



United States
Department of
Agriculture

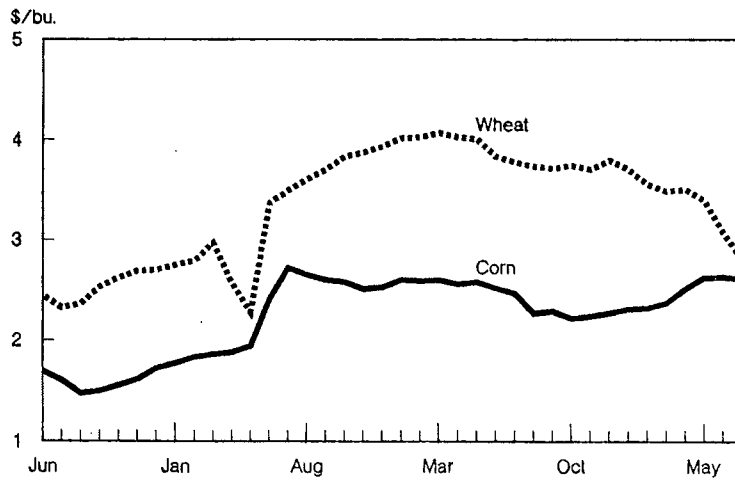
Economic
Research
Service

WS-290
August 1990

Wheat

Situation and Outlook Report

Average Farm Prices for Wheat and Corn



Contents

	Page
Summary	3
 1990/91 Outlook	
International Wheat Prices Fall	4
U.S. Wheat Exports Face Tough Competition	6
U.S. Domestic Use Expanding	8
U.S. Production Over 2.7 Billion Bushels	10
U.S. Wheat Supply Grows Faster Than Demand	13
 Farm Bill Developments	
The Senate and House Pass Farm Bills	14
Crop Insurance, Conservation and Trade Crucial for Wheat	16
 Summary of 1989/90	
U.S. 1989/90 Wheat Exports by Class	19
U.S. Wheat Supply in 1989/90 Lowest Since 1975/76	22
 Wheat by Class	
Record HRS and Rebounding HRW Production in 1990	24
 Special Articles	
World Wheat Trade: Prospects and Issues for the Nineties	27
by Sara Schwartz and Frederic Surls	
U.S. - EC Competition in North Africa Wheat Market Intensifies	34
by John B. Parker	
 List of Appendix Tables	 37

Approved by the World Agricultural Outlook Board. Summary released August 20, 1990. The next summary of the *Wheat Situation and Outlook Report* is scheduled for November 19, 1990. Summaries and text may be accessed electronically. For details call (202) 447-5505.

The *Wheat Situation and Outlook* is published 4 times a year and includes a yearbook. Subscriptions are available from ERS-NASS, P.O. Box 1608, Rockville, MD. 20849-1608. Or call, toll free, 1-800-999-6779 (8:30-5:00 ET). Rates: 1 year \$12, 2 years \$23, 3 years \$33. Foreign customers add 25 percent for subscriptions mailed outside the United States. Make checks payable to ERS-NASS. Single copies are available for \$8.00 each.

Time to renew? Your subscription to the *Wheat Situation and Outlook* expires in the month and year shown on the top line of your address label. If your subscription is about to expire, renew today. Call 1-800-999-6779.

Situation Coordinator

Edward W. Allen (202) 786-1840

Principal Contributors

Edward W. Allen (202) 786-1840
 Jenny Gonzales (202) 786-1840 (Statistical)
 Joy Harwood (202) 786-1840 (Farm Bill)
 Sara Schwartz (202) 786-1825 (International)
 C. Edwin Young (202) 786-1840

Word Processing

Carolyn Liggon

Summary

Global and U.S. Wheat Supplies Grow Faster Than Use

Record global production is forecast to exceed expanding consumption, leading to a 15-percent increase in global ending stocks from the low 1989/90 levels. Trade is forecast to remain relatively flat. Prices have fallen to their lowest since before the 1988 North American drought.

U.S. wheat supplies are forecast up 18 percent from a year earlier in 1990/91 to 3.3 billion bushels. Use is forecast up 8 percent to 2.4 billion. Ending stocks also are expected to rise sharply, and farm prices for 1990/91 are likely to be around \$1 per bushel below last year's \$3.72.

Beginning stocks, at 535 million bushels, were down for the fourth straight year. Carryin stocks are the smallest portion of total supply since 1974/75. Record 1990 wheat crops are forecast in Kansas and North Dakota, the two largest producing States, pushing U.S. production over 2.7 billion bushels for only the third time.

Despite the large U.S. crop and lower prices, slack world imports and increased competitor supplies will lead to lower U.S. exports in 1990/91. Domestic wheat use is forecast up more than a fifth due to greater feed use. This will more than offset the forecast drop in exports, and lift U.S. wheat use to the third largest on record.

World wheat production is forecast at a record 584 million tons, exceeding consumption for the first time since 1986/87. Because production is expected to expand in numerous importing as well as exporting countries, trade is likely to rise less than 1 million tons from 1989/90.

Production by major competitors is forecast up 6 percent from 1989/90,

leading to larger exports and ending stocks. Increased competitor exports are likely to reduce U.S. market share in this year's weak market.

Iraq was the world's seventh largest wheat importer in 1989/90, accounting for around 3.5 percent of global imports. It also was the eighth largest U.S. wheat market, taking about 3 percent of U.S. wheat and flour exports. Total Iraqi imports in 1990/91 are now forecast to be cut

sharply by the U.N.-sponsored general trade embargo.

The Senate and House farm bills, approved by each chamber after floor debate, contain many common threads. In both bills, target prices are to be no less than in 1990 and both have provisions that potentially raise loan rates. Both also focus on wetland preservation, tree plantings, and long-term land retirement. The bills' trade titles mainly extend current law.

THE WHEAT SITUATION AT A GLANCE

All wheat: supply and disappearance 1/						
Year beginning June 1	1986	1987	1988	1989 Estimated	1990 Projected	
Million bushels						
Beginning stocks	1,905	1,821	1,261	702	535	
Production	2,091	2,108	1,812	2,036	2,706	
Imports	21	16	23	23	21	
Supply, total	4,017	3,945	3,096	2,761	3,261	
Domestic						
Food	712	721	715	731	740	
Seed	84	85	103	102	100	
Feed and residual	401	280	157	160	400	
Domestic, total	1,197	1,086	975	993	1,240	
Exports	999	1,598	1,419	1,233	1,175	
Disappear., total	2,196	2,684	2,394	2,226	2,415	
Ending stocks	1,821	1,261	702	535	846	
Wheat by classes: supply and disappearance 1/						
Year beginning June 1	Hard red winter	Hard red spring	Soft red winter	White	Durum	Total
1989/90 (Estimated)						
Beginning stocks	302	219	39	81	60	702
Production	711	433	548	251	92	2,036
Supply, total 2/	1,014	660	587	335	165	2,761
Domestic disappear.	439	227	210	57	60	993
Exports	360	280	345	193	55	1,233
Disappear., total	799	507	555	250	115	2,226
Ending stocks	215	153	32	85	50	535
1990/91 (Projected)						
Beginning stocks	215	153	32	85	50	535
Production	1,227	512	540	318	108	2,706
Supply, total 2/	1,442	672	572	406	169	3,261
Domestic disappearance	603	261	244	67	65	1,240
Exports	465	175	290	190	55	1,175
Disappearance, total	1,068	436	534	257	120	2,415
Ending stocks	374	236	38	149	49	846

1/ Includes flour and products in wheat equivalent. 2/ Total supply includes imports.

International Wheat Prices Fall

The world wheat market faces lower wheat export prices in 1990/91 as record global production is forecast to sharply exceed expanding consumption and trade is forecast to remain relatively flat.

World wheat production is forecast to reach a record 584 million tons, exceeding consumption for the first time since 1986/87. This is expected to lead to an almost 60 percent increase in global ending stocks from the low 1989/90 levels.

Because production is forecast to expand in numerous importing as well as exporting countries, trade is forecast to be less than 1 million tons above 1989/90's 97 million tons. Prices are falling, reaching their lowest since before the 1988 North American drought.

Foreign production is forecast up 28 million tons (6 percent) with the largest increases expected in the Soviet Union, China, and Canada. The Soviet crop is forecast to rise 13 percent over 1989/90 to 104 million tons, the third highest on record.

Good weather and larger area in the winter wheat regions bolstered the winter wheat crop and favorable weather in the New Lands are boosting the perspective yields of the spring wheat crop. While not a record, spring wheat yields are forecast generally above average, and well above the 1988/89 and 1989/90 drought-affected spring crops.

Despite the larger crop, the Soviet Union is expected to import 14 million tons of wheat, the same as in 1989/90. However, unlike 1989/90, some wheat imports are expected to be wheat for feeding to livestock because prices are lower for wheat than feed grains.

Imports of milling-quality wheat are expected to continue to be relatively

large as procurements continue to fall short, despite incentives to encourage farmers to sell wheat to the State. In addition, inadequate harvest, transportation, and storage facilities will likely result in a larger proportion of the crop being lost to dockage and waste.

China is expected to harvest a record wheat crop of 95.5 million tons, 5 percent above 1989/90. The larger crop, a tight foreign-exchange situation, and domestic austerity measures are likely to limit China's imports to 12.5 million tons, 4 percent below 1989/90 and the smallest level of imports since 1986/87.

North African imports are forecast up 5 percent. Adverse weather in Morocco, Algeria, and Tunisia are expected to boost imports into the region. Egypt's production is expanding but accounts for only a third of its consumption, forcing Egypt to import 7 million tons annually.

Imports by Middle Eastern countries are forecast down 30 percent as the region is rebounding from the 1989/90 drought. Turkey's production is forecast up more than a fifth over the 1989/90 drought-stricken crop. Syria is also likely to show production gains and reduce imports in 1990/91. However, much uncertainty has developed because of the Gulf conflict. Iraq's wheat imports will be curtailed sharply as a result of the embargo.

Good weather has also improved crop production in South Asia, reducing forecast imports into the region. India will remain mostly

self-sufficient. Pakistan's imports are forecast at 1.5 million tons, 25 percent below 1989/90. In East Asia, South Korea is projected to increase imports of wheat for feeding, while the rest of the region's imports are likely to remain close to 1989/90.

Latin American imports are forecast up, led by increases in Mexico and Brazil. Drought in Mexico has reduced domestic production. Reduced credit, high input prices, and economic uncertainty created by recent reforms have led to reduced plantings in Brazil. At the same time, wheat consumption is increasing, adding to import pressure.

Competitors Produce Near-Record Crops

Major competitor production is forecast up 6 percent from 1989/90, leading to larger exports and ending stocks. Increased competitor exports are likely to reduce U.S. market share in this year's weak market.

Canada has experienced favorable weather through the spring wheat growing season. Wheat yields are forecast up 15 percent, leading to a near-record 29 million ton crop. Exports (July-June) are forecast up 12 percent to 19 million tons. However, with the weak world wheat market, the large Canadian crop will lead to an almost 4-million-ton stock increase for Canada, the largest since the record crop of 1986/87.

In the EC, southern countries have suffered from adverse weather

which brought down area and yields. However, the weather has been generally favorable in the northern countries, resulting in a forecast near-record EC crop. Recent dry conditions could be lowering test weights, particularly in the United Kingdom (UK), but the quality may be better than expected earlier. A similar situation last year led to increased UK exports at the expense of French wheat. If hot, dry conditions in recent weeks lead to higher UK protein levels, less feed-quality wheat will be available.

With forecast corn prices rising less than expected earlier, EC wheat prices likely will not be as competitive as previously thought. Thus the EC will be faced with increased high-priced intervention storage or with selling food-quality wheat at or below feed grain prices. EC 1990/91 exports are forecast at 21 million tons, the same as in 1989/90.

Wheat planting is progressing in the Southern Hemisphere. There is still some debate over how much wheat Argentine farmers will plant this year. Economic signals are mixed.

The Government recently announced export taxes will be lowered, but fuel prices are up sharply, inflation is increasing again, and the austral remains overvalued, keeping Argentine wheat less competitive in the world market where prices have dropped. Forecast Argentine wheat area, at 6 million hectares, is up 10 percent from last year. Production is forecast up 13 percent, and exports are forecast at 6.7 million tons, 12 percent above 1989/90.

Australia's production is forecast at 14.5 million tons, slightly above 1989/90. Wheat prices remain attractive compared to declining wool prices. Planting weather has been favorable. Exports are forecast down 3 percent to 10.5 million tons.

Figure 1
Competitor Wheat Production and U.S. Share of World Wheat Trade

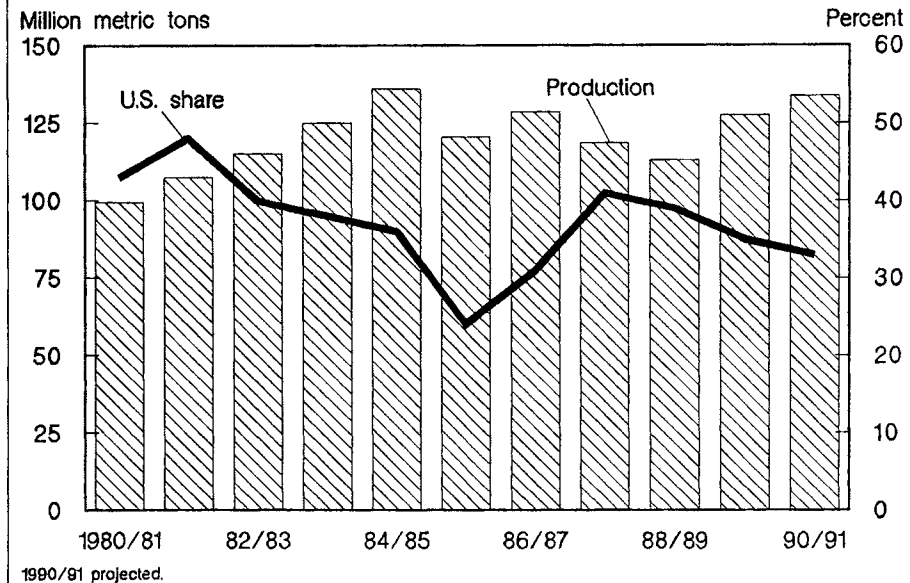
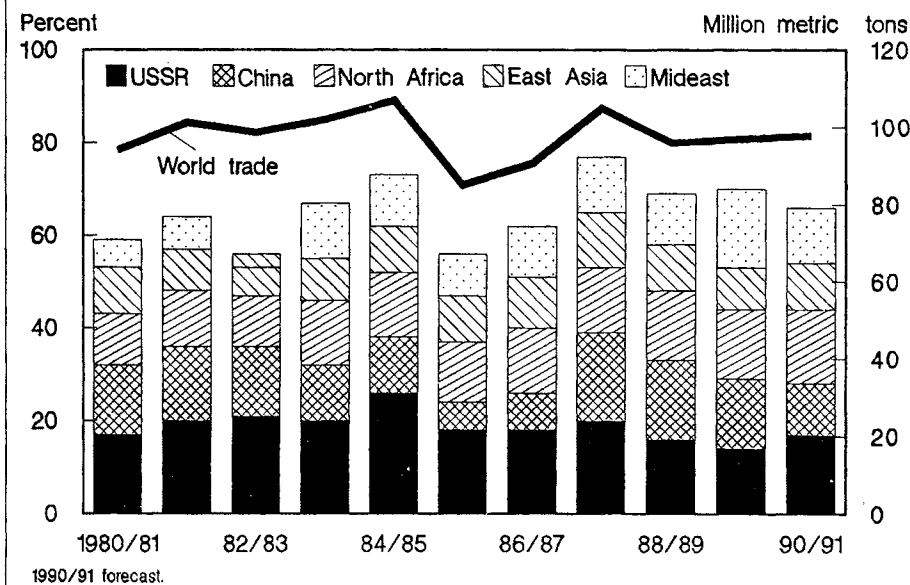


Figure 2
Major Wheat Importers' Percent Share of World Trade



U.S. Wheat Exports Face Tough Competition

Despite the large U.S. crop and lower prices, a slack world market and increased competitor supplies will lead to falling U.S. exports in 1990/91.

U.S. exports are forecast at 32 million tons (1.175 billion bushels for the June/May marketing year), 6 percent below estimated 1989/90. Exports and outstanding sales through the first 2 months of the marketing year are down almost 150 million bushels from last year and are estimated to be the lowest since 1985/86.

U.S. export prices (HRW No. 2, f.o.b. Gulf) in July, fell to their lowest since March, 1988, and are continuing to drop. Large crops in several major importing countries are keeping imports slack, and large competitor supplies are providing increased competition in a weak market. As a result, U.S. market share is forecast to fall to 33 percent from 35 percent in 1989/90.

In addition, the Persian Gulf conflict could have an adverse impact on U.S. wheat exports. The U.S. exported over 1 million tons of wheat to Iraq in 1989/90. The embargo of exports to Iraq will prevent sales to this important market.

In 1989/90, Canada and Australia together exported about 2 million tons of wheat to Iraq. Canada and Australia have indicated that they will observe the sanctions imposed by the United Nations, and, consequently, find other markets — increasing the competitive environment and further pressuring prices.

Kuwait itself has been a relatively small wheat market, importing about 150,000 tons annually — about 50,000 tons from the United States. However, Kuwait recently exerted its influence in the world wheat market by providing credit to Egypt. The most recent non-P.L. 480 U.S. wheat sale to Egypt was

made with Kuwait's help. It is not clear how the wheat market will be affected by the uncertainty regarding Kuwaiti credit. It may place more pressure on exporters, including the United States, to provide more credit to finance Egyptian wheat imports, unless other Arab nations step in and finance the imports.

The Export Enhancement Program (EEP) will continue to be an important tool for keeping the U.S. competitive in world wheat markets. In 1989/90, when U.S. wheat supplies were tight and U.S. exports down, EEP sales dropped 40 percent. As of August 13, 1990, 1990/91 EEP sales of 2.2 million tons have far surpassed sales for the same period last year (180,000 tons), but are 1.2 million tons below 1988/89 sales.

EEP sales include only sales in the 1990/91 marketing year (June-May) for future delivery, which is not necessarily in the marketing year of the sale. Nor do they include sales made in the last marketing year for delivery in the 1990/91 marketing year.

Sizable 1990/91 EEP sales to Algeria and China as of August 13, 1990, have offset a dearth of sales to the Soviet Union.

Average bonuses in the first few months of 1990/91 dropped from \$15.79 a ton in June to \$11.34 in July, but increased to \$23.88 for EEP sales in the first 13 days of August. (Monthly average EEP bonuses are weighted by the volume of individual sales in the month that the sales are announced). The average EEP bonus for wheat sales in 1989/90 was 14.28 per ton.

Through August 3, 1990, fiscal year 1990 GSM-102 allocations for wheat had reached \$1.1 billion. GSM-102 credit guarantees for sales worth \$913 million have been approved, down 26 percent from last year.

The top recipients have been Egypt, Korea, and Algeria. Approvals for GSM-103 have reached \$182 million as of August 3, 1990, an increase of 36 percent over year-ago levels. Top recipients of GSM-103 credit guarantees are Jordan, Sri Lanka, and Algeria.

As of July 27th, fiscal year 1990 wheat and wheat flour allocations under P.L.480 Title I/III were 2.3 million tons (grain equivalent). The largest recipients being Egypt, Bangladesh, and Sri Lanka.

Embargo on Iraq Will Cut Wheat Imports

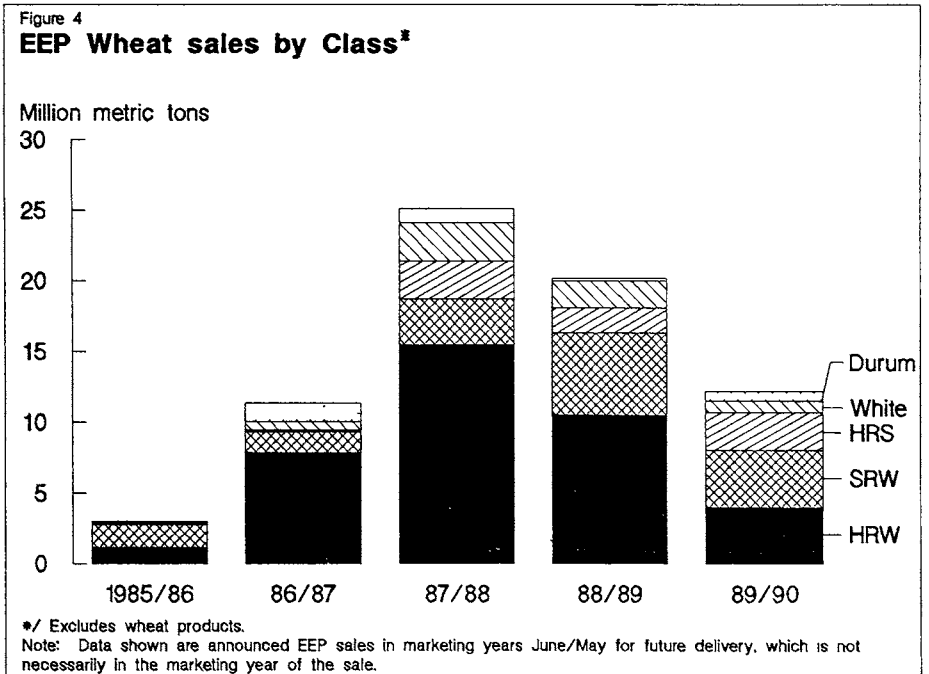
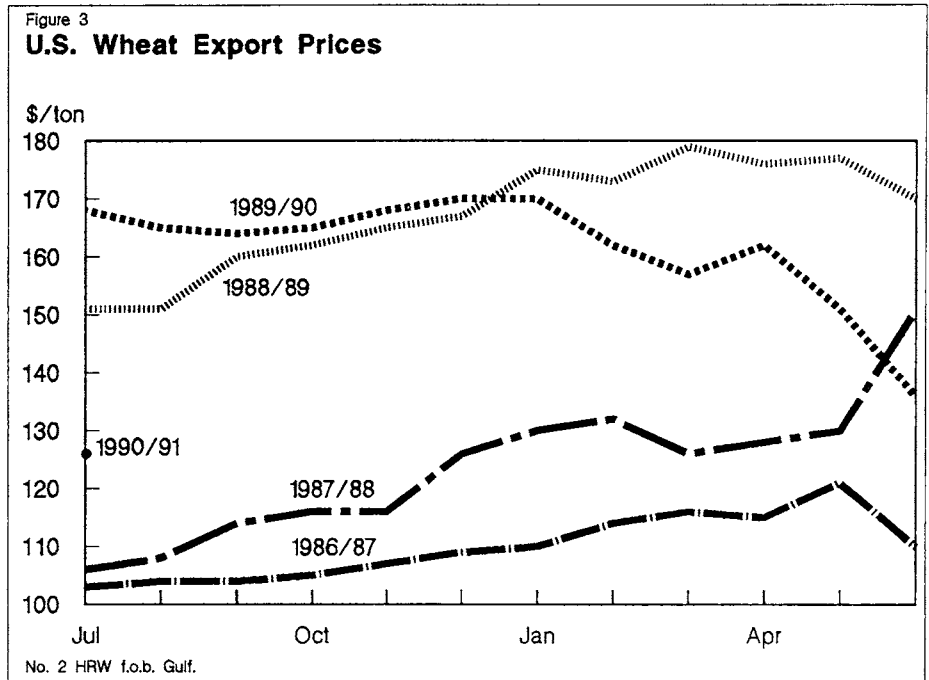
Iraq was the world's seventh largest importer in 1989/90, accounting for 3.5 percent of global imports. The country was the 8th largest market for U.S. wheat in 1989/90, taking about 3 percent of U.S. wheat and flour exports. Total Iraqi imports in 1990/91 are now forecast to be cut sharply by the U.N.-sponsored general trade embargo.

Iraq produces about a fourth of the wheat it consumes and imports the rest. In recent years, its primary suppliers have been the United States, Australia, and Canada.

Much of Iraq's wheat imports have been bought on credit. Iraq exhausted its GSM-102 credit line in May, 1990, and USDA did not grant additional credits. During fiscal years 1987-89, Iraq used GSM-102

credits of \$448 million to buy 3.1 million tons (grain equivalent) of wheat and flour from the United States.

Iraq's 1990/91 wheat production is forecast at 0.8 million tons. If imports are limited to 1.5 million tons and stocks are completely drawn down, total consumption in 1990/91 will fall 13 percent, with per capita consumption dropping to 183 kg. Consumption will drop by an additional 5.4 kg per person for each additional 100,000 ton reduction in imports.



U.S. Domestic Use Expanding

Larger feed use is expected to pace a 22-percent increase in domestic wheat disappearance. Food use is forecast up slightly, while seed use declines.

Domestic wheat use is forecast up 22 percent, more than offsetting the forecast drop in exports, and lifting total wheat use to 2.4 billion bushels — the third largest on record.

Wheat feed and residual use in 1990/91 is forecast to reach 400 million bushels, up from 160 million in 1989/90. In 1984/85 feed and residual use was a record 408 million bushels, and in 1986/87 reached 401 million. These exceptionally high figures for feed and residual use represent years when wheat prices were very competitive with corn prices.

In areas where wheat is more abundant than coarse grains, such as much of the Southwest and Southern Plains, it is common to use wheat (especially off-grade wheat) in feed rations because of the cost of transporting coarse grains into the region.

However, in 1990/91, the price of wheat is low enough, when compared to coarse grains, to encourage widespread wheat feeding not only in areas where wheat is traditionally fed, but across most wheat-producing areas — including parts of the Corn Belt.

Any forecast of wheat feed and residual use should include some caveats. The price relationship between wheat and coarse grains is an important indicator of the economics of feeding wheat, but the feed- and residual-use category for wheat includes all nonfood and non-seed uses, including the statistical residuals (errors) from all categories of wheat supply and demand.

Large, irregular, negative numbers in the feed and residual estimates in the quarterly supply and demand illustrate how forecasts of feed and residual use are tenuous (see discus-

sion of 1989/90 feed and residual on page 22).

Food use is forecast to increase slightly to a record 740 million bushels in 1990/91, mostly driven by population growth. Lower wheat prices and increased consumption of variety breads and other high fiber, low-fat wheat products may also contribute to increased food use.

Seed use is forecast down slightly to 100 million bushels. Seed use in 1990/91 will depend on how much area is planted for the 1991/92 crop.

On August 2, Secretary Yeutter said, "Given the two versions passed by Congress, maximum ARP requirements will likely be 10 to 20 percent" for the 1991 wheat program, up from 5 percent for 1990 (which was later modified to allow plantings of up to 105 percent of base).

Figure 5
Wheat Food Use

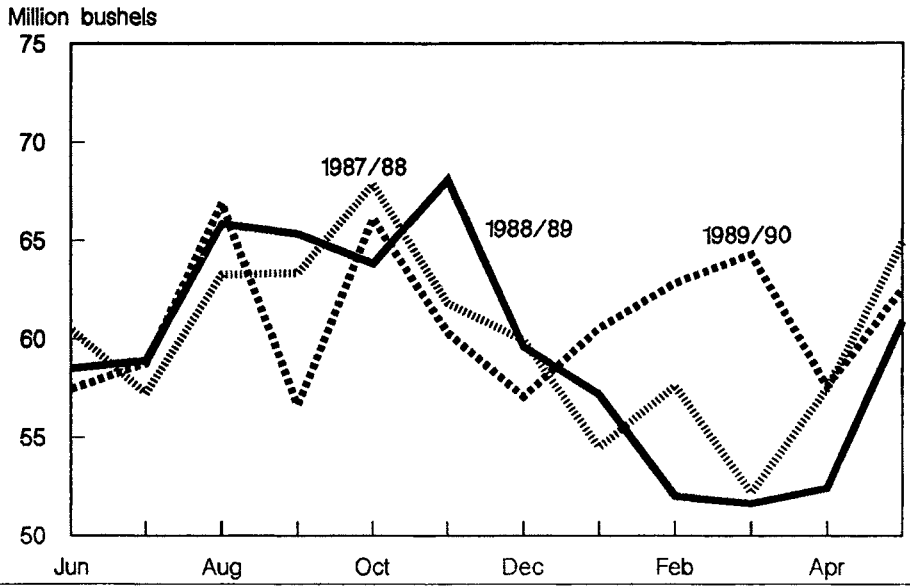
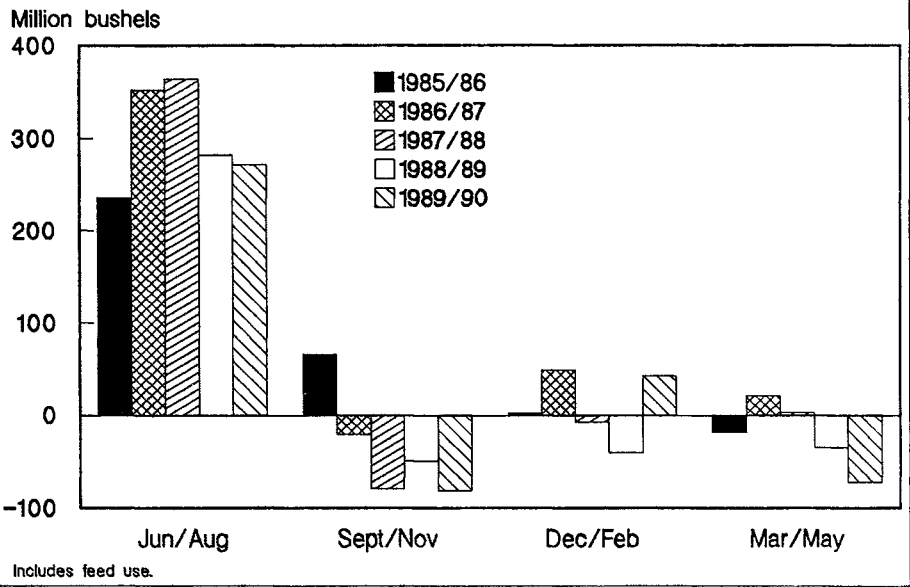


Figure 6
Quarterly Residual



U.S. Production Over 2.7 Billion Bushels

Record wheat crops are forecast in Kansas and North Dakota, the two largest wheat-producing States, pushing total 1990 wheat production over 2.7 billion bushels for only the third time.

U.S. wheat production is forecast up 670 million bushels from last year, and above 2.7 billion bushels for the first time since 1982. Larger area planted, area harvested, and yield all contributed to the increase.

Area planted increased less than 1 percent to 77.3 million acres. However, in 1989/90 over a million acres was counted as planted twice when winterkill caused farmers to reseed winter wheat fields with spring wheat. In 1990/91 reseeded was not significant.

Favorable growing conditions after January, a reduced ARP, and relatively high wheat prices for the previous 2 years, encouraged farmers to harvest more of the planted area than in recent years. Area harvested is forecast up 12 percent to 69.9 million acres.

Subtracting wheat base in the CRP, the 1990 effective wheat base was 80.5 million acres, of which 83 percent enrolled in the wheat program, 2.2 million acres were idled in ARP, and 4.8 million in the 0/92 program. 19 million acres were planted under modified contracts allowing planting of more than 95 percent of a farmer's wheat base, thus reducing the area idled.

Yields responded to favorable growing conditions, increasing 18 percent from last year's poor performance, and reaching a forecast national average of 38.7 bushels per acre, the largest in 6 years, and the third highest on record.

Winter Wheat Production Forecast Up Over 40 Percent

Winter wheat production rebounded sharply as growing conditions for the 1990 crop were much more favorable after mid-January. The growing season was not without problems. A record-dry November in parts of the Southern Plains and a cold snap in December put stress on the crop. However, the rest of the winter was generally mild, with favorable growing conditions.

Excessive rains and flooding damaged wheat in some areas during the spring, but helpful, dry harvest conditions in the Plains during June offset earlier losses. However, there were losses due to freeze, disease, and excess rains in the Corn Belt. Winter wheat is forecast at 2.05 billion bushels, just 2 percent below the 1981 record.

Winter wheat area planted was up only 3.5 percent to 57.0 million acres, despite strong wheat prices at planting time (fall 1989), the reduced ARP, and the opportunity of using modified contracts to plant wheat on up to 105 percent of wheat-base acres.

However, the favorable growing season and more flexible Government program allowed farmers to harvest a forecast 87.9 percent of the planted area, an above-average portion, and much higher than the previous 6 years (see fig. 9). Area harvested expanded 21 percent to 50.1 million acres.

The winter wheat yield is forecast at a near-record 41.0 bushels per acre, up 17 percent, reflecting improved growing conditions. The compari-

son with the record year of 1983 (41.8 bushels per acre) is distorted because, in 1983, winter wheat farmers were paid by the Payment-in-Kind (PIK) program to tear up their lowest yielding acres and harvest only the best. Only 76.6 percent of planted acres were harvested in 1983.

Spring Wheat Production Up 12 Percent

Despite continuing subsoil moisture problems in parts of the Northern Plains, spring wheat production increased as timely rains and cooler-than-normal temperatures during June limited stress.

Area planted to spring wheat dropped 6 percent to 20.3 million acres in 1990. Less winter wheat reseeded to spring wheat accounts for most of the decline, but by spring wheat-planting time in April, wheat prices had begun to trend downwards, making incentives to expand wheat plantings less enticing. However, although down from last year's unusually large planted area, spring wheat planted area is estimated up 24 percent from the 1983-1988 average.

Harvested spring wheat area is forecast at 19.8 million acres, down 4 percent. This is a bit less than planted area, as improved growing conditions have resulted in a higher ratio of harvested-to-planted acres. More importantly, the improved growing conditions boosted yields 17 percent to 32.9 bushels per acre.

Key States Post Record Production

Kansas is forecast to produce a record 472 million bushels, more than double last year, and 3 percent above the previous high in 1982. Area planted was unchanged from 1989, but with much reduced winterkill and improved growing conditions, harvested area increased a stunning 33 percent. This is the first time since 1974 that Kansas harvested over 95 percent of its planted area.

Yields rebounded 66 percent from last year's weather-damaged crop, reaching a forecast 40 bushels per acre for the first time since the 1983 PIK program boosted Kansas yields to record levels.

North Dakota is also forecast to harvest a record wheat crop in 1990, reaching 348 million bushels. However, yields are forecast to only reach 31 bushels per acre, decidedly average. Area planted increased 5 percent, to 11.35 million acres, only the fourth time in recent decades that North Dakota's planted area exceeded 11 million.

Harvested area is also forecast above 11 million, increasing 7 percent. With this large area, a return to average or trend yields was all that North Dakota needed to produce a record crop.

Oklahoma, the third largest wheat producer in 1990, forecast at 208 million bushels, had excessive spring rains in some areas. However, Oklahoma managed to produce over 200 million bushels for only the third time. Area planted increased 3 percent, while more favorable growing conditions helped boost area harvested a forecast 11 percent. Yields returned to average levels, 33 bushels per acre.

Washington is forecast to produce 157 million bushels, the highest

since 1984, as yields are pegged at 63 bushels per acre, the second highest on record. Planted area fell from 3.1 to 2.6 million acres, as a mild winter much reduced reseeding. Harvested area is forecast up 9 percent.

Montana is forecast to about match last year's production, with average yields forecast down 2.5 percent to 27 bushels per acre. However, much less winter wheat needed to be reseeded to spring wheat. Winter wheat area and yield increased dramatically, but dry soils in the eastern spring wheat area reduced spring yields to a forecast 20 bushels per acre.

South Dakota is forecast to produce a record 131 million bushels, as the largest harvested area since 1952 combines with yields of 34 bushels per acre, almost matching the 1984 record.

Texas is forecast to produce 130 million bushels, more than double last year, and the largest since 1985. Cold in December in the Panhandle

and excessive spring rains in eastern wheat areas reduced production potential, leaving average yields well below record levels—31 bushels per acre. Area harvested, up 40 percent, returned to a more normal percent of planted area.

Minnesota is forecast to produce 125 million bushels, with yields the second highest on record at 44 bushels per acre. Timely rains helped the spring wheat crop.

Idaho is forecast to produce a record 101 million bushels. Area harvested was forecast the same as last year, but more of it was winter wheat. Winter wheat growing conditions were favorable, producing a forecast record yield of 78 bushels per acre for winter wheat, and a near record 74 bushels per acre for total wheat.

Illinois wheat production faced late freeze damage, as well as disease and pest problems as excessive spring rains took a toll. Production is forecast down 13 percent to 92 million bushels.

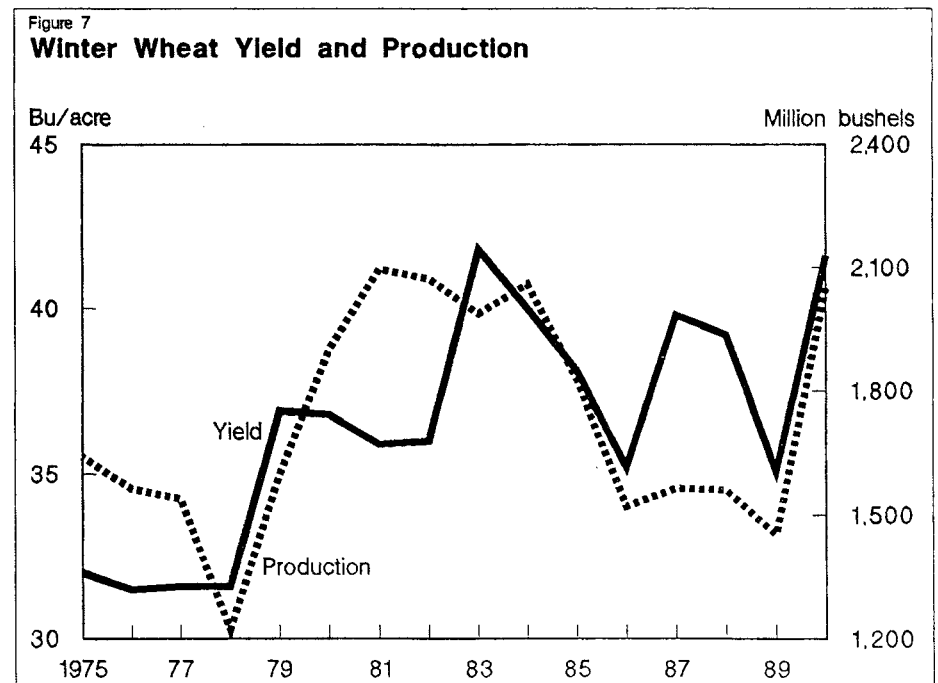
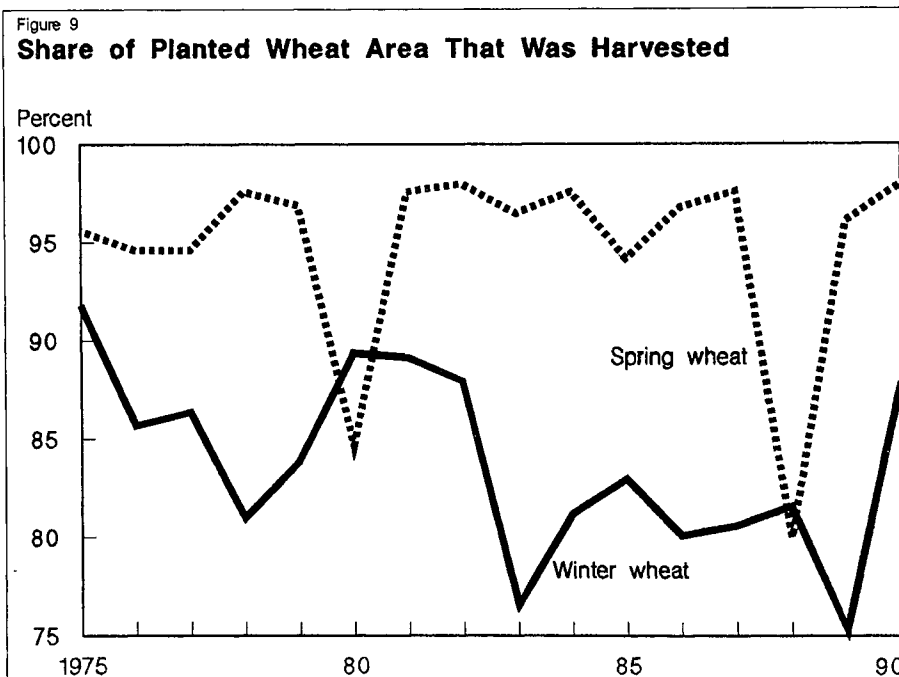
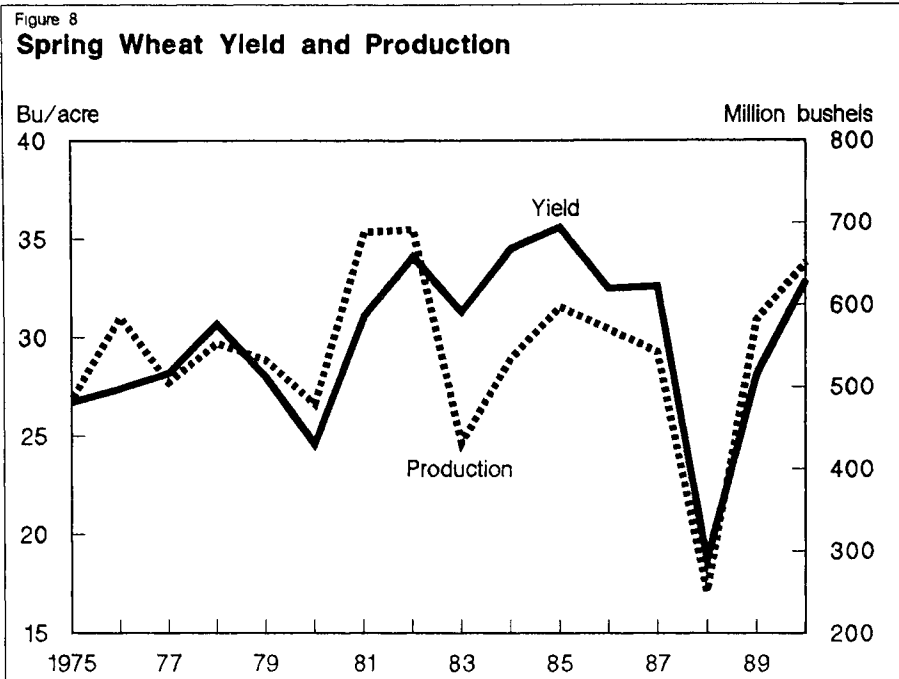


Table--1 Wheat Production in the Top 10 States

State	1989	1990
Million bushels		
Kansas	213.6	472.0
North Dakota	242.3	347.6
Oklahoma	153.9	207.9
Washington	110.6	157.0
Montana	145.0	148.3
South Dakota	83.1	130.6
Texas	60.0	130.2
Minnesota	102.5	124.5
Idaho	91.4	101.0
Illinois	105.0	91.7



U.S. Wheat Supply Grows Faster Than Demand

U.S. wheat supplies are forecast up 18 percent in 1990/91, increasing 0.5 billion bushels to 3.3 billion. Meanwhile, total use is forecast up 8 percent to 2.4 billion. Ending stocks are also forecast up sharply, and prices for 1990/91 are expected to be down around \$1.00 per bushel from last year.

Supply Rebounds in 1990/91

Beginning stocks, at 535 million bushels, were down for the fourth straight year. Carryin stocks are the smallest portion of total supply since 1974/75, 16 percent. Imports are forecast to remain basically unchanged at less than 1 percent of supply, so increased wheat supply comes entirely from production. 1990 production is forecast at a near-record 2.7 billion bushels.

The increase in 1990/91 U.S. wheat supplies comes after 3 years of consecutively smaller supplies. However, supplies remain below 8 of the 10 years of the 1980's and are well below the 4 billion bushel mark reached in 1984/85 and 1986/87.

Although not particularly large by recent historical standards, the increase in supply causes some people concern because prices are much lower than in the past 2 years.

Use Forecast Up Despite Exports

Domestic use is expected to respond to lower prices and is forecast at a

record 1.2 billion bushels. Exports, however, are forecast down, due to relatively weak import demand and increased foreign competition.

The increased domestic use will not have much of a price-supporting effect as it would if it was due to larger exports, because it is almost all increased feed and residual use. The lowest qualities of wheat are usually sold for feed rations, so if they are marketed through grain elevators and included by USDA in its price survey, this low-priced wheat would depress the average price received by farmers.

Wheat Price Forecast Down Almost 20-30 Percent

The season-average wheat price received by farmers is forecast to range between \$2.65-3.05 per bushel in 1990/91, down from \$3.72 for the previous 2 years. Several factors are contributing to the lower price outlook.

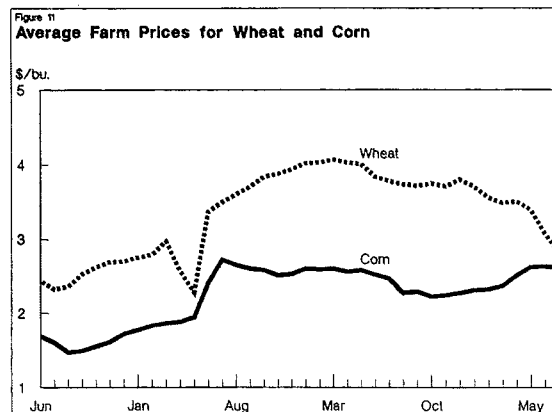
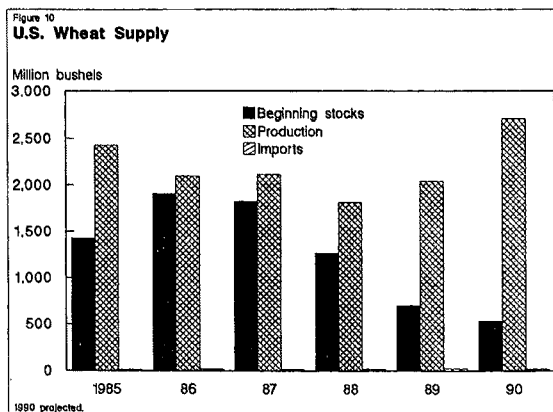
Supply is up sharply, while exports are down, and more wheat may be moving into low-priced feed channels. Moreover, the loan rate, at

\$1.95 per bushel, is lower than it has been since 1973/74. With the loan rate well below prevailing market prices, farmers are unlikely to use the 9-month loan program enough for it to provide major price support.

Additionally, the Farmer-Owned Reserve dropped to 144 million bushels by the start of the 1990/91 marketing year, the lowest since the program began in 1977. CCC inventory was 117 million bushels, the lowest since the 1970's.

Without a large portion of wheat stocks tied up in Government ownership or Government programs, those stocks are more directly available to the market, weighing on prices. In order to provide an incentive for holding stocks, futures prices must sell at a premium to cash market prices.

However, with this year's large crop, and, with the prospect of increasing stocks, there is little incentive for wheat futures prices to carry a sufficient premium to cover storage and interest charges.



The Senate and House Pass Farm Bills

The Senate and House farm bills, approved by each chamber after floor debate, contain many common threads. In both bills, target prices are to be no less than in 1990 and both have provisions that potentially raise loan rates. Both also focus on wetland preservation, tree plantings, and long-term land retirement. The bills' trade titles mainly extend current law.

Although containing common elements, the two bills differ in their specific provisions. Any differences will be ironed out in a conference committee composed of members from both chambers.

This committee will likely convene after the budget summit, so any cuts in agricultural spending can be worked into the final compromise. The compromise package will be sent back to each chamber for final passage and then either signed into law (or vetoed) by the President.

Commodity Title Provisions

The commodity titles of both bills have provisions that address farmers' planting flexibility. This means allowing farmers to shift a portion of their crop bases to specified crops other than the original crop base.

One key problem with the planting flexibility provisions is that a producer's decision to utilize these provisions requires weighing the market price of the "flexed" crop against the target price of a program crop. This detracts from the objectives of a truly flexible approach.

If the incentives created by target prices are lessened, U.S. competitiveness could increase through the planting flexibility process, as farmers' actions align more closely with market signals.

Several similarities exist in the two bills' flexibility provisions. As discussed earlier, both bills require

deficiency payments to be reduced on an acre-for-acre basis for that portion of a farmer's crop-acreage base planted to other crops. Farmers would need to compare the market returns of another crop with the market returns (plus deficiency payments) of the crop historically planted on that base.

Other similarities exist between the two bills. Both call for price support loans to be available for program crops planted on transferred, or "flexed," acreage. Crop bases would not change because of this flexibility.

Both bills also allow harvesting of program and other crops on set-aside acres in certain cases and would continue 0/92 authority. Neither bill allows program crops to be planted on oilseed crop acreage.

Even though many provisions are similar, the House bill allows greater acreage shifts than the Senate bill. This is the result of two primary factors.

First, the House bill allows 25 percent of program crop bases, plus oilseed plantings, to be flexed. The Senate bill excludes oilseeds from the calculation.

Second, the House version does not limit planting shifts to individual crop bases, while the Senate version requires acreage shifts to be limited to each individual program base.

Because of these differences, producer planting responses could vary

considerably between the two bills. In the example in fig. 1, if a producer wanted to plant as many acres to soybeans as possible, the House bill offers several planting mix alternatives and permits a maximum of 175 acres to be planted to soybeans. But because the Senate version limits flexibility to 25 percent of each individual program crop base, the producer has only one planting-mix alternative. This alternative would allow a maximum of 150 acres in soybeans—25 acres less than the House bill.

The significant difference is that under the Senate provisions, to maximize soybean plantings, each program crop base is considered separately, reducing each by 25 percent.

If the same producer decided that he wanted to plant as many acres to an alternative program crop as possible, the House bill again offers greater flexibility.

In fig. 2, the farmer could plant up to 75 acres to cotton (for example) under the House bill, while a maximum of 50 acres could be planted under the Senate version. A similar situation exists for nonprogram plantings (fig. 3).

Although flexibility is in general greater under the House version, the Senate bill allows planting of a wider variety of nonprogram crops on flexed acreage.

Both bills have provisions that could potentially raise loan rates (table 2). Under the House bill, the basic loan

is set at 85 percent of the 5-year average market price, dropping the high and low (rather than the 75-85 percent specified in current law). The Findley authority, which allows the Secretary to reduce the loan rate, is based on the current year's supply-to-use ratio, permitting an adjustment of up to 10 percent to maintain competitiveness (a minimum level applies).

Under a two-plan system (Plan A and Plan B), the Senate bill man-

dates a marketing loan and limits Findley authority. Under both plans, the loan rate for wheat and feed grains is 75-85 percent of a 5-year moving average of market prices, dropping the high and low (current law) with a minimum level for wheat set at \$2.44 per bushel (\$1.96 for corn).

Under plan A, the loan rate cannot be below the basic loan rate and there is no Findley authority. Under Plan B, the Findley adjustment can

be no more than 20 percent. An advance compensation payment, called a recourse loan, that equals 75 percent of the Findley reduction, is paid to farmers.

In both bills, target prices for wheat and feed grains are to be no less than in 1990.

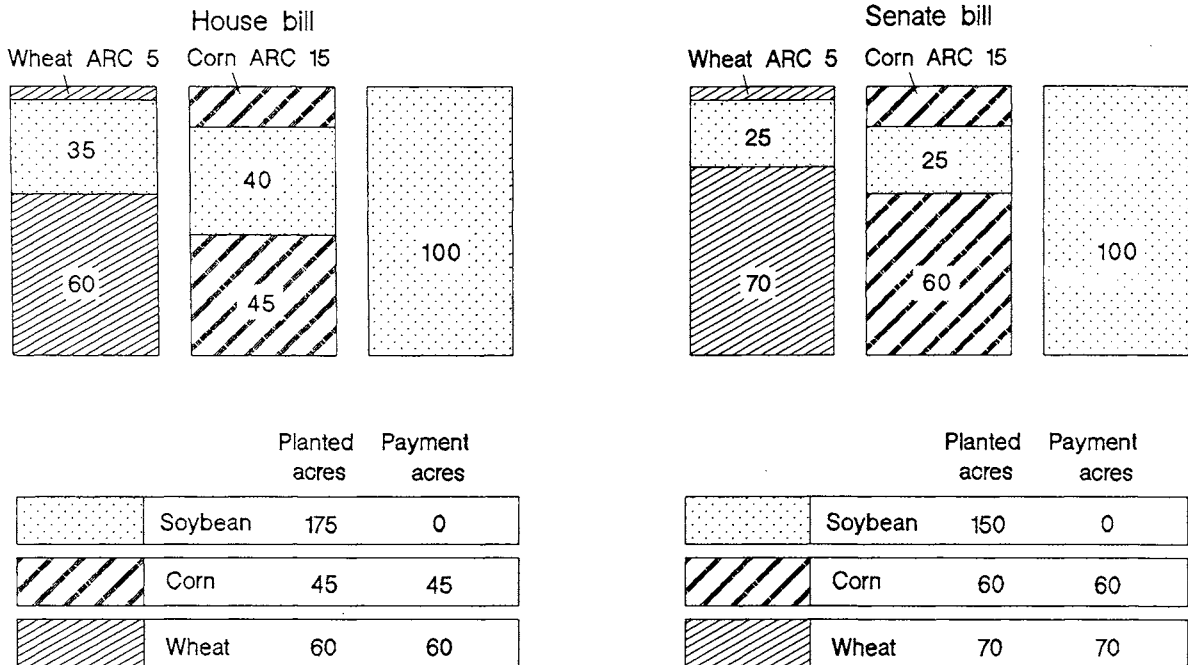
Table 2--Commodity Provisions for Wheat in the House and Senate Farm Bills

	House	Senate												
Loan Rates:	Basic loan set at 85% of 5 year moving average, dropping high and low, but decline limited to no more than 5%. USDA has discretion to reduce loan rate an additional 10% without regard to stocks-to-use formula.	Plan A: Marketing loan, with loan level established at 75%-85% of a 5-year moving average of prices, dropping the high and low. Loan rate cannot be below \$2.44 (1990 basic loan rate) and no provision for Findley adjustment. Plan B: Basic loan same as in above formula, but with discretionary Findley adjustment at no more than 20%, with marketing loan required. The Secretary would be required to provide producers with an advance compensation payment equal to 75% of the Findley loan reduction amount.												
Target Prices:	Target prices shall not be less than 1990 level. Secretary may provide for annual adjustments in the target price to reflect the year-to-year change in the index of prices paid by farmers for production items, interest, taxes, and wage rates. For each 2.5-percentage point increase in the wheat ARP level above 22.5%, the target price for the year shall be increased 2.55%.	Target prices shall not be less than 1990 level.												
ARP Levels:	Based on stocks/use (S/U) of current marketing year.	Based on S/U of preceding marketing year.												
	<table border="1"> <thead> <tr> <th>S/U</th> <th>ARP</th> </tr> </thead> <tbody> <tr> <td>>40</td> <td>20.0-30.0</td> </tr> <tr> <td>≤40</td> <td>≤20</td> </tr> </tbody> </table>	S/U	ARP	>40	20.0-30.0	≤40	≤20	<table border="1"> <thead> <tr> <th>S/U</th> <th>ARP</th> </tr> </thead> <tbody> <tr> <td>>40</td> <td>12.5-20.0</td> </tr> <tr> <td>≤40</td> <td>0.0-12.5</td> </tr> </tbody> </table>	S/U	ARP	>40	12.5-20.0	≤40	0.0-12.5
S/U	ARP													
>40	20.0-30.0													
≤40	≤20													
S/U	ARP													
>40	12.5-20.0													
≤40	0.0-12.5													

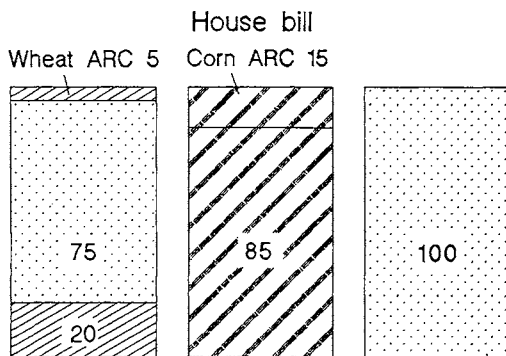
Planting Flexibility and the 1990 Farm Bill: Comparison of House and Senate Provisions

Some options available to farmers participating in Government commodity programs, using a sample farm with 100 acres each of wheat and corn base (with a 5% wheat ARP and 15% corn ARP) and 100 acres of soybeans.

Maximum Soybean Acreage...



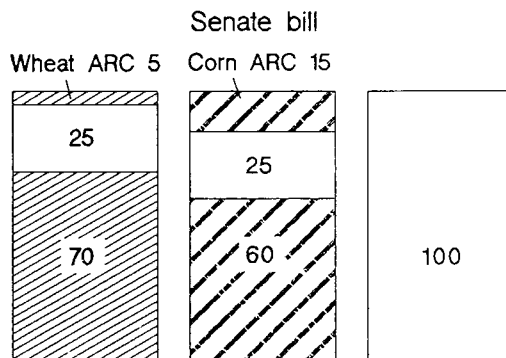
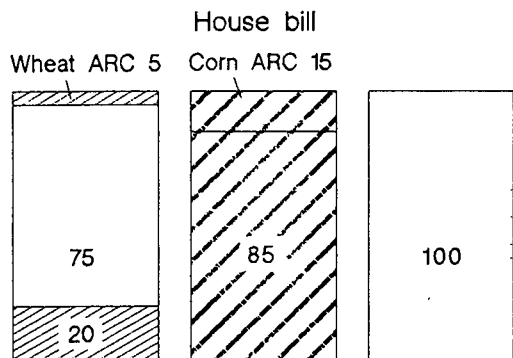
Alternative Maximum Soybean Acreage...



Senate flexibility options limit flexible acres to 25% of individual program crop bases. Hence, soybeans (or other crops) planted on flexible acres must be allocated across all eligible program crop bases as in the above example.

		Planted acres	Payment acres
[Dotted]	Soybean	175	0
[Diagonal lines]	Corn	85	85
[Horizontal lines]	Wheat	20	20

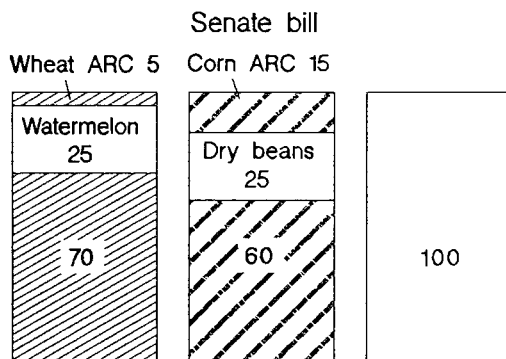
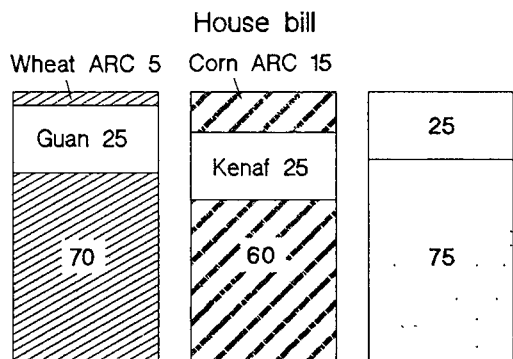
Maximum Alternative Program Crop Acreage...



		Planted acres	Payment acres
	Soybean	100	0
	Corn	85	85
	Wheat	20	20
	Nonprogram	75	0

		Planted acres	Payment acres
	Soybean	100	0
	Corn	60	60
	Wheat	70	70
	Nonprogram	50	0

Maximum Nonprogram Crop Acreage...



		Planted acres	Payment acres
	Soybean	75	0
	Corn	60	60
	Wheat	70	70
	Nonprogram	75	0

		Planted acres	Payment acres
	Soybean	100	0
	Corn	60	60
	Wheat	70	70
	Nonprogram	50	0

ACR is acreage in conserving use under the ARP.

Crop Insurance, Conservation and Trade Crucial for Wheat

Adequate crop insurance coverage presents a budget dilemma. Environmental concerns have molded several provisions, including reauthorization of the CRP. Trade titles mainly extend provisions of EEP, TEA, P.L. 480, and GSM programs.

Crop Insurance

Overhauling the crop insurance program has been a tough assignment. Most legislators agree that the program needs to fit within a \$750-800 million budget while providing farmers with a desirable risk-management tool. Crop insurance also reduces the need for ad hoc disaster assistance. Throughout the debate, USDA has maintained that crop insurance should be eliminated and a county-based disaster program should be instituted in its place.

In July, after much debate, the House Appropriations Committee voted to phase out the crop insurance program, which has made program reform discussions even more tenuous. The committee reported a measure allowing \$262 million to be spent next year on administrative phase-out costs for crop insurance. As part of the phaseout, it authorized the Federal Crop Insurance Corporation (FCIC) to make payments on any policies sold before October 1.

If crop insurance is eliminated and disaster language remains, farmers would be covered by the 1970's disaster program which covers both prevented plantings and low yields. A farmer would receive a reduced yield payment at a rate equal to 50% of the target price for any production deficiency below 60% of his established farm program yield. In the 1970's, only program crops were covered.

Many Congressional policymakers are uneasy with the idea of eliminating crop insurance. For one thing,

farmers in some cases have been required to buy crop insurance as collateral to secure loans. Because of such factors, the House bill contains "sense of Congress" language urging the continuation of funding while program improvements are being devised. But in a tight budget situation, added funding for crop insurance may reduce outlays for other programs.

The Senate farm bill suggests changes in the current crop insurance program that, for the most part, are already being implemented by USDA. For instance, the Senate bill directs USDA to move the program in the direction of actuarial soundness by raising producer premiums, where appropriate, and by sharing more of the risk of loss with private crop insurance companies.

Senate language also allows private companies to offer innovative policies and contains "sense of Congress" language urging CCC funding if crop insurance appropriations are eliminated. Further, it directs USDA to offer policies on a crop in all counties in a State, if one county in the State offers policies for that crop.

Conservation Provisions

The conservation titles of the Senate and House bills emphasize water quality improvement, tree-plantings, and long-term easements. The bills reauthorize the conservation reserve program (CRP), create new wetlands conservation programs, and authorize voluntary programs to

help farmers reduce purchased input use and protect water supplies.

The bills extend the CRP (the CRP is renamed the "Environmental Acreage Conservation Reserve" (ECARP) in the Senate bill) through 1995, but differ in enrollment levels and the treatment of wetlands. The Senate bill creates a new "Conservation Stewardship Program" (CSP). It includes the CRP, a new wetlands reserve program, and a new water quality incentives program (WQIP). The Secretary of Agriculture is required to enroll 40 to 50 million acres in the CSP. Easement agreements are encouraged.

By adding a wetlands reserve and WQIP, the Senate bill targets new contracts toward water-quality improvement and wildlife habitat. The wetlands reserve, designed to attract a minimum of 1 million acres between 1991 and 1995, is a vehicle for restoring wetlands and protecting them through long-term easements. The WQIP provides incentive payments to farmers who adopt 3-5 year plans designed to reduce the chemical contamination of surface and ground water.

The House bill is similar to that of the Senate. It allows for CRP enrollment of up to 45 million acres. Like the Senate bill, the House creates a wetlands reserve, but with an enrollment goal of 2.5 million acres between 1991 and 1995. It also contains a water quality protection program that provides incentive payments and cost-share assistance to farmers if they develop plans on

lands with the potential to degrade water quality.

These provisions reflect a change in emphasis from how the CRP has been implemented since its inception in the 1985 farm bill. Most of the land in the CRP has been located in areas of the Plains prone to wind erosion. This is largely because of the relatively attractive CRP rental rates paid and the large quantity of eligible land in those areas. Substantial benefits were achieved by reducing commodity surpluses and helping to alleviate wind erosion.

As of the ninth CRP sign-up, 33.9 million acres were enrolled in the CRP, including 10.3 million acres of wheat base, creating net reductions in erosion of about 656 million tons per year.

Both bills indicate explicit direction by the Congress, particularly in the area of water quality. This new direction is evident in the CRP eligibility criteria laid out in the two bills. Both emphasize enrollment of environmentally sensitive land, shelterbelts and windbreaks, and lands that contribute to the degradation of water quality. However, in the Senate version, land would not be eligible for enrollment if the producer can meet water quality objectives through the WQIP. Priority is given to lands where the greatest public benefits would be realized.

CRP contracts in both bills would generally be for 10 years, although 15-year contracts would be available for land enrolled and planted to hardwood trees, shelterbelts, and windbreaks. The incentives for such plantings include 50-75 percent cost-share assistance and tree-plantings for over 3 years.

Wetland conservation provisions ("swampbuster") are a key element of both bills, as they were in the 1985 Act. Under current law,

swampbuster denies Federal farm program benefits to any person who plants an agricultural commodity on a converted wetland. Violators are ineligible for all program benefits in those years that the converted wetland is planted.

Both Senate and House versions of the conservation title tighten the "trigger" used to define a swampbuster violation. Violations would be triggered not only by production on a converted wetland, but by the act of converting a wetland into land suitable for crop production. Tightening the trigger helps preserve wetlands and wildlife habitat.

Both bills contain provisions making proposed conservation measures easier for farmers to accept. For example, exemptions may be granted if actions have a minimal effect on functional hydrological and biological value, or if the land has been frequently cropped and the action is mitigated through restoration of a previously converted wetland. Further, the penalty would depend on the seriousness of the violation.

The bills address other environmental provisions as well. For expiring CRP contracts, base protection would be extended if conservation cover is maintained on the land. A voluntary, integrated crop- or farm-management program would allow farmers to develop plans for protecting and enhancing water supplies. In both the House and Senate versions, recordkeeping would be required of commercial producers with regard to the application of restricted-use pesticides.

Trade Provisions

The trade titles of the Senate and House bills revise provisions in the Export Enhancement Program (EEP), Targeted Export Assistance (TEA), export credit guarantee

(GSM), and food aid programs (P.L. 480). The bills contain changes in program management and certain differences in focus, but they do not contain major shifts in policy direction.

The EEP, a targeted export subsidy program, was authorized under the 1985 Food Security Act. The Secretary of Agriculture has implemented the program in a manner designed to counter the EC's export subsidies.

Both House and Senate bills contain language that closely parallels how the EEP program is currently being implemented. They indicate that the revised EEP is to be implemented to combat "unfair trade practices" carried out by foreign countries. Both chambers define "unfair trade practices" to include direct export subsidies, currency retention schemes, favorable internal transport rates on export shipments, tax rebates on exports, and processing subsidies. The Senate bill expands this definition to include the "discriminatory pricing policies of monopolistic marketing boards and state trading agencies."

Both bills earmark EEP funds for high-value and value-added products. The Senate bill allows 10 percent of EEP bonuses for such commodities; the House version requires an allocation of 25 percent. Historically, such products have received about 20 percent of EEP bonuses.

The Targeted Export Assistance (TEA) program, authorized under the 1985 Food Security Act, is eliminated under both Senate and House bills. The TEA program was designed to counter the adverse effects of subsidies, import quotas, and other unfair trade practices on U.S. agricultural exports. Under this program, trade organizations have been reimbursed for their expenses in promoting U.S. agricultural products overseas. Export promotion activities have been con-

ducted in affected markets to counter or mitigate unfair practices, or in alternative markets to offset adverse effects on U.S. exports.

In place of the TEA, the Senate and House bills authorize, respectively, the Marketing Assistance Program (MAP) and the Marketing Program (MP). The MAP and MP are broader than TEA and focus on building markets for U.S. exports instead of reimbursing exporters for expenses to recapture markets.

The export credit guarantee (GSM) programs are also addressed in the Senate and House bills. These programs help U.S. exporters sell agricultural commodities in markets that have foreign exchange constraints by facilitating loans by private financial institutions. These loans are on better terms than foreign buyers would otherwise receive because the Commodity Credit Corporation (CCC) guarantees payment.

The House and Senate bills restrict the CCC from making credit guarantees available to countries that cannot adequately service the associated debt. Further, the Senate bill removes the limitation on repayment in dollars and requires that participating U.S. banks be financially

sound and independent of the importing country's participating bank.

Both bills also address commodity eligibility under GSM programs. They place explicit limits on the amount of foreign content permissible in commodities shipped under the program and stipulate that only the U.S. portion of the commodity is covered under the program.

The Senate and House farm bills reauthorize the P.L. 480 (Food for Peace) program, which was due to expire on December 31, 1990. The major objectives of P.L. 480 are continued in the 1990 bills, and include: developing and expanding export markets for U.S. agricultural commodities, combating hunger and malnutrition, encouraging development in developing countries, and promoting U.S. foreign policy.

The current law contains three titles and is jointly administered by five federal agencies. Title I authorizes concessional sales to developing countries. Title II is a food donation program designed to combat malnutrition and hunger, provide disaster relief, and encourage economic development. The final title, known as the Food for Development Pro-

gram, provides for the forgiveness of Title I debt, if mutually agreed-upon development projects are undertaken.

Both Senate and House bills propose changes in P.L. 480 authority. They contain new authority for grants under Title I and forgiveness of Title I debt in the poorest countries that undertake structural reform. The concessional sales program would continue for those countries having the potential to repay.

Under both bills, Title II would establish a Food Aid Consultative Group to improve communication among the Agency for International Development (one of the five coordinating agencies) and the private voluntary organizations. The bills would allow Title III, the Food for Development Program, to expire because debt forgiveness would be incorporated into the new Title I.

Overall, the bills clarify the objectives of different types of food aid. For the poorest countries, more aid could come as donations. For countries better able to pay, the emphasis would be on concessional sales and coordinated market development.

U.S. 1989/90 Wheat Exports by Class

Hard red spring (HRS) and soft red winter (SRW) exports expanded to pick up part of the slack created by the tight hard red winter (HRW) supplies. Durum exports rebounded to regain a more typical share of the export market.

The following information is based on inspection data by class and country of destination as reported by the Federal Grain Inspection Service. Census export data is not broken out into the 5 classes used by USDA, but is used to determine total grain, flour, and selected products exports for wheat. The grain inspections and shipments reported in *Export Sales* are used to estimate a by-class breakout of Census wheat exports.

Tight supplies of HRW, ample supplies of SRW, declines in Chinese and Indian imports, and relatively high prices for certain classes, led to a change in the mix of wheat exported and the destinations of the exports in 1989/90. HRS and SRW exports expanded to pick up part of the slack created by the tight HRW supplies. Durum exports rebounded to a more typical share of the export market.

The sharpest decline in exports was due to India's absence from the U.S. market (78 million bushels in 1988/89), and a decline of over 90 million bushels in Chinese imports. Soviet imports also declined by 13 percent from a year earlier. The decline in exports was partially offset by a 15 million bushel increase in Japanese imports. There was little change in total exports to Egypt, our fourth largest buyer in 1989/90. (See special article on North Africa for additional details.)

Drought and winterkill limited the availability of HRW for export. HRW exports comprised 29 percent of total wheat exports in 1989/90

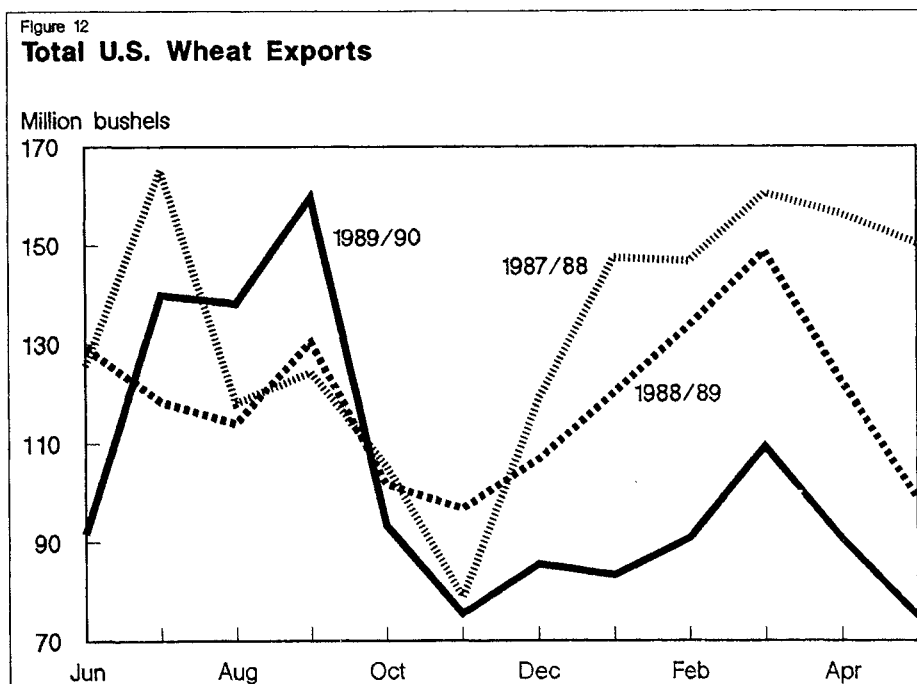
compared to almost 45 percent a year earlier. Since 1954/55 at least 40 percent of wheat exports have been HRW.

While both China and the USSR decreased total imports from the United States, their reductions in HRW imports were even larger. China reduced HRW imports by almost 100 million bushels, while increasing HRS imports by 10 million bushels. The USSR reduced HRW imports by about 90 million bushels. However, the Soviets substituted HRS and SRW for the HRW imports. Soviet imports of HRS increased by 35 million bushels and the Soviets imported almost 30 million bushels of SRW. This is the first time that the Soviets imported SRW from the United States since 1977/78.

With the recovery of the North Dakota durum crop in 1989, durum exports returned to a more normal share of total wheat exports.

Exports to Algeria accounted for almost 53 percent of durum exports. Over three-quarters of Algerian sales occurred with EEP bonuses averaging about \$18.60 per ton. Durum exports to Italy, Turkey, and Venezuela combined to account for over 60 percent of the remainder of the durum grain exports.

White wheat exports fell to about 190 million bushels in 1989/90, the lowest since 1986/86. Most of the decline can be attributed to reduced exports to India and Egypt's shift to exports of lower priced SRW.



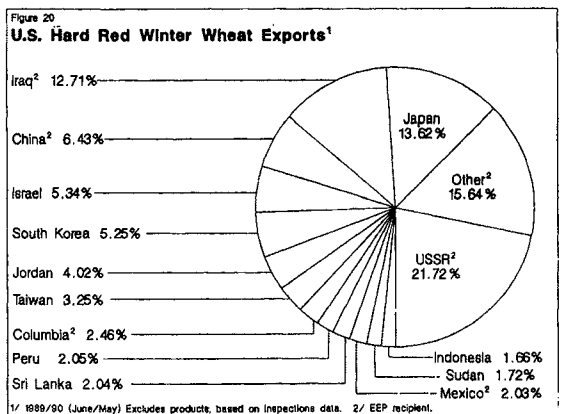
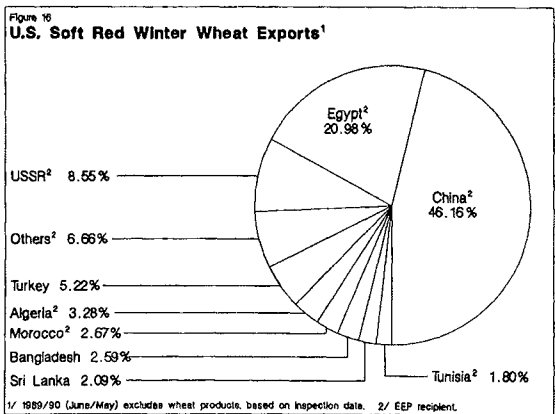
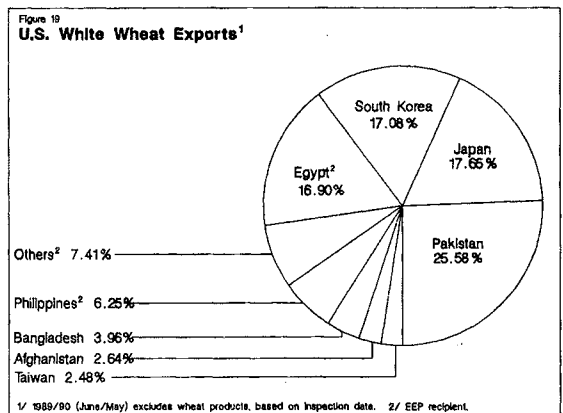
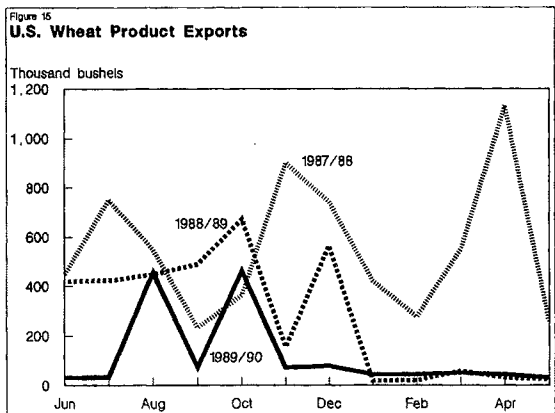
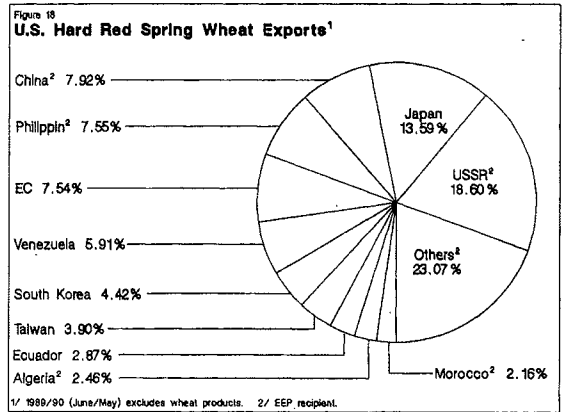
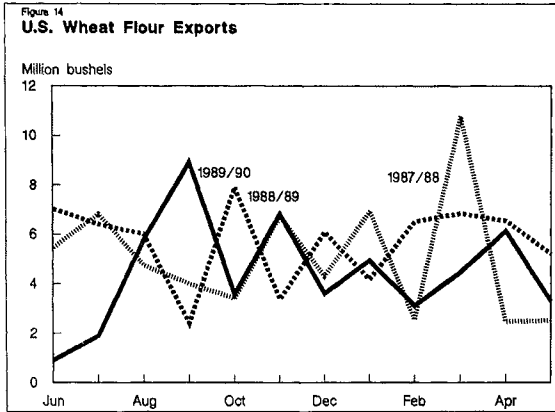
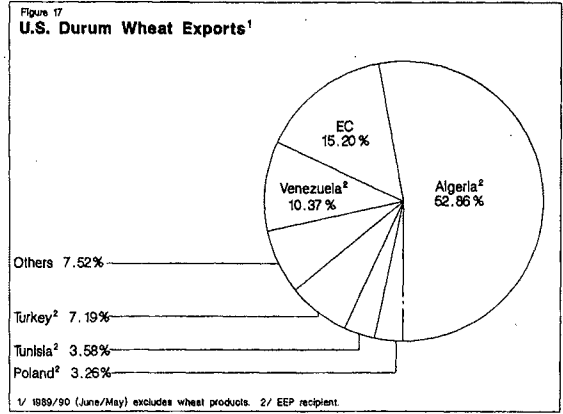
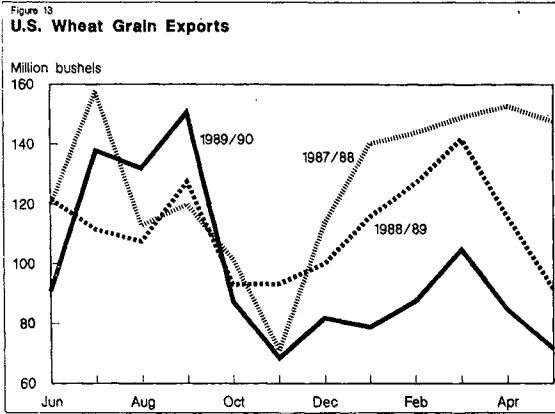
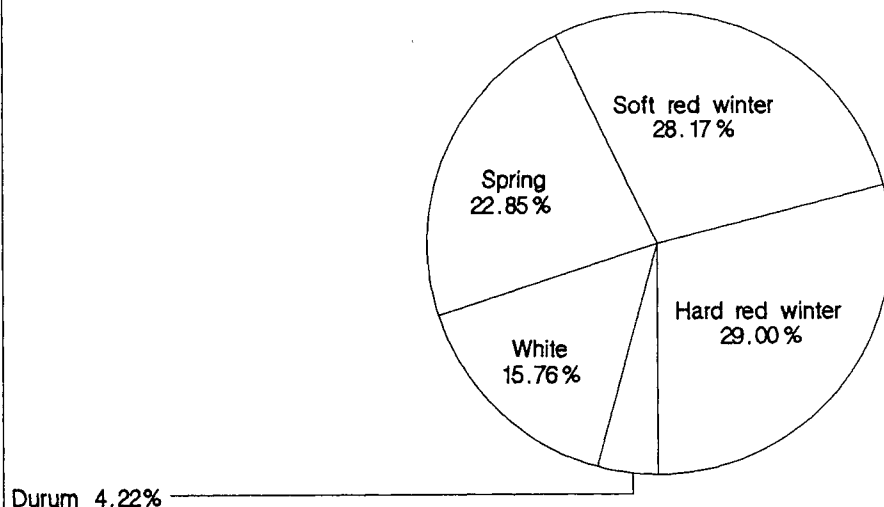
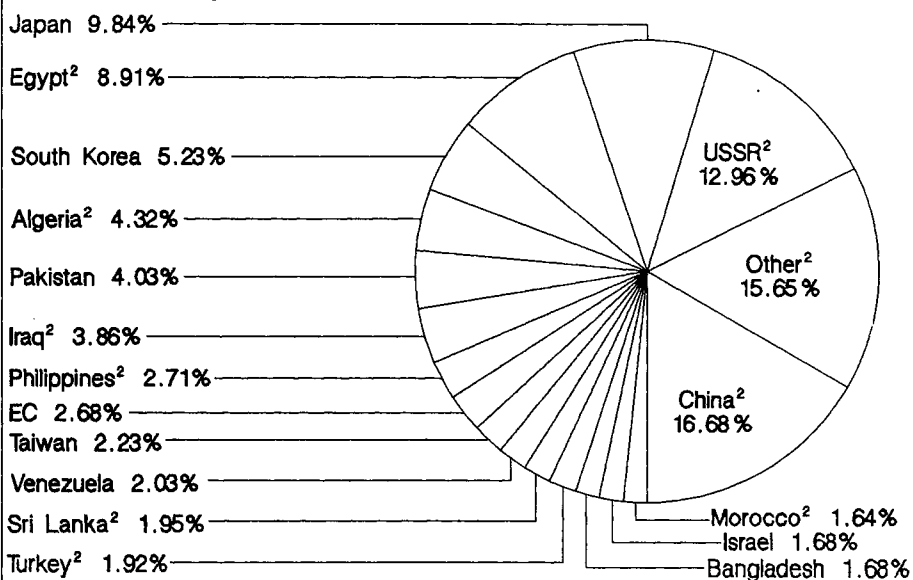


Figure 21
U.S. Wheat Exports by Class, 1989/90¹



1/ Excludes products, based on inspection data.

Figure 22
U.S. Wheat Exports¹



1/ 1989/90 (June/May) Excludes products, based on inspections data. 2/ EEP recipient.

U.S. Wheat Supply in 1989/90 Lowest Since 1975/76

A second year of weather-frustrated production combined with sharply reduced beginning stocks left U.S. wheat supplies at 2.76 billion bushels, down more than 10 percent from 1988/89. Reduced exports limited additional stocks declines during the year.

The U.S. wheat supply in 1989/90 was the lowest in over a decade, despite an increase in production, because carryin stocks were down about 45 percent in 1988/89. In addition, a large portion of the carryin stocks were tied up in CCC inventory or in the FOR. Prices well above the loan rate made 9-month loans unattractive. Uncommitted stocks were down almost 40 percent from a year earlier.

Production was reduced by a second year of adverse weather in 1989/90. Drought and freeze damage sharply reduced HRW. Spring wheat yields suffered from chronic lack of sub-soil moisture exacerbated by some hot summer temperatures. Although spring wheat yields recovered from the previous year's disaster, they remained well below trend. The all-wheat yield declined for the second straight year to 32.8 bushels per acre. Only the sharp increase in area allowed increased production.

Imports remained small. Wheat grain imports declined, but the grain equivalent of selected wheat products increased.

Domestic Use Almost Unchanged in 1989/90

Food use is estimated up over 2 percent in 1989/90, reversing the 1988/89 decline that showed up after the Census Department revised wheat mill grind. According to the preliminary data, the quarterly pattern of food use was unusually flat in 1989/90, without the usual boom in August through November, and bust from February through June. However, over the last several years, food use is growing at slightly more than the rate of population growth.

Seed use was little changed, as area planted for harvest in 1990 was up only slightly. Feed and residual use was also almost unchanged in 1989/90. However the quarterly pattern of feed and residual was most unusual. The large positive feed and residual in the first quarter was not too unusual, as that is when wheat feeding is most likely to occur, and when wheat is harvested. The large, negative feed and residual use figures in the second quarter were not unusual, based on recent historical patterns. Small residuals

(either positive or negative) are the norm for the third and fourth quarters of the marketing year. However, in the fourth quarter of 1989/90, residual use was a negative 72 million bushels.

Stocks Decline in 1989/90, Despite Lower Exports

Reduced exports dampened total use of wheat in 1989/90, but use was 2.2 billion bushels—above 1985/86 and 1986/87 levels, despite tight supplies. Also, with use greater than production, ending stocks were drawn down almost 25 percent to 535 million bushels. However, the entire decline in stocks was covered by reduced FOR and CCC inventory. By June 1, 1990, uncommitted stocks and wheat in the 9-month loan program had moved above year earlier levels, helping to set the stage for declining prices at the end of the marketing year.

Table--3 Wheat supply, disappearance, and stocks, June-May

Item	1987/88	1988/89	1989/90
----- Million bushels -----			
Stocks, June 1	1,821	1,261	702
CCC inventory	830	283	190
Farmer-Owned Reserve 1/	632	467	287
Outstanding CCC loans	236	178	19
Uncommitted	123	333	206
Production	2,108	1,812	2,036
Imports	3	9	6
Total supply	3,931	3,082	2,743
Use, June-Aug.			
Food	181	183	183
Seed	1	1	2
Feed & residual	364	282	271
Exports	409	362	370
Total use	955	828	826
Stocks, Sept. 1	2,976	2,254	1,917
CCC inventory	799	250	168
Farmer-Owned Reserve 1/	598	391	211
Outstanding CCC loans	245	108	48
Uncommitted	1,334	1,505	1,490
Imports	5	6	5
Total supply	2,981	2,260	1,923
Use, Sept.-Nov.			
Food	193	197	183
Seed	58	67	69
Feed & residual	-79	-49	-82
Exports	309	329	329
Total use	480	544	499
Stocks, Dec. 1	2,501	1,716	1,424
CCC inventory	755	213	155
Farmer-Owned Reserve 1/	553	383	174
Outstanding CCC loans	383	93	80
Uncommitted	809	1,027	1,015
Imports	4	4	5
Total supply	2,504	1,720	1,428
Use, Dec.-Feb.			
Food	172	169	181
Seed	3	3	3
Feed & residual	-7	-41	42
Exports	413	361	260
Total use	581	492	485
Stocks, March 1	1,924	1,228	943
CCC inventory	450	203	137
Farmer-Owned Reserve 1/	518	378	154
Outstanding CCC loans	294	47	65
Uncommitted	662	600	587
Imports	5	4	8
Total supply	1,929	1,232	951
Use, March-May			
Food	175	165	184
Seed	23	32	29
Feed & residual	3	-35	-72
Exports	467	368	275
Total use	668	530	416
Stocks, June 1	1,261	702	535
CCC inventory	283	190	117
Farmer-Owned Reserve 1/	467	287	144
Outstanding CCC loans	178	19	30
Uncommitted	333	206	244

1/Includes Special Producer Loan Program.

Record HRS and Rebounding HRW Production in 1990

Increased production of hard red wheats sets the stage for fierce competition as exports shrink and domestic food use grows slowly. Weak foreign demand has already reduced last year's unusually large white wheat premiums. Durum may reassert itself as the wheat with the strongest premiums if exports are stable.

HRW Production Near Record

HRW wheat production in 1990 is forecast up over 70 percent to 1,227 million bushels, just 2 percent below the 1984 record. Area harvested increased 26 percent, and yields rebounded to 37.1 bushels per acre as overall weather conditions were favorable. Beginning stocks of HRW, estimated at 215 million bushels, were the lowest since 1974/75. However this year's large production is boosting total HRW supplies 40 percent, to over 1.4 billion bushels.

Larger HRW supplies are forecast to expand use, but at a slower pace, resulting in increasing stocks. Food use is forecast up, recouping roughly half of the 1989/90 decline. Large HRS supplies should limit HRW food-use increases. Feed and residual use is forecast up over 140 percent to 260 million bushels, as wheat prices are very competitive with coarse grain prices for feed lots in the Southern Plains. Exports are forecast up almost 30 percent to 465 million bushels, but that is almost 30 percent below 1988/89 exports. Despite higher feed and residual use, total HRW use is forecast to fall short of 1988/89.

Record HRS Production, Use Forecast Down

Increased area harvested and a return to average yields are forecast to push HRS production to a record 512 million bushels. Although dry subsoil moisture plagued much of

the HRS growing region, timely rains and moderate temperatures are resulting in a larger crop. Beginning stocks of 153 million bushels were the lowest since 1976/77, and imports are forecast unchanged at 7 million bushels. HRS total supply in 1990/91 is forecast at 672 million bushels, up only slightly from last year.

Total use of HRS, on the other hand, is forecast down 14 percent, as competition from HRW increases. Domestic food use is forecast to decline only slightly, assuming competitive prices for HRS after the record harvest. The decline in food use may be more than offset by an increase in feed and residual use, increasing domestic use modestly. Exports of HRS are forecast down 30-35 percent as slack foreign demand and increased Canadian and HRW competition rule out a repeat of last year's record HRS exports. Ending stocks of HRS are forecast up over 50 percent to 236 million bushels.

SRW Production, Use Forecast Down Slightly

SRW wheat production suffered from excessive rains and flooding in Arkansas, eastern Texas, and Missouri. A late freeze, disease, and pests reduced crop potential in Illinois and Indiana. Production is forecast down slightly to 540 million bushels, despite an increase in planted area. Reports of low test weights indicate the quality of the SRW crop may have suffered as

well. More of the crop is forecast to move into feed and residual use, and less into exports. Ending stocks are forecast up slightly, despite the tendency of SRW farmers to market their crop rapidly and clear out storage space for other crops.

Record White Wheat Production, Use Unchanged

White wheat production is forecast at 318 million bushels, up 27 percent, as less winterkill pushed up area harvested and as yields reached a record—estimated at 63.9 bushels per acre. Beginning stocks are estimated to be up slightly, as white-wheat price premiums and sluggish export demand combined to drop 1989/90 total use by almost 15 percent.

Total supply in 1990/91 is forecast to be over 400 million bushels, up over 20 percent. Exports and domestic food use are forecast little changed from last year. This would mean that the entire year-to-year production increase is likely to end up as carryout stocks. The unique demand for white wheat is limited, and when white wheat begins to compete for customers who normally use red wheat, the price premiums for white must be small. As a result, white wheat prices have declined year-over-year, more than any other class. The large, 1989 price premiums evaporated, compounding the overall decline in wheat prices. Ending stocks are forecast a 149 million bushels, up 75 percent.

Durum Supply and Use Forecast Largely Unchanged

Durum wheat production is forecast at 108 million bushels, up 17 percent, and, for the first time since 1985, production has topped 100 million. The increased production is largely offset by lower beginning stocks, leaving total supply up only slightly. Strong foreign demand and increased competition from Canada are forecast to offset each other, leaving exports unchanged. Domestic use is forecast up slightly, leaving ending stocks almost unchanged.

Although the supply and demand balance is very similar to last year, durum wheat prices relative to other wheat classes, are likely to behave differently in 1990/91. In 1989/90, durum wheat was in more abundant supply, compared to its demand, than any other wheat class. In 1990/91, the other wheat classes have increased supply and/or have seen demand slump. While durum sold at a discount to other wheat classes for much of 1989/90, during 1990/91 durum can be expected to command a premium price, offsetting some of the decline in the overall wheat price.

Figure 23
HRW Production, Exports and Stocks

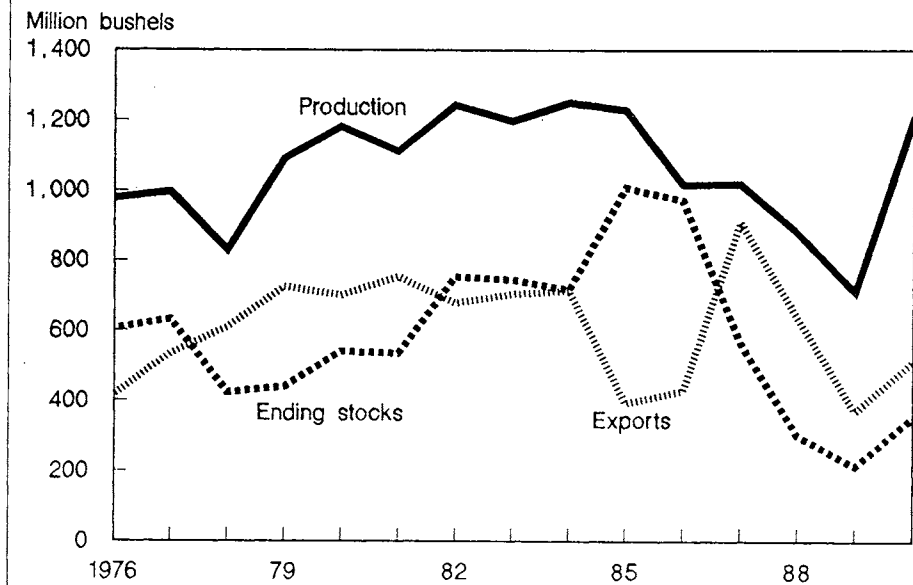
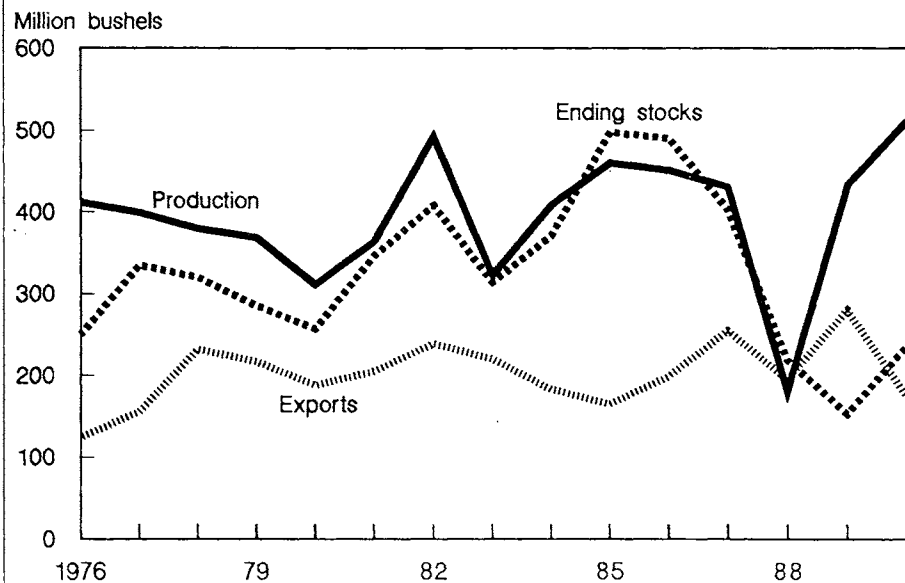
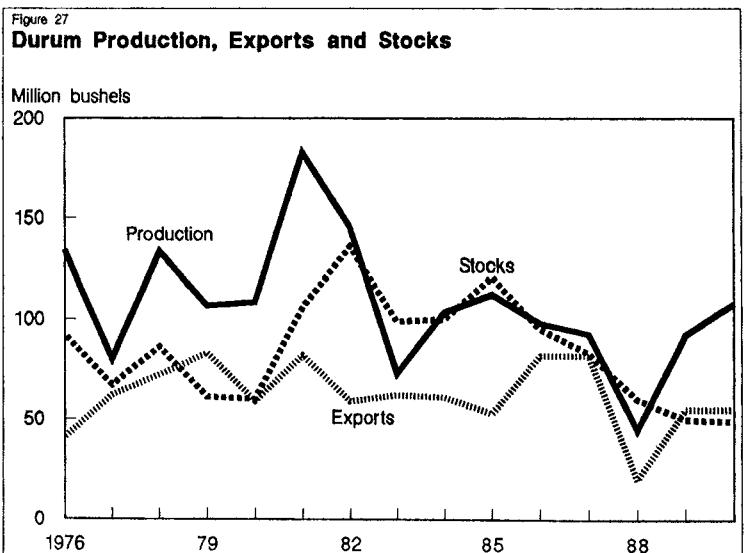
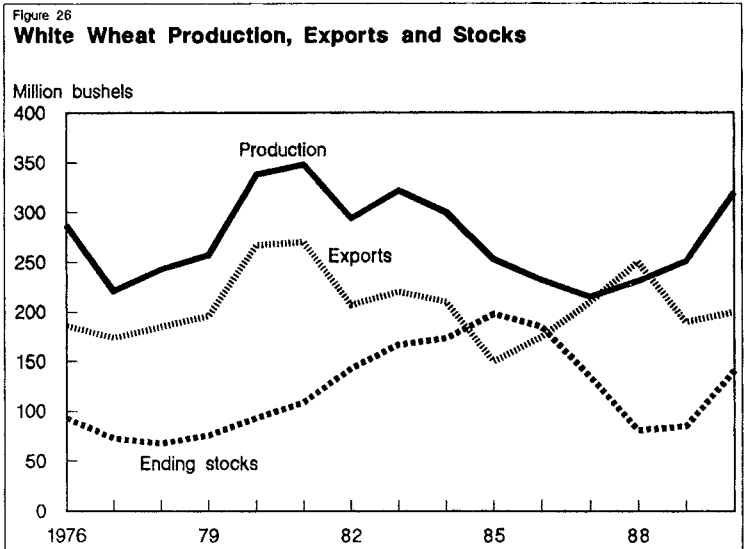
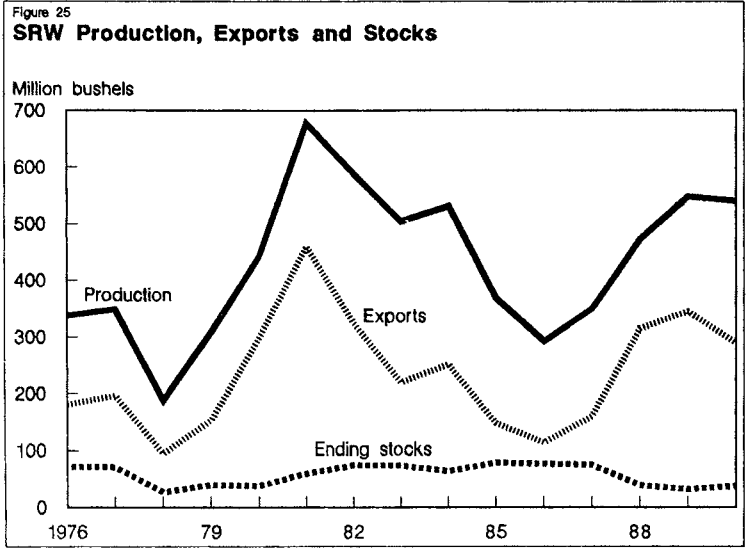


Figure 24
HRS Production, Exports and Stocks





World Wheat Trade: Prospects and Issues for the Nineties

Sara Schwartz and Frederic Surlis

Abstract. Wheat production and consumption will grow at a slower rate in the 1990's than in the 1970's and 1980's. However, with prospects of improved macroeconomic conditions, trade will expand at a faster rate than in the 1980's. Developing countries will generate most of the import growth. Factors which could substantially alter trade growth include the outcome of the GATT negotiations, developments in the Soviet Union, China, and Eastern Europe, world macroeconomic conditions, credit availability to major importers, and changes in production technology. The U.S. share of the increase in world trade will depend heavily on developments in the European Community.

Key Words: Wheat, production, trade, agricultural policies, economic growth

World market conditions and the growth of U.S. exports during the 1990's will depend upon the growth in world import demand. A repeat of the trend of the 1980's would bring stagnant world trade, the possibility of declining U.S. exports, and falling prices. On the other hand, a return to the conditions of the 1970's would bring dramatic growth in world trade and U.S. exports and stronger prices (table 1).

This article discusses prospects for world wheat trade in the 1990's. Foreign production growth is expected to slow and world trade expand during the 1990's. But trade gains will tend to be modest, substantially below those of the 1970's.

Also, the article identifies the major areas of uncertainty and the elements with the greatest potential to significantly alter the world trade outlook. The growth of yields and regional developments—particularly those in China, the Soviet Union, and Eastern Europe—lead the list.

Finally, we examine the developments likely to have the largest impact on the U.S. share in world wheat trade. Not surprisingly, with or without trade liberalization, U.S. export prospects will depend heavily on developments in the European

Community (EC). However, GATT reforms could significantly alter the outcome presented here.

An Overview of Foreign Prospects for the 1990's

Methodology

This analysis draws heavily on the results of a projection exercise undertaken in late 1989 by USDA's Economic Research Service (ERS). The results can best be described as a scenario of potential foreign production, consumption, and trade through 2000. Extensive use was made of country and regional scenarios generated by ERS country specialists using a combination of country models and judgmental analysis.

The key common assumptions used by all analysts included (1) real world-market wheat prices slowly decline over time, roughly following the long-term trend, (2) the world economy expands more rapidly during the 1990's than it did in the 1980's, (3) there is some gradual debt relief for developing countries, (4) oil prices grow slowly in real terms, and (5) the current U.S. agricultural policy and international trade environment continues through the 1990's. This scenario does not assume trade liberalization.

Supply Growth

This analysis indicates that during the 1990's, foreign wheat production will increase more slowly than it has in previous decades (table 1). While virtually all production gains will come from higher yields, these gains will be slower than in the 1970's and 1980's. Because no major new technology that would dramatically boost yield potential in the next decade is on the horizon, yield gains must be based on wider adoption of current technology.

Area expansion is likely to be negligible. The Soviet Union will likely continue its downward trend in area, focusing on improving yields rather than expanding area. Some marginal expansion is still expected in developing countries. China's area may expand somewhat as demand for wheat products strengthens. Some countries, such as India and Pakistan, are still expanding their irrigation facilities: However, even in those countries area growth will be much slower than in previous decades.

This analysis shows foreign yields expanding 1.7 percent annually in the 1990's, about half the rate of the 1980's. The slowdown in yield growth is expected to be widespread. No major technological

breakthroughs boosting yield potential are imminent, the gains from the Green Revolution are slowing, and, in many countries, wheat prices are not high enough to provide farmers with the incentive to use enough inputs to obtain maximum yields using current technology. Yield growth will be strongest in developing countries such as India and Pakistan, where irrigation systems are continuing to expand. China's yields are also expected to continue to rise as price incentives encourage greater wheat production and increased fertilizer use.

Consumption Growth

In this analysis, foreign wheat consumption grows at a slower rate than in earlier years despite faster economic growth than in the 1980's and despite some gradual improvement in the foreign debt, and trade constraints that face many of the developing economies. While population growth will slow slightly, foreign population will increase more than 900 million during the decade, reaching 6 billion by 2000. However, during the 1990's the consumption growth rate will exceed that of population, because per capita consumption will continue to expand in most countries and regions for which forecasts were prepared.

In the Soviet Union, consumption will decline as the population diversifies its diet away from grains. Soviet wheat use for food on a per capita basis is now one of the highest in the world. Use of wheat for feeding will remain an important component of wheat use in several countries, including the Soviet Union, the EC, Eastern Europe, and Korea. But total use will grow more slowly than in the 1980's.

Wheat Imports

The ERS scenario indicates that world wheat trade will grow about a

fifth between 1990 and 2000. The 2-percent compound annual growth rate of world trade during the decade is projected well above that of the 1980's, but is less than half that of the 1970's.

The developing countries will provide nearly all the gains in world wheat imports (graph). Developed countries will generally maintain the same import levels, as per capita consumption of grains continues to decline in favor of more diversified diets. The centrally planned economies will continue to be a major source of year-to-year variability in world trade, but imports for the group are not expected to increase over the next decade.

China's imports will rise as population and income growth continue to boost demand. Larger area and higher yields will not be able to keep pace with demand, particularly demand growth in politically sensitive urban areas. Imports are projected to rise to 20 million tons by 2000, an increase of about two-thirds from 1990.

According to the ERS analysis, Soviet imports will fall. Political and economic reforms are expected to bring greater market efficiencies to the Soviet system by the end of the decade. An improved market system would lead to increased incentives to farmers to sell a greater proportion of their wheat into the domestic market, thereby increasing wheat available to flour mills throughout the country and reducing the need for larger wheat imports.

Import growth in developing countries will be driven primarily by population growth. The developing-country share of world trade is projected to rise from 56 percent in 1990 to over 60 percent by 2000. All regions (Latin America, North Africa, the Middle East, Asia, and sub-Saharan Africa) are expected to expand imports. Given the financial

constraints that will continue to face many developing countries, U.S. and other exporter credit and assistance programs will continue to be needed to achieve the projected imports.

Africa and the Middle East show strong wheat import growth, expanding more than a third by 2000. Middle Eastern imports will be fueled by strong population increases. Some Middle Eastern importers will use oil revenues to finance imports. For others, access to credit will remain important.

North Africa will also remain an important growth market, although financial constraints could keep imports from growing as rapidly as its population. Imports are projected to expand by a third as the harsh North African environment prohibits significant production increases. Currently, North Africa's production only supplies a third of its consumption. This gap will widen in the 1990's, compelling these countries to import more wheat.

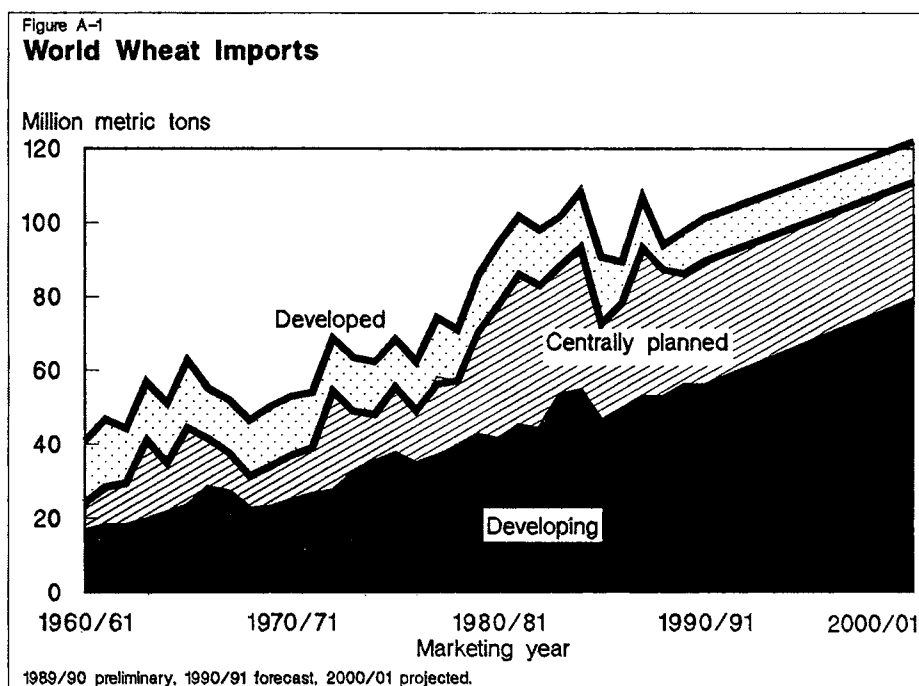
This scenario projects that sub-Saharan Africa's imports will increase about 70 percent by 2000. As in North Africa, population growth will fuel the increase. Wheat does not grow in many parts of the region, but bread has become increasingly popular in the politically important urban areas. Wheat demand is likely to grow as urbanization continues, but like North Africa, foreign exchange constraints will likely prevent many countries in sub-Saharan Africa from meeting that demand with imported wheat. In addition to credit, continued food aid will likely be necessary to increase or even maintain per capita consumption at current levels.

Latin American imports are projected to expand by over 50 percent, with the largest increases in Brazil and Mexico. In Mexico, strong pop-

Table 1--Foreign growth rates: Wheat 1/

Variable	1960's	1970's	1980's	1990's 2/
Percent per year				
Area	1.1	0.9	-0.5	-0.1
Yield	3.3	2.2	3.2	1.7
Production	4.4	3.1	2.6	1.6
Consumption, total	3.8	2.9	2.3	1.8
Feed use	10.7	2.3	2.3	1.4
Nonfeed consumption per capita	0.6	1.3	0.6	0.2
World imports 3/	1.5	4.1	-0.2	1.8
Population	2.1	1.9	1.8	1.7

1/ Percentage growth rates are compound annual growth rates based on semi-logarithmic trend functions. 2/ Projected. 3/ Excludes intra-EC trade.



ulation growth will continue to boost demand. Wheat production may slow as yields largely depend on irrigation, and irrigation facilities are deteriorating and are unlikely to be improved over the next decade. Annual imports are expected to rise to over 1 million tons by the end of the 1990's. Brazil has begun to liberalize its market and it is expected that the production growth rate will slow as Government support declines. Consumption growth is not expected to slow as much as production because rapid population increases will create strong demand for imported wheat.

In the ERS analysis, East Asian imports expand by a quarter. East Asians are now diversifying their diets, and wheat use per person will grow slowly. Larger feed wheat consumption in South Korea will also boost wheat imports. South and Southeast Asian countries are projected to expand imports by over 40 percent, although India is expected to remain self-sufficient. Strong economic growth in Southeast Asia is likely to lead to increased consumption of wheat-based products.

Issues and Uncertainties

The list of potential developments that will affect wheat trade in the 1990's is long, but prospects for yield growth and developments in the centrally planned economies are close to the top. In addition, credits for developing-economy purchases will likely prove to be crucial. Developments in the EC will have a major impact on competitor supplies, U.S. exports, and world market prices.

How Fast Will Yields Grow?

As we enter the new decade, questions continue to arise about the ability of the world to produce enough wheat to feed the growing population, particularly in developing countries. Because area is not expected to expand, yields must rise

more rapidly than population to meet the growth of demand with domestic supplies of grain. If yields in developing countries cannot keep up, these countries would become increasingly dependent on grain imports. The alternative would be to let per capita consumption drop. But how much yield growth can we expect from existing technologies? Are new technological breakthroughs likely? The evidence to date is mixed, but a number of analysts (1) argue that yield growth will slow. How much it will slow remains uncertain.

The "Green Revolution" is the term used for the spread of semi-dwarf, high-yielding varieties that are usually grown under irrigated conditions using fertilizers and agrichemicals. The green revolution has been particularly successful in Asia, where the use of irrigation spread at an annual average rate of more than 2 percent in the 1960's and 1970's and the use of chemical fertilizers rose sharply. During the same time period the semi-dwarf varieties also spread into rainfed regimes such as Argentina, Brazil, and Turkey. However, input use in these dryland areas was much lower than in irrigated areas and, while yields increased, they did so at a slower pace (1).

The recent slowdown in the rate of yield increases in several developing countries and reduced investment in irrigation in the 1980's could be interpreted as the end of the green revolution. However, there is still potential to increase yields using the current technology. But, without the development and adoption of new technologies, the rate of increase will slow from that of the last 30 years.

Higher yields will now be harder to achieve because they will have to come mainly from improved, site-specific managerial and agronomic practices. New methods will have to

be transferred to developing-country farmers, requiring continuing emphasis on extension services. In many developing countries, limited financial resources and lack of trained personnel in rural areas hampers extension work. The task is more difficult in areas where farmers have had only a rudimentary education.

However, improved agronomics is not the only way to achieve increased yields. Economic policies and prices have a great influence. According to the International Center for Research on Maize and Wheat (CIMMYT), 75 percent of the yield increases achieved in developing countries between 1961 and 1985 can be attributed to increased fertilizer use (1). But how much fertilizer is used is closely linked with farmers' expectations of net returns, which in turn are influenced by subsidies, exchange rates, and tax policies (2). So, policy changes in these and other areas (such as environmental protection) can encourage or discourage fertilizer use and, thus, yield growth.

For example, India subsidizes fertilizer and supports wheat prices to encourage production. The EC supports wheat prices at a high enough price to make it profitable to use large amounts of inputs on wheat for feed. Alternatively, Argentina taxes wheat exports, reducing incentives to use inputs on wheat, particularly under dryland conditions.

Some developing countries are beginning to institute policies which could lead to increased yields by raising prices of agricultural commodities. If countries reduce consumer subsidies and cut taxes on agricultural products, farm prices would rise and farmers would have the incentive to use more inputs and increase yields. However, policies which reduce commodity price supports and subsidies on agricultural inputs would, at least in the short

run, lead to a contraction in production.

Biotechnological developments are likely to play a role in future yield growth, but their impact over the next 10 years will probably be small. Many biological changes which would enhance yields, such as altering plant height, ability to photosynthesize, and the timing of the reproductive cycle, among others, would involve the manipulation of many genes, few of which have been isolated. Current biotechnology research is focusing on disease and pest resistance which involves the isolation and changing of individual genes. However, since much of the biotechnological research is taking place in developed countries and is site specific, advances may not prove immediately helpful to farmers in developing countries (2).

CIMMYT has made comparable production projections comparable to this analysis (1). In the CIMMYT "realistic scenario," yields in developing countries (including China) increase at an average annual rate of 1.5 percent, with an additional 0.5 percent growth in area. This generates a 2 percent annual growth in production. CIMMYT projects annual production growth would reach 3 percent if improved cropping practices are adopted.

The Centrally Planned Economies (CPE's)

The CPE's have been the source of much of the variability in world wheat trade over the last 20 years, and the changes now underway seem likely to ensure that these countries' trade will remain a major source of uncertainty in the 1990's.

China. Imports are projected to grow by two-thirds during the 1990's. However, political instability and uncertain macroeconomic and trade prospects leave the amount of the increase in import demand in

question. On the supply side, yield growth has slowed dramatically over the past 6 years. The ERS analysis assumes some recovery in yield growth, with an average increase over the decade of 2.5 percent per year (3). If yield growth averaged only 2 percent with no change in the consumption projection, the gap to be filled by imports in 2000 would expand from 20 million tons to over 26 million. But the Government could let prices rise or ration grain to limit consumption and restrain imports.

The Soviet Union. Imports averaged 19 million tons annually during the 1980's. However, they are expected to trend downward during the 1990's, possibly dropping below 10 million tons by the end of the decade. There are several reasons for the expected decline (4). Opposition to imports of foreign wheat has intensified within the country. Also, substantial quantities of milling quality wheat are used for on-farm feeding because of price distortions. Large quantities of grain are also lost because of inefficient harvesting, handling, and storage (4).

Reform measures adopted so far by the Soviets have had little impact on State procurements of milling quality wheat, but rationalization of Soviet prices and incentives would offer the potential for significant gains—even without dramatic gains in production. Consumer price increases that would accompany the introduction of market forces could further limit wheat demand. A move toward currency convertibility would tend to make imports more expensive. At this point, how quickly these changes may occur and what their impact on wheat trade remains uncertain.

Feed wheat is another aspect of the Soviet trade picture. The Soviets are likely to continue to import substantial amounts of grain for feeding. Given their feed demand, how much

wheat they purchase for feeding will depend on price and availability in the international market. This, in turn, will depend heavily on developments in the EC. Large, exportable supplies of wheat from the EC will limit the drop in total Soviet imports.

Eastern Europe. In most recent years, Eastern Europe has been a small net importer of wheat. (This analysis treats East Germany as part of Eastern Europe). Market reforms should eventually lead to higher agricultural productivity there. Consumption levels are already high, and demand is unlikely to grow rapidly as the economies of the region begin to expand later in the decade. So the region could become a net exporter as the decade progresses.

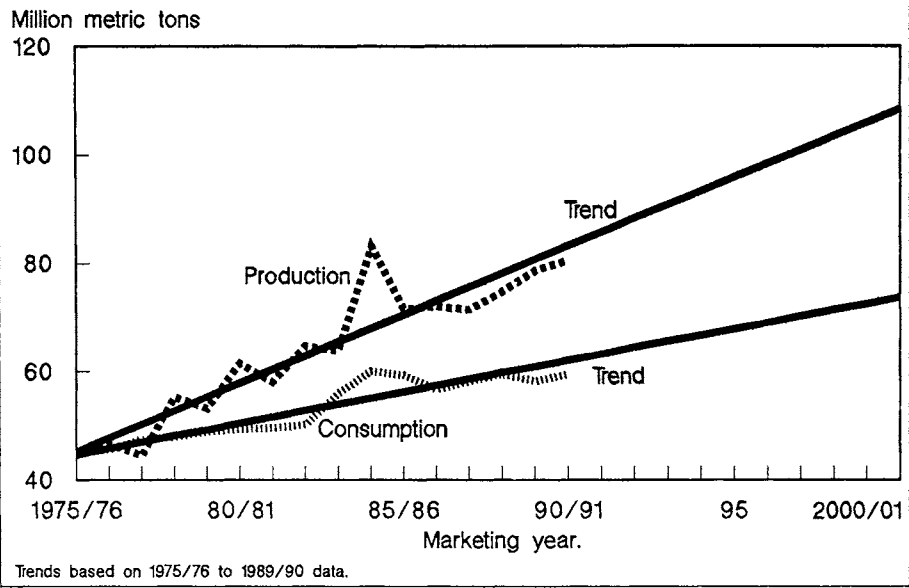
One recent study (5) suggested that with reforms, the region's net exports of all grains by 2000 would reach 5.3 million tons, compared to a no-reform, trend-based projection of 1.8 million tons. But the impact on wheat exports could be greater than this figure indicates because both wheat exports and coarse grain imports could increase.

The Availability of Credit

With virtually all of the gains in world wheat trade over the next decade expected to come from the developing economies, the issue of financing their grain purchases will prove critical. Continuing strong population growth means that the African, Middle Eastern, and South and Southeast Asian markets will lead demand growth. These regions are already heavy recipients of food aid, credit, and other subsidies from the EC and the United States.

Developing-country economic growth is likely to pick up, and the heavy debt loads now faced by many of the countries may ease somewhat. Many developing countries regard

Figure A-2
EC-12 Production and Consumption Actual and Trend



maintaining food supplies for urban residents as essential to political stability, so food imports will make a priority claim on foreign exchange. But even under these circumstances, credit and food aid programs will still play an important role in determining how much many countries can import. The growth of world trade in the 1990's will therefore depend in part on the availability of financial support from exporters and other countries.

The European Community

The EC has had an enormous impact on world wheat trade and U.S. exports over the past 30 years and will play a critical role in the 1990's as well. In 1960, the Community was a net importer of about 10 million tons of wheat, but in 1990/91 it is forecast to be a net exporter of nearly 19 million tons. In 1990/91, the EC is expected to supply about 21 percent of world wheat trade. A continuation of the production and consumption trends of the last 15 years would produce a 34-million-ton surplus by 2000. The surplus could be even larger, because consumption in the 1990's is unlikely to grow at trend rates. A 34-million-ton surplus would account for nearly 30 percent of expected world trade in 2000. EC efforts to export this volume of wheat would mean substantially lower world market prices and would sharply limit growth of U.S. exports.

An alternative scenario would produce less EC pressure on world wheat market prices and on other exporters, partly by shifting pressure to the coarse grain market. A small drop in area, yield growth of about two-thirds of the trend rate, and modest gains in wheat feeding within the Community would produce a production-consumption gap of about 25 million tons. Small acreage reductions could come from the set-aside program now in place and in response to a continued

decline in real prices within the Community. Slower yield growth could result from the impact of environmental pressures and the effects of declining real prices on input use. But, overall feed use of grain is not expected to grow substantially, so this scenario means that wheat would displace coarse grains within the Community (assuming no change in policies regarding non-grain feeds), which adds to surpluses and exports of coarse grains.

Relatively small shifts in production or consumption and changes in export subsidies or stock policies can have a large impact on EC exports, world market prices, and exports by the United States and other countries.

This analysis has not considered the effects of a GATT agreement that would result in a progressive reduction of trade-distorting subsidies in the developed economies. Such an agreement would result in some growth in import demand but, more importantly, reduced exports from subsidized traders. Cutbacks in EC wheat exports would likely be the largest single impact on the world wheat market, as export and other subsidies in the EC are reduced.

Summary/Conclusions

This analysis shows that world wheat trade is likely to grow modestly over the next decade, with most of the growth occurring in the developing economies. A slowdown in yield gains will curtail production growth and contribute to the trade gains expected in the 1990's. Developments in the centrally planned economies will also play a critical role in trade growth. Given the growth of world import demand, U.S. export prospects and the U.S. market share will depend heavily on policies and developments in the EC.

References

1. CIMMYT. 1987-88 *CIMMYT World Wheat Facts and Trends. The Wheat Revolution Revisited: Recent Trends and Future Challenges*. Mexico, DF: CIMMYT, 1989.
2. Herdt, Robert W. "Increasing Crop Yields in Developing Countries," Paper presented at the 1988 meeting of the American Agricultural Economics Association. Knoxville, TN.
3. Crook, Frederick W. "Long Term Prospects for China's Wheat Imports," *Wheat: Situation and Outlook Report*, WS-287 (November 1989), pp. 31-35.
4. Foster, Christian J. "Outlook for Soviet Wheat Imports in the 1990's," *Wheat: Situation and Outlook Report*, WS-207 (November 1989), pp. 36-39.
5. Cochrane, N. and Robert Koopman. "Eastern Europe: The Transition from Plan to Market," *World Agriculture: Situation and Outlook Report*, WAS-59 (June 1990), pp. 33-37.

U.S.—EC Competition in North Africa Wheat Market Intensifies

John B. Parker

Abstract: The combined U.S.—European Community (EC) share of North Africa's imports of wheat and flour increased in the late 1980's to over 75 percent by 1989/90. Total imports of wheat and wheat flour by the region trended upward in the 1980's to over 14 million metric tons and will rise further in the 1990's because of population growth over 2.7 percent per year. Domestic production has not kept pace with consumption.

Key words: wheat imports, demand, competition, subsidized bread consumption, and market share.

North Africa accounted for a sixth of world imports of wheat and flour in the late 1980's. Two of the world's top ten importers of wheat, flour and semolina, combined, are in North Africa: Egypt and Algeria. Imports of wheat and flour by the five countries of North Africa (Egypt, Morocco, Algeria, Tunisia and Libya) increased rapidly in the early 1980's, and at a more modest pace in the late 1980's. Their imports of wheat and wheat products combined are forecast to increase to 14.9 million tons during 1990/91 (July-June). A major obstacle to larger imports is the shortage of foreign exchange, which aggravated problems with arrears for payments on earlier loans provided by suppliers.

During the last decade, North African wheat imports showed an upward trend and a shift to suppliers offering the most food aid (P.L. 480 and Section 416 and EC donations), and the best mix of export subsidies and credit. Argentina appears to have the lowest wheat production cost and average export price among suppliers. However, since Argentina can not afford to offer credit, it lost out in the North Africa market in the late 1980's—with the exception of Libya, a cash customer. Suppliers with modern banking facilities, efficient port handling and shipping, and a large prosperous economy gained market share while smaller suppliers, unable to match these attractive offers, lost market share.

Competition Focuses on Credit and Export Subsidies

U.S.—EC competition for North Africa's wheat imports has always been keen. From 1980-85, EC credit and export subsidies gave the EC an edge in its trade with the region.

EC export restitution payments fluctuating from \$15 to \$55 per ton of wheat and flour, combined with credit tended to cause a shift to EC wheat or wheat flour, before the U.S. expanded sales with the Export Enhancement Program (EEP) and Commodity Credit Corporation (CCC) credit arrangements (GSM 102 and GSM 103) during 1986-89.

GSM credit involves CCC guarantees for loans by commercial banks to foreign buyers of U.S. wheat. EEP programs for Algeria, Tunisia, Egypt and Morocco, combined in many cases with GSM 102 credit guarantees, have resulted in significant U.S. exports to the region since fiscal year 1986.

Consumption of Wheat Products in North Africa

Total North African wheat and flour imports are expected to rise to nearly 15 million tons in 1990/91. Four suppliers generally provide over 95 percent of North Africa's wheat and flour imports. Canada's share probably will increase in 1990 because of ample supplies of durum and the rising demand for durum wheat imports by Algeria and Tunisia.

Also, Egypt's unusual financing of wheat from funds provided by wealthy Arab countries gave Canada a chance to sell more to Government Authority for the Supply of Commodities (GASC).

All countries in the region import a significant portion of their wheat supply and rely on the Government for imports. All also strive to increase domestic production. North Africa's wheat consumption increased nearly 3 percent annually during the 1980's, to an average of 22 million tons during 1987/88–1989/90, with 65 percent coming from imports.

Egypt has remained the leading importer of wheat and flour in the region, with imports rising from 6.0 million tons annually during 1985/86 to over 7 million tons during 1987/88–89/90. Improved cultivation practices and some increase in area in desert projects resulted in a doubling of the wheat crop between 1986 and 1990 to a record 4.0 million tons.

However, Egypt's imports continued to rise in spite of substantial production gains, because unusually high Egyptian corn and animal feed prices accelerated feed use of domestic wheat. Egyptian farmers obtained much higher prices for wheat in the open market than from government procurement through 1989/90, when only 180,000 tons were purchased by GASC (Government Authority for the Supply of

Figure B-1
North Africa's Wheat and Flour Imports

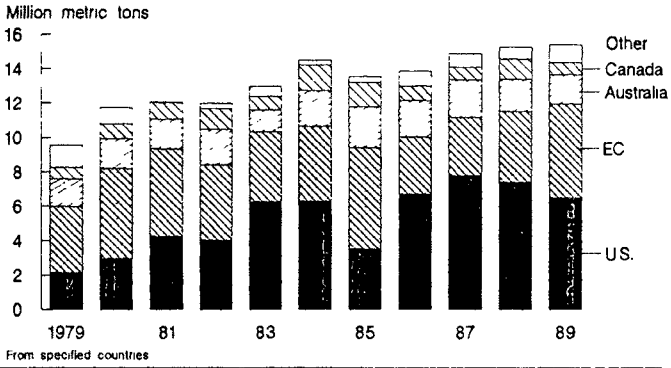


Figure B-4
Algeria: Wheat and Flour Imports

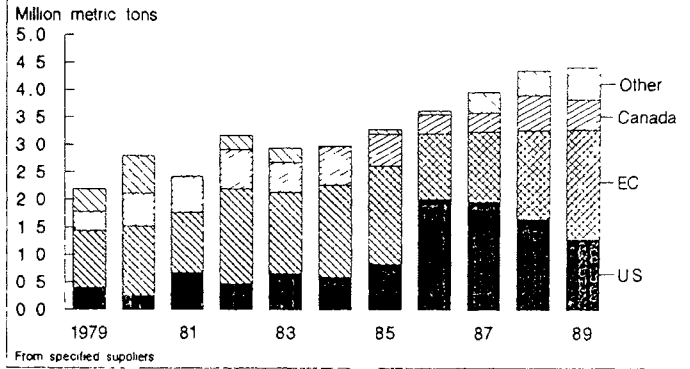


Figure B-2
U.S. Wheat and Flour Exports to North Africa

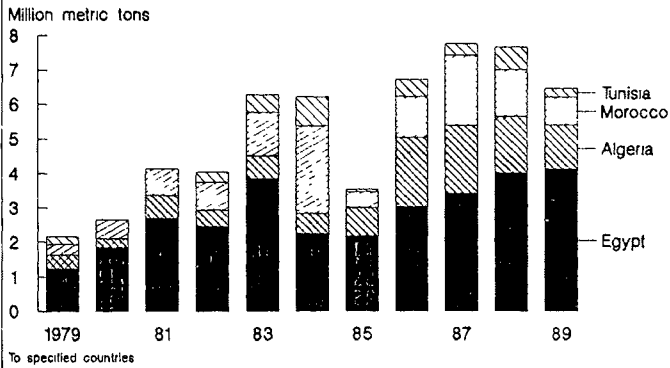


Figure B-5
Comparison of Egyptian Wheat Prices

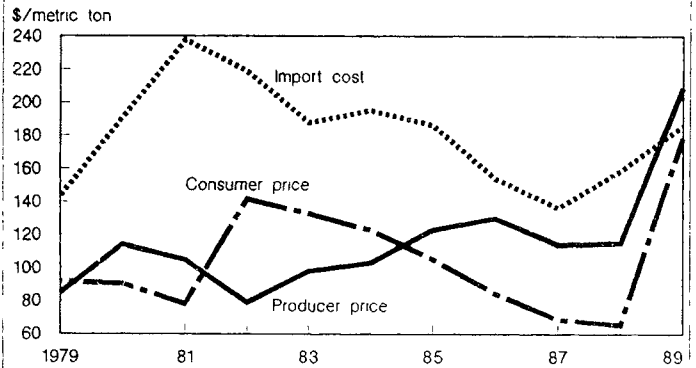


Figure B-3
EC Wheat Exports to North Africa

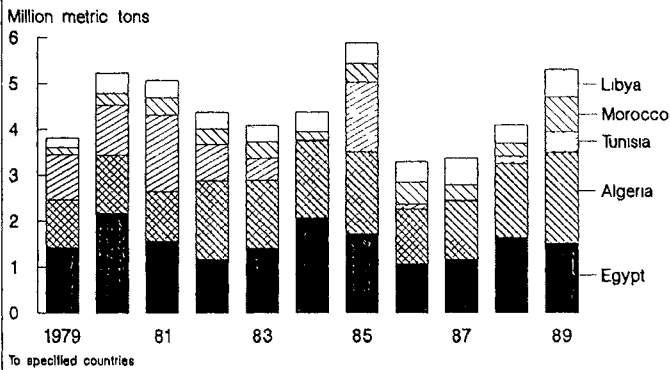
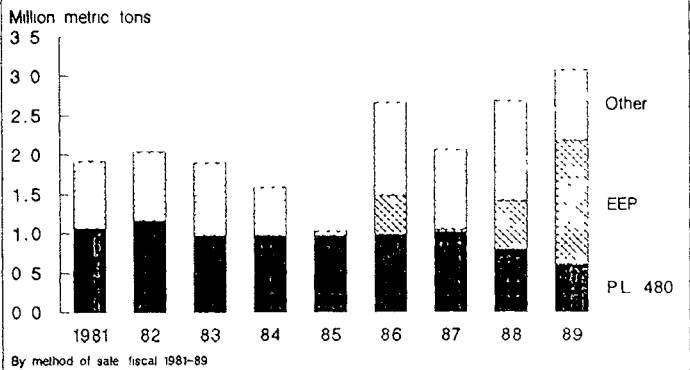


Figure B-6
U.S. Wheat Exports to Egypt



Commodities). Government procurement are expected to be up sharply in 1990/91 because of a larger crop and high prices.

Algeria's imports of wheat and flour increased at an even faster pace in the late 1980's because of a combination of population growth exceeding 3 percent, wider income distribution, and production shortfalls of extreme proportions. Algeria's imports of wheat and flour increased steadily from 2.8 million tons in 1984/85 to a record 4.3 million tons in 1989/90.

Morocco was usually the third major importer of wheat in the region in the 1980's, but sharp gains in production in 1988 and a good harvest in 1989 caused imports to decline to 1.0 million tons in 1988/89, down from the 1983/84 peak of 2.45 million tons, when drought temporarily bolstered import needs. Greater use of irrigation and modern cultivation practices combined with higher producer prices appear to have helped Morocco reduce wheat import dependency.

Tunisia's 1990/91 wheat imports are expected to rise 9 percent to 1.2 million tons, with larger imports of durum from the United States and Canada. Tunisian production remains very low—516,000 tons—because of drought.

Libya imports most of its wheat and flour needs from the EC and Canada. Imports account for approximately 85 percent of domestic requirements. The EC provided about three-fourths of Libya's 1989/90 wheat and flour imports of 750,000 tons, and Canada and Argentina the remainder.

Policies Designed To Maintain Low Bread Prices

There are a number of common policy objectives among North African countries. First, efforts are made to

provide wheat products to consumers at low prices, usually through a planned subsidy system. Although prices increased in the last 2 years, they remained below import cost. Second, imports are arranged from sources providing attractive prices, quality, and prompt delivery, thereby enhancing import flexibility. And, third is increasing domestic output in order to reduce import dependency.

Egypt was one of the first countries to eliminate hunger through a policy of providing subsidized bread through a public distribution system. Concern about rising expense for the bread subsidy caused Egypt to double bread prices in 1989, but the price of 5 piasters (2 U.S. cents) per loaf (6 loaves per kilogram) is among the lowest in the world. The 50 percent rise for wheat flour prices in 1989 and the bread price hike appeared to have virtually no adverse impact on consumption. The lack of adverse reaction to the 1989 hike in prices caused Egypt to double wheat flour prices to 40 piasters per kilogram (15 U.S. cents) in 1990.

Algeria has a large public distribution system for subsidized wheat products. A higher share of Algerian consumption consists of specialty items like couscous, compared to Egypt where basic balady bread is the major item. Algeria imported 87 percent of its wheat supply in 1989/90. Demand is rising rapidly there because recent economic policies, increased remittance income and rebounding export revenues from petroleum and natural gas have bolstered income to over \$2,000 per capita. As wheat production dropped to a low of 614,000 tons in 1988/89, less than half the 1985/86 peak, Algeria expanded the public distribution system for wheat products to cover more rural areas. This raised demand and pushed imports up.

Morocco's policy to provide favorable producer prices and reduce government intervention appears to have worked well in recent years. It has provided favorable producer prices by procuring excess supplies from the market. However, in recent years prices remained firm and Government intervention was reduced dramatically. Favorable weather has also resulted in greater wheat production, especially durum wheat. However, about half the soft wheat consumed is imported.

Tunisia sought to shift from public imports arranged by the Wheat Board in 1989/90 to partial use of private importers. However, there was a sharp setback in production in 1988/89 and lackluster recovery in 1989/90 or 1990/91. With depleted stocks and difficulty in importing durum wheat at low prices, Tunisia decided to postpone the scheduled privatization of wheat imports and marketing. In 1989/90 wheat imports were estimated at 1.1 million tons, 70 percent above 1985/86 imports.

List of Tables

Appendix Tables

Page

1. Wheat: Marketing year supply, disappearance, area, and price, 1983/84-1989/90	40
2. Wheat: Marketing year supply and disappearance, 1960/61-1989/90	41
3. Wheat: Quarterly supply and disappearance, 1982/83-1988/89	42
4. Wheat: Quarterly Government stock activity for wheat, 1987/88-1988/89	43
5. Wheat classes: Estimated acreage, yield, and production, 1978-89	44
6. Wheat classes: Marketing year supply and disappearance, 1982/83-1989/90	45
7. Wheat: Inspections for export by class and country of destination, June-May 1988/89	46
8. U.S. Wheat exports: Grain, flour, and products, by month, 1980/81-1989/90	47
9. Wheat and flour price relationships at milling centers, annual and byperiods, 1982/83-1989/90	48
10. Wheat farm prices for leading classes and major feed grains in U.S. regions, 1983/84-1989/90	49
11. Wheat cash prices for leading classes at major markets, 1983/84-1989/90	50
12. Domestic and foreign wheat prices, 1980-89	51
13. Wheat and wheat flour: World trade, production, stocks and use, 1984/85-1989/90	52
14. Wheat: Area, yield, and production by major States, 1982-1989	53
15. Rye: Supply, disappearance, area, and rice, 1981/82-1989/90	54
16. Rye: Production by major States, 1980-1988	54

Appendix table 1--Wheat: Marketing year supply, disappearance, area, and price, 1984/85-1990/91

Item	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90 (Preliminary)	1990/91 (Projected)
Million acres							
Area:							
Planted	79.2	75.5	72.0	65.8	65.5	76.6	77.3
Harvested	66.9	64.7	60.7	55.9	53.2	62.1	69.9
Set aside and diverted	18.3	18.8	21	23.9	22.4	9.6	6.6
Acreage reduction	9.1	11.9	15.8	20.2	19.2	6.1	2.1
Diverted	5.6	6.9	3.9	0.0	0.0	0.0	0.0
PIK: 0-92 1/	3.6	---	1.3	3.7	3.2	3.5	4.5
Conservation Reserve Program	---	---	0.6	4.2	6.9	8.4	7/ 9.6
National base acreage	94.0	94.0	92.2	91.8	91.7	90.7	90.1
Bushels per acre							
Yield/harvested acre	38.8	37.5	34.4	37.7	34.1	32.8	38.7
Million bushels							
Supply:							
June 1 stocks	1,399	1,425	1,905	1,821	1,261	702	535
Production	2,595	2,424	2,091	2,108	1,812	2,036	2,706
Imports 2/	9	16	21	16	23	23	21
Total supply	4,003	3,865	4,017	3,945	3,096	2,761	3,261
Million bushels							
Disappearance:							
Food	651	674	712	721	715	731	740
Seed	98	93	84	85	103	102	100
Feed and residual 3/	407	284	401	280	157	160	400
Total domestic	1,156	1,051	1,197	1,086	975	993	1,240
Exports 2/	1,421	909	999	1,598	1,419	1,233	1,175
Total disappearance	2,577	1,960	2,196	2,684	2,394	2,226	2,415
Million bushels							
Ending stocks:							
May 31	1,425	1,905	1,821	1,261	702	535	846
Farmer-owned reserve	654	433	463	467	287	144	0
Special program 4/	3	163	169	0	0	0	0
CCC inventory 5/	378	602	830	283	190	117	125
Outstanding loans 6/	175	678	236	178	19	30	75
Other	215	29	123	333	206	244	646
\$/bushel							
Prices:							
Received by farmers	3.39	3.08	2.42	2.57	3.72	3.72	2.65-3.05
Loan rate	3.30	3.30	2.40	2.28	2.21	2.06	1.95
Target	4.38	4.38	4.38	4.38	4.23	4.10	4.00
\$ million							
Value of production	8,757	7,374	5,044	5,497	6,684	7,573	7,690

--- = Not applicable.

1/ PIK - 1983/84-1985/86; 0-92 - 1986/87-1989/90. 2/ Imports and exports include flour and other products expressed in wheat equivalent. 3/ Residual approximates feed use and includes negligible quantities used for alcoholic beverages. 4/ Projected amount of free-stock carryover in the special producer storage loan program. 5/ From 1981/82 on, includes 147 million bushels (2 million tons) in Food Security Reserve. 6/ Projected amount of free-stock carryover under 9-month loan. 7/ Through the 9th sign up, 10.3 million acres of wheat base have been enrolled in CRP.

Appendix table 2--Wheat: Marketing year supply and disappearance, 1960/61-1990/91 1/

Year Beginning June 1	Supply				Disappearance						Ending stocks May 31		
	Begin- ning stocks	Pro- duction	Imports 2/	Total	Domestic use				Exports 2/	Total dis- appearance	Govt. owned	Pri- vately owned 4/	Total
					Food	Seed	Feed 3/	Total					
Million bushels													
1960/61	1,384.2	1,354.7	8.1	2,747.0	496.5	64.3	30.4	591.0	653.5	1,244.5	1,224.6	277.8	1,502.4
1961/62	1,502.4	1,232.4	5.9	2,740.7	504.0	56.3	44.0	604.4	715.7	1,320.1	1,074.4	346.2	1,420.6
1962/63	1,420.6	1,092.0	5.3	2,517.9	502.7	61.4	34.7	598.8	649.4	1,248.2	1,101.8	167.9	1,269.7
1963/64	1,269.7	1,146.8	4.0	2,420.6	487.9	64.9	28.6	581.5	845.6	1,427.1	799.8	193.7	993.5
1964/65	993.5	1,283.4	1.8	2,278.7	514.4	65.5	54.9	634.9	722.7	1,357.6	634.8	286.3	921.1
1965/66	921.1	1,315.6	0.9	2,237.6	517.9	61.5	145.9	725.3	851.8	1,577.1	299.2	361.3	660.5
1966/67	660.5	1,304.9	1.7	1,967.1	505.1	77.4	100.5	683.1	771.3	1,454.3	122.0	390.8	512.8
1967/68	512.8	1,507.6	1.0	2,021.4	517.8	71.3	36.8	625.8	765.3	1,391.2	100.1	530.1	630.2
1968/69	630.2	1,556.6	1.1	2,187.9	522.4	60.8	156.5	739.7	544.2	1,283.9	139.5	764.5	904.0
1969/70	904.0	1,442.7	2.9	2,349.5	520.1	55.5	188.4	764.0	603.0	1,367.0	277.2	705.4	982.6
1970/71	982.6	1,351.6	1.4	2,335.7	517.1	62.1	193.0	772.1	740.8	1,512.9	352.6	470.2	822.8
1971/72	822.8	1,618.6	1.1	2,442.5	523.7	63.2	262.4	849.3	609.8	1,459.1	355.1	628.3	983.4
1972/73	983.4	1,546.2	1.3	2,530.9	531.8	67.4	199.5	798.7	1,135.1	1,933.8	6.3	590.8	597.1
1973/74	597.1	1,710.8	2.6	2,310.5	544.3	84.0	125.1	753.4	1,217.0	1,970.4	0.6	339.5	340.1
1974/75	340.1	1,781.9	3.4	2,125.4	545.0	92.0	34.9	671.9	1,018.5	1,690.4	NA	435.0	435.0
1975/76	435.0	2,126.9	2.4	2,564.3	588.5	100.0	37.3	725.8	1,172.9	1,898.7	NA	665.6	665.6
1976/77	665.6	2,148.8	2.7	2,817.1	588.0	92.0	74.4	754.4	949.5	1,703.9	NA	1,113.2	1,113.2
1977/78	1,113.2	2,045.5	1.9	3,160.6	586.5	80.0	192.5	859.0	1,123.8	1,982.8	48.3	1,129.5	1,177.8
1978/79	1,177.8	1,775.5	1.9	2,955.2	592.4	87.0	157.6	837.0	1,194.1	2,031.1	51.1	873.0	924.1
1979/80	924.1	2,134.1	2.1	3,060.3	596.1	101.0	86.0	783.1	1,375.2	2,158.3	187.8	714.2	902.0
1980/81	902.0	2,380.9	2.5	3,285.4	610.5	113.0	59.0	782.5	1,513.8	2,296.3	199.7	789.4	989.1
1981/82	989.1	2,785.4	2.8	3,777.3	602.4	110.0	134.8	847.2	1,770.7	2,617.9	190.3	969.1	1,159.4
1982/83	1,159.4	2,765.0	7.6	3,932.0	616.4	97.0	194.8	908.2	1,508.7	2,416.9	192.0	1,323.1	1,515.1
1983/84	1,515.1	2,419.8	3.8	3,938.8	642.6	100.0	371.2	1,113.8	1,426.4	2,540.2	188.0	1,210.6	1,398.6
1984/85	1,398.6	2,594.8	9.4	4,002.8	651.0	98.0	407.1	1,156.1	1,421.4	2,577.6	377.6	1,047.6	1,425.2
1985/86	1,425.2	2,424.1	16.3	3,865.6	674.3	93.0	284.2	1,051.5	909.1	1,960.7	601.7	1,303.3	1,905.0
1986/87	1,905.0	2,090.6	21.3	4,016.8	712.2	84.0	401.2	1,197.4	998.5	2,195.9	830.1	990.8	1,820.9
1987/88	1,820.9	2,107.7	16.1	3,944.7	720.7	85.0	280.3	1,086.0	1,597.8	2,683.8	283.0	977.8	1,260.8
1988/89	1,260.8	1,812.2	22.6	3,095.7	714.5	103.0	157.4	974.9	1,419.2	2,394.1	190.5	511.1	701.6
1989/90 5/	701.6	2,035.8	23.4	2,760.8	731.0	101.9	160.1	993.0	1,233.0	2,226.0	117.0	417.8	534.8
1990/91 6/	534.8	2,705.6	21.0	3,261.4	740.0	100.0	400.0	1,240.0	1,175.0	2,415.4	125.0	721.0	846.0

NA = Not available.

1/ Totals may not add because of rounding. 2/ Imports and exports include flour and other products expressed in wheat equivalent.

3/ Residual; approximates feed use and includes negligible quantities used for distilled spirits. 4/ Includes outstanding and reserve loans.

5/ Estimated. 6/ Projected.

Appendix table 3--Wheat: Quarterly supply and disappearance, 1983/84-1989/90 1/

Year and periods beginning June 1	Supply				Disappearance						Ending stocks		
	Begin-ning stocks	Pro-duction	Imports 2/	Total	Domestic use				Exports 2/	Total disap-pearance	Govt. owned	Pri-ately owned 4/	Total
					Food	Seed	Feed 3/	Total					
Million bushels													
1983/84:													
June-Aug.	1,515.1	2,419.8	0.7	3,935.6	158.7	1.0	196.1	355.8	346.7	702.5	365.0	2,868.1	3,233.1
Sept.-Nov.	3,233.1	---	0.9	3,234.0	163.1	75.0	100.5	338.6	359.7	698.3	375.8	2,159.9	2,535.7
Dec.-Feb.	2,535.7	---	1.1	2,536.8	166.8	3.0	48.3	218.1	367.1	585.3	313.8	1,637.7	1,951.5
Mar.-May	1,951.5	---	1.1	1,952.6	154.0	21.0	26.2	201.2	352.8	554.0	188.0	1,210.6	1,398.6
Mkt. year	1,515.1	2,419.8	3.8	3,938.8	642.6	100.0	371.2	1,113.8	1,426.4	2,540.2	188.0	1,210.6	1,398.6
1984/85:													
June-Aug.	1,398.6	2,594.8	3.8	3,997.2	157.8	1.0	279.6	438.4	398.7	837.1	278.1	2,882.0	3,160.1
Sept.-Nov.	3,160.1	---	2.2	3,162.3	168.5	69.0	101.5	339.0	484.8	823.8	359.4	1,979.1	2,338.5
Dec.-Feb.	2,338.5	---	1.1	2,339.6	164.2	4.0	35.5	203.7	335.1	538.8	375.7	1,414.7	1,800.8
Mar.-May	1,800.8	---	2.3	1,803.1	160.5	24.0	(9.5)	175.0	202.9	377.9	377.6	1,047.6	1,425.2
Mkt. year	1,398.6	2,594.8	9.4	4,002.8	651.0	98.0	407.1	1,156.1	1,421.4	2,577.6	377.6	1,047.6	1,425.2
1985/86:													
June-Aug.	1,425.2	2,424.1	5.1	3,854.4	165.8	1.0	235.5	402.3	248.6	650.9	406.7	2,796.8	3,203.5
Sept.-Nov.	3,203.5	---	5.1	3,208.6	185.6	63.0	65.9	314.4	250.7	565.2	517.1	2,126.3	2,643.4
Dec.-Feb.	2,643.4	---	2.7	2,646.1	162.2	4.0	1.8	168.0	222.3	390.3	526.3	1,729.5	2,255.8
Mar.-May	2,255.8	---	3.5	2,259.3	160.8	25.0	(18.9)	166.8	187.4	354.3	601.7	1,303.3	1,905.0
Mkt. year	1,425.2	2,424.1	16.3	3,865.6	674.3	93.0	284.2	1,051.5	909.1	1,960.7	601.7	1,303.3	1,905.0
1986/87:													
June-Aug.	1,905.0	2,090.6	4.3	3,999.9	171.2	1.0	352.3	524.4	318.9	843.3	793.8	2,362.7	3,156.5
Sept.-Nov.	3,156.5	---	3.6	3,160.1	192.8	57.0	(20.8)	229.0	257.7	486.7	863.9	1,809.6	2,673.5
Dec.-Feb.	2,673.5	---	6.0	2,679.5	171.7	3.0	48.7	223.4	205.7	429.1	905.3	1,345.1	2,250.4
Mar.-May	2,250.4	---	7.3	2,257.7	176.6	23.0	20.9	220.5	216.3	436.8	830.1	990.8	1,820.9
Mkt. year	1,905.0	2,090.6	21.3	4,016.8	712.2	84.0	401.2	1,197.4	998.5	2,195.9	830.1	990.8	1,820.9
1987/88:													
June-Aug.	1,820.9	2,107.7	2.7	3,931.3	181.0	1.0	363.8	545.8	409.0	954.8	798.8	2,189.7	2,976.5
Sept.-Nov.	2,976.5	---	4.5	2,981.0	193.0	58.0	(79.1)	172.0	308.5	480.4	755.4	1,750.5	2,500.6
Dec.-Feb.	2,500.6	---	3.7	2,504.3	172.1	3.0	(7.3)	167.7	413.0	580.8	450.1	1,473.4	1,923.5
Mar.-May	1,923.5	---	5.1	1,928.7	174.6	23.0	2.9	200.5	467.3	667.8	283.0	977.8	1,260.8
Mkt. year	1,820.9	2,107.7	16.1	3,944.7	720.7	85.0	280.3	1,086.0	1,597.8	2,683.8	283.0	977.8	1,260.8
1988/89:													
June-Aug.	1,260.8	1,812.2	8.6	3,081.6	183.3	1.0	282.2	466.4	361.6	828.1	250.0	2,003.6	2,253.6
Sept.-Nov.	2,253.6	---	6.3	2,259.8	197.3	67.0	(49.4)	214.9	329.0	543.9	213.0	1,502.9	1,715.9
Dec.-Feb.	1,715.9	---	3.7	1,719.6	168.9	3.0	(40.6)	131.3	360.5	491.9	203.2	1,024.5	1,227.7
Mar.-May	1,227.7	---	4.1	1,231.8	165.0	32.0	(34.8)	162.2	368.0	530.2	190.5	511.1	701.6
Mkt. year	1,260.8	1,812.2	22.6	3,095.7	714.5	103.0	157.4	974.9	1,419.2	2,394.1	190.5	511.1	701.6
1989/90:													
June-Aug.	701.6	2,035.8	5.9	2,743.3	183.1	1.7	271.4	456.2	369.9	826.1	167.9	1,749.3	1,917.2
Sept.-Nov.	1,917.2	---	5.3	1,922.6	183.1	68.7	(81.5)	170.3	328.6	498.9	154.5	1,269.2	1,423.7
Dec.-Feb.	1,423.7	---	4.7	1,428.4	180.5	2.8	42.2	225.5	259.7	485.2	136.5	806.6	943.1
Mar.-May 5/	943.1	---	7.5	950.6	184.3	28.7	(72.0)	141.0	274.8	415.8	117.0	417.8	534.8
Mkt. year 5/	701.6	2,035.8	23.4	2,760.8	731.0	101.9	160.1	993.0	1,233.0	2,226.0	117.0	417.8	534.8

--- = Not applicable.

NA = Not available.

1/ Totals may not add because of rounding. 2/ Imports and exports include flour and other products expressed in wheat equivalent.

3/ Residual; approximates feed use and includes negligible quantities used for distilled spirits. 4/ Includes outstanding and reserve loans.

5/ Forecasts.

Appendix table 4--Quarterly Government stock activity for wheat, 1987/88-1989/90

	-----1987/88-----				-----1988/89-----				-----1989/90-----			
	June-Aug	Sept.-Nov	Dec.-Feb.	March-May	June-Aug.	Sept.-Nov	Dec.-Feb	March-May	June-Aug.	Sept.-Nov	Dec.-Feb.	March-May

Million bushels												
9-month loans:												
Carryin outstanding	235.0	245.1	383.1	301.1	117.0	108.1	93.1	46.9	19.2	48.2	80.4	65.4
Loans made	104.0	293.7	63.5	13.0	60.1	34.2	10.8	1.7	42.6	47.1	17.8	4.2
Certificate exchange	33.2	124.0	24.4	11.0	5.8	0.7	0.5	0.2	0.0	0.1	0.1	0.0
Cash redemption	45.3	11.4	110.5	118.7	118.2	47.1	55.2	23.1	13.5	14.8	32.7	39.2
CCC collateral acquired	15.4	20.3	10.6	7.4	5.0	1.4	1.3	6.1	0.1	0.0	0.0	0.4
Reserve conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carryout outstanding	245.1	383.1	301.1	117.0	108.1	93.1	46.9	19.2	48.2	80.4	65.4	30.0
FOR loans:												
Carryin FOR	631.0	597.5	553.4	519.8	466.8	391.0	383.4	377.9	287.0	211.4	173.6	153.6
Reserve conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash redemption	2.0	4.2	0.0	8.3	0.0	0.5	1.8	68.4	39.6	8.7	3.7	0.0
CCC collateral acquired	17.0	27.4	21.6	23.1	23.2	3.4	1.8	2.9	24.1	23.2	10.9	3.1
Certificate exchange	14.5	12.5	12.0	21.6	52.6	3.7	1.9	19.6	11.9	5.9	5.4	6.6
Carryout FOR	597.5	553.4	519.8	466.8	391.0	383.4	377.9	287.0	211.4	173.6	153.6	143.9
CCC owned:												
Carryin CCC	830.1	798.8	755.4	450.1	283.0	250.0	213.0	203.2	190.5	167.9	154.5	136.5
CCC collateral acquired	32.4	47.7	32.2	30.5	28.2	4.8	3.1	9.0	24.2	23.2	10.9	3.5
Certificate exchange	47.9	69.4	302.8	158.9	20.2	23.6	9.0	6.6	3.5	42.9	13.5	3.7
Other 1/	15.8	21.7	34.7	38.7	41.0	18.2	3.9	15.1	43.3	(6.3)	15.4	19.7
Carryout CCC	798.8	755.4	450.1	283.0	250.0	213.0	203.2	190.5	167.9	154.5	136.5	116.6

1/ Includes PL480 exchanges for Title II, off-grade sales, domestic programs, section 416 export programs, and residual errors.

Appendix table 5--Wheat classes: Estimated acreage, yield, and production, 1978-1990

Year	Planted acreage	Harvested acreage	Yield	Production
	---Million acres---		Bu./acre	Million bushels
Hard red winter:				
1978	36.5	28.5	29.1	829.9
1979	38.2	31.3	34.9	1,091.6
1980	40.7	35.8	33.0	1,181.3
1981	43.4	37.9	29.3	1,112.1
1982	43.2	37.0	33.6	1,243.6
1983	41.3	30.2	39.7	1,197.8
1984	43.6	34.1	36.7	1,250.6
1985	42.5	34.5	35.7	1,230.1
1986	39.4	31.5	32.3	1,017.8
1987	36.3	28.6	35.7	1,020.8
1988	34.4	26.8	32.8	881.9
1989	37.5	26.1	27.2	711.1
1990	38.4	33.0	37.1	1,227.4
Hard red spring:				
1978	13.5	13.2	28.8	379.7
1979	14.2	14.0	26.3	368.8
1980	16.3	13.6	22.9	311.4
1981	16.1	15.8	29.4	463.8
1982	15.5	15.2	32.4	492.7
1983	11.1	10.7	30.2	322.7
1984	12.0	11.7	34.9	408.8
1985	14.0	13.1	35.1	460.2
1986	14.6	14.1	32.0	451.4
1987	13.3	13.0	33.0	430.6
1988	13.0	10.1	17.9	181.2
1989	16.5	15.9	27.3	433.5
1990	16.2	15.8	32.5	512.5
Durum:				
1978	4.1	4.0	33.3	133.3
1979	4.0	3.9	27.4	106.7
1980	5.5	4.8	22.6	108.4
1981	5.8	5.7	32.1	183.0
1982	4.3	4.2	34.7	145.9
1983	2.6	2.5	29.2	73.0
1984	3.3	3.2	32.3	103.4
1985	3.2	3.1	36.3	112.5
1986	3.0	2.9	34.0	97.9
1987	3.3	3.3	28.2	92.6
1988	3.3	2.8	15.7	44.8
1989	3.8	3.7	25.1	92.2
1990	3.6	3.5	30.9	108.0
Soft red winter:				
1978	6.2	5.5	34.3	188.9
1979	8.4	7.6	40.7	309.6
1980	11.7	10.6	41.7	441.8
1981	16.7	15.3	44.3	678.0
1982	17.2	15.8	37.3	588.9
1983	15.6	12.8	39.4	504.2
1984	14.5	12.6	42.2	531.4
1985	10.6	9.1	40.5	368.4
1986	10.1	7.7	38.0	292.5
1987	9.0	7.6	45.9	347.7
1988	10.9	9.6	49.3	472.7
1989	13.4	12.0	45.7	548.0
1990	14.0	12.6	42.8	539.9
White:				
1978	5.7	5.3	46.0	243.7
1979	6.6	5.6	46.0	257.4
1980	6.6	6.3	53.7	338.0
1981	6.2	6.0	58.1	348.5
1982	6.0	5.7	51.6	294.0
1983	5.9	5.3	60.8	322.0
1984	5.8	5.3	56.7	300.6
1985	5.3	4.9	51.8	253.9
1986	4.9	4.5	51.6	232.0
1987	3.9	3.5	61.6	215.8
1988	4.0	3.8	61.1	231.6
1989	5.4	4.5	55.8	251.0
1990	5.2	5.0	63.9	317.8

Source: National Agricultural Statistics Service; and Economic Research Service (estimates), USDA.

Appendix table 6--Wheat classes: Marketing year supply and disappearance, 1982/83-1990/91 1/

Year beginning June 1	Supply			Disappearance			Ending stocks May 31
	Beginning stocks	Pro- duction	Total 2/	Domestic use	Exports	Total	
Million bushels							
1982/83:							
Hard winter	538	1,243	1,781	348	679	1,027	754
Hard spring	346	492	842	195	239	434	408
Soft red	60	590	650	251	325	576	74
White	109	294	403	53	207	260	143
Durum	106	146	256	61	59	120	136
All classes	1,159	2,765	3,932	908	1,509	2,417	1,515
1983/84:							
Hard winter	754	1,198	1,952	503	704	1,207	745
Hard spring	408	323	732	198	220	418	314
Soft red	74	504	578	284	220	504	74
White	143	322	465	78	220	298	167
Durum	136	73	212	51	62	113	99
All classes	1,515	2,420	3,938	1,114	1,426	2,540	1,399
1984/85:							
Hard winter	745	1,251	1,996	564	715	1,279	717
Hard spring	314	409	727	173	183	356	371
Soft red	74	531	605	289	252	541	64
White	167	301	469	86	210	296	173
Durum	99	103	206	45	61	106	100
All classes	1,399	2,595	4,002	1,157	1,421	2,578	1,425
1985/86:							
Hard winter	717	1,230	1,947	545	393	938	1,009
Hard spring	371	460	841	178	165	343	498
Soft red	64	367	431	204	148	352	79
White	173	254	428	80	150	230	198
Durum	100	113	216	42	53	95	121
All classes	1,425	2,424	3,864	1,050	909	1,959	1,905
1986/87:							
Hard winter	1,009	1,017	2,026	624	429	1,053	973
Hard spring	498	451	957	268	199	467	490
Soft red	79	292	371	180	114	294	77
White	198	232	437	77	175	252	185
Durum	121	98	225	49	82	131	95
All classes	1,905	2,091	4,017	1,197	999	2,196	1,821
1987/88 :							
Hard winter	973	1,019	1,992	514	911	1,425	567
Hard spring	490	431	925	268	255	523	402
Soft red	77	349	427	192	160	352	75
White	185	216	403	59	210	269	135
Durum	95	93	197	52	62	114	83
All classes	1,821	2,108	3,945	1,086	1,598	2,684	1,261
1988/89:							
Hard winter	567	882	1,449	507	639	1,146	302
Hard spring	402	181	590	176	195	371	219
Soft red	75	473	547	193	315	508	39
White	135	232	370	40	250	290	81
Durum	83	45	139	59	20	79	60
All classes	1,261	1,812	3,096	975	1,419	2,394	702
1989/90							
Hard winter	302	711	1,014	439	360	799	215
Hard spring	219	433	660	227	280	507	153
Soft red	39	548	587	210	345	555	32
White	81	251	335	57	193	250	85
Durum	60	92	165	60	55	115	50
All classes	702	2,036	2,761	993	1,233	2,226	535
1990/91 3/:							
Hard winter	215	1,227	1,442	603	465	1,068	374
Hard spring	153	512	672	261	175	436	236
Soft red	32	540	572	244	290	534	38
White	85	318	406	67	190	257	149
Durum	50	108	169	65	55	120	49
All classes	535	2,706	3,261	1,240	1,175	2,415	846

1/ Data, except production, are approximations and totals may not add because of rounding. Imports and exports include flour and products in wheat equivalent. 2/ Total supply includes imports. 3/ Estimated.

Appendix table 7--Wheat: Inspections for export by class and country of destination, June-May 1989/90

Country	Hard red spring	Hard red winter	Soft red winter	White	Durum	Total
1,000 bushels						
Afghanistan	0	0	0	5,100	0	5,100
Algeria	6,879	7,391	11,288	0	27,252	52,810
Bangladesh	0	4,015	8,907	7,630	0	20,552
Barbados	627	0	188	0	0	815
Belgium	5,141	0	0	0	1,268	6,409
Belize	170	330	0	0	0	500
Benin	447	385	193	0	0	1,025
Bolivia	0	3,976	0	0	0	3,976
Brazil	0	4,893	0	0	0	4,893
China, PR	22,134	22,835	158,948	0	0	203,917
Colombia	4,820	8,754	2,220	514	0	16,308
Costa Rica	3,558	230	611	0	447	4,846
Cyprus	1,105	0	0	0	776	1,881
Dominican Rep.	6,612	525	801	0	72	8,010
Ecuador	8,022	3,462	0	0	0	11,484
Egypt	1,760	2,335	72,256	32,583	0	108,934
El Salvador	3,615	0	1,560	413	76	5,664
Ethiopia	1,060	4,754	1,734	0	0	7,548
Finland	429	0	0	172	0	601
Ghana	2,587	197	0	0	0	2,784
Guatemala	4,088	434	891	0	513	5,926
Guyana	0	1,487	0	0	0	1,487
Haiti	2,582	1,205	458	0	0	4,245
Honduras	1,803	907	912	0	252	3,874
Hong Kong	1,558	758	0	1,842	0	4,158
Indonesia	1,177	5,891	0	3,778	0	10,846
Iraq	2,122	45,084	0	0	0	47,206
Israel	0	18,947	1,542	0	0	20,489
Italy	13,199	0	0	0	6,027	19,226
Jamaica	1,796	0	3,781	0	0	5,577
Japan	37,964	48,306	0	34,022	0	120,292
Jordan	0	14,287	0	0	0	14,287
Korea, Republic	12,361	18,622	18	32,925	0	63,926
Malaysia	1,648	0	0	412	0	2,060
Mauritania	0	0	834	0	0	834
Mexico	0	7,208	0	579	0	7,787
Morocco	6,032	4,880	9,194	0	0	20,106
Mozambique	0	0	551	0	0	551
Netherlands	717	0	0	0	166	883
Netherlands Antilles	444	0	107	0	0	551
Norway	927	0	0	0	0	927
Pakistan	0	0	0	49,308	0	49,308
Panama	2,602	0	353	61	304	3,320
Peru	98	7,287	46	0	0	7,431
Philippines	21,093	0	0	12,060	0	33,153
Poland	0	0	0	0	1,681	1,681
Portugal	549	839	1,620	0	1,811	4,819
Singapore	908	0	0	480	0	1,388
Sri Lanka	5,633	7,236	7,210	3,746	0	23,825
Saint Vincent	522	0	0	0	0	522
Sudan	0	6,114	0	0	0	6,114
Suriname	897	0	0	0	0	897
Syria	0	965	0	0	0	965
Taiwan (China)	10,901	11,539	0	4,782	0	27,222
Thailand	2,985	1,359	0	1,395	0	5,739
Togo	1,263	73	36	0	0	1,372
Trinidad	1,653	0	1,488	0	0	3,141
Tunisia	1,294	2,086	6,195	0	1,846	11,421
Turkey	0	1,858	17,968	0	3,708	23,534
United Kingdom	982	0	0	0	0	982
USSR	51,959	77,044	29,453	0	0	158,456
Venezuela	16,510	819	2,087	0	5,350	24,766
Yemen (Sana)	0	0	919	900	0	1,819
Zaire	0	4,596	0	0	0	4,596
Others 1/	2143	707	0	0	6	2856
Grand Total	279,376	354,620	344,369	192,702	51,555	1,222,622

1/ Consists of countries with totals of less than 500,000 bushels.

Source: Grain and Market News, Agricultural Marketing Service, USDA.

Appendix table 8--U.S. wheat exports: Grain, flour, and products, by month, 1980/81-1990/91

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
Thousand bushels 1/													
Wheat (grain only)													
1980/81	96,193	123,598	141,415	137,325	116,948	112,199	132,048	129,981	124,397	128,770	127,652	78,030	1,448,558
1981/82	124,521	138,168	145,428	194,148	156,993	127,495	137,757	124,163	138,719	159,078	148,181	116,496	1,711,147
1982/83	156,914	117,914	124,336	130,992	98,520	94,638	88,457	143,141	146,594	131,134	112,451	96,235	1,441,326
1983/84	113,506	116,701	87,823	119,263	114,810	102,880	128,887	118,357	111,096	118,713	97,132	112,813	1,341,980
1984/85	105,344	133,276	146,187	242,731	137,298	97,283	131,941	106,430	85,493	57,969	67,811	56,588	1,368,352
1985/86	84,264	63,877	86,863	72,210	85,649	82,384	61,853	70,079	70,869	66,236	56,437	46,216	846,936
1986/87	79,497	104,677	114,853	98,234	84,769	59,182	53,837	65,047	67,764	65,529	65,426	64,603	923,419
1987/88	119,769	157,706	112,758	119,945	101,680	71,166	113,609	140,228	143,959	149,146	152,830	147,667	1,530,462
1988/89	121,842	111,498	107,562	127,564	93,153	93,309	100,149	115,846	127,165	141,828	115,899	91,579	1,347,393
1989/90	90,808	137,971	131,989	150,700	89,343	68,664	81,816	78,345	87,655	104,914	84,611	71,649	1,178,466
1990/91	88,274												
Flour (grain equivalent) 2/													
1980/81	4,230	2,082	5,057	3,774	2,785	2,165	1,739	2,658	5,217	6,353	7,347	4,803	48,209
1981/82	5,794	2,779	3,438	2,496	668	4,111	902	1,767	8,068	5,775	6,955	5,983	45,036
1982/83	4,577	1,364	3,488	2,508	3,904	2,483	999	3,998	8,865	6,532	10,530	7,521	56,769
1983/84	9,611	8,198	7,849	8,801	8,473	3,504	1,245	2,330	2,344	7,066	7,306	8,148	74,875
1984/85	6,614	4,105	1,166	1,596	3,242	633	941	392	6,297	5,148	6,335	4,020	40,489
1985/86	3,640	2,638	1,638	1,038	1,289	2,902	6,680	3,174	5,521	5,157	6,411	2,381	42,469
1986/87	5,104	4,795	6,675	4,731	5,999	2,332	6,664	6,681	3,676	6,173	6,722	6,365	65,918
1987/88	5,450	6,816	4,749	3,999	3,418	6,746	4,316	6,934	2,556	10,776	2,463	2,520	60,743
1988/89	7,036	6,400	6,002	2,402	7,908	3,368	6,086	4,178	6,515	6,841	6,540	5,214	68,490
1989/90	907	1,897	5,775	8,915	3,579	6,817	3,606	4,943	3,124	4,466	6,132	3,289	53,450
1990/91	1,139												
Wheat products (grain equivalent) 3/													
1980/81	912	1,222	711	1,849	1,284	1,005	1,230	890	1,010	1,114	4,433	1,406	17,067
1981/82	1,827	1,150	1,009	1,037	1,171	1,406	572	1,211	1,875	351	2,246	692	14,547
1982/83	971	465	1,073	984	529	2,604	472	796	492	586	630	935	10,537
1983/84	632	1,075	1,300	578	502	904	1,346	600	939	780	363	503	9,523
1984/85	717	670	587	1,076	429	497	824	1,831	935	916	1,956	2,164	12,600
1985/86	1,984	2,472	1,256	2,097	1,683	1,476	1,543	1,449	1,172	1,103	1,590	1,903	19,727
1986/87	1,052	1,563	685	1,149	896	371	723	670	611	447	542	463	9,173
1987/88	5,447	751	549	234	364	901	743	423	277	551	1,133	251	6,624
1988/89	421	424	449	490	673	154	564	20	20	59	30	25	3,328
1989/90	31	33	457	74	463	72	78	44	44	50	45	32	1,422
1990/91	50												
Total wheat, flour, and products													
1980/81	101,335	126,902	147,183	142,949	121,017	115,369	135,017	133,529	130,624	136,238	139,432	84,239	1,513,834
1981/82	132,142	142,097	149,875	197,681	158,832	129,312	139,231	127,141	148,662	165,204	157,382	123,171	1,770,730
1982/83	162,462	119,743	128,897	134,485	102,952	99,726	89,928	147,935	155,950	138,252	123,611	104,691	1,508,632
1983/84	123,750	125,974	96,972	128,642	123,785	107,288	131,479	121,287	114,378	126,559	104,801	121,464	1,426,378
1984/85	112,675	138,051	147,940	245,403	140,968	98,414	133,705	108,653	92,725	64,033	76,102	62,771	1,421,442
1985/86	89,888	68,986	89,757	75,344	88,622	86,763	70,075	74,703	77,562	72,495	64,438	50,499	909,131
1986/87	85,654	111,036	122,214	104,114	91,665	61,884	61,224	72,398	72,052	72,148	72,690	71,431	998,511
1987/88	125,666	165,273	118,057	124,178	105,462	78,813	118,668	147,585	146,793	160,472	156,426	150,437	1,597,829
1988/89	129,299	118,322	114,013	130,455	101,735	96,831	106,798	120,044	133,700	148,727	122,469	96,818	1,419,211
1989/90	91,747	139,901	138,221	159,688	93,385	75,553	85,499	83,331	90,822	109,430	90,788	74,970	1,233,335
1990/91	89,462												

1/ Totals may not add because of independent rounding. 2/ Includes meal and groats, and durum. 3/ Includes macaroni, rolled wheat, and bulgar.

Sources: U.S. Bureau of the Census.
USDA/ERS calculations.

Appendix table 9--Wheat and flour price relationships at milling centers, annual and by periods, 1982/83-1990/91

Year and period	At Kansas City					At Minneapolis				
	Cost of wheat to produce 100 lb. of flour 1/	Wholesale price of			Cost of wheat to produce 100 lb. of flour 1/	Wholesale price of				
		Bakery flour per 100 lb. 2/	Byproducts obtained 100 lb. flour 3/	Total products		Bakery flour per 100 lb. 2/	Byproducts obtained 100 lb. flour 3/	Total products		
			Actual	Over cost of wheat			Actual	Over cost of wheat		
Dollars										
1982/83:										
June-Sept.	9.24	10.14	1.39	11.53	2.29	9.31	10.43	1.25	11.68	2.37
Oct.-Dec.	9.22	10.06	1.58	11.64	2.42	9.22	10.43	1.29	11.72	2.50
Jan.-Mar.	9.60	10.40	1.47	11.87	2.27	9.15	10.41	1.10	11.51	2.36
Apr.-May	9.77	10.26	1.65	11.91	2.14	10.11	10.88	1.40	12.28	2.17
Mkt. year	9.46	10.22	1.52	11.74	2.28	9.45	10.54	1.26	11.80	2.35
1983/84:										
June-Sept.	9.54	10.36	1.72	12.08	2.54	9.97	11.17	1.47	12.64	2.67
Oct.-Dec.	9.48	10.00	2.16	12.16	2.68	9.76	10.79	1.90	12.69	2.93
Jan.-Mar.	9.22	9.52	1.83	11.35	2.13	9.56	10.28	1.49	11.77	2.21
Apr.-May	9.57	10.06	1.62	11.17	2.11	10.08	10.74	1.49	12.23	2.15
Mkt. year	9.45	9.99	1.83	11.69	2.37	9.80	10.75	1.59	12.34	2.54
1984/85:										
June-Sept.	9.21	9.78	1.47	11.26	2.05	9.64	10.31	1.21	11.52	1.89
Oct.-Dec.	9.05	9.85	1.47	11.32	2.27	9.16	10.56	1.11	11.67	2.50
Jan.-Mar.	8.77	9.90	1.16	11.06	2.29	9.09	11.27	0.83	12.11	3.01
Apr.-May	8.62	9.58	1.16	10.74	2.12	9.34	11.22	0.88	12.11	2.77
Mkt. year	8.96	9.78	1.32	11.09	2.13	9.27	10.84	1.01	11.85	2.58
1985/86:										
June-Sept.	7.99	8.94	1.10	10.04	2.05	8.60	10.96	0.77	11.73	3.13
Oct.-Dec.	8.37	9.07	1.38	10.45	2.08	9.24	11.65	1.09	12.70	3.50
Jan.-Mar.	8.37	9.38	1.10	10.48	2.11	9.02	11.95	0.83	12.78	3.76
Apr.-May	8.38	9.73	1.21	10.94	2.56	9.35	11.05	0.95	12.00	2.65
Mkt. year	8.28	9.28	1.19	10.47	2.20	9.05	11.39	0.90	12.29	3.25
1986/87:										
June-Aug.	6.19	7.90	0.79	8.69	2.50	6.86	9.70	0.62	10.32	3.46
Sept.-Nov.	6.27	8.18	0.85	9.03	2.76	6.78	9.52	0.64	10.16	3.38
Dec.-Feb.	6.70	7.97	0.99	8.96	2.26	7.03	8.55	0.66	9.21	2.18
Mar.-May	7.00	8.18	0.74	8.92	1.92	7.30	9.10	0.58	9.68	2.38
Mkt. year	6.54	8.06	0.84	8.90	2.36	7.00	9.22	0.63	9.85	2.85
1987/88:										
June-Aug.	6.62	7.85	0.72	8.57	1.95	6.80	8.63	0.51	9.14	2.34
Sept.-Nov.	7.04	7.85	1.19	9.04	2.00	7.07	8.98	0.90	9.88	2.81
Dec.-Feb.	7.51	7.97	1.53	9.50	1.99	7.36	9.77	1.18	10.95	3.59
Mar.-May	7.43	8.18	1.12	9.30	1.87	7.50	10.17	0.98	11.15	3.65
Mkt. year	7.15	7.96	1.14	9.10	1.95	7.18	9.39	0.89	10.28	3.10
1988/89:										
June-Aug.	8.83	9.57	1.57	11.13	2.30	9.72	11.00	1.48	12.48	2.76
Sept.-Nov.	9.34	9.88	1.76	11.64	2.30	9.78	9.80	1.67	11.47	1.69
Dec.-Feb.	9.93	10.37	1.81	12.18	2.24	9.96	10.05	1.70	11.75	1.79
Mar.-May	10.37	11.03	1.59	12.62	2.25	10.32	10.72	1.62	12.34	2.01
Mkt. year	9.62	10.21	1.68	11.89	2.27	9.94	10.39	1.62	12.01	2.06
1989/90:										
June-Aug.	9.86	11.07	1.14	12.21	2.35	9.84	10.63	1.15	11.78	1.94
Sept.-Nov.	9.67	10.33	1.64	11.97	2.30	9.36	9.70	1.51	11.21	1.86
Dec.-Feb.	9.68	10.35	1.58	11.93	2.25	9.50	9.92	1.47	11.38	1.88
Mar.-May	9.12	9.90	1.43	11.33	2.21	9.22	9.77	1.31	11.08	1.86
Mkt. year	9.58	10.41	1.45	11.86	2.28	9.48	10.00	1.36	11.36	1.89
1990/91:										
June	8.46	9.70	1.28	10.98	2.52	9.03	9.85	1.21	11.06	2.03
July	7.23	8.35	1.33	9.68	2.45	8.12	9.00	1.21	10.21	2.09

1/ Based on 73-percent extraction rate, cost of 2.28 bushels: At Kansas City, No. 1 hard winter, 13-percent protein; and at Minneapolis, No. 1 dark northern spring, 14-percent protein. 2/ Quoted as mid-month bakers' standard patent at Kansas City and spring standard patent at Minneapolis, bulk basis. 3/ Assumed 50-50 millfeed distribution between bran and shorts or middlings, bulk basis.

Appendix table 10--Wheat farm prices for leading classes and major feed grains in U.S. regions, 1984/85-1990/91

Crop year	June	July 1/	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average	Loan rate
\$/60-pound bushel														
Central and So. Plains 2/														
Wheat (hard winter):														
1984/85	3.46	3.30	3.42	3.45	3.43	3.41	3.36	3.34	3.34	3.34	3.39	3.25	3.37	3.23
1985/86	3.06	2.90	2.85	3.00	3.07	3.21	3.24	3.16	3.10	3.21	3.33	2.92	3.09	3.23
1986/87	2.38	2.19	2.23	2.26	2.25	2.39	2.43	2.45	2.50	2.49	2.52	2.60	2.39	2.37
1987/88	2.39	2.26	2.29	2.42	2.51	2.58	2.65	2.68	2.74	2.71	2.72	2.91	2.57	2.26
1988/89	3.30	3.36	3.42	3.62	3.72	3.74	3.90	3.90	3.89	4.04	4.03	4.01	3.74	2.21
1989/90	3.84	3.80	3.74	3.76	3.79	3.81	3.87	3.82	3.63	3.51	3.55	3.27	3.70	2.04
1990/91	3.01	2.71												
Sorghum:														
1984/85	3.01	2.89	2.77	2.57	2.49	2.48	2.51	2.52	2.51	2.59	2.68	2.76	2.65	2.59
1985/86	2.71	2.58	2.24	2.06	2.05	2.13	2.25	2.23	2.16	2.25	2.36	2.33	2.28	2.59
1986/87	2.16	1.97	1.67	1.50	1.54	1.51	1.51	1.51	1.47	1.53	1.61	1.71	1.64	1.95
1987/88	1.73	1.62	1.53	1.52	1.58	1.67	1.69	1.70	1.81	1.83	1.82	1.82	1.69	1.86
1988/89	2.57	2.78	2.59	2.61	2.55	2.44	2.45	2.48	2.47	2.52	2.58	2.53	2.55	1.80
1989/90	2.43	2.38	2.28	2.28	2.22	2.17	2.21	2.24	2.21	2.30	2.40	2.46	2.30	1.69
1990/91	2.59	2.53												
Corn Belt 3/														
Wheat (soft red winter):														
1984/85	3.26	3.22	3.29	3.29	3.29	3.40	3.42	3.44	3.39	3.42	3.44	3.19	3.34	3.28
1985/86	3.01	2.94	2.74	2.66	2.77	3.10	3.22	3.18	3.24	3.37	3.42	2.87	3.04	3.28
1986/87	2.40	2.30	2.28	2.27	2.57	2.65	2.73	2.71	2.77	2.85	2.75	2.65	2.58	2.36
1987/88	2.42	2.37	2.41	2.51	2.66	2.74	2.90	3.02	3.07	2.85	2.96	3.08	2.75	2.35
1988/89	3.33	3.39	3.53	3.67	3.84	3.93	4.06	4.13	3.99	4.12	4.00	3.91	3.82	2.33
1989/90	3.80	3.75	3.77	3.82	3.87	3.99	4.01	3.99	3.87	3.76	3.62	3.48	3.81	2.14
1990/91	3.04	2.92												
Corn:														
1984/85	3.80	3.66	3.50	3.17	2.83	2.76	2.76	2.84	2.85	2.91	2.95	2.91	3.08	2.76
1985/86	2.89	2.85	2.65	2.38	2.21	2.38	2.47	2.48	2.49	2.48	2.50	2.59	2.53	2.76
1986/87	2.56	2.19	1.84	1.54	1.46	1.56	1.61	1.59	1.57	1.60	1.67	1.85	1.75	1.94
1987/88	1.88	1.74	1.61	1.62	1.68	1.79	1.82	1.95	2.02	2.05	2.10	2.18	1.87	1.98
1988/89	2.75	3.08	2.98	2.91	2.78	2.73	2.79	2.87	2.79	2.87	2.84	2.87	2.86	1.95
1989/90	2.80	2.75	2.57	2.52	2.45	2.46	2.52	2.55	2.56	2.64	2.87	2.96	2.64	1.80
1990/91	3.03	2.95												
Northern Plains 4/														
Wheat (other spring):														
1984/85	3.86	3.69	3.52	3.49	3.47	3.46	3.41	3.45	3.46	3.49	3.57	3.56	3.54	3.34
1985/86	3.50	3.30	3.05	3.18	3.36	3.49	3.58	3.51	3.47	3.51	3.57	3.48	3.42	3.34
1986/87	2.81	2.41	2.38	2.34	2.30	2.51	2.59	2.69	2.66	2.63	2.65	2.69	2.56	2.40
1987/88	2.50	2.36	2.37	2.55	2.62	2.65	2.70	2.76	2.77	2.74	2.78	2.98	2.65	2.28
1988/89	3.30	3.62	3.67	3.79	3.83	3.74	3.81	3.92	3.94	3.99	3.96	3.98	3.80	2.21
1989/90	3.89	3.80	3.66	3.59	3.60	3.58	3.62	3.58	3.50	3.47	3.49	3.49	3.61	2.06
1990/91	3.34	2.96												
Wheat (durum):														
1984/85	3.96	3.73	3.84	3.78	3.75	3.77	3.69	3.63	3.61	3.55	3.60	3.55	3.71	3.34
1985/86	3.53	3.34	3.18	3.08	3.01	3.07	3.16	3.17	3.17	3.21	3.29	3.41	3.22	3.34
1986/87	3.30	2.38	2.24	2.29	2.36	2.54	2.64	2.88	2.93	3.05	3.12	3.14	2.74	2.40
1987/88	3.15	3.06	2.87	3.19	3.30	3.33	3.20	3.21	3.29	2.93	3.22	3.47	3.19	2.28
1988/89	4.61	5.18	5.28	5.21	4.99	4.93	4.72	4.29	4.43	4.44	3.78	4.18	4.67	2.21
1989/90	3.83	3.65	3.50	3.25	3.31	3.27	3.36	3.31	3.31	3.35	3.45	3.50	3.42	2.06
1990/91	3.38	3.05												
Pacific Northwest 5/														
Wheat (white):														
1984/85	3.71	3.26	3.32	3.31	3.38	3.38	3.35	3.43	3.45	3.53	3.57	3.54	3.44	3.43
1985/86	3.35	2.97	3.05	3.16	3.29	3.39	3.44	3.40	3.41	3.52	3.60	3.49	3.34	3.43
1986/87	2.97	2.44	2.36	2.35	2.40	2.48	2.56	2.61	2.69	2.69	2.74	2.73	2.59	2.50
1987/88	2.60	2.54	2.48	2.57	2.70	2.62	2.73	2.88	2.89	2.79	2.95	3.09	2.74	2.39
1988/89	3.44	3.72	3.80	3.97	4.13	4.19	4.31	4.48	4.56	4.37	4.41	4.32	4.14	2.32
1989/90	4.13	4.13	4.14	4.04	4.06	3.97	4.15	4.06	3.66	3.47	3.39	3.37	3.88	2.17
1990/91	3.26	3.10												
Barley:														
1984/85	3.50	3.15	2.98	2.98	2.92	2.98	3.02	3.00	2.98	2.99	2.95	2.87	3.03	2.74
1985/86	2.68	2.73	2.63	2.55	2.52	2.69	2.77	2.73	2.65	2.53	2.48	2.54	2.63	2.74
1986/87	2.19	2.14	2.31	2.19	2.29	2.24	2.26	2.29	2.35	2.28	2.32	2.37	2.27	1.67
1987/88	2.43	2.64	2.53	2.48	2.36	2.45	2.53	2.56	2.55	2.25	2.29	2.43	2.46	1.77
1988/89	2.94	3.15	3.30	3.13	3.06	3.27	3.20	3.23	3.06	3.25	3.28	3.22	3.17	1.74
1989/90	3.08	2.90	3.19	2.91	2.82	3.01	3.22	3.15	3.01	2.97	3.15	3.04	3.04	1.60
1990/91	3.08	2.70												
U.S. average 6/														
Wheat:														
1984/85	3.46	3.29	3.43	3.43	3.43	3.45	3.38	3.38	3.38	3.38	3.33	3.30	3.39	3.30
1985/86	3.09	2.93	2.89	3.01	3.10	3.22	3.25	3.19	3.16	3.28	3.37	3.01	3.08	3.30
1986/87	2.47	2.25	2.26	2.28	2.30	2.43	2.49	2.53	2.58	2.57	2.63	2.66	2.42	2.40
1987/88	2.44	2.52	2.36	2.53	2.62	2.69	2.70	2.75	2.79	2.74	2.79	2.97	2.57	2.28
1988/89	3.37	3.50	3.61	3.74	3.84	3.88	3.94	4.02	4.03	4.07	4.03	4.01	3.72	2.21
1989/90	3.85	3.78	3.74	3.72	3.75	3.72	3.79	3.71	3.56	3.49	3.49	3.40	3.72	2.06
1990/91	3.08	2.81												

1/ July 1990 data are preliminary. 2/ Kansas, Nebraska, Texas, Oklahoma, and Arkansas. 3/ Ohio, Indiana, Illinois, and Missouri. 4/ Wheat prices by class represent averages for the entire United States. 5/ Washington, Oregon, and Idaho. 6/ Season average prices do not include an allowance for unredeemed loans and purchases beginning 1979/80.

Source: National Agricultural Statistics Service & Economic Research Service, USDA.

Appendix table 11--Wheat cash prices for leading classes at major markets, 1984/85-1990/91

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
\$/bushel													
Kansas City, no.1 hard red winter (ordinary protein):													
1984/85	3.80	3.67	3.80	3.89	3.86	3.85	3.76	3.76	3.74	3.67	3.62	3.42	3.74
1985/86	3.38	3.17	3.03	3.07	3.15	3.35	3.42	3.32	3.30	3.36	3.45	3.40	3.28
1986/87	2.80	2.50	2.48	2.53	2.60	2.68	2.68	2.70	2.80	2.90	2.90	3.02	2.72
1987/88	2.70	2.59	2.65	2.78	2.90	2.90	3.10	3.20	3.28	3.10	3.14	3.20	2.96
1988/89	3.79	3.77	3.78	4.03	4.13	4.18	4.25	4.40	4.37	4.32	4.46	4.55	4.17
1989/90	4.44	4.28	4.24	4.18	4.28	4.36	4.39	4.30	4.13	4.04	4.13	3.91	4.22
1990/91	3.60	3.11											
Kansas City, no.1 hard red winter (13% protein):													
1984/85	4.15	3.99	3.98	4.03	4.01	3.99	3.91	3.87	3.87	3.80	3.84	3.72	3.93
1985/86	3.72	3.53	3.36	3.41	3.50	3.70	3.81	3.69	3.65	3.67	3.70	3.65	3.62
1986/87	2.90	2.70	2.55	2.66	2.75	2.84	2.89	2.95	2.98	3.00	3.05	3.17	2.87
1987/88	2.95	2.86	2.90	3.01	3.10	3.15	3.20	3.30	3.38	3.21	3.26	3.31	3.14
1988/89	3.92	3.85	3.85	4.08	4.16	4.23	4.26	4.41	4.40	4.55	4.50	4.60	4.23
1989/90	4.48	4.29	4.24	4.18	4.23	4.31	4.34	4.28	4.12	4.02	4.07	3.91	4.21
1990/91	3.71	3.17											
Chicago, no. 2 soft red winter:													
1984/85	3.51	3.44	3.49	3.47	3.51	3.62	3.49	3.51	3.55	3.58	3.63	3.34	3.51
1985/86	3.27	3.09	2.87	2.83	3.04	3.33	3.46	3.34	3.37	3.40	3.39	3.25	3.22
1986/87	2.52	2.58	2.44	2.36	2.57	2.73	2.76	2.87	2.91	3.11	3.16	3.08	2.76
1987/88	2.63	2.54	2.61	2.77	2.82	2.80	3.00	3.23	3.23	2.94	3.02	3.13	2.89
1988/89	3.56	3.52	3.61	3.84	4.07	4.09	4.25	4.39	4.30	4.31	4.04	4.07	4.00
1989/90	3.87	3.92	3.94	3.93	4.07	4.07	4.13	4.03	3.92	3.61	3.83	3.71	3.92
1990/91	3.26	3.04											
St. Louis, no. 2 soft red winter:													
1984/85	3.45	3.44	3.50	3.52	3.60	3.72	3.67	3.69	3.65	3.67	3.65	3.24	3.57
1985/86	3.29	3.07	2.84	2.85	3.10	3.42	3.58	3.48	3.49	3.64	3.66	2.74	3.26
1986/87	2.61	2.60	2.54	2.55	2.88	3.05	3.06	3.08	3.05	3.09	2.88	3.03	2.87
1987/88	2.63	2.58	2.59	2.77	2.95	2.97	3.22	3.24	3.18	2.98	3.10	3.20	2.95
1988/89	3.50	3.56	3.73	3.94	4.13	4.22	4.33	4.46	4.30	4.39	4.22	4.20	4.08
1989/90	3.89	3.95	3.79	4.03	4.05	4.20	4.19	4.13	4.00	3.87	3.88	3.33	3.94
1990/91	3.27	3.02											
Toledo, no. 2 soft red winter:													
1984/85	3.50	3.44	3.44	3.44	3.43	3.53	3.43	3.52	3.56	3.54	3.58	3.30	3.48
1985/86	3.22	3.02	2.77	2.74	2.90	3.18	3.39	3.32	3.34	3.47	3.30	3.22	3.16
1986/87	2.58	2.55	2.45	2.33	2.61	2.75	2.81	2.92	2.93	3.06	2.99	3.07	2.75
1987/88	2.60	2.55	2.54	2.69	2.86	2.82	3.10	3.21	3.20	2.92	2.99	3.07	2.88
1988/89	3.63	3.63	3.73	3.93	4.02	4.06	4.26	4.37	4.24	4.26	4.02	4.09	4.02
1989/90	3.86	3.86	3.86	3.84	3.95	3.99	4.09	3.96	3.86	3.83	3.90	3.52	3.88
1990/91	3.28	3.05											
Toledo, no. 2 soft white:													
1984/85	3.35	3.37	3.42	3.42	3.41	3.51	3.41	3.50	3.53	3.48	3.48	3.18	3.42
1985/86	3.13	3.02	2.89	2.89	3.12	3.30	3.42	3.26	3.26	3.31	2.89	2.93	3.12
1986/87	2.50	2.52	2.48	2.29	2.54	2.69	2.73	2.80	2.84	2.87	2.79	2.89	2.66
1987/88	2.63	2.57	2.69	2.81	2.88	2.95	3.14	3.28	3.27	2.96	3.02	3.09	2.94
1988/89	3.62	3.61	3.69	3.87	3.94	3.95	4.11	4.22	4.02	4.06	3.80	3.91	3.90
1989/90	3.81	3.82	3.83	3.79	3.92	3.93	4.01	3.86	3.74	3.70	3.72	3.44	3.80
1990/91	3.21	2.96											
Portland, no. 1 soft white:													
1984/85	4.03	3.73	3.74	3.70	3.73	3.78	3.76	3.77	3.83	3.93	3.94	3.91	3.82
1985/86	3.73	3.57	3.45	3.57	3.72	3.77	3.80	3.75	3.74	3.85	3.88	3.78	3.72
1986/87	3.03	2.75	2.68	2.70	2.78	2.84	2.86	2.93	3.07	3.07	2.99	3.09	2.90
1987/88	2.87	2.79	2.73	2.94	3.08	2.97	3.05	3.26	3.21	3.10	3.32	3.36	3.06
1988/89	3.79	4.05	4.15	4.39	4.46	4.68	4.81	4.98	4.97	4.81	4.63	4.66	4.53
1989/90	4.47	4.47	4.50	4.56	4.55	4.56	4.63	4.44	4.11	3.76	3.68	3.61	4.28
1990/91	3.59	3.44											
Minneapolis, no. 1 dark no. spring (ordinary protein):													
1984/85	4.40	4.21	3.72	3.57	3.64	3.64	3.48	3.47	3.52	3.55	3.64	3.55	3.70
1985/86	3.54	3.29	2.87	2.97	3.01	3.42	3.45	3.38	3.32	3.33	3.42	3.05	3.25
1986/87	2.51	2.17	2.39	2.64	2.70	2.81	2.77	2.82	2.65	2.61	2.60	2.76	2.62
1987/88	2.66	2.52	2.60	2.74	2.85	2.81	2.96	3.12	3.26	3.05	3.19	3.30	2.92
1988/89	4.17	3.96	4.09	4.16	4.17	4.09	4.20	4.42	4.37	4.46	4.45	4.50	4.25
1989/90	4.29	4.21	4.22	4.23	NA	NA	NA	NA	NA	NA	NA	NA	4.24
1990/91	NA	NA											
Minneapolis, no. 1 dark no. spring (14% protein):													
1984/85	4.45	4.34	4.07	3.97	4.03	4.02	3.92	3.90	3.92	3.94	4.36	4.02	4.08
1985/86	3.99	3.77	3.56	3.76	3.91	4.09	4.16	3.97	3.90	4.00	4.17	4.03	3.94
1986/87	3.17	3.00	2.86	2.85	2.98	3.09	3.04	3.08	3.13	3.19	3.17	3.24	3.07
1987/88	3.07	2.94	2.94	3.04	3.15	3.11	3.13	3.24	3.32	3.15	3.30	3.42	3.15
1988/89	4.32	4.23	4.24	4.32	4.33	4.22	4.26	4.44	4.40	4.56	4.47	4.55	4.36
1989/90	4.41	4.36	4.18	4.08	4.11	4.13	4.23	4.21	4.06	3.96	4.08	4.09	4.16
1990/91	3.96	3.56											
Minneapolis, no. 1 hard amber durum:													
1984/85	4.68	4.57	4.65	4.43	4.47	4.46	4.43	4.34	4.37	4.33	4.36	4.32	4.45
1985/86	4.16	4.05	3.99	4.07	4.03	4.08	4.09	4.01	4.01	3.99	4.07	4.24	4.07
1986/87	3.79	3.08	3.04	3.21	3.31	3.49	3.60	3.68	3.78	3.89	3.93	4.03	3.57
1987/88	3.91	3.66	3.80	4.30	4.31	4.33	4.22	4.19	4.22	4.02	4.21	4.39	4.13
1988/89	6.13	6.30	5.85	5.84	5.70	5.56	5.17	5.20	5.33	5.30	5.02	5.01	5.53
1989/90	4.64	4.50	4.33	4.08	4.12	4.02	4.20	4.23	4.12	4.13	4.30	4.31	4.25
1990/91	4.08	3.73											

NA = Not available.

Source: Grain and Feed Market News, Agricultural Marketing Service, USDA.

Appendix table 12--Domestic and foreign wheat prices, 1980-1990

Year and month	United States				Foreign		
	Farm 1/	Kansas City 2/	Gulf Ports 3/	Rotterdam 4/	Argentina 5/	Canada 6/	Australia 7/
	\$/metric ton						
Calendar year:							
1980	143	159	176	213	203	192	176
1981	142	160	176	210	190	194	175
1982	129	147	161	187	166	165	160
1983	132	145	158	185	138	169	161
1984	127	140	153	180	135	166	153
1985	117	125	137	169	106	173	141
1986	100	107	117	148	88	161	120
1987	94	104	114	141	89	134	115
1988	122	134	146	176	125	177	150
1989	142	160	171	190	151	202	176
1986:							
January	117	122	133	178	108	189	140
February	116	121	131	176	102	183	133
March	121	123	136	164	97	189	139
April	124	127	138	172	96	187	137
May	111	125	128	163	90	185	131
June	91	102	107	135	85	169	114
July	83	91	103	128	81	160	104
August	83	91	104	124	80	137	104
September	84	93	104	127	81	133	105
October	85	96	105	131	80	130	108
November	89	98	107	137	79	133	111
December	91	99	109	137	78	133	110
1987:							
January	93	100	110	141	82	136	110
February	95	103	114	145	92	138	112
March	94	107	116	140	90	139	115
April	97	107	115	138	88	134	115
May	98	111	120	146	88	136	119
June	90	100	110	144	86	130	111
July	85	95	106	134	84	126	107
August	87	97	108	134	84	124	109
September	93	103	114	139	89	130	115
October	96	105	116	139	95	134	118
November	99	105	116	140	95	134	118
December	99	114	126	148	95	142	126
1988:							
January	101	118	130	158	94	148	127
February	103	120	132	155	106	151	135
March	101	114	126	149	107	143	131
April	103	115	128	156	108	145	133
May	109	118	130	159	107	152	131
June	124	140	151	191	125	166	158
July	129	139	151	200	141	209	157
August	133	139	151	193	140	206	154
September	137	148	160	190	152	202	160
October	141	152	162	190	147	202	169
November	143	154	165	185	152	202	171
December	145	156	167	189	NQ	206	173
1989:							
January	148	162	175	205	NQ	213	179
February	148	161	173	207	NQ	212	178
March	150	166	179	192	NQ	210	183
April	148	164	176	192	NQ	207	179
May	147	167	177	193	NQ	209	182
June	141	161	170	187	156	204	178
July	139	157	168	185	155	204	175
August	137	155	165	181	155	196	170
September	137	153	164	180	149	188	171
October	138	156	165	183	149	190	172
November	136	159	168	183	147	191	174
December	140	161	170	191	149	194	176
1990:							
January	136	158	169	193	143	193	175
February	131	151	162	186	137	189	NA
March	128	148	157	178	123	191	NA
April	128	151	162	182	124	179	NA
May	125	143	151	179	122	171	NA
June	113	131	136	171	119	167	NA
July	103	114	125	152	112	8/ 148	NA

NA = Not available.

NQ = No quotes.

1/ Hard red winter wheat. 2/ No. 1, hard winter, ordinary protein. 3/ No. 2, hard winter, ordinary protein, f.o.b. vessel. 4/ U.S., no. 2 dark northern spring, 14 percent, c.i.f. 5/ f.o.b. Buenos Aires. 6/ No. 1, Canadian western red spring, 13.5 percent in-store, St. Lawrence. 7/ Australian standard wheat, f.o.b. 8/ Preliminary.

Appendix table 13--Wheat and wheat flour: World trade, production, stocks, and use, 1984/85-1990/91 1/

Country or region	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90 7/	1990/91 8/
Million metric tons							
Exports:							
Canada	19.4	16.8	20.8	23.6	13.5	17.0	19.0
Australia	15.8	16.0	14.8	12.2	10.8	10.9	10.5
Argentina	8.0	6.1	4.3	3.8	3.5	6.0	6.7
EC-12	18.5	15.6	16.4	14.8	21.0	21.0	21.0
USSR	0.5	0.5	0.5	0.5	0.5	0.5	1.0
All others	6.7	4.9	5.5	6.7	10.0	7.6	7.6
Total non-U.S.	68.9	60.0	62.3	61.6	59.3	63.0	65.8
U.S. 2/	38.1	25.0	28.4	43.4	37.6	34.0	32.0
World total	107.0	85.0	90.7	105.0	96.9	97.0	97.8
Imports:							
EC-12	3.4	2.8	2.4	2.2	2.5	2.5	2.5
USSR	28.1	15.7	16.0	21.5	15.5	14.0	14.0
Japan	5.6	5.5	5.8	5.7	5.4	5.4	5.4
E. Europe	2.6	3.4	3.7	3.3	2.8	2.1	2.7
China	7.4	6.6	8.5	15.0	15.5	13.0	12.5
All others	59.9	50.9	54.3	57.4	55.1	60.0	60.7
World total	107.0	85.0	90.7	105.0	96.9	97.0	97.8
Production: 3/							
Canada	21.2	24.3	31.4	26.0	16.0	24.4	29.0
Australia	18.7	16.2	16.1	12.4	14.1	14.3	14.5
Argentina	13.2	8.5	8.9	8.8	8.4	10.2	11.5
EC-12	83.1	71.6	72.0	71.4	74.7	78.6	80.3
USSR 3/	68.6	78.1	92.3	83.3	84.4	92.3	104.0
E. Europe	42.1	37.1	39.2	39.9	44.7	43.2	43.9
China	87.8	85.8	90.0	85.8	85.4	90.8	95.5
India	45.5	44.1	47.1	44.3	46.2	54.0	54.0
All other foreign	61.1	68.4	76.7	72.3	77.5	73.9	77.4
U.S.	70.6	66.0	56.9	57.4	49.3	55.4	73.6
World total	511.9	500.1	530.7	501.5	500.7	537.1	583.7
Utilization: 4/							
U.S.	31.4	28.6	32.6	29.6	26.5	26.5	33.7
USSR 5/	91.2	91.6	102.8	101.5	100.4	103.3	114.0
China	92.2	100.4	101.5	102.8	104.4	104.5	106.8
All other foreign	275.3	274.4	285.5	296.6	299.9	303.9	311.3
World total	490.1	495.0	522.5	530.5	531.3	538.2	565.8
Stocks, ending: 6/	164.4	168.2	176.4	147.5	116.9	115.7	133.7

1/ July-June years. 2/ Includes transshipments through Canadian ports; excludes products other than flour. 3/ Production data include all harvests occurring within the July-June year shown, except that small grain crops from the early harvesting Northern Hemisphere areas are moved forward; i.e., the May 1984 harvests in areas such as India, North Africa, and southern United States are actually included in 1984/85 accounting period, which begins July 1, 1984. 4/ Utilization data are based on an aggregate of differing marketing years. For countries for which stock data are not available, utilization estimates represent apparent utilization, i.e., they are inclusive of annual stock level adjustments. 5/ "Bunker weight" basis; not discounted for excess moisture and foreign material. 6/ Stocks data are based on an aggregate of differing marketing years and should not be construed as representing world stock levels at a fixed point in time. 7/ Forecasted as of August 1990. 8/ Projected as of August 1990.

Source: World Grain Situation and Outlook, Foreign Agricultural Service, USDA.

Appendix table 14--Wheat: Area, yield, and production by major States, 1982-1990

State	1982	1983	1984	1985	1986	1987	1988	1989	1990 1/
Area harvested (million acres):									
Arkansas	1.9	1.5	1.4	0.6	0.8	0.8	1.1	1.2	1.3
Colorado	3.0	3.1	3.3	3.5	3.0	2.6	2.4	2.3	2.6
Idaho	1.5	1.3	1.3	1.4	1.3	1.1	1.2	1.4	1.4
Illinois	1.5	1.4	1.6	0.8	0.8	1.0	1.3	1.8	2.0
Kansas	13.1	10.8	11.2	11.4	10.2	9.9	9.5	8.9	11.8
Minnesota	3.2	2.1	2.6	2.7	2.8	2.5	2.3	2.7	2.9
Missouri	2.2	1.9	2.1	1.3	0.6	0.8	1.6	1.9	2.0
Montana	5.4	4.5	4.6	4.0	4.8	4.7	3.8	5.2	5.5
Nebraska	2.9	2.3	2.3	2.3	2.0	2.0	2.0	2.1	2.3
N. Dakota	10.3	7.2	8.7	8.9	9.4	9.1	7.2	10.3	11.1
Ohio	1.2	1.2	1.1	1.0	1.1	0.9	0.9	1.2	1.4
Oklahoma	6.9	4.3	5.3	5.5	5.2	4.8	4.8	5.7	6.3
Oregon	1.2	1.1	1.1	1.1	1.0	0.8	0.8	0.9	1.0
S. Dakota	3.6	2.7	3.7	3.8	3.8	3.5	2.6	3.5	3.9
Texas	6.0	4.6	5.0	5.9	4.8	3.6	3.2	3.0	4.2
Washington	2.8	2.7	2.6	2.7	2.4	2.0	2.1	2.3	2.5
Yield (bu/acre):									
Arkansas	38.0	39.0	44.0	32.0	41.0	41.0	53.0	44.0	36.0
Colorado	28.7	39.9	35.3	39.8	32.6	38.1	33.8	27.4	34.0
Idaho	62.8	70.3	63.6	53.4	62.4	75.0	65.7	66.7	74.0
Illinois	45.0	46.0	44.0	49.0	44.0	59.0	54.0	59.0	47.0
Kansas	35.0	41.5	38.5	38.0	33.0	37.0	34.0	24.0	40.0
Minnesota	39.8	36.9	47.3	52.7	36.8	40.7	23.0	38.0	44.0
Missouri	34.0	38.0	41.0	39.0	33.0	46.0	49.0	47.0	38.0
Montana	33.6	30.7	22.6	12.7	29.1	32.2	15.7	27.7	27.0
Nebraska	35.0	43.0	36.0	39.0	38.0	44.0	36.0	27.0	38.0
N. Dakota	31.5	26.9	32.8	36.4	31.2	29.5	14.3	23.5	31.0
Ohio	43.0	49.0	44.0	62.0	46.0	58.0	50.0	51.0	59.0
Oklahoma	33.0	35.0	36.0	30.0	29.0	27.0	36.0	27.0	33.0
Oregon	52.9	60.4	61.8	52.6	57.0	65.3	68.6	58.5	60.0
S. Dakota	27.4	32.9	34.1	29.6	28.3	30.2	14.4	23.6	34.0
Texas	24.0	35.0	30.0	31.7	25.0	28.0	28.0	20.0	31.0
Washington	48.9	63.9	61.4	47.7	48.5	56.7	60.5	48.7	63.0
Production (million bushels):									
Arkansas	2/ 72.2	58.5	61.6	18.2	33.4	34.4	56.7	52.8	46.8
Colorado	85.0	122.1	115.3	2/ 139.3	96.4	97.4	79.5	62.1	87.0
Idaho	94.8	91.7	81.4	72.0	81.8	85.5	75.5	91.4	101.0
Illinois	67.5	64.4	70.4	36.8	36.1	56.1	67.5	2/ 105.0	91.7
Kansas	458.5	448.2	431.2	433.2	336.6	366.3	323.0	213.6	2/ 472.0
Minnesota	126.8	79.0	120.7	2/ 142.4	103.7	102.6	51.7	102.5	124.5
Missouri	74.8	70.3	84.1	49.9	18.8	35.4	76.0	87.0	76.0
Montana	2/ 180.3	136.9	104.7	50.2	138.5	151.2	60.0	145.0	148.3
Nebraska	101.5	98.9	81.0	89.7	76.0	85.8	72.0	55.4	85.5
N. Dakota	324.8	194.1	284.2	323.3	292.3	269.1	103.4	242.3	347.6
Ohio	51.6	58.8	48.4	58.9	48.3	49.3	46.0	62.7	2/ 79.7
Oklahoma	2/ 227.7	150.5	190.8	165.0	150.8	129.6	172.8	153.9	207.9
Oregon	63.5	65.6	68.9	56.0	58.4	52.9	51.8	53.8	58.0
S. Dakota	98.5	89.7	126.0	111.2	108.7	106.7	38.0	83.1	2/ 130.6
Texas	144.0	161.0	150.0	2/ 187.2	120.0	100.8	89.6	60.0	130.2
Washington	138.9	2/ 172.6	160.4	128.3	116.9	114.3	124.6	110.6	157.0

1/ Indicated -winter wheat only. 2/ Record production.

Appendix table 15--Rye: Supply, disappearance, area, and price, 1982/83-1990/91

Item	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90 1/	1990/91 2/
Million acres									
Area:									
Planted	2,533	2,707	2,971	2,543	2,334	2,428	2,374	2,014	1,690
Harvested	677	892	979	708	661	671	595	479	433
Bushels per acre									
Yield/harvested acre	28.8	30.3	33.1	28.8	28.8	29.1	24.7	28.1	30.0
Million bushels									
Supply:									
Beginning stocks	3.0	5.8	11.2	19.8	21.9	18.6	18.9	10.3	5.6
Production	19.5	27.0	32.4	20.4	19.1	19.5	14.7	13.5	13.0
Imports	3.0	1.6	0.6	2.2	1.0	1.2	0.2	0	0.1
Total supply	25.5	34.4	44.2	42.4	41.9	39.3	33.8	23.9	18.7
Disappearance:									
Food	3.3	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Feed and residual	9.6	11.9	14.4	10.9	13.7	10.6	11.4	8.9	5.2
Seed	4.3	4.7	4.1	3.8	3.7	3.8	3.2	3.0	3.0
Industry	2.3	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0
Total domestic	19.5	22.2	24.0	20.3	22.9	19.9	20.1	17.4	13.7
Exports	0.2	1.0	0.4	0.2	0.5	0.5	3.4	0.8	1.0
Total disappearance	19.7	23.2	24.4	20.5	23.4	20.4	23.5	18.2	14.7
Ending stocks	5.8	11.2	19.8	21.9	18.6	18.9	10.3	5.6	4.0
\$/bushel									
Prices:									
Loan rate	2.17	2.25	2.17	2.17	1.63	1.55	1.50	1.40	1.33
Season average price	2.40	2.17	2.08	2.03	1.49	1.63	2.52	2.10	2.10
\$1,000									
Value of production	47,460	60,074	68,828	41,902	29,159	31,641	37,006	27,652	27,652

1/ Preliminary. 2/ Projected.

Appendix table 16--Rye: Production by major States, 1981-89

State	1981	1982	1983	1984	1985	1986	1987	1988	1989
1,000 bushels									
Georgia	2,730	1,470	1,470	1,760	2,070	1,785	1,540	1,890	1,610
Indiana	234	260	270	336	308	280	162	210	204
Michigan	448	522	600	588	651	713	640	650	660
Minnesota	2,883	3,300	4,960	6,650	3,300	1,600	1,200	920	1,088
Nebraska	924	1,269	1,265	1,392	1,242	1,035	1,150	1,375	600
N. Jersey	261	319	390	261	320	310	232	310	182
N. York	288	341	416	429	420	429	300	396	480
N. Carolina	400	525	440	550	665	595	600	780	525
N. Dakota	2,170	2,400	4,320	5,400	2,640	4,250	5,115	1,350	1,064
Oklahoma	680	736	780	704	828	840	360	720	532
Pennsylvania	363	408	578	578	740	630	525	684	576
S. Carolina	726	621	320	546	532	391	528	720	644
S. Dakota	3,220	4,680	8,740	10,800	4,440	4,440	5,040	2,250	3,240
Virginia	364	364	312	378	312	364	435	560	264

Important Information from USDA's Economic Research Service!



Only a phone call away. Toll Free: 1-800-999-6779

Get the latest facts, figures, and trends on food, farms, rural America, and the international agricultural scene.



Agricultural Outlook. Presents USDA's farm income and food price forecasts. Emphasizes the short-term outlook, but also presents long-term analyses of issues ranging from international trade to U.S. land use. **11 issues \$26.**

Farmline. Concise, fact-filled articles focus on economic conditions facing farmers, how the agricultural environment is changing, and the causes and consequences of those changes for farm and rural people. **11 issues \$12.**

National Food Review. Offers the latest developments in food prices, product safety, nutrition programs, consumption patterns, and marketing. **4 issues \$11.**

Rural Development Perspectives. Crisp, nontechnical articles on the results of new rural research and what they mean. **3 issues \$9.**

Economic Indicators of the Farm Sector. Updates economic trends in U.S. agriculture. Explores different aspects of income and expenses; national and State financial summaries, production and efficiency statistics, and costs of production. **5 issues \$14.**

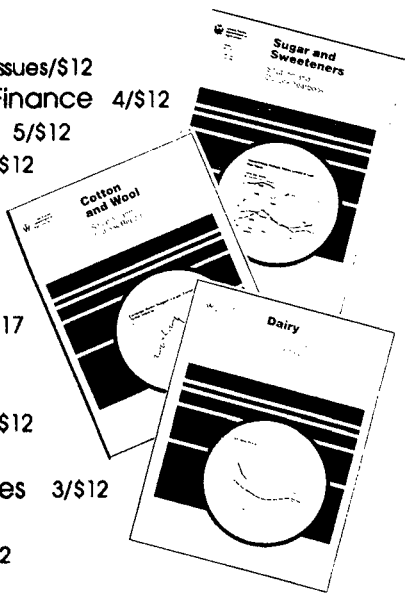
Foreign Agricultural Trade of the United States. Updates the quantity and value of U.S. farm exports and imports, plus price trends. **8 issues \$25.**

The Journal of Agricultural Economics Research. Technical research in agricultural economics, including econometric models and statistics focusing on methods employed and results of USDA economic research. **4 issues \$8.**

Situation and Outlook Reports

These reports provide timely analyses and forecasts of all major agricultural commodities and related topics.

- Agricultural Exports 4 Issues/\$12
- Agricultural Income & Finance 4/\$12
- Agricultural Resources 5/\$12
- Agriculture & Trade 4/\$12
- Aquaculture 2/\$12
- Cotton & Wool 4/\$12
- Feed 4/\$12
- Fruit & Tree Nuts 4/\$12
- Livestock & Poultry 8/\$17
- Oil Crops 4/\$12
- Rice 4/\$12
- Sugar & Sweetener 4/\$12
- Tobacco 4/\$12
- Vegetables & Specialties 3/\$12
- Wheat 4/\$12
- World Agriculture 4/\$12



Subscribe to . . .

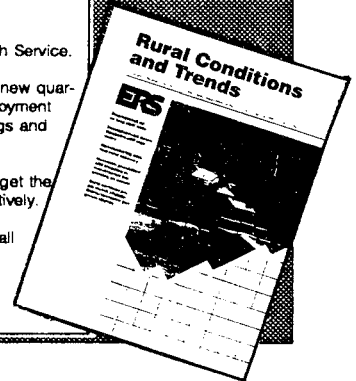
Rural Conditions and Trends

A new periodical from USDA's Economic Research Service.

Track rural events on a variety of subjects in this new quarterly periodical: macroeconomic conditions, employment and underemployment, industrial structure, earnings and income, poverty, and population.

Quick-read text and sharp graphics will help you get the information you need to know efficiently and effectively.

To receive a sample copy of the premier issue, call 1-800-999-6779 toll free.

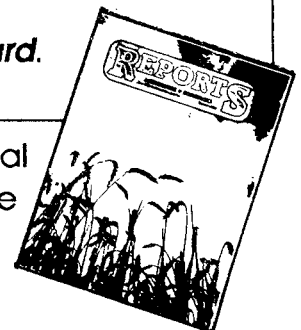


Order by Phone Today.

Call toll free **1-800-999-6779 (8:30 - 5:00 ET weekdays)** in the United States or Canada; other areas please call 301-725-7937.

Use your **VISA** or **MasterCard**. Or we can bill you.

Be sure to ask for our special catalog: **Reports**. It's free and issued quarterly!



UPDATES. Get the latest data and analyses with these deadline-tight newsletters. **Livestock & Poultry Update**, 6 pages of data, charts and analyses. Issued monthly, \$15. **U.S. Agricultural Trade Update**, 6 pages of export, import, balance-of-trade news. Issued monthly, \$15

