent to 2.1 million tons; the exportable surplus--while down from 1985/86--may still total 900,000 tons. [Lawrence Witucki (202) 786-1680]

Saudi Arabia To Promote Barley Output

Saudi Arabia, the world's largest barley importer, will soon announce a series of policy changes aimed at promoting barley production and thus reducing dependence on imports, which exceeded 6 million tons in 1985. The measures will be part of a package that will simultaneously attempt to limit the Kingdom's enormous wheat surplus. Observers expect that the impact on barley production will be rapid, as some large commercial farms already shifted to experimental barley plantings in 1985. The official policy announcement is expected before November, when planting for the 1986-87 grain season commences.

The policy shift has important implications for U.S. grain exporters, who this year are providing a large fraction of Saudi Arabia's barley imports, all of which is used for animal feed. They have sold 750,000 tons in fiscal 1986 under the Export Enhancement Program alone.

Currently, the Saudi Government pays private sector importers a subsidy of about \$84 per ton above the world market price to insure a steady feed supply for the rapidly expanding livestock sector. Analysts expect the forthcoming policy package to reverse the current situation, with a protective tariff being applied to imports and a heavy production subsidy paid to farmers. Thus, the Kingdom's barley imports may well drop significantly within 2 or 3 years.

If current coarse grain consumption levels hold, Saudi Arabia will nevertheless be forced to continue barley imports. Total grain production capacity is estimated at about 2 million tons, virtually all of which is in wheat. Because domestic wheat use is less than 1 million tons, and wheat stocks have grown far beyond the existing silo capacity of about 900,000 tons, the Government sees immediate potential for producing up to 1 million tons of barley. [George R. Gardner (202) 786-1680]

New Zealand Tries To Cut Milkfat Output

The New Zealand dairy industry is feeling the full effect of oversupply in the world dairy market. Government loans shielded returns in recent years, but the farmers' basic price was cut from \$NZ4 per kilogram of milkfat last season to \$NZ2.25 for 1986/87. This price is equivalent to about \$US2.20 per cwt of fluid milk; U.S. farmers currently receive \$12 per cwt for their milk.

New Zealand butter stocks have reached burdensome levels, requiring that butter be exported at a loss. The New Zealand Dairy Board will not build more storage capacity, so a reduction in output is necessary. Milk powders (solids not fat) are less of a problem.

In July 1986, the Dairy Board proposed three voluntary programs to reduce milkfat production to an unspecified level at which all production can be sold "commercially." The Offered Price Buyout scheme pays farmers to reduce milk production, under tight controls on the use of cows, land, and equipment. The Reduced Milk Production program discourages production in isolated areas. The Nonprocessing Plan provides incentives to divert milk to calf and pig feed.

Together these programs have received little response. They may cause a 2-percent drop in milk production from the 1985/86 record of 8.2 million tons. Output was extremely large last year because of generally favorable weather and anticipation of mandatory output controls.

The annual meeting of the New Zealand dairy industry, held in November, may establish a two-tier price system. Because output per cow is relatively low, controls would be placed on land rather than herds. Weather conditions have been poor thus far this season, and many producers hope controls will not be needed. [Sally B. Byrne, (202) 786-1611]

HIGHER INCOME DEVELOPING COUNTRIES INCREASING COARSE GRAIN IMPORTS

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Abstract: During the past two decades, the upper-middle-income developing countries have shifted from being net exporters of coarse grains to net importers. A key factor underlying this trend is that consumers in these higher income developing countries are including more meat and poultry products in their diets. The derived demand for coarse grains created by this increased demand for animal products is increasing faster than production. The resulting shortfall has created large and growing markets for coarse grains.

Keywords: Coarse grains, developing countries, livestock feeding.

The shift of developing countries from self-sufficiency in coarse grains to dependency on imports is part of a general decline over the past two decades in the developing world's self-sufficiency in both food and coarse grains (8)*.

A key factor underlying this trend for coarse grains is a structural diet change resulting from economic development. Consumers in the higher income developing countries are including more meat and poultry products in their diet. To meet increased demand, these countries are developing and expanding their intensive livestock production systems, feeding coarse grains. The derived demand for coarse grains is increasing faster than production. Over the past 2 decades, the upper-middle-income countries have shifted from net exporters of coarse grains to net importers because of this shortfall.

Role of Developing Countries in World Coarse Grain Economy

Coarse grains are grown on about 45 percent of the world's cereal grains land. Wheat and rice occupy the largest areas, followed by corn, barley, sorghum, and millet. Of these coarse grains, corn is by far the most important, with an average area during 1983-85 of 126 million hectares and an average production of 428 million tons. Barley had an average harvested area of 79 million hectares and production of 172 million tons. Sixty-six million tons of sorghum and 30

million tons of millet were harvested on 47 and 42 million hectares, respectively. One-half of the total area of these four coarse grains is in the developing countries, not including the People's Republic of China.

Although the developing countries have half the world's coarse grain area, they have only one-fourth of the production because average yields are so low--1.2 tons per hectare, compared with 4.8 for the developed countries. The developed countries are almost the reverse, with only one-quarter of the coarse grain area and almost 50 percent of world production.

In the early 1970's, the developing countries produced a larger percentage of the world's coarse grain output than they consumed. Now, use exceeds production by 11 percent. More than 40 percent of consumption is as livestock feed. The percentage utilized as feedstuffs is much smaller than for either the developed or the centrally planned countries, which feed 78 and 68 percent of their coarse grains, respectively.

Coarse grain production, use, and trade in
developing countries, 1983-85 average

Item	Corn	Sorghum	Barley	Millet
	Percent			
Production	57	21	10	12
Exported	12	10	3	--
Consumption	56	19	14	11
Used as feed	45	39	67	3
Imported	20	15	37	--
From U.S.	60	76	8	NA

-- = less than 1 percent. NA = not available.

*Numbers in parentheses refer to literature cited at the end of this article.

Coarse Grain Production and Imports

Corn is the most important coarse grain in the developing countries, with over half of total production. In Central America and Sub-Saharan Africa, corn is an important food. In the Middle East and North Africa, where wheat is dominant, and in Asia, where rice is the major crop, corn accounts for a smaller proportion of cereals consumed directly by people.

Sorghum and millet are important food crops in the semi-arid tropics of Asia and Sub-Saharan Africa, where they are particularly well adapted. Sorghum is also grown in South America and Mexico, but primarily for feed use. Corn is an important feedstuff in South America, particularly Argentina and Brazil. Barley is primarily grown as a feedstuff in the more temperate environments of the Middle East and North Africa.

Although 12 percent of the corn and 10 percent of the sorghum grown in the developing countries is exported, only 2 countries are significant exporters: Argentina and Thailand. Argentina has 65 percent of the corn exports and 86 percent of the sorghum exports. Thailand accounts for 28 and 9 percent of the corn and sorghum exports, respectively. Together they account for 93 percent of the corn exports of the developing countries and 95 percent of the sorghum.

Twenty percent of the corn consumed in the developing countries is imported. Unlike exports, these imports are widely dispersed. The four largest importers are South Korea, Taiwan, Mexico, and Egypt, who account for almost one-half of all developing-country corn imports. Adding the purchases of the next four largest importers of corn (Brazil, Malaysia, Venezuela, and Iran) accounts for two-thirds of the corn imports of the developing countries. Sorghum imports are more concentrated: Mexico, Venezuela, and Taiwan account for two-thirds of all developing country imports. Mexico by itself has more than 40 percent of these sorghum imports. Saudi Arabia, Iran, Taiwan, and Algeria account for two-thirds of barley imports, with Saudi Arabia taking more than half.

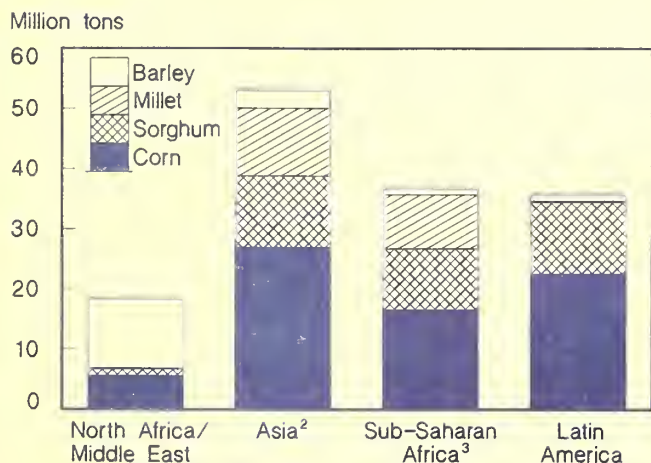
The United States supplies a significant proportion of the corn and sorghum imported by the developing countries. The small amount of barley exported to developing countries is mostly from Europe.

Corn, Sorghum, and Millet in Asia and Sub-Saharan Africa

Corn, sorghum, and millet are the three main nonirrigated cereals in Asia and Sub-Saharan Africa. These crops have physiological differences that make each more or less suited to production in tropical regions. Sorghum and millet are important crops in semi-arid tropical regions because they tolerate periods of moisture and heat stress better than corn. Corn is a higher risk crop in the drier areas, whereas sorghum can usually produce some grain, even under low rainfall. Millet is even better adapted to extremely dry conditions because it matures more rapidly than sorghum, so it can be grown with less rainfall.

The largest corn producers among the developing countries in Sub-Saharan Africa are Zimbabwe, Kenya, Nigeria, and Tanzania. The larger commercial farmers and some smallholders, especially in Kenya and Zimbabwe, growing corn in more temperate environments use hybrids with yields much improved over the local varieties. In the tropical, lowland areas with adequate moisture, farmers grow improved local varieties.

Regional Coarse Grain Production¹



^{1/} Annual average, 1983-85. ^{2/} Excludes Japan and PRC.

^{3/} Excludes South Africa

Physiological differences among corn, sorghum, and millet

Item	Corn	Sorghum	Millet
Rooting system	Superficial, in the upper 50 cm	Stronger and deeper than corn	Stronger and deeper than sorghum
Water requirements (mm) over the growth period	500-600	400	300-350
Temperature requirement (°F)	Optimum 77 Minimum 59 Maximum 113	Sorghum and millet have temperature requirements similar to corn, but can withstand higher maximum temperatures.	
Yield (kg./ha.)			
High inputs	4,000-5,000	3,000	1,000-1,500
Low inputs	1,000	750-1,000	500-700

Source: Frere (3)

The corn grown in the semi-arid, tropical areas is unimproved varieties. However, even though corn is not well suited to these semi-arid areas, it may still be grown because it is the preferred foodstuff or is better protected against grain-eating birds. Consumer preference is very important because these grains are grown in Sub-Saharan Africa primarily for human consumption. In Sub-Saharan Africa, Nigeria is the major sorghum producer, followed by Sudan and Ethiopia. The major millet producers are Nigeria and Niger.

In Asia, India is the major producer of corn, sorghum, and millet, primarily for human consumption. India grows more than 10 million tons each of sorghum and millet and 8 million tons of corn. It is the world's largest producer of millet and the second largest producer of sorghum after the United States. Corn is the fourth most important crop in Thailand. Sorghum is a minor crop grown in the dry season following corn. In 1983-85, Thailand produced about 4.5 million tons of corn and 0.4 million tons of sorghum, and exported an average of 3.1 and 0.3 million tons, respectively.

Barley in North Africa and Middle East

Barley, a more temperate-climate crop than corn, sorghum, and millet, is important in the Middle East and North Africa. It is a short-season crop that is more dependable than wheat in dry regions. Barley is important to the sheep economy of the Middle East and

North Africa. Often it is grazed at the tillering stage and then allowed to grow to maturity for both its grain and straw.

Coarse Grains in Latin America

Corn and sorghum are important crops in South America. Argentina and Brazil are the major producers, and Argentina is the largest exporter of coarse grains in the developing world. Domestic use of these crops is primarily for feed. In 1983-85, Argentina produced about 11.2 million tons of corn and 5.9 million tons of sorghum, and exported an average of 7.3 and 3.1 million tons, respectively.

Corn is widely grown in Central America as a foodgrain. Sorghum, however, supplies the expanding feed and livestock industry of Mexico. Since farmers in Mexico started growing high-yielding sorghum hybrids from the United States, average yields have increased much more rapidly than for corn, making sorghum the lowest-cost feedstuff.

Coarse Grain Use

Related to Per Capita Income

Per capita income is a principal determinant of coarse grain use patterns. Once a country achieves an income level at which average basic cereal calorie requirements are fulfilled and income is available to buy meat, the feed use of coarse

grains can increase rapidly. Thus, empirical studies have shown a strong, positive relationship between per capita income and the use of cereals as feed (5, 6). In contrast, studies at the International Maize and Wheat Improvement Center (CIMMYT) have found no significant relationship between per capita income and use of corn directly as food. Per capita food use has been relatively constant across all developing countries the past two decades.

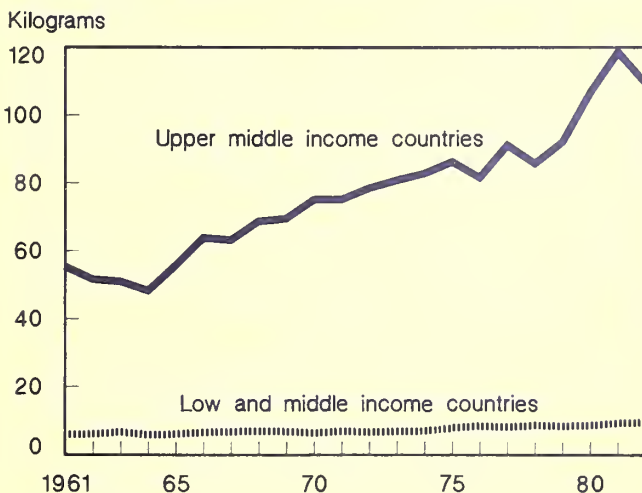
Feed Use of Coarse Grains

The increased use of coarse grains as feed implies considerable potential for expansion of the use of these crops. For example, 1 kilogram of livestock production from an intensive production system requires from 2 to 6 kilograms of grains. Because of this leverage, as livestock products increase in the diet, use of grains as feedstuffs can grow very rapidly, more rapidly than income.

Per capita use of coarse grains as feed, relatively high and rising in the upper-middle-income developing countries, has shifted these countries as a group from net exporters to net importers. Feed use in the lower income countries is low and constant.

Corn is the most important feed source in the developing countries, as in the world at large. Wheat bran and rice bran are the second most important. Sorghum, barley, and

Per Capita Feed Use of Coarse Grains in the LDC's



Source: FAO

Feed substitution of corn for swine and poultry

Feed	Feed value relative to corn 1/	Extent feedstuff can replace corn
Percent		
Swine		
Corn	100	100
Barley	90-95	100
Millet	85-90	50
Sorghum	95	100
Wheat	100-105	100
Wheat bran	75	15-25
Rice	80-85	50
Rice bran	100	33
Poultry		
Corn	100	100
Barley	80-85	50
Millet	95-100	65
Sorghum	100	100
Wheat	90-95	100
Wheat bran	75	10-15
Rice	80-85	20-50
Rice bran	50	5-10

1/ Pound for pound.

Source: Ensminger (2)

millet make up most of the balance of total feed supplies. As a share of developing-country feed supplies, corn is 43 percent; wheat and wheat bran, 18; rice and rice bran, 18; sorghum, 9; barley, 7; millet, 2; and others, 3 (1). The contributions of wheat and rice are largely bran. The four coarse grains discussed here are 61 percent of total feed supplies.

Corn is one of the best feeds for livestock because it is high in digestible nutrients and net energy. However, other cereals can substitute for corn in livestock rations, within limits. Their use will vary from country to country, reflecting supplies, government policies, and relative prices.

For example, where wheat consumption is rising, the use of wheat bran for feed is also rising. In some countries which have become major wheat importers, the use of wheat bran as feed is increasing more rapidly than the use of corn. Heavily subsidized wheat prices can also lead to the use of wheat for animal feed. Major rice producers depend significantly on broken rice and rice bran as feed sources. For example, 23 percent of feed used in Thailand's rapidly growing livestock sector is rice, 36 percent is rice bran, and 30 percent is corn (7). Countries with relatively large barley or sorghum crops rely more on these grains.

Coarse grain imports, upper middle income LDC's

Country	Corn	Sorghum	Barley
Percent 1/			
Asia			
South Korea	15	6	--
Taiwan	15	10	4
Malaysia	5	--	--
Hong Kong	2	--	--
Singapore	2	--	1
Latin America			
Mexico	11	43	--
Venezuela	4	13	--
Brazil	7	--	2
Panama	--	--	--
Trinidad	--	--	--
Uruguay	--	--	--
Argentina	--	--	--
Chile	--	--	--
North Africa Middle East			
Saudi Arabia	3	--	54
Algeria	2	5	4
Iran	3	--	6
Jordan	--	--	2
Syria	1	--	2
Oman	--	--	--
Libya	1	--	3
Kuwait	--	--	2
Israel	1	10	3
Iraq	2	--	4

1/ Percent of developing countries' imports of commodity in 1983-85. -- = less than 1 percent.

It is estimated that over two-thirds of the grains used for feed in the developing countries are fed to poultry and swine (1). Growth rates for broiler production have been particularly strong in the Middle East, Southeast Asia, and Western and North Africa. In each of these regions, the rapid growth has resulted from the introduction of more feed-efficient birds, and investment in intensive poultry production units and associated feed manufacturing units. Egg production has also expanded rapidly in the developing world, although not as dramatically as poultry meat. The growth in eggs has also been associated with implementation of intensive production methods.

The growth in pork production in developing countries, although less rapid than poultry meat and egg production, has also boosted demand for coarse grains significantly. This is because pork production uses more grain per unit of output than poultry. Under good conditions in an intensive production system, 5 to 6 kilograms of feed are required to produce 1 kilogram of pork, whereas only 2 to 3 kilograms are required to produce 1 kilogram of poultry meat. The

strongest growth in pork production is in Central America and East Asia. Dairy and beef production has contributed little to the demand for feed grains.

Rising in Upper-Middle-Income Countries

The use of coarse grains in the upper-middle-income countries has increased much faster than production, and was the driving force in shifting the developing world from being net exporters to net importers of coarse grains in the late 1970's. This group includes all the major coarse grain importers discussed earlier except Egypt. (Note that this group also includes Argentina, a major coarse grain exporter.) Generally, coarse grain imports by these countries appear unlikely to be offset by rapid increases in domestic production, as happened with the green revolution in wheat for India and Pakistan.

References

- (1) CIMMYT. *CIMMYT Maize Facts and Trends. Report Two: An Analysis of Changes in Third World Food and Feed Uses of Maize 1984*. Mexico, 1985.
- (2) Ensminger, M.E., and C.G. Olentine, Jr. *Feeds and Nutrition-Complete*. Clovis, California: Ensminger Publishing Co. 1978.
- (3) Frere, M. "Ecological Zones and Production of Sorghum and Millet," in *Agrometeorology of Sorghum and Millet in the Semi-Arid Tropics*. International Crops Research Institute for the Semi-Arid Tropics. 1984.
- (4) Mekni, M.S., and A. Lourieh. "Barley--Its World Status and Production Conditions in West Asia, North Africa, and Neighboring Countries," in *RACHIS*, Vol. 3, No. 2, June, 1984.
- (5) Rohrbach, D. *Maize Food and Feed Consumption in the Developing World*. CIMMYT. Mexico, 1983.
- (6) Roth, M., and P. Abbott. *The World Grain Sorghum and Millet Economies*. Purdue University. Agricultural Experiment Station Bulletin No. 416. May, 1983.

- (7) Schwartz, Sara J. "Livestock Development in Thailand." *Southeast Asia Situation and Outlook Report*. RS-86-6. U.S. Dept. Agr., Econ. Res. Serv., June 1986.
- (8) Vocke, G. "Trends for Grain Consumption, Production, and Trade in the Developing Countries," in *World Agriculture Situation and Outlook Report*. WAS-44. U.S. Dept. Agr., Econ. Res. Serv., June 1986.

POTENTIAL WORLD FEED GRAIN MARKETS

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The demand for feed grains is derived from the demand for meat and meat products. By identifying countries that are unlikely to produce enough feed grains to support rising demand for meat, future markets for feed grain exports can be determined. This analysis used Food and Agricultural Organization data tapes from the Food Balance Sheet and the Production Year Book on over 100 developed, developing, and centrally-planned-economy countries.

Growth in Meat Demand

Past analysis has shown that per capita meat demand increases rapidly as diets approach caloric adequacy. Thus, this analysis began with a review of the average human diet in more than 100 countries. Of these, 64 were found to have adequate average diets as defined by FAO daily per capita caloric requirements.

Increasing per capita demand for meat and meat products was found in 55 of the 64 countries from 1961 to 1982. The growth rate over this period equals or exceeds 1.0 percent annually in 40 countries, and 2.0 percent in 26 countries. In 15 countries, growth exceeds 3.0 percent annually. Over all 64 countries, the growth rates range from -1.0 for Paraguay to +6.9 for Japan. A positive growth rate in per capita meat demand reflects a level of income sufficient to permit discretionary spending within the food budget.

The 26 countries whose per capita meat demand is growing at 2.0 percent or more

annually tend to be upper-middle-income and industrial countries. However, only Japan, Finland, the Netherlands, German Democratic Republic, and Belgium-Luxembourg have per capita incomes exceeding \$5,000, based on purchasing power parity (purchasing power parity estimates of gross domestic product, Heston and Summers (1984), allow comparisons over time for a wide range of countries).

In fact, the highest income countries tend to increase their meat consumption at a slower rate, such as Canada at 0.9 percent annually and the United States at 0.7 percent. Australia has a negative growth rate of -0.5 percent. These countries have stabilized their meat consumption.

Thus, current and future growth in the demand for meat and meat products is not in the highest income countries, but rather in middle-income countries with annual per capita income levels of \$2,000-\$4,000.

Growth in Meat Production

Growth in total meat demand does not necessarily mean that a nation's domestic meat production is growing. Of the 64 countries with adequate average diets, 56 show positive per capita meat production growth from 1961 to 1982. In 20 of these 56, the growth rate is higher for consumption than for production. For these countries, the incentive to increase domestic production should be especially strong.

Moreover, 20 (but not necessarily the same 20 mentioned above) of the 64 countries

Meat and coarse grain data for countries with adequate diets but lacking self-sufficiency in coarse grains

Economy 1/	Population 2/ Millions	Per capita GDP 3/ \$PPP /7	Per capita meat consumption 4/ Kilograms/year	Growth rates, per capita meat 5/							Coarse grain			
				Consumption	Production					Feed use		Net Imports 4/	Self-sufficiency ratio 6/	
					All	Beef	Poultry	Pork	Sheep & goat	Growth rate 5/	Total 4/			
				Percent, compounded annually							1,000 m.t.			
Low Income	5.2											35	40	
Guyana	.8	1,164	24.5	24.5	2.9	4.1	-0.4	8.6	4.9	3.5	2.7	8	7	0.33
Mauritius	1.0	1,484	13.9	7.4	3.9	2.7	-3.3	10.9	.8	-2.2	27.2 8/	12	15	.08
Benin	3.5	426	11.0	10.8	1.3	1.1	1.0	6.6	.7	2.7	24.6 8/	15	17	.97
Average		734	13.6	12.2	2.1	2.1	.2	8.1	1.4	2.7	2.7 10/			.94
Lower middle income	153.4											319	285	
Jamaica	2.2	1,415	36.6	26.0	3.3	2.0	-1.6	8.8	2.5	-3.8	16.3	215	248	.02
Indonesia	151.2	737	3.7	3.7	1.0	1.0	-1.1	3.6	3.0	0	2.5	104	37	1.00
Average		747	4.2	4.0	1.2	1.1	-1.1	3.9	2.9	-2	7.6			.96
Upper middle income	133.0											14,016	12,390	
Greece	9.6	3,789	65.2	59.9	4.9	4.6	3.6	11.0	6.0	1.6	9.5	3,008	983	.86
Korea, Rep. of	39.6	2,010	13.6	13.1	5.1	4.4	4.2	6.7	4.1	2.5	17.4	2,874	3,632	.14
Portugal	9.9	3,019	52.5	52.4	4.0	4.2	3.7	10.9	3.3	.2	11.0	3,602	3,443	.18
Hong Kong	5.0	3,875	70.5	55.9	3.1	3.8	1.2	9.2	3.9	2.2	6.8	319	352	0
Singapore	2.4	3,979	64.0	44.7	4.8	3.6	-8.4	5.4	3.1	-2.6	4.8 9/	399	494	0
Syria	8.8	2,206	24.3	23.1	3.2	3.2	3.3	7.6	NA	1.6	6.4	902	162	.75
Trinidad & Tobago	1.2	3,917	39.8	22.4	2.3	3.0	-1.7	4.1	1.9	1.2	13.2	152	130	.03
Israel	3.8	4,351	71.1	74.2	3.4	2.8	-9	3.5	1.8	.5	4.9	1,250	1,195	.06
Malaysia	14.0	2,113	19.2	17.1	2.0	1.7	-1.6	5.1	-6	-7.1	12.3	102	662	.02
Iran	38.8	1,917	23.4	19.9	2.7	1.7	1.7	9.6	-1.6	-2	6.6	1,408	1,338	.52
Average		2,400	29.3	26.4	3.4	3.0	2.2	6.7	2.9	.6	9.3 10/			.33
Industrial market	315.0											61,354	43,151	
Japan	116.8	5,963	30.4	27.8	6.9	6.3	4.8	9.9	8.3	-15.4	8.6	18,978	22,223	.01
Spain	37.5	4,224	69.3	72.6	5.6	5.8	2.9	10.7	6.6	-1	8.9	14,435	7,368	.57
Italy	56.2	4,624	73.7	87.2	4.2	4.1	1.8	6.3	5.1	2.0	2.8	12,223	3,765	.78
Netherlands	14.1	5,811	76.1	153.9	2.4	3.6	1.8	6.1	4.0	2.7	1.8	2,493	3,244	.05
Finland	4.8	5,984	62.4	72.6	2.6	3.6	2.2	4.1	5.3	-3.9	7.7	1,185	158	.95
Belgium-Luxembourg	10.2	6,250	99.2	126.7	2.2	3.4	1.3	3.1	5.0	1.5	1.4	1,354	2,205	.24
Ireland	3.4	3,367	88.3	226.3	1.5	2.1	3.4	4.0	.4	-5	5.0	983	161	.93
Switzerland	6.4	6,458	87.7	78.9	1.8	2.0	.9	6.9	2.8	0	5.8	936	676	.39
Germany, F.R.	61.6	6,859	89.5	132.1	1.8	1.8	1.0	5.9	1.8	1.6	4.4	8,016	3,017	.80
Norway	4.1	6,746	51.6	53.5	.9	1.2	1.0	6.2	1.3	1.4	2.4	751	335	.72
Average		5,687	61.1	77.1	3.3	3.1	1.7	7.5	3.2	.5	5.6			.44
Centrally planned	297.5											63,175	24,763	
German D.R.	16.7	5,535	95.3	172.1	2.2	2.5	2.2	4.4	2.5	-2.5	9.6	5,226	2,990	.64
Czechoslovakia	15.3	4,879	83.9	139.8	1.5	1.9	2.1	4.5	1.6	-8	4.5	4,137	1,259	.84
USSR	265.5	3,939	55.6	73.5	2.0	1.4	2.7	4.4	.5	-1.8	5.7	53,813	20,514	.78
Average		4,077	59.2	82.3	1.9	1.5	2.7	4.4	.8	-1.7	5.8			.77
Total Average	904.2	3,807	45.7	58.4	2.4	2.0	1.9	5.8	1.6	.7	6.0	138,899	80,629	.60

NA = not available. 1/ After analysis, countries were organized by World Bank classifications. 2/ 1980. 3/ 1979-81. 4/ 1980-82. 5/ 1961-82. 6/ 1982-84. 7/ Purchasing power parity, explained in R. Summers and A. Heston, "Improved International Comparisons of Real Product and Its Composition, 1950-80," *The Review of Income and Wealth*, June 1984. 8/ 1977-82. 9/ 1966-82. 10/ Group average includes only those countries having data from 1961-82.

consumed more meat per capita than they produced on average during 1980-82. Obviously, these countries import. To the extent they desire to reduce their dependence on imported meat, there will again be an especially strong incentive for increased domestic production.

Growth in Feed Grain Demand

Future increases in demand for feed grains are likely to occur in those countries having high meat production growth rates. Japan, where continued growth in consumers' incomes has steadily increased the demand for meat, has the highest growth rate in per capita meat production, 6.3 percent. Paraguay has the lowest, a negative rate of -2.1 percent.

Of the 64 countries in this analysis, 42 were found to have meat production growth rates of 1.0 percent or more annually, with 14

of these being self-sufficient in coarse grain production and projected to remain self-sufficient to the year 2000. However, the remaining 28 countries show large increases in total coarse grain feed use from 1961 to 1982. The lowest growth rates are found in Belgium-Luxembourg, 1.4 percent, and the Netherlands, 1.8 percent, both high-income countries. By contrast, the highest growth in feed use occurs in the Republic of Korea (17.4), Jamaica (16.3), Trinidad (13.2), and Malaysia (12.3), all of which are middle-income countries. Those countries which have only recently started a commercial livestock/poultry industry, such as Mauritius and Benin, show even higher growth rates.

In aggregate, coarse grain feed use in these 28 countries grew at a rate of 6.0 percent annually, more than twice the 2.6-percent growth in their total coarse grain production. In addition, growth in feed use within each World Bank income category is

much higher than growth in meat production. (see table)

For all 28 countries, net imports comprised over half of total coarse grain feed use, 58 percent on average during 1980–82. A simple time trend projects feed use in 1990 at 188.4 million tons, and in 2000 at 239.1 million.

While trend projections are informative they must be used with caution. Overall economic conditions can substantially influence import demand. Economic policies in the countries studied, as well as in the United States, can dramatically alter a country's ability to import commercially or, in the U.S. case, to export. These policies can also encourage or discourage meat consumption and/or the domestic production of coarse grains, thereby affecting the need to import.

The coarse grain import demand of these countries will also be influenced by their livestock/poultry mix. Their demand for, and

production of, pork and poultry is increasing faster than that for beef, sheep, and goat meat. Per capita poultry production leads pork production in all countries except Finland and Belgium–Luxembourg. Since poultry and hogs are nonruminants and cannot utilize much forage as feed, their faster production growth favors increased feed grain demand.

The 28 countries representing high growth potential for increases in coarse grain demand include 3 low-income, 2 lower-middle-income, 10 upper-middle-income, 10 industrial, and 3 centrally-planned-economy countries. Benin and Indonesia have the lowest per capita GDP adjusted for purchasing power parity, and appear to be just entering the high-meat-consumption growth stage. Indonesia represents a large potential market that could well expand if incomes continue to rise. Many of the remaining countries can be expected to double or even triple their meat consumption before meat demand levels off. The derived demand for feed grains and the need for coarse grain imports will likely remain strong through the end of this century.

LOCUSTS AND OTHER PROBLEMS THREATEN FOOD SUPPLIES IN SUB-SAHARAN AFRICA

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Abstract: Locust and grasshopper infestations, drought, civil wars, and internal distribution problems threaten food security throughout Sub-Saharan Africa. This year, grasshoppers and four species of locusts are creating a potential threat to food supplies in 28 African countries. While it is not possible to predict the magnitude of food crop losses during the 1986/87 harvest, food supplies are not likely to be depleted to the same degree as during the 1984/85 famine.

Key words: Locusts, food supplies, Sub-Saharan Africa, food aid.

This year, rapid multiplication of grasshoppers and four species of locusts is creating a potential threat to food supplies in 28 African countries. In addition, civil wars and guerrilla activity are disrupting food production and distribution in Angola, Mozambique, northern Ethiopia, and southern Sudan. Poor internal transportation and low purchasing power are creating local food shortages, particularly in western Sudan. Below normal rainfall in Senegal, in conjunction with grasshoppers, may reduce the 1986 harvest beginning in October.

Losses Difficult To Predict

It is not possible to predict the magnitude of pest related food crop losses during the 1986/87 harvest (preliminary estimates of food needs for 1986/87 are published in the *World Food Needs and Availabilities, 1986/87*, USDA, ERS, August 1986). The few actual pest-related crop losses reported to date are being covered by domestic food supplies in the affected countries. Currently, no increase in actual food import requirements is directly attributable to locusts or grasshoppers.

Although pest control operations or favorable weather developments such as heavy rainfall may limit damage to food supplies, significant crop losses are likely in 1986/87. The threat of damage is most severe in 10 countries: Botswana, Burkina Faso, Chad, Ethiopia, Mali, Senegal, South Africa, Sudan, Tanzania, and Zambia. Of these countries, Botswana, Chad, Mali, and Ethiopia would be the most likely to require urgent emergency

food aid in the event of production shortfalls. Cereal harvests begin in August and September in East and West Africa and end in June and July in Southern Africa. As the 1986/87 harvest proceeds, it will be possible to determine whether these food supplies actually will be needed. Food supplies in Southern Africa are currently adequate, except in Angola and Mozambique where fighting disrupts food distribution.

In 1984/85, drought reduced cereal output in all of Sub-Saharan Africa to 45.3 million tons, 7.3 million below the average of the 5 preceding years. Cereal food aid from all donors to over 20 drought-affected countries in the region surpassed 7 million tons in 1984/85. This included 1.8 million tons of emergency food aid provided by the United States.

In 1985/86, production jumped to 60.7 million tons, permitting the replenishment of private and public stocks. In general, the rainfall affecting the development of 1986/87 crops compares favorably with last year's conditions, and the likelihood that food supplies will be depleted to the same degree as in 1984/85 is quite low.

International Assistance for Pest Control

Foreign donors are helping control pests and are closely monitoring the food situation. The Food and Agriculture Organization is coordinating locust and grasshopper control activities in Sub-Saharan Africa. The United

States, European Community, Japan, China, OPEC, and other donors have contributed more than \$18 million in supplies and technical assistance. Despite these control efforts, locusts and grasshoppers are likely to plague African countries in 1987/88 and successive years.

U.S. ambassadors have declared disasters in 8 countries--Botswana, Chad, Ethiopia, Mali, Senegal, Sudan, Tanzania, and Zambia--based on the determination that they require financial, material, and technical assistance to bring pest infestations under control. U.S. disaster assistance for pest control in Africa during fiscal 1986 totals \$4.6 million. In addition, the Agency for International Development is assessing the issue of pre-positioning emergency food aid in West Africa or in the United States.

Countries Affected

Senegal

Drought and pest infestations are likely to reduce output of cereals and peanuts in 1986/87. Rainfall was below normal during July and August in much of the country, particularly the principal peanut-producing region. Grasshoppers and locusts have already damaged germinating cereals. Pest control operations were partially successful in the south, but large pest infestations are reported in the Senegal River Basin and other parts of the north. Approximately 1 million hectares of cropland are infested or at risk. This represents a potential grain and peanut loss of 400,000 tons.

With carryover stocks of more than 50,000 tons from an above-normal harvest in 1985/86, Senegal could absorb much of this potential shortfall in national food supplies without extraordinary commercial food import expenditures. Cereal crop losses beyond 200,000 tons would require exceptional food imports. Even with smaller losses, food assistance would be required for affected populations.

Mali

Grasshoppers reduced yields on 200,000 hectares of millet and sorghum during

1985/86. Conditions were favorable for grasshopper and locust growth, signaling an increased threat to the 1986/87 harvest. Losses of seedlings within a 400-square-kilometer area have caused some farmers to replant three and four times. The period prior to September 20 is critical for pest control operations. Threatened are 250,000 hectares, with potential losses of sorghum and millet estimated at 100,000 tons.

Despite last year's grasshopper problem, cereal output was above normal. Even with carryover stocks of at least 50,000 tons, Mali will face a food deficit if 1986 output is near the 5-year average. Thus, food security is highly vulnerable to crop losses. Losses beyond 50,000 to 100,000 tons would be likely to create emergency food aid needs.

Chad

A major effort is underway to control grasshoppers, locusts, and rats. Control of desert and African migratory locusts, identified north of Lake Chad, is necessary before the end of September to prevent their migration. Grasshoppers have been reported throughout Chad's Sahelian zone, causing replanting in some areas. Although last year's exceptionally large harvest allows some carryover stocks, Chad's tolerance to production shortfalls is quite low. Since millet and sorghum yields are imperiled in the Sahelian zone, which produced 200,000 tons in 1985/86, contingency planning for partial replacement is recommended.

Burkina Faso

The presence of grasshoppers in late 1985 foreshadowed the current threat to food supplies. Grasshoppers are numerous in north and east Burkina and have already caused minor crop damage. The effectiveness of eradication programs is limited by the labor-intensive approach used, and by Burkina's poor communications.

Up to 265,000 hectares of cropland are at risk, primarily in those areas where the last three harvests were poor. As a result, farmers have limited capacity to replant. Based on recent experience, it is likely that Burkina could sustain limited sorghum and millet losses in the affected areas without requiring emergency imports.

Locust and Grasshopper Infestation in Sub-Saharan Africa, 1986/87 Harvest



Gambia, Guinea-Bissau, Niger, and Mauritania

The locust and grasshopper threats to crops for these Sahelian countries appear less serious than for their neighbors. Good rainfall in late July and early August promoted the hatching of locusts and grasshoppers in southern Mauritania, but control operations are in progress. Although there was minor damage to crops on 30,000 hectares in Niger, the pest situation there is now under control. Recent grasshopper infestations in eastern Gambia and northern Guinea-Bissau are also under control.

Cameroon

Although no significant pest problems have been identified, there is a threat of migratory and desert locust infestations from Chad beginning in October.

East Africa

Sudan

More than \$5 million is being devoted to locust control efforts. East and central Sudan, the country's bread-basket, are threatened by desert and African migratory locusts. In late July, swarms were reported in three areas east of the Nile. In addition, Sudan's major producing areas are threatened by a potential influx of locusts from Eritrea in Ethiopia.

Carryover stocks of sorghum from last year's record harvest exceed 500,000 tons. Thus, sizable losses could be sustained without disrupting the food balance in east and central Sudan. Prospects are favorable for food crops in much of western Sudan. However, this remains a food deficit region with insufficient financial resources to attract necessary food supplies from the east.

Food has become a weapon in the civil war in southern Sudan. Starvation is an imminent problem in both urban and rural areas. The Government limits food supplies to the largely rural, rebel-controlled areas in the south. And, rebel forces are interdicting food supplies to southern cities under nominal control of the Government. This year, dry conditions are contributing to lower crop output. The region is believed to have locust infestations, but the security situation makes

pest control impractical. As a result, locusts are a potential threat to food supplies in Kenya and Uganda as well.

Ethiopia

Armyworms and desert and African migratory locusts are prevalent in much of Ethiopia. The northern provinces of Eritrea and Tigre pose the most serious concerns because the civil wars inhibit comprehensive pest control programs. There have been reports of desert locust swarms in Eritrea. Breeding of locusts in Ethiopia is likely to continue through next March, threatening both primary and secondary harvests in 1986/87. Dry conditions in western Ethiopia will also reduce grain yields.

Since the 1986 secondary harvest was excellent, and food aid distribution lags behind port deliveries, Ethiopia will enter the 1986/87 marketing year with large initial stocks. Assuming moderate growth in cereal production--as the country recovers from drought--more than 500,000 tons of imports would be required to maintain low historical levels of per capita consumption. Ethiopia's capacity to withstand harvest losses, due to weather or pests, is low.

Tanzania, Kenya, and Uganda

Swarms of red locusts have already migrated from their normal breeding areas in western Tanzania, despite control efforts. With the onset of the September rains, accelerated population growth could threaten crops in Tanzania and neighboring countries. Migratory locusts, which spread from Sudan to Ethiopia, may also spread to Kenya and Uganda. Each of these countries had large harvests in 1985/86 with a corresponding build-up of stocks, which would cushion the impact of damage to the current crop.

Southern and Central Africa

South Africa

Authorities in South Africa have expressed concern that they may not be able to control brown locusts. During 1985/86, brown locusts produced five generations. There are numerous egg beds, and if rains are normal a large outbreak is likely during the 1986/87 season. Swarms moving at a rate of

20 kilometers per day have been reported. They have spread from the Karoo to northwestern Transvaal and the Orange Free State. Even if production losses were large, South Africa could be expected to cover food deficits through commercial imports, but this could change the current projection of global exportable supplies and import demand, as South Africa is expected to export 2 million tons of corn over the next 12 months.

Developments in South Africa hold the key to food supplies in most of Southern Africa. South Africa's locust problem poses a serious threat to harvests in early 1987 throughout Southern Africa.

Botswana

Southern Botswana was invaded by brown locusts from South Africa last February. Red and African migratory locusts are present in

the north, and additional locust eggs are expected to hatch in September and October. It is estimated that two-thirds of the country is seriously threatened. Botswana is a chronic food-deficit country that has experienced droughts for the last few years.

Other Countries

Red locusts are multiplying in north and west Zambia, but the Government lacks sufficient resources for pest control. Lesotho, Namibia, Swaziland, Mozambique, Malawi, Zimbabwe, and Zambia face possible invasions of brown locusts if they are not controlled in South Africa and Botswana. It is premature to assess the impact on the early 1987 harvests in these countries. At present, Malawi and Zimbabwe have corn surpluses from the 1985/86 harvest that could be used to alleviate food shortages in the region.



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