United States
Department of
Agriculture

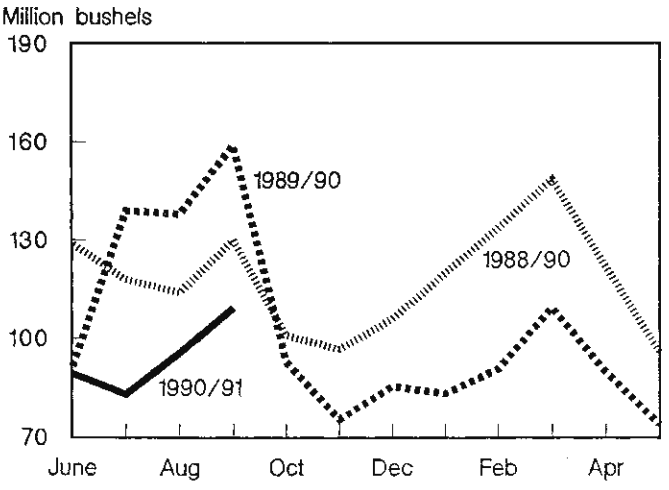
Economic
Research
Service

WS-291
November 1990

# Wheat

## Situation and Outlook Report

Figure 9
**Wheat exports start slowly**



# Contents

**Wheat Situation and Outlook.**
Commodity Economics Division,
Economics Research Service,
U.S. Department of Agriculture,
November 1990. WS 291



Approved by the World Agricultural Outlook Board. Summary released November 19, 1990. The next summary of the *Wheat Situation and Outlook Report* is scheduled for February 22, 1991. Summaries and text may be accessed electronically. For details call (202) 447-5505.

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# Summary

## Lower U.S. Wheat Output Expected in 1991

U.S. wheat prospects for 1991 point to decidely lower production than the near-record 1990 crop. Area will be reduced, and there is no assurance that the 1990 record yield will be replicated. However, 1991/92 U.S. wheat supplies will be bolstered by the much larger carryin stocks.

A higher ARP level and prospects for stronger prices for alternative crops will assure sharply reduced wheat seedings for the 1991 wheat crop. Assuming the minimum ARP level of 15 percent for 1991, a participation rate similar to this year likely would lead to four to five times more wheat area idled under the ARP in 1991 than the approximately 2 million acres in 1990.

Lower prices for wheat relative to alternative crops will also contribute to the expected drop in U.S. wheat area, and not just by those producers who do not choose to participate in the 1991 program. The various provisions of the new legislation will mean that even participating producers will plant a portion of their permitted acres to other crops. For 1991, the major impact of these provisions on participants is expected to be on spring wheat plantings.

Large 1990/91 crops and sharply lower export prices are likely to discourage some foreign producers from planting wheat in 1991/92. However, several major producing countries, including the EC, the USSR, and China are not very responsive to world price movements. While producers in Canada, Argentina, and Australia are normally more responsive, much depends on relative prices of other commodities.

World 1990/91 wheat production is forecast up 11 percent from 1989/90. Even with consumption up 6 percent, world ending stocks are expected to jump 23 percent. The world stocks-to-use ratio is forecast up, but is expected to remain well below mid-1980s highs. U.S. exports in 1990/91 are forecast down 13 percent to 29 million tons because of strong competition and stagnant trade.

The 1990 legislation generally continues the market-oriented approach to farm policy of the 1985 Food Security Act. While loan rates will be higher than if 1985 provisions were continued, producers will have additional planting flexibility. Under the conservation title, wetland preservation and long-term land retirement are emphasized. The trade title includes revised provisions for a number of export programs.

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 | 536 |
| Production | 2,091 | 2,108 | 1,812 | 2,037 | 2,744 |
| Imports | 21 | 16 | 23 | 23 | 23 |
| Supply, total | 4,017 | 3,945 | 3,096 | 2,762 | 3,303 |
| Domestic | | | | | |
| Food | 712 | 721 | 715 | 731 | 745 |
| Seed | 84 | 85 | 103 | 101 | 88 |
| Feed and residual | 401 | 280 | 157 | 160 | 450 |
| Domestic, total | 1,197 | 1,086 | 975 | 992 | 1,283 |
| Exports | 999 | 1,598 | 1,419 | 1,233 | 1,075 |
| Disappear., total | 2,196 | 2,684 | 2,394 | 2,225 | 2,358 |
| Ending stocks | 1,821 | 1,261 | 702 | 536 | 945 |

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) | | | Million bushels | | | |
| Beginning stocks | 302 | 219 | 39 | 81 | 60 | 702 |
| Production | 712 | 433 | 548 | 251 | 92 | 2,037 |
| Supply, total 2/ | 1,014 | 660 | 587 | 335 | 165 | 2,762 |
| Domestic disappear. | 439 | 225 | 211 | 57 | 60 | 992 |
| Exports | 360 | 280 | 345 | 193 | 55 | 1,233 |
| Disappear., total | 799 | 505 | 556 | 250 | 115 | 2,225 |
| Ending stocks | 215 | 155 | 32 | 85 | 50 | 536 |
| 1990/91 (Projected) | | | | | | |
| Beginning stocks | 215 | 155 | 32 | 85 | 50 | 536 |
| Production | 1,211 | 556 | 543 | 312 | 122 | 2,744 |
| Supply, total 2/ | 1,426 | 715 | 574 | 405 | 183 | 3,303 |
| Domestic disappear. | 625 | 264 | 250 | 76 | 68 | 1,283 |
| Exports | 380 | 180 | 285 | 180 | 50 | 1,075 |
| Disappear., total | 1,005 | 444 | 535 | 256 | 118 | 2,358 |
| Ending stocks | 421 | 271 | 39 | 149 | 65 | 945 |

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

# 1990 Farm Legislation Sets Framework for 1991-95

*Two recent pieces of legislation—the Food, Agriculture, Conservation and Trade Act of 1990 (the 1990 farm bill) and the Agricultural Reconciliation Act of 1990—provide the basic framework that authorizes commodity programs for crop years 1991 through 1995.*

The 1990 legislation generally continues the market-oriented approach to farm policy of the 1985 Food Security Act. While loan rates will be higher than if 1985 provisions were continued, producers will have additional planting flexibility. Under the conservation title, wetland preservation and long-term land retirement are emphasized. The trade title includes revised provisions for a number of export programs.

The following discussion highlights selected provisions of this legislation that affect wheat. It does not cover specific provisions of the 1991 wheat program because those provisions have yet to be announced by the Secretary of Agriculture.

## Commodity Title Provisions

### *Loan Rates*

Under 1990 farm legislation, loan rates will be higher than if the formulas of the 1985 Food Security Act were continued. The basic loan rate will be set at 85 percent of the average of market prices for the five preceding years, excluding the high and low years. The basic loan cannot drop more than 5 percent from the previous year.

The Secretary may reduce the basic loan rate in two ways. The first reduction is based on the projected ending stocks-to-use (S/U) ratio for the marketing year. The maximum allowed reduction is 10, 5, or 0 percent depending on whether the S/U is greater than or equal to 30 percent, between 15 and 30 percent, or less than 15 percent. If the S/U adjustment authority is used, a report must be submitted to Congress justifying the action.

The second reduction allows the Secretary to reduce the loan rate by an additional 10 percent to maintain a competitive market position for wheat. Because of a minimum loan rate provision, this additional reduction is from a loan rate of $2.44 unless: 1) the S/U adjusted rate is higher than $2.44, or 2) 80 percent of the 5-year average price (dropping the high and low) is less than $2.44. If either of these conditions hold, then the S/U adjusted rate—rather than $2.44—is used as the basis for the additional reduction.

The Secretary may implement wheat marketing loans and offer loan deficiency payments to producers.

### *Target Prices and Deficiency Payment Rates*

Target prices for 1991-95 are to continue at the 1990 level—not less than $4.00 per bushel. For crop years 1991 through 1993, the deficiency payment rate will be calculated as currently: the difference between the target price and the price received by producers during the first 5 months (June through October for wheat producers) of the marketing year (unless the basic loan rate is higher than the 5-month price).

For crop years 1994 and 1995, the deficiency payment rate will be calculated as the difference between the target price and the price received by producers during the 12 months (June through May) of the marketing year. If the 12-month price is more than 10 cents above the 5-month price, then the 5-month price plus 10 cents will be used to calculate the deficiency payment rate.

USDA must continue to make advance payments at program signup of between 40 to 50 percent of the projected deficiency payment rate. For 1994 and 1995, USDA will re-estimate the projected deficiency payment in December and pay to producers 75 percent of the new projected rate, less the original advance.

### *Acreage Reduction Programs*

For 1991, the Acreage Reduction Program (ARP) for wheat cannot be less than 15 percent. For crop years 1992-95, the range of ARP percentages will be determined by the ending S/U ratio for the previous crop year. If the S/U is greater than 40 percent, the Secretary must announce a program with an ARP percentage between 10 and 20 percent. If the S/U is less than or equal to 40 percent, the Secretary may announce a program with an ARP percentage of 0 to 15 percent.

### *Planting Flexibility and Payment Acres*

Producers have more planting flexibility under the new acts but deficiency payments will be paid on fewer acres than in the past.

Up to 25 percent of a participating producer's crop base may be planted to other crops under the flexibility provisions. In general, a participating producer may plant up to 25 percent of his wheat base to another crop (except fruits and vegetables) without losing wheat base. Producers may also plant wheat on up to 25 percent of another program crop base without jeopardizing wheat loans and payments. Wheat planted on the flexibility acres of an-other crop, while not eligible for deficiency payments, is eligible for loans whether or not the producer participates in the wheat program.

As in the past, a producer will not receive deficiency payments on his Acreage Reduction Program (ARP) acres. Fifteen percent of the crop base will not be eligible for deficiency payments, even if planted to wheat. For example, if the ARP is 15 percent, a producer would not receive deficiency payments on 30 percent of his base. If a producer plants another crop on up to an additional 10 percent of the crop base, he will lose wheat deficiency payments on these acres.

Example 1 illustrates planting and payment options for the 1991 standard wheat program. A 15 percent ARP is assumed.

### *Winter Wheat Option*

A wheat producer who planted the 1991 wheat crop in 1990, (generally winter wheat producers), may choose payment on all permitted acres (wheat base less ARP acres) and not be subject to the 15 percent payment acre reduction. The deficiency payment rate under this option is based on the 12-month price (as discussed above for crop years 1994 and 1995) rather than the 5-month price.

Example 2 illustrates planted and payment acres under the 1991 winter wheat option. A 15 percent ARP is assumed.

### *0/92 Provisions*

General 0/92 provisions continue as under current law. This includes payments guaranteed at not less than the projected deficiency payment rate. For 0/92 acres that otherwise would be in conserving use (CU), the Secretary must permit planting of minor oilseeds. Producers planting a minor oilseed on 0/92 acres must choose between retaining the 0/92 payment, or receiving loan eligibility for that oilseed on the farm. The Secretary may also permit the planting of industrial crops on 0/92 acres.

Example 3 illustrates 0/92 planting options and payment acres for a producer who enrolls all of his wheat base in the 0/92 program under the standard (non-winter option) program. A 15 percent ARP is assumed.

### *Cover Crops on ARP and Conserving Use (CU) Acres*

Except in arid and summer fallow areas, producers must plant an annual or perennial cover crop on 50 percent of ARP acres (not to exceed 5 percent of the wheat base). A producer who elects to plant (and maintain for 3 years) permanent cover is eligible for cost-share assistance of 25 percent of the approved cost of establishing the cover on not more than 50 percent of the acreage diverted from production, not to exceed 5 percent of the crop acreage base. The Secretary may permit planting of conserving crops for harvest on ARP and CU acres.

### *Farmer-Owned Reserve (FOR)*

Major changes in FOR provisions have been made by 1990 farm legislation. First, producers may repay their FOR loans anytime before maturity without penalty. Second, FOR storage payments will be made quarterly at the end of each quarter rather than annually in advance. New FOR provisions will take effect on December 1, 1990, for the 1990 and later wheat crops.

The Secretary must announce by December 15 if entry of wheat into the FOR will be permitted. He must permit entry if both of the following conditions are met and may permit entry if either of the following conditions are met: (1) the average market price for the 90 days preceding December 15 is below 120 percent of the loan rate and (2) the projected ending S/U ratio for the market year is greater than 37.5 percent.

A producer's nine-month loan must mature before FOR entry is allowed. The FOR contract is for 27 months unless the Secretary chooses to extend the loans for an additional 6 months. No minimum quantity of wheat must be specified but if entry is permitted, the

Secretary must specify a maximum quantity between 300 and 450 million bushels.

Storage payments stop when market prices exceed 95 percent of the target price. The Secretary may charge interest if market prices exceed 105 percent of the target price.

### *Food Security Reserve*

The Food Security Wheat Reserve is extended through 1995 at the 4 million metric ton level. The Secretary is required to replenish stocks within 18 months of release. Replenishment may be through purchases (if appropriations are available) or by designating uncommitted stocks of the Commodity Credit Corporation (if stocks are available).

### *Pilot Voluntary Production Limitation Program*

The Secretary must implement the pilot voluntary production limitation program for 1992 or 1993 in 30 counties. Under the program, a producer may plant more wheat acres than his permitted acres (wheat base acres less ARP acres) and still receive program benefits. He must not market or use more wheat than his production limitation quantity (permitted acres times the higher of the payment yield or the 5-year harvested yield, dropping the high and low values). Any excess production must be stored. It may be marketed or used in a later year when actual production is less than the limitation quantity.

### *Other Provisions*

Summer fallow provisions are continued. Payment yields are frozen at 1990 payment yield levels. Haying and grazing of ARP acres and conserving use acres will be permitted except for the 5-month period designated by the State ASC committee. The Secretary may not impose strict or limited cross-compliance or offsetting compliance. A producer may not, however, build base for any crop on a farm if he is eligible to receive deficiency payments for any crop on the farm.

### *Crop Insurance*

Crop insurance did not receive the major overhaul in 1990 farm legislation that many expected. The program is fully funded for 1991.

The crop insurance title makes several changes to the current program. Beginining with the 1992 crop, the title requires USDA to offer, in addition to standard policies, dollar-denominated coverage that is quoted in dollars per acre. In addition, USDA may offer coverage based on ASCS yields. Premiums would be commensurate with risk.

The title requires that USDA adopt rates and coverages that improve the actuarial soundness of the Federal Crop Insurance Corp. (FCIC). Rates in some areas will increase and in other areas, decline. No rates are to be increased by more than 20 percent over the year-earlier comparable rate.

Participating producers will be required to provide social security numbers in an effort to help combat fraud. Civil fines, not to exceed $10,000, can be imposed on producers who willfully provide false information.

Example 1:

**A producer participates in the standard wheat program for 1991.**

| | | |
|---|---|---|
| No deficiency payments | ARP: 15 acres | Idle |
| | NFA: 15 acres | Plant to any crop except vegetables or fruit |
| | OFA: 0-10 acres | |
| Deficiency payment acreage if planted to wheat (based on 5-month price) | Wheat for pay: 70-60 acres | Plant to wheat |

Example 2:

**A producer participates in the optional winter wheat program for 1991.**

| | | |
|---|---|---|
| No deficiency payments | ARP: 15 acres | Idle |
| Deficiency payment acreage if planted to wheat (based on 12-month price) | Wheat for pay: 85 acres | Plant to wheat |

Example 3:

**A producer enrolls all of his wheat base in the 0/92 program.**

| | | |
|---|---|---|
| No deficiency payments | ARP: 15.0 acres | Idle |
| | NFA: 15.0 acres | Plant to any crop except vegetable or fruit |
| 0/92 deficiency payment acreage | 0/92 CU: 5.6 acres<br>0/92 CU: 64.4 acres | Idle or plant to minor oilseed |

**Notes**

**ARP:** Acreage Reduction Program acres. Must be idled to meet program participation requirements (assumed at 15%).

**NFA:** Normal Flexible Acres. Can be planted to any crop except fruits, vegetables, and other crops if designated by the Secretary.

**OFA:** Optional Flexible Acres. Can be planted to any crop except fruits, vegetables, and other crops if designated by the Secretary. But planting a crop other than wheat will reduce wheat payment acres.

**CU:** Conserving Use Acres. Idled from wheat production and maintained in a conserving use or planted to a minor oilseed.

# Conservation Important for Wheat

*The conservation title of the 1990 Farm Bill focuses on water quality improvement, protection of environmentally sensitive lands, and long-term easements.*

The conservation title makes important changes to the "swampbuster" provision of the 1985 farm bill and authorizes a new umbrella program for conservation, the Agricultural Resource Conservation (ARC) program.

ARC is one of two umbrella programs authorized in the 1990 Farm Bill. ARC consists of the Conservation Reserve Program (CRP), Wetland Reserve Program (WRP), Water Quality Incentives Program (WQIP), and Environmental Easement Program (EEP). The other umbrella program, the Environmental Conservation Acreage Reserve Program (ECARP), contains the CRP and WRP.

The Secretary of Agriculture is directed to enroll 40-45 million acres in ECARP during the 1986-1995 calendar years. If the Secretary considers expansion beyond 40 million acres, he must analyze the consequences for crop supply and demand conditions, the health of rural communities, and the budget.

When compared with the 1985 Food Security Act, the role of the CRP—the primary component of ARC—is broadened. In addition to highly erodible land, CRP eligibility is expanded to include water quality lands, shelterbelts, windbreaks, and marginal pasturelands planted to trees or converted to wetlands. CRP contracts generally would be for 10 years, although 15-year contracts are available for land enrolled and planted to hardwood trees.

Cost-share assistance on CRP land, where deemed appropriate by the Secretary, is to be 50 percent of the cost of establishing water quality and conservation measures. For hardwood trees, shelterbelts, windbreaks, and wildlife corridors, assistance is to be 50-75 percent of the maintenance cost over a 2-4 year period from the time of planting. Other provisions:

- Allow continuous CRP signup for land that is to be planted to hardwood trees;
- Authorize CRP contracts to be extended for 10 years after the initial contracts end; and
- Extend base protection for expiring CRP contracts if the farmer agrees to abide by the terms of the original contract.

By authorizing the new WRP as a part of ARC, the legislation has gone a step beyond expanding CRP eligibility to protect environmentally-sensitive lands. The WRP is a voluntary program designed to help farmers restore and protect eligible wetlands. Participants must place enrolled land under a 30-year or permanent easement and develop an easement plan. Generally, plans are to focus on promoting wildlife and prohibit crop production, grazing, and spraying chemicals.

The Secretary is directed to enroll up to 1 million acres in the WRP between 1991-95. A preference is given for farmed wetlands to be enrolled in the WRP, rather than in the CRP.

The ARC program also addresses water quality protection in a new Water Quality Incentives Program (WQIP). This voluntary program is designed to help producers develop 3-5 year plans that protect water quality through source reduction and other measures. Wetland preservation and wildlife habitat improvement options are also included.

The WQIP enrollment goal is 10 million acres from 1991-95. Producers are limited to no more than $3,500 per year in incentive payments and no more than an additional $1,500 per year in cost-share assistance.

The Environmental Easement Program (EEP), also a voluntary program, provides for the long-term protection of environmentally sensitive land or land important for protecting water quality. Easements are to be permanent or for the maximum period allowed under state law. In return for implementing a conservation plan, participating farmers receive cost-share and easement payments.

These provisions represent a shift in conservation program focus. Under the 1985 farm bill, about 50 percent of the land enrolled in the CRP was located in areas of the Great Plains prone to wind erosion. This is largely because of the relatively attractive CRP rental rates paid and the large amount of eligible land in those areas. The focus is now more on wetlands and water quality protection.

### *Swampbuster*

Wetland conservation provisions ("swampbuster") are a key element in the 1990 farm bill, 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. The 1990 legislation adds to the list of benefits subject to denial, and includes disaster assistance payments for weather-damaged trees, Agricultural Conservation Program payments, and CRP payments. Violators are ineligible for all program benefits in those years that the converted wetland is planted.

The 1990 farm bill tightens 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.

Rather than denying all program benefits, the new swampbuster language authorizes, in certain cases, graduated penalties ranging from $750-$10,000. A graduated penalty would apply to a person violating swampbuster: 1) who is acting in good faith; 2) who has not

violated swampbuster more than once in the last 10 years; and 3) who agrees to restore the characteristics of the wetland.

There are other provisions. For example, exemptions may be granted if actions have a minimal effect on functional hydrological and biological value, including waterfowl and wildlife value.

In addition, a farmer can drain a frequently cropped wetland and not become ineligible for program benefits if he mitigates this drainage by restoring a wetland converted prior to December 23, 1985. The restoration is to be, among other provisions: 1) in accordance with a plan; 2) in advance of, or concurrent with, the action; 3) not at federal expense; and 4) on land in the same area as the converted wetland.

### *Sodbuster and Compliance*

Sodbuster and conservation compliance provisions are continued under the 1990 farm bill with few changes. Graduated penalties are to be levied for sodbuster violators who act in good faith and who have not had more than one violation in a 5-year period. Penalties range from $500-5,000. Changes in compliance provisions allow separate consideration to be made for landlords and tenants.

### *Pesticide Recordkeeping*

For the first time, the 1990 bill requires that all certified applicators keep records of their applications of restricted-use pesticides for 2 years. Records are to contain information similar to that maintained by commercial applicators in the state where the certified applicator resides. If the state has no requirements, records are to contain the product name, amount, approximate date of use, and the location of application.

Access to records is restricted to Federal or State agencies that deal with pesticide use. Health professionals also are allowed the information when needed for medical treatment to a person possibly exposed to a pesticide. In no case can a government agency reveal the identity of individual producers.

### Conservation Highlights

In addition to the CRP, several new conservation programs are authorized under the 1990 legislation, with a focus on water quality and environmental protection:

- Agricultural Resource Conservation (ARC):
  - — Environmental Conservation Acreage Reserve (ECARP)
    Conservation Reserve (CRP)
    Wetland Reserve (WRP)
  - — Water Quality Incentives (WQIP)
  - — Environmental Easement (EEP)
- Swampbuster violations are triggered by drainage, but:
  - — Penalties are graduated;
  - — Certain exemptions exist for minimal effects;
  - — Mitigation is allowed.
- Sodbuster and conservation compliance are continued:
  - — Sodbuster penalties are also graduated;
  - — Compliance provisions allow separate considerations to be made for landlords and tenants.
- Certified applicators must keep records of their use of restricted-use pesticides for 2 years.

# Trade Title Revises Export Programs

*The trade title of the 1990 farm bill revises provisions for a number of export programs. The bill contains changes in program management and certain changes in focus.*

### *Export Enhancement*

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 EC export subsidies.

The 1990 farm bill contains language that closely parallels how the EEP program is currently being implemented. The revised EEP is to be implemented to combat "unfair trade practices" carried out by other countries and to make U.S. agricultural commodities competitive. The Secretary shall "establish as an objective" to expend annually at least 25 percent of the total funds available (or 25 percent of the value of any commodities employed) for program activities involving the export sales of high-value agricultural commodities and value-added products of United States agricultural commodities.

The 1990 farm bill authorizes a minimum funding level of $500 million for EEP in each of the 1991-95 years.

### *Market Promotion Program*

The Targeted Export Assistance (TEA) Program, authorized under the 1985 Food Security Act, is replaced with a broader authority under the 1990 farm bill. 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 abroad. Export promotions have been conducted in affected markets to counter or mitigate unfair practices, or in alternative markets to offset adverse effects on U.S. exports.

In place of TEA, the 1990 farm bill authorizes the Market Promotion (MP) program. This program encourages development and expansion of export markets for commodities through cost-share assistance to eligible trade organizations that implement a foreign marketing plan. The program helps foreign promotion activities generally, but emphasis is given to helping commodities hampered by unfair trade practices. Private organizations generally cannot receive assistance exceeding 50 percent of the cost of implementing their plan.

The 1990 farm bill authorizes a minimum funding level of $200 million for the MP program in each of the 1991-95 years.

### *Export Credit Guarantees*

The export credit guarantee (GSM) programs are also addressed in the 1990 farm bill. These programs help U.S. exporters sell agricultural commodities in markets that have foreign exchange constraints by facilitating the loans made by private financial institutions. These loans are on better terms than foreign buyers would otherwise receive because the Commodity Credit Corporation (CCC) guarantees payment. Guarantees are either short-term GSM-102 guarantees (up to 3 years) or intermediate GSM-103 guarantees (3-10 years).

Under the 1990 farm bill, the Secretary can use export credit guarantees to increase U.S. agricultural commodity exports, compete against foreign exports, and help foreign countries meet their food needs. The program is not to be used for foreign aid, foreign policy, or debt rescheduling. The CCC cannot provide intermediate term credit guarantees unless the Secretary determines that the sale will, on a long-term basis, promote U.S. agricultural exports.

The CCC is restricted from making credit guarantees available to countries that cannot adequately service the associated debt. Further, the CCC is to guarantee credit only on U.S. agricultural commodities as defined in the revised 1978 Trade Act. It is not to guarantee the value of any foreign agricultural component.

### *P.L. 480*

The 1990 legislation reauthorizes the P.L. 480 (Food for Peace) program, which was due to expire on December 31, 1990. The main objective of P.L. 480 as stated in the 1990 legislation is to promote U.S. foreign policy by enhancing food security in developing countries. The title also focuses on: developing and expanding export markets for U.S. agricultural commodities, combating hunger and malnutrition, and encouraging development in developing countries.

For many years, P.L. 480 has contained three main titles and has been administered jointly by several 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, Title III, known as the Food for Development Program, has provided for the forgiveness of Title I debt, if mutually agreed-upon development projects are undertaken.

The 1990 legislation contains several shifts in P.L. 480 focus. Title I now contains provisions for debt forgiveness and program management changes. The concessional sales program of Title I is to continue for those countries that have the ability to repay. Priority for concessional sales is to be given to countries that demonstrate the greatest need for food and have the potential to become markets for competitively-priced U.S. commodities.

Title II provides for emergency food assistance through both governments and private and public organizations. It establishes a Food Aid Consultative

Group to improve communication among the Agency for International Development and the private voluntary organizations.

Title III is deleted because debt forgiveness is incorporated in the new Title I. The new Title III contains a government-to-government grant program through which commodities are donated to least-developed countries. Donated commodities may be used for direct feeding programs, the development of emergency food reserves, or may be sold and the proceeds used for various purposes specified in the agreement.

### *GATT Trigger*

The "GATT trigger" language requires specific U.S. program adjustments if an agricultural trade reform agreement is not achieved at the Uruguay Round of the General Agreement on Tariffs and Trade (GATT). The trigger is two-tiered.

The first tier addresses reaching an agreement in agriculture. It states that, if the United States has not entered a Uruguay Round agreement on agriculture by June 30, 1992, the Secretary shall:

- Consider and, if determined appropriate, waive minimum ARP levels for the 1993-95 crops;
- Increase by $1 billion the level of export promotion funding for 1994-95; and
- Establish marketing loans for any of the 1993-95 crops of wheat and feed grains.

The second tier addresses entering the agreement into force. It states that, if an agreement on agricultural trade reform has not been entered into force for the United States by June 30, 1993, the Secretary:

- Shall consider and, if deemed appropriate, waive all or a part of the agricultural reconciliation spending cuts of 1990;
- May increase the level of funding available for export promotion programs; and
- May establish marketing loans for any of the 1993-95 crops of wheat and feed grains.

This authority would terminate if the President certified to Congress that the failure of the Uruguay Round negotiations in agriculture resulted, in whole or in part, because "fast track" authority was not available. "Fast track" authority means that Congress must accept or reject the negotiated treaty as a whole with no option to amend.

*Outlook for 1991/92*

# Lower U.S. Wheat Output Expected in 1991

*U.S. wheat prospects for 1991 point to decidely lower production than the near-record 1990 crop. Area will be reduced, and there is no assurance that the 1990 record yield will be replicated. However, 1991/92 U.S. wheat supplies will be bolstered by the much larger carryin stocks.*

A higher ARP level and prospects for stronger prices for alternative crops will assure sharply reduced wheat seedings for the 1991 wheat crop. Assuming the minimum ARP level of 15 percent for 1991, a participation rate similar to this year likely would lead to four to five times more wheat area idled under the ARP in 1991 than the approximately 2 million acres in 1990.

The tentative 15 percent 1991 ARP was announced before the 1990 farm legislation became law in order to give winter wheat producers some guidance in making planting decisions. The ARP is a major shift from 1990, which featured a 5 percent ARP with the option to modify contracts, accept reduced deficiency payments, and harvest up to 105 percent of wheat base.

No additional CRP sign ups have occurred, so effective base is likely to remain about 80-81 million acres in 1991. The 4.8 million acres in the 0/92 program in 1990 was unusually high. Planting minor oilseeds on 0/92 wheat land in 1991 may be attractive, but some of the land under 0/92 in 1990 may be used to satisfy the expanded ARP requirements in 1991.

Flexiblity provisions of the 1990 legislation are likely to also reduce wheat area, especially for HRS, where farm prices have been particularly low compared to alternative crops. (See special article on page 30.) In 1990, an estimated 11.7 million acres were planted to HRS, of which 1-2 million acres may be planted to other crops under flexibility provisions.

Nonparticipants in government programs do respond to market prices. In many Soft Red Winter (SRW) areas, program participation is traditionally lower than in other regions. In 1980 and 1981, SRW producers expanded area in response to high wheat prices, just as they have in response to 1988 and 1989 prices. Between 1983 and 1985 SRW producers responded to lower wheat prices by planting less wheat, even though the wheat program did not have as much flexibility as the current program.

Lower prices for wheat relative to alternative crops will also contribute to the expected drop in U.S. wheat area, and not just by those producers who do not choose to participate in the 1991 program. The various provisions of the new legislation will mean that even participating producers will plant a portion of their permitted acres to other crops. For 1991, the major impact of these provisions on participants is expected to be on spring wheat plantings.

Harvested wheat area is likely to decline more than planted area for 1991. The low ARP, good prospective yields, and optimism about prices led farmers to harvest an unusually large portion of the planted area in 1990. In parts of the Southern Plains it is common to plant wheat in excess of permitted acres, with the excess used for pasture. However, the producers clip the excess, or do whatever is required to assure the wheat will not produce grain, in time to certify to the local ASC office that they are in compliance with the program requirements.

Producers planting 1991 crop wheat in 1990 (mostly winter wheat producers) have the option of reducing deficiency

payment acres 15 percent under normal fexible acres, or recieving a likely lower deficiency payment rate (using a 12-month season average price instead of the 5-month price). Most winter wheat farmers are likely to choose the lower payment rate. However, the flexibility provisions could have an impact on some winter wheat producers' harvested acres depending on winter wheat yield prospects and market conditions, such as cattle prices and prices of spring planted crops.

## World Prospects

### *1991/92 Planting*

It is still too early to forecast wheat production for 1991/92. However, large 1990/91 crops, prospects for a significant build-up in wheat stocks, and sharply lower export prices are likely to discourage producers in some countries from planting wheat in 1991/92. However, farmers in several major producing countries, including the EC, the Soviet Union, and China are not very responsive to world price movements. While producers in Canada, Argentina, and Australia are normally more responsive, much depends on relative prices of other commodities.

Good autumn rains and mild weather point to favorable planting conditions for winter wheat in Northern Europe, Spain, and Portugal, and most winter wheat areas of the Soviet Union. Concerns continue about dryness in a belt ranging from southern France east through the Balkans. Rain in recent weeks has helped, but because of the extended dry period, timely precipitation will be needed throughout southern Europe.

While world prices are sharply lower, the direct impact on EC is minimal due to the support system provided by the EC's Common Agricultural Policy (CAP). CAP policies regarding different crops do vary, affecting relative prices, and farmers' costs and returns. For example, the 1990/91 support price for oilseeds was cut sharply. Thus, there is an incentive for producers to plant wheat instead of oilseeds.

In addition, unlike the last two years, the total EC grain crop is not expected to exceed the Maximum Guaranteed

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In addition, unlike the last two years, the total EC grain crop is not expected to exceed the Maximum Guaranteed Quantity (MGQ) of 160 million tons (the 1990/91 corn crop is forecast down). Therefore, EC farmers will likely not have to pay an additional coresponsibility levy on their 1990/91 grain, or see the automatic reduction in the basic support level for 1991/92. Thus, despite the expected build-up in EC wheat stocks in 1990/91, more area could be planted to wheat in 1991/92.

In the Soviet Union, winter wheat area has stabilized and yields have been increasing. Improved farming practices, particularly increased fertilizer use, have been adopted. Generally, adequate moisture and mild temperatures have provided favorable conditions for the emergence and establishment of the 1990/91 winter grain crop, although excessive October rains in some regions delayed sowing. As of October 29th, 33.4 million hectares had been sown to winter grains, approximately 4 million fewer than last year.

Early season winter wheat planting conditions in China were favorable. Government policies continued to favor grain cultivation over non-grain commercial crops, which likely will keep area from falling significantly. However dry weather with above average temperatures in early autumn slowed development until October rains improved the situation. In addition, recent changes in procurement policy possibly will have a negative impact on the 1991/92 crop.

# World Wheat Production Reaches a Record; World Trade Contracts.

*World 1990/91 wheat production is forecast up 11 percent from 1989/90. Even with consumption forecast up 6 percent, world ending stocks are expected to jump 23 percent, the sharpest increase in volume since the mid-1970s. The world stocks-to-use ratio is expected to remain well below the highs of the mid-1980s, but rebound from the recent drought-induced lows.*

### *International Situation and Outlook*

Foreign wheat production is projected up 8 percent, with the largest gains occurring in the Soviet Union, Canada, and China. Large crops in both importing and exporting countries is one of the major reasons for the forecast small contraction in world trade. Export prices have plummeted since the beginning of the marketing year, but the low prices do not appear to be stimulating imports.

The Soviet Union is forecast to produce its second largest grain crop on record—235 million tons. Wheat production in 1990/91 is forecast to expand 17 percent from 1989/90 to 108 million tons. Favorable weather in most parts of both winter and spring wheat regions contributed to the record yields. While, wheat area in the Soviet Union has been falling, the decline has largely been in the lower yielding spring wheat areas.

Despite the large crop, Soviet wheat imports are forecast to reach 13 million tons, only 7 percent below 1989/90. While the crop is much greater than a year ago, the State has not been able to procure a proportionately larger share of it. Dockage and waste together are forecast at 15 percent of the total grain crop. Chronic problems worsened this year. Labor, equipment, and input shortages have created more harvest problems than usual. Transportation bottlenecks have slowed deliveries. Farmers continue to resist selling grain to the Government, preferring to keep the grain on-farm for feeding or for barter purposes.

While Soviet wheat imports (including flour) are forecast down only 1 million tons from a year earlier, they have been very slow to buy wheat. Until recent weeks, there were no significant wheat purchases in 1990/91. The Soviet Union claims that since their foreign exchange reserves are limited, they will only buy wheat if exporters provide credit. Reports indicate that Canada might have sold wheat on credit in early November. France also has arranged for 2-year credit for the equivalent of U.S. $400 million to cover wheat and barley, actual purchases of which are expected to begin by late November.

China's total grain crop is forecast to be a record, with wheat increasing 6 percent to a record 96 million tons. The Government encouraged farmers to plant more area to grain by increasing agricultural investment, raising procurement prices, and promising not to use IOUs, which have been used in the past. Favorable weather throughout the growing season boosted yields to a record.

However, the large crop is creating some procurement problems. Procurement funds are reportedly running low in some provinces. A recent Government announcement indicated that there may be some changes in the procurement system because of the pressures created by the 1990/91 large harvest. This is creating uncertainty and possibly will have a negative impact on the 1991/92 crop. Imports are forecast down 26 percent from 1989/90 to 11.5 million tons.

North African production is forecast up in 1989/90, primarily because of a 26 percent gain in Egypt, where procure ment prices have risen. Tunisia's 1990/91 production also is up, rebounding from 2 years of drought. However, unfavorable weather conditions brought 1990/91 production down in Morocco and Algeria.

North Africa's imports are forecast up 4 percent to 14.6 million tons with the largest increase expected in Morocco. Since most North African countries rely heavily on credit to import wheat, exporters providing the lowest prices and the best credit terms will have the advantage. As a result, North Africa continues to be the market most contested by the United States and the EC.

Middle Eastern imports are forecast down 36 percent mainly because of improved crops in Turkey and the U.N. sponsored general embargo on trade with Iraq.

South Asian 1990/91 imports are forecast down sharply from 1989/90. The third consecutive good monsoon has ensured large food grain supplies in India and only limited import expansion in Bangladesh and Pakistan. India wants to earn badly needed foreign exchange by exporting wheat. However, with world wheat export prices down sharply and world trade stagnant, India might not be able to export more than 500,000 tons.

Imports are forecast up in East Asia, primarily because South Korea is importing more wheat for feed. In recent months, wheat prices, particularly from the EC, Sweden, and eastern Canada have been competitive with coarse grains and wheat is readily substituted for corn in South Korean feed rations.

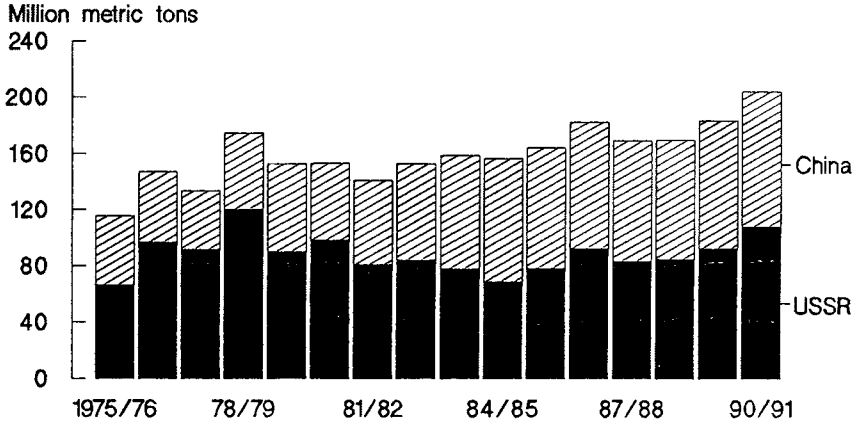
Latin American 1990/91 imports are forecast to increase 38 percent. Brazil accounts for much of the gain. Brazil's wheat crop is forecast down nearly one third. At planting, farmers were faced with economic uncertainty. Austerity measures limited the credit available and resulted in reduced area and less input use is likely to lower yields. An early season frost is expected to bring down yields even further. Consumption continues to outpace production as bread subsidies remain in place. Imports are forecast to more than double from 1989/90 to 3.3 million tons.

Mexico's imports are also forecast up sharply to 900,000 tons from 260,000 in 1989/90. Mexico's crop is irrigated but drought reduced water availability. As a result, production is forecast to fall 13 percent to 3.5 million tons.

East European production is likely to reach 44.4 million tons, slightly above 1989/90. Consumption patterns are changing with the shift in some countries' economies. Wheat consumption in East Germany (which will temporarily remain in Eastern Europe in USDA's data base) is forecast down sharply as EC agricultural policies are adopted. Wheat for feed, in particular, is expected to fall.

In Poland, record production, together with falling consumption, is leading to a surplus supply situation. After importing 1.6 million tons in 1989/90, Poland might be in position to export wheat in 1990/91. Total East European imports are forecast down 37 percent from 1989/90 to 1.3 million tons. Total exports are projected up 12 percent to 3.7 million tons. This includes wheat from East Germany that was sold into West German intervention prior to reunification.

Figure 4
**Wheat production in the USSR and China**




1990/91 forecast.

*1990/91 Situation*

# Competition Intensifies as World Wheat Market Tightens.

*Excellent crops have increased exporter supplies. With world trade expected to decline in 1990/91, competitor stocks are expected to increase sharply from 1989/90. As a result, prices have fallen as competition for the limited market has increased.*

Canada is forecast to harvest 31 million tons (including durum), the second highest on record and a 27 percent increase from 1989/90. Two years of relatively high prices led to a 3 percent area increase and favorable weather boosted yields to a record. Although lower prices resulted in reduced area planted to durum, excellent yields lifted durum production to a forecast record 4.3 million tons.

Despite abundant supplies, lower Soviet and Chinese imports, major Canadian markets, are likely to keep Canadian exports from expanding to more than a forecast 18 million tons, 6 percent more than in 1989/90. As a result, ending stocks are projected to increase to 13.8 million tons, more than double 1989/90 and the sharpest increase in volume ever.

While dry weather cut production in southern Europe, EC production also benefited from favorable weather in the north throughout most of the growing season. Dry weather in the summer appeared to raise protein levels particularly in the United Kingdom, without greatly curtailing yields. EC wheat production is forecast to be the second highest on record at 81 million tons, 3 percent above 1989/90.

However, the large crop is creating a large surplus within the EC. In an attempt to minimize stocks, the EC aggressively marketed wheat early in the season. Export restitutions have nearly doubled since January to an average of $144 per ton in October. In some cases, the restitutions were nearly twice the export price, and they are now the highest since January 1988.

Total EC exports are forecast at 20.5 million tons, slightly below 1989/90 as slack world imports and intense competition limit EC export potential. UK wheat is once again selling at a discount to France's wheat, even though it is of similar quality. As a result, UK wheat is again displacing France's wheat in some export markets.

Strong production and limited export growth is pressuring EC stocks up. In addition, West Germany's intervention stocks expanded when East German wheat entered prior to reunification.

The Southern Hemisphere wheat harvest began in November. Argentina has experienced favorable weather during much of the growing season. Area is forecast up 10 percent from 1989/90 despite the economic uncertainties that farmers faced at planting. During the planting season, the Government announced a reduction in export taxes which would boost farm returns, but raised prices on inputs, including fuel, increasing the cost of production.

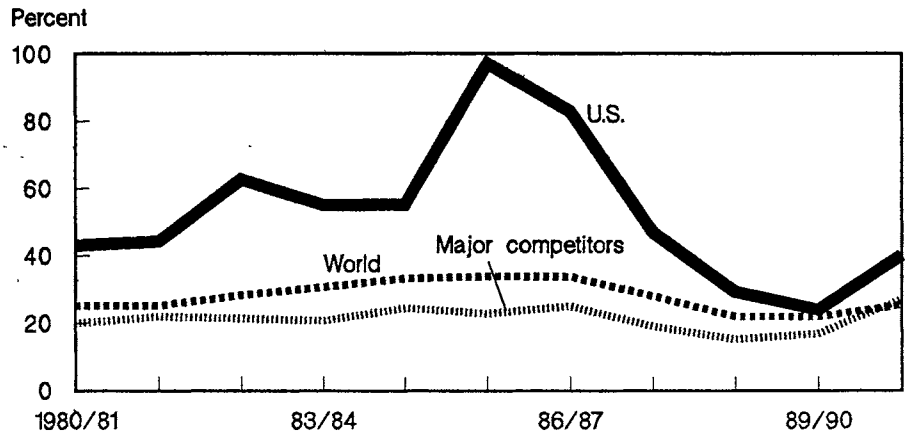
The current exchange rate in Argentina is keeping the austral artificially high. Some exporters claim that Argentina's prices will thus be less competitive on the world market. Total exports are forecast up 13 percent from 1989/90 to 6.8 million tons.

Australia's wheat is just beginning to be harvested. Area is forecast up 12 percent even though export prices were falling as farmers planted. Favorable weather early in the season is likely to keep yields relatively high in many producing areas. However, dryness in the southern part of the country is expected to limit overall production to 15.5 million tons, 10 percent above 1989/90. Total exports are forecast at 10.5 million tons, 3 percent below 1989/90.

Other exporting countries are likely to have increased supplies to export in 1990/91. Turkey's crop is expected to recover from the 1989/90 drought and is projected to increase 22 percent to 14 million tons. Imports are forecast at 750,000 tons, less than a third of 1989/90, while exports are projected to rise to 400,000 tons.

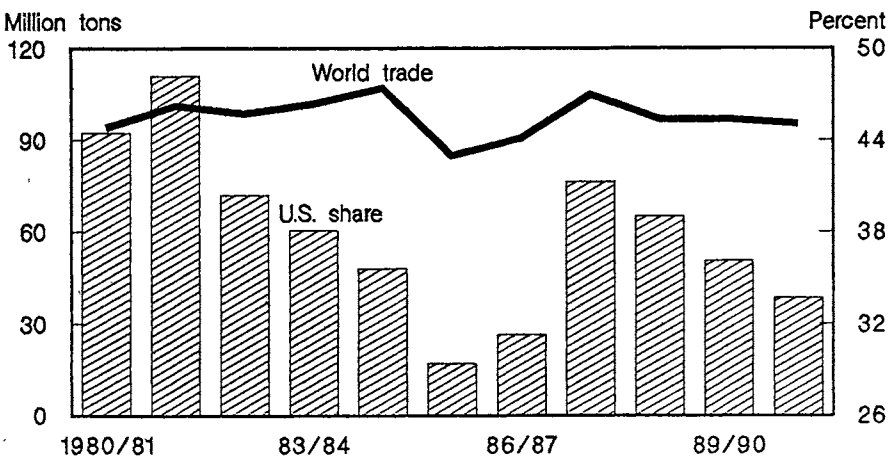
Production is estimated up in Saudi Arabia with nearly all the increase expected to enter the export market at highly subsidized rates. Other Western European countries also are expected to boost exports. Favorable weather resulted in increased yields and policies in some countries, particularly Sweden.

Figure 5
**Wheat stocks-to-use-ratios**




1990/91 forecast. Major competitors include EC, Canada, Australia, and Argentina.

Figure 6
**World wheat trade and U.S. share**




1990/91 forecast. Excludes intra-EC trade.

*1990/91 Situation*

# U.S. Exports Fall as Competition Intensifies

*U.S. exports in 1990/91 are forecast down 13 percent from 1989/90 to 29 million tons. Strong competition and the stagnant trade situation is resulting in lower U.S. exports.*

U.S. exports are forecast to be the lowest since 1986/87. Intense competition, the decline in Soviet and Chinese imports, and the U.N. endorsed general trade embargo on Iraq are all contributing to sluggish U.S. sales. As of November 8, the Export Sales Report indicated that U.S. outstanding sales and accumulated exports (June/May) had fallen off in several regions without compensating increases in others, despite a pick-up in EEP initiatives, sales, and bonuses.

Larger global supplies and fierce competition have contributed to increased EEP sales in the first five months of the 1990/91 marketing year (June/May). EEP wheat sales are up 67 percent from the same period in 1989/90. (EEP sales were very slow and bonuses were low the first half of 1989/90). The Soviet Union has not yet purchased U.S. wheat in 1990/91, but China has already purchased 1.6 million tons as of November 8th. Since all of China's 1990/91 purchases have been under the EEP, EEP sales to China are 77 percent higher than a year ago. Early in 1989/90 China bought most of its U.S. wheat outside the program. In spite of increased EEP sales, China's accumulated exports and outstanding sales as of November 8 were 31 percent below those reported at the same time a year earlier.

U.S. exports and sales to North Africa also trail 1989/90 by nearly a third. Sales and exports to Algeria nearly matches the year-earlier pace and Tunisia's is up by a third. However, the total is dragged down by the drop in the combined sales and exports to Egypt and Morocco. U.S. combined sales and exports to those countries are less than half that of June-October 1989. Much of the North African sales that have been made are under the EEP and P.L. 480.

As of November 8, EEP sales to the Philippines, 1990/91 were almost twice 1989/90 sales, helping the U.S. regain market share. Last year, Canada expanded its wheat exports to this largely U.S. market.

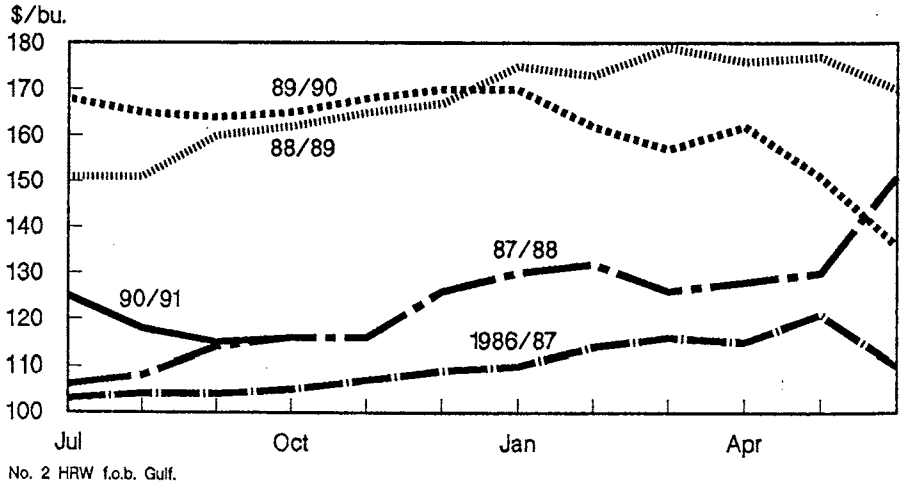
The EEP will continue to play a major role in promoting U.S. wheat in 1990/91. Increased EEP sales have been accompanied by higher bonuses in 1990/91. EEP bonuses for wheat averaged $29 per ton between June 1 and November 8th compared to $9.50 per ton for the same period a year ago and have risen sharply since August, averaging over $40 per ton in September and October.

GSM credit guarantees will also be important. For FY 1991, $414 million have been allocated for GSM-102, as of November 2nd. The top recipients are South Korea, Mexico, and Ecuador. Additional allocation announcements will be made as the year progresses. For GSM-103, $58 million has been allocated to Morocco.

The Soviet Union has requested guaranteed credit from the United States. The President has stated that, until the Soviet Union codifies liberalized emigration, it will not be eligible for Most Favored Nation status which is one of the necessary requirements for GSM credits.

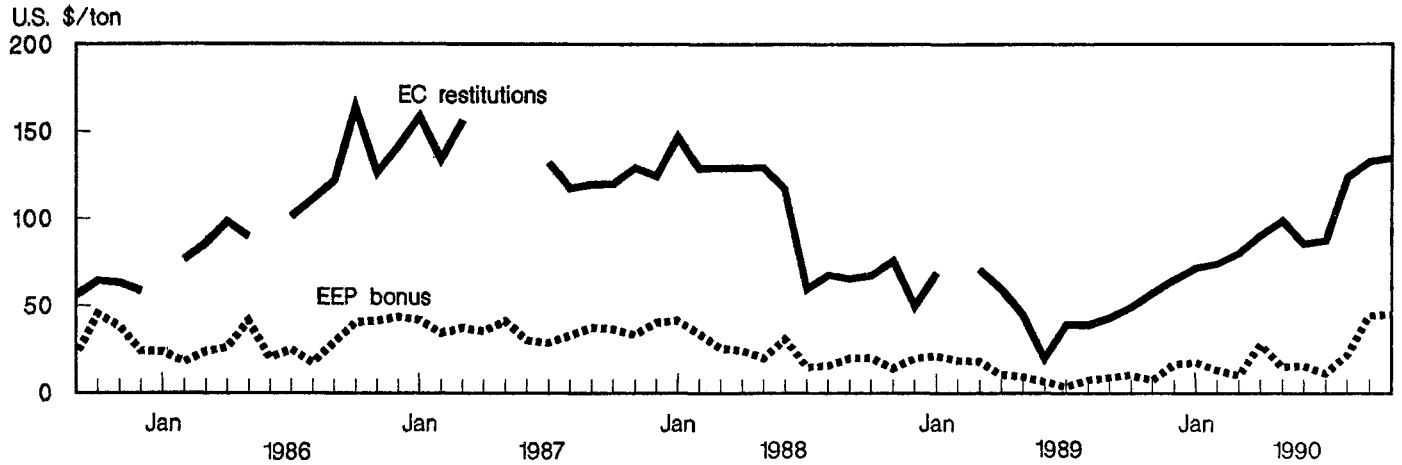
Initial allocation for Public Law (PL) 480 Title I/III have been announced. As of October 17th, FY 1991 allocations reached $2.8 million compared to an initial allocation of $1.6 million for FY 1990. Larger supplies and lower prices compared to 1989/90 assure greater wheat availability for P.L. 480 programs.

Figure 7
**U.S. wheat export prices**




No. 2 HRW f.o.b. Gulf.

Figure 8
## U.S. and EC wheat export subsidies




Data gaps indicate no export licenses issued nor restitutions made.

Figure 9
## Wheat exports start slowly

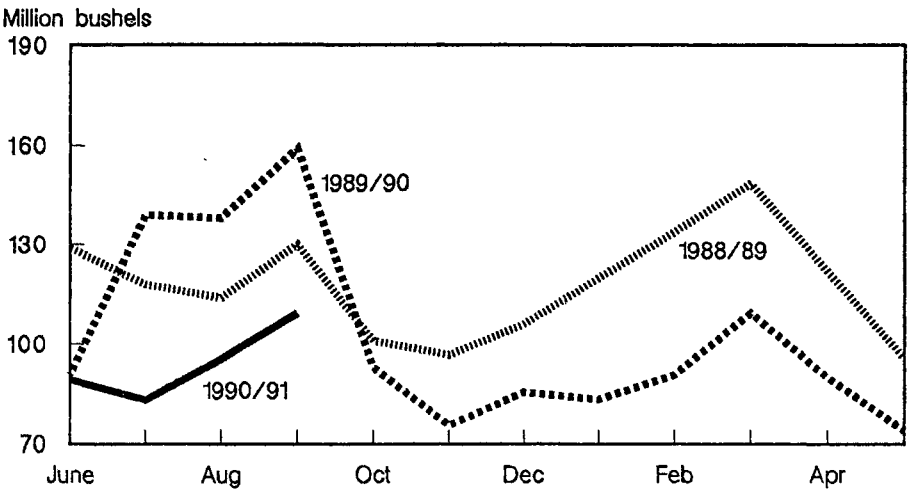


Table 1- Wheat sales under the EEP and remaining wheat balances, by country 1/

| Country/ Region | 1988/89 2/ sales | 1989/90 sales | 1990/91 (as of 11/8/90) | Remaining balance 3/ | Date of most recent initiative |
|---|---|---|---|---|---|
| | | -- metric tons -- | | | |
| North Africa: | | | | | |
| Algeria | 1,159,000 | 1,000,000 | 849,300 | 1,150,700 | May 90 |
| Egypt | 2,045,750 | 1,040,000 | 298,200 | 661,800 | December 89 |
| Morocco | 760,000 | 419,250 | 239,050 | 1,631,700 | September 90 |
| Tunisia | 0 | 175,000 | 225,000 | 375,000 | October 90 |
| Middle East: | | | | | |
| Jordan | 140,000 | 200,000 | 348,800 | 11,200 | May 90 |
| Iraq | 770,000 | 494,450 | 0 | expired | February 89 |
| Yemen | 100,000 | 75,000 | 75,000 | 0 | January 90 |
| Turkey | 50,000 | 100,000 | 0 | expired | May 86 |
| South Asia: | | | | | |
| Bangladesh | 498,000 | 0 | 0 | expired | October 88 |
| India | 1,000,000 | 0 | 0 | expired | October 88 |
| Sri Lanka | 350,000 | 150,000 | 199,500 | 400,500 | October 90 |
| Philippines | 855,000 | 600,000 | 1,142,536 | 57,464 | June 90 |
| China | 6,350,000 | 3,304,500 | 1,595,695 | 10,005 | May 90 |
| USSR | 4,600,000 | 3,895,350 | 0 | 2,014,850 | June 90 |
| Eastern Europe: | | | | | |
| Poland | 0 | 22,000 | 0 | expired | March 88 |
| Yugoslavia | 12,000 | 0 | 13,930 | expired | October 87 |
| Finland | 63,500 | 4,000 | 0 | expired | March 88 |
| Sub-Saharan Africa: | | | | | |
| West and Central Africa 4/ | 176,150 | 252,350 | 180,759 | 458,341 | Sept. 90 |
| Zaire | 88,600 | 64,025 | 16,547 | 83,828 | May 90 |
| Latin America and Carribean: | | | | | |
| Brazil | 0 | 0 | 0 | 300,000 | November 90 |
| Mexico | 992,075 | 184,800 | 0 | expired | October 88 |
| Colombia | 195,000 | 200,000 | 30,000 | 515,000 | Sept. 90 |
| Trinidad and Tobago | 0 | 0 | 0 | 130,000 | August 90 |
| Total: | 20,205,075 | 12,180,725 | 5,214,317 | 7,800,388 | |

1/ This table includes all countries purchasing wheat under the EEP from June 1988 through November 8, 1990.
2/ June/May marketing year
3/ Remaining balances, calculated on November 8, 1990, reflect the expiration of EEP initiatives announced prior to fiscal 1989.
4/ EEP wheat balances for several countries including Benin, the Canary Islands, the Central African Republic, and Senegal were transferred to the West and Central African countries' initiative.

*1990/91 Situation*

# Domestic Use Rising Sharply

*Increased feed and residual use was evident during the first quarter of 1990/91. Food use of wheat also is forecast up.*

### *Food Use Up On Record Mill Grind*

Wheat mill grind and U.S. flour production were a record in August, pacing first quarter food use to a preliminary 197 million bushels, up almost 8 percent from a year-earlier. Food use for the full 1990/91 year is forecast up 2 percent, to 745 million bushels, increasing at more than double the rate of population growth. The 1987 Census of Manufactures confirms that non-flour food use was expanding faster than flour use.

### *Seed Use Forecast Down 13 Percent*

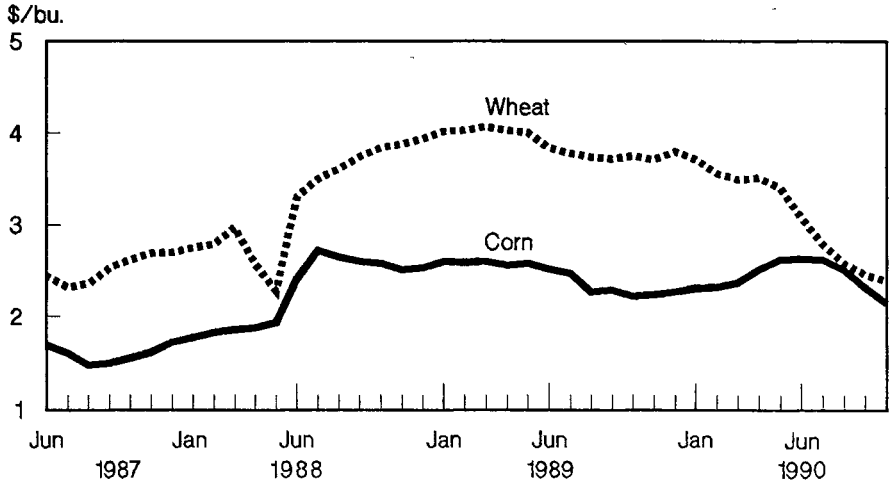
Seed use is forecast at 88 million bushels in 1990/91. The increased ARP and low wheat prices are expected to reduce area planted for 1991 (see Outlook for 1991). Moreover, the area decline may be strong in soft wheat areas where seeding rates are higher than average.

### *Record Feed and Residual Forecast in 1990/91*

Feed and residual wheat disappearance is forecast to reach 450 million bushels, almost triple the 160 million in 1989/90. Wheat prices have been low enough to make feeding wheat attractive, especially where transportation costs make coarse grains expensive, as in the Southern Plains, or anywhere low quality wheat is discounted. For example, in Texas during September the average farm price for wheat was $2.33 bu. (3.88 cents per pound) while it was $2.47 bu. (4.41 cents per pound) for corn. This is particularly impressive because by September the Texas corn harvest is beginning. Normally, wheat is more likely to be priced competitive with corn during June, July, and August, right after the winter wheat harvest, but before the majority of the corn harvest. This year, however, wheat continues to be favorably priced for feed use even during the corn harvest, when corn prices are normally at their seasonal low.

The first quarter feed and residual disappearance of 419 million bushels is the largest on record. Low wheat prices are forecast to encourage some continued feeding this fall, and possibly in the last 6 months of the marketing year. However, in most years since the Stocks Report survey was shifted to September 1, the second quarter (September-November) has showed negative feed and residual disappearance, possibly associated with wheat in transit. This tendency of the second quarter residual to be negative explains why the annual 1990/91 forecast (450 million bu.) is only slightly above the first quarter estimate (419 million).

Figure 10
**Wheat and corn: Average prices received by farmers**



*1990/91 Situation*

# U.S. Supply Outstrips Demand

*Near record wheat production in 1990 more than offset lower beginning stocks, pushing total supply up 20 percent. Meanwhile export demand has slumped, but lower prices are moving wheat into feed channels.*

### *Record Yields Pace U.S. Production*

Wheat production in 1990 was 2.74 billion bushels, nearly matching the record 2.79 billion produced in 1981, and up 35 percent from 1989. Planted area increased only slightly from the previous year, but an unusually high 90 percent of planted area was harvested for grain. The low 5-percent ARP, with the option of harvesting up to 105 percent of base (at the expense of reduced deficiency payments), prospects for good yields, and hopes for high wheat prices, induced farmers to harvest an unusually high portion of planted area.

Yields reached a new record, despite less than ideal weather. The late fall was unfavorably dry in the Southern Plains, and December brought some severe cold, but January and February were mild. The spring floods damaged some wheat, but June harvest weather was favorable. The previous record yield was in 1983/84, when the PIK program paid farmers not to harvest a portion of their planted area. Since farmers chose not to harvest their lowest yielding acres, this biased yields up in 1983.

It is possible that several years of unfavorable weather had masked the genetic improvements wheat breeders have achieved, so that record yields occurred despite weather conditions. Weather for the 1990 crop was a somewhat typical mix of good and bad.

### *Beginning Stocks Ready to Move to Market*

On June 1, 1990, wheat stocks were 536 million bushels, down 24 percent from a year earlier. However, the entire decline was in wheat owned by the government or in the FOR. Free stocks actually increased 50 million bushels to 275 million. The free stocks of wheat at the beginning of the year added to the supply of wheat readily available for marketing during harvest. Low U.S. and world carryover supplies might have encouraged increased free stocks, but with the large production, the stocks added to supplies instead of cushioning any production shortfall.

### *Imports Increase in the First Quarter*

Imports remain a very small portion of U.S. wheat supplies, although imports increased in the first quarter as Eastern White wheat shipments from Canada expanded. If Canadian shipments slow, the marketing year total would remain about the same level as the previous two years.

### *Supply Increase Dwarfs Greater Use*

Total supply in 1990/91 is estimated at 3.3 billion bushels, up 541 million bushels from a year earlier. Meanwhile total use is forecast up 133 million bushels. Production is estimated almost 400 million bushels greater than forecast total use, leading directly to increased stocks. Moreover the disposition of those stocks at the end of 1990/91 is not clear because of a number of decisions that have yet to be made by the Secretary. Assuming some forfeitures, CCC inventory at the end of 1990/91 is unlikely to be much larger than the Food Security Wheat Reserve. The decisions of the Secretary of Agriculture concerning the FOR in 1990/91 are due by December 15, 1990.

### *Low Prices Promote Feed Use*

The dramatic drop in U.S. wheat prices is not just caused by increased supplies. Export demand has also fallen. Increased wheat supplies worldwide, and credit problems in importing countries, are playing a large role in lower U.S. wheat prices. The combination of much larger world supplies and a weak world market has reduced wheat prices enough to move large quantities of wheat into the U.S. feed market, where wheat must compete with corn and other feed ingredients.

*Wheat by Class*

# HRW Exports Languish

*Slow HRW export sales and the increased competition HRS faces from HRW are concentrating most of the forecast stock buildup in hard wheat. White wheat stocks are forecast up sharply, but SRW stocks may be mostly liquidated at low prices.*

### *HRW Production Up 500 Million, Exports Unmoved*

Pushed by record Kansas production, HRW in 1990 increased 500 million bushels to 1.2 billion, an impressive comeback from the 1989 freeze-and-drought damaged crop. Total supplies however, almost matched the 1.4 billion bushels of 1988/89, a year of tightening supplies and increasing prices.

Through the end of October, HRW export shipments were down from the year-earlier depressed level. Especially notable is the lack of outstanding sales to the Soviet Union and loss of the Iraq market. With two of the three largest HRW customers out of the U.S. market, it is hardly surprising that HRW exports are lackluster. However, HRW exports are forecast to increase as the marketing year progresses, finishing slightly ahead of last year.

Domestic use of HRW is forecast up over 40 percent, with some of the increase in food use, but most in the feed and residual category. Attractive cattle prices, relative to wheat and competing feeds, encourage HRW feeding in the Southern Plains. Despite a forecast increase in domestic use of almost 200 million bushels, HRW ending stocks are forecast up over 200 million, to 421 million bushels.

### *HRS Use Forecast Down*

HRS production reached a record 556 million bushels in 1990, but lower beginning stocks left total supply up only 55 million bushels. However, with increased competition from HRW, use is forecast to decline. Exports are forecast down 100 million bushels from the year-earlier record. With relatively few cattle in the Northern Plains and low prices for feed barley and oats, increased domestic use is limited. Ending stocks of HRS are forecast up over 100 million bushels, to 273 million.

The October mid-month HRS farm price in North Dakota was only $2.25 per bushel, well below the national average. Faced with lower prices, an increased ARP, flexible acres, and the opportunity to plant minor oilseeds on flexible acres, the stage is set for sharply lower HRS area planted in 1991.

### *SRW Supply and Demand Stable, Prices Sharply Lower*

SRW production is estimated down slightly in 1990, with lower yields offsetting increased area. Supply and use are forecast to be largely in balance with almost no stock build-up. However, exports are forecast down 60 million bushels, with more SRW being used for feed. In many areas, farmer returns for SRW production are unattractive when their wheat must be priced as a feed grain. Since 1990 yields were disappointing for some SRW farmers, and given that a larger portion of SRW producers do not participate in the wheat program, it is likely that SRW area planted for 1991 will decline sharply.

Table 2--HRW supply and demand

| Item | 1988/89 | 1989/90 | 1990/91F |
|---|---|---|---|
| Area | | Million acres | |
| Planted | 34.4 | 37.5 | 38.4 |
| Harvested | 26.8 | 26.1 | 33.0 |
| Yield,bu./acre | 32.9 | 27.2 | 37.1 |
| Supply | | Million bu. | |
| Production | 882 | 712 | 1,211 |
| Begin stocks | 567 | 302 | 215 |
| Tot. supply | 1,449 | 1,014 | 1,426 |
| Use | | | |
| Food | 323 | 288 | |
| Seed | 44 | 44 | |
| Residual | 140 | 107 | |
| Tot. domestic | 507 | 439 | 625 |
| Exports | 639 | 360 | 380 |
| Total use | 1,146 | 799 | 1,005 |
| Ending stocks | 302 | 215 | 421 |

F=forecast.

Table 3--HRS supply and demand

| Item | 1988/89 | 1989/90 | 1990/91F |
|---|---|---|---|
| Area | | Million acres | |
| Planted | 13.0 | 16.5 | 16.2 |
| Harvested | 10.1 | 15.9 | 15.8 |
| Yield,bu./acre | 17.9 | 27.3 | 32.5 |
| Supply | | Million bu. | |
| Production | 181 | 433 | 556 |
| Begin stocks | 402 | 219 | 155 |
| Imports | 7 | 7 | 4 |
| Tot. supply | 590 | 660 | 715 |
| Use | | | |
| Food | 155 | 200 | |
| Seed | 23 | 22 | |
| Residual | -2 | 3 | |
| Tot. domestic | 176 | 225 | 264 |
| Exports | 195 | 280 | 180 |
| Total use | 371 | 505 | 444 |
| Ending stocks | 219 | 155 | 273 |

F=forecast.

Table 4--SRW supply and demand

| Item | 1988/89 | 1989/90 | 1990/91F |
|---|---|---|---|
| Area | | Million acres | |
| Planted | 10.9 | 13.4 | 14.0 |
| Harvested | 9.6 | 12.0 | 12.6 |
| Yield, bu./acre | 49.3 | 45.7 | 43.0 |
| Supply | | Million bu. | |
| Production | 473 | 548 | 543 |
| Begin stocks | 75 | 39 | 32 |
| Tot. supply | 547 | 587 | 574 |
| Use | | | |
| Food | 140 | 140 | |
| Seed | 22 | 24 | |
| Residual | 31 | 47 | |
| Tot. domestic | 193 | 211 | 250 |
| Exports | 315 | 345 | 285 |
| Total use | 508 | 556 | 535 |
| Ending stocks | 39 | 32 | 39 |

F=forecast.

### *White Wheat Price Plummets*

In 1989, white wheat maintained strong price premiums for much of the year compared to other wheat classes. In 1990 those price premiums have evaporated, adding to the decline in the overall price of wheat. In October 1989, Washington farmers received $0.33 per bushel over the U.S. average for winter wheat. In 1990, the mid-month October price was $0.05 higher than the U.S. average.

White wheat production increased about 60 million bushels in 1990, up 20 percent, slightly less than the 25 percent increase for all wheat. However, use is forecast little changed, putting all the production increase into larger ending stocks. Increased production in South Asia and talk of India exporting wheat have dampened the white wheat price outlook.

Table 5--White wheat supply and demand

| Item | 1988/89 | 1989/90 | 1990/91F |
|---|---|---|---|
| Area | Million acres | | |
| Planted | 4.0 | 5.4 | 5.2 |
| Harvested | 3.8 | 4.5 | 5.0 |
| Yield bu./acre | 61.1 | 55.8 | 62.7 |
| Supply | Million bu. | | |
| Production | 232 | 251 | 312 |
| Begin stocks | 135 | 81 | 85 |
| Imports | 4 | 3 | 8 |
| Tot. supply | 370 | 335 | 405 |
| Use | | | |
| Food | 45 | 50 | |
| Seed | 8 | 6 | |
| Residual | -13 | 1 | |
| Tot. domestic | 40 | 57 | 76 |
| Exports | 250 | 193 | 180 |
| Total use | 290 | 250 | 256 |
| Ending stocks | 81 | 85 | 149 |

F=forecast.

### *Durum Production Up, Use Little Changed*

Durum production increased 30 million bushels, reaching 122 million bushels in 1990, the largest since 1982. Use is forecast to about match last year, with a slight decline in exports offset by an increase in domestic use.

Prices have declined in response to the increased U.S. and Canadian production. Stocks are forecast to increase to 65 million bushels, equal to over 6 months of total use. Durum grain imports were less in the first quarter of 1990/91 than they were a year earlier, but durum product imports were up slightly. The wheat equivalent of total durum imports is forecast to decline slightly in 1990/91.

Table 6--Durum supply and demand

| Item | 1988/89 | 1989/90 | 1990/90F |
|---|---|---|---|
| Area | Million acre | | |
| Planted | 3.3 | 3.8 | 3.6 |
| Harvested | 2.8 | 3.7 | 3.5 |
| Yield bu./acre | 15.7 | 25.1 | 34.8 |
| Supply | Million bu. | | |
| Production | 45 | 92 | 122 |
| Begin stocks | 83 | 60 | 50 |
| Imports | 12 | 13 | 11 |
| Tot. supply | 139 | 165 | 183 |
| Use | | | |
| Food | 52 | 53 | |
| Seed | 6 | 5 | |
| Residual | 1 | 2 | |
| Tot. domestic | 59 | 60 | 68 |
| Exports | 20 | 55 | 50 |
| Total use | 79 | 115 | 118 |
| Ending stocks | 60 | 50 | 65 |

F=forecast.

# Government Intervention in the Wheat Marketing Systems of the United States, EC, Canada, and Australia

by Stephanie Mercier and Joy Harwood*

**Abstract:** The marketing systems for U.S., Canadian, EC, and Australian wheat, and the forms that government intervention takes in each of these systems are examined. Under current policies, the U.S. Government intervenes and assist exports in order for producers to support income (direct payments) and prices (government stockholding). In Canada and Australia, government intervention consists of price supports and for Canadian producers, transportation subsidies. In the EC, an integrated agricultural policy system supports producer prices and maintains high barriers against imports.

**Keywords**: government intervention, wheat marketing system, wheat marketing boards, price supports, CAP, wheat exports.

## *Introduction*

International concern has arisen over the variability of wheat export prices. Between-year price instability among major export crops has doubled since 1970 (Blandford 1983). How do various governments seek to protect their producers from at least the downward effects of such fluctuations? Policies include income and price support, variable levies, transportation and export subsidies, and wheat marketing board operations. These policies differ in three major ways: 1) how much producers are insulated from market price fluctuation, 2) how stocks are handled, and 3) how much distortion these policies create in the wheat market.

Over the last 15 years, wheat export prices have varied widely. For example, the Gulf f.o.b. price for No. 2 Hard Red Winter wheat has fluctuated from just over $95 per metric ton to nearly $190 per metric ton (fig. A-1). Reported export prices (in U.S. dollars) for wheat varieties from other countries have exhibited similar fluctuations. These range between $222 and $107 per metric ton for No. 1 Canadian Western Red Spring wheat and between $193 and $104 per metric ton for Australian standard white wheat. Wheat producers in these three countries have experienced a standard deviation from the mean quarterly export price of $20 or more over this period.

*ERS economists

## *Forms of Government Intervention*

In the absence of government intervention, market price fluctuations are normally determined by supply and demand conditions such as income, prices of competing goods, resource productivity changes and marketing infrastructure, and weather. However, most countries engaged in commodity trade protect their producers through various support mechanisms that, while often designed to support domestic prices, often contribute to increased world price instability.

The EC's Common Agricultural Policy (CAP) is an example of a policy system designed to support domestic producers, which results in increased world price instability. EC wheat producers have become a large force in the wheat market, having gone from being a net importer in 1960 to net exports of 17 million tons in 1989. This movement can be largely attributed to CAP protection.

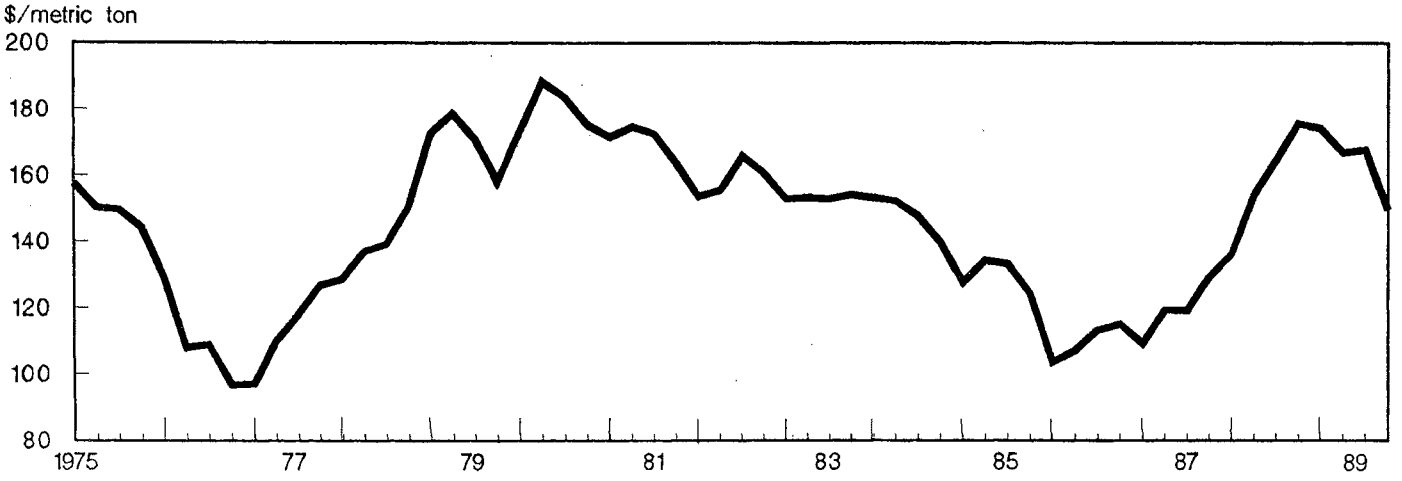
## *United States*

U.S. agricultural commodity programs have many objectives, including providing a safety net for farm income and boosting U.S. agricultural exports. A target price/loan rate system for the major grain crops is designed to provide the safety net. Annual acreage reduction program (ARP) requirements were designed to reduce overproduction. Farm prices are supported by allowing farmers the option to forfeit their crop to the government if they cannot receive a better price from the marketplace. They have also been able to use their crops as collateral for loans from the Government and receive storage payments for crops placed under loan on extended period under the Farmer-Owned Reserve (FOR). The effort to expand U.S. farm exports has been approached with several programs. The most important program is the Export Enhancement Program (EEP). Seventy percent of all EEP bonuses between 1985-89 were devoted to wheat or flour exports.

The farm income support mechanism in the United States has many parameters set by law before crops are planted each year. These provisions include the target price and loan rate for each crop, and the required acreage reduction percentage for payment eligibility. The extent of the support provided to producers, however, is partially determined by prevailing market and weather conditions. If producers comply, they are guaranteed to receive the deficiency payment rate times program production (program yield times permitted plantings) for that crop. In addition, they receive market receipts the crop generates. Thus, while parts of the commodity program are fixed by law, the full impact of government support also depends on many other factors.

Despite the huge government presence in determining producer returns, limit-

Figure A-1
**Gulf f.o.b. hard red winter wheat price, 1975-89**




ing overproduction, and encouraging exports, the wheat marketing system in the United States is primarily a commercial system. Wheat not put under loan is purchased from farmers by private or farmer cooperative country elevators, and moves through the marketing channel to domestic millers or export terminals as demand dictates. Some influence is exerted on prices by the Government in its disposal of CCC stocks. Exports are handled by multinational grain trading firms or cooperatives. EEP bonuses for sales to targeted countries in the form of generic certificates are paid to these traders. Studies have shown that farm level prices are higher as a result of the EEP (Bailey 1989; Haley 1989). Certain countries are also eligible to buy wheat with credit guaranteed by government programs, such as GSM-102 and GSM-103, though the credit itself is provided by commercial banks. Market price rules the domestic marketing system, though U.S. producers respond to a combination of market price and program incentives in making production and marketing decisions. Exporters respond to both domestic and world prices, with EEP bonuses allowing them to meet export competitors in targeted markets. Market promotion and development are handled for the most part by private companies, although often it is government-financed.

### *Canada and Australia*

The grain marketing systems in Canada and Australia, through the operation of their respective Wheat Marketing Boards, are quite different from the system in the United States. The respective Board objectives, however, are ostensibly the same, aimed at maximizing, while supporting, returns to producers. The wheat marketing systems in these two countries are more focused on export, as between 75-85 percent of wheat produced in each nation is exported. This contrasts to U.S. wheat exports, which constitute less than 60 percent of total production.

The Australian and Canadian governments made deliberate decisions in the 1940's to intervene directly in the marketing and pricing of wheat. The objectives were to maximize and support producer returns. Every year, the Boards announce preliminary payment levels for producers when the wheat is delivered to local elevators. Farmers receive further payments from the Board if the pool revenue, net of operational expenses, leaves a surplus.

The activity of the Boards and governmental establishment of minimum prices are the most important institutional intervention mechanisms in the wheat markets of both countries. In Canada, the Canadian Wheat Board (CWB) is quasi-governmental, while in Australia the Board is a private agency with statutory authority to export wheat that was granted by the government. In the past, nearly all wheat produced has been delivered to the Boards, which then market the wheat in accordance with their aims.

Wheat for export moves through channels controlled by the marketing boards, although the elevators and transportation systems are owned privately or by the States in Australia. Export credits of varying duration are granted by both Boards. The amount of wheat Canadian producers can deliver is limited by quotas to ensure fair access to the market. The Australian Wheat Board (AWB) is required to accept all wheat delivered, or reimburse producers for the cost of on-farm storage. In both cases, the Boards have at least initial control over all exported wheat, though both countries often arrange sales with the intermediation of large private grain-handling companies. Canada also controls wheat sold in domestic channels for milling, although free market sales are made for feed uses. The deregulation of the Australian domestic market in July 1989 gave private traders access to all domestically traded wheat. Prior to that time, domestic wheat could be sold privately only for feed uses. Market development is the exclusive purview of the marketing boards.

Canada has several other agricultural support programs, most notably the Western Grain Transportation Act (WGTA) (CROW rates until 1984) for Western grain and oilseed producers.

Canada also has income protection for grain producers via the Western Grain Stabilization Act (WGSP) for Western wheat producers. Outside that region, the Agricultural Stabilization Act supports wheat producers. Prior to August 1988, Canada also supported domestic wheat prices by establishing ceiling and floor prices for wheat sold to millers, though export price was allowed to vary with the world price. During the transition period between August 1988 and the newest procedure, domestic wheat price was adjusted more frequently to keep in line with world price movements. Beginning October 1, 1990, domestic wheat prices follow a North American daily pricing system, with the red spring wheat price established off the Minneapolis market and the soft white spring wheat price established off the Chicago market. The Australian government has few explicit agricultural support programs for wheat.

### The European Community

Over the years the EC has implemented a support system, the CAP, which has been extremely generous to producers. It has permitted the EC to move from being a major net importer to producing large exportable surpluses of many commodities, including wheat. The CAP of the EC provides a support price for domestic cereals producers that is higher than world market prices if their crop meets specified quality standards. The Community is required to purchase all grain offered to it during the intervention period.

Intervention, target, and threshold prices support the structure of the CAP. The intervention price provides a floor below which, in theory, market prices should not fall. It is the price at which intervention agencies are obliged to buy grain and is set relative to market conditions in Ormes, France, the largest EC grain surplus area. The target price, the designated average market price, is set for grains at Duisburg, West Germany, the main deficit area. The target price is obtained by adding the cost of transport from Ormes to Duisburg and a "market element" to the intervention price.

The threshold price is set so that imported grain cannot be sold in Duisburg, West Germany, the EC's most grain-deficit area, for less than the target price. When world prices are below the threshold price, a variable levy is imposed that equals the difference between the third-country offer price (normally the lowest c.i.f. price at which grain can be imported into any EC port) and the threshold price. The threshold price equals the target price after transport, handling, and other delivery costs to Duisburg are included.

Because of the EC's system of target, threshold, and intervention prices, average market prices are generally well above world prices. Export restitutions equal to the difference between the EC market price and the world price are used to export wheat to foreign markets. Restitutions are normally fixed weekly by the EC's cereals management committee.

The EC uses two methods to establish export restitutions. Most exports are covered by "refund tenders." Traders submit applications for refunds on specific quantities exported to specific markets. If these requests are in line with world market prices, the EC fixes a maximum refund at a level sufficiently high to cover the requests. The exporter receives an export certificate indicating the refund, and exports must take place within the certificate's period of validity.

The second method used to assist exports is the "ordinary" restitution. The level of the ordinary refund is published regularly. These refunds are designated for particular destinations and are most often used for stable, predictable markets such as Switzerland.

The EC has sought to control its domestic surpluses by introducing the stabilizer program. This program consists of automatic cuts for grain support prices. It is triggered when production exceeds a "maximum guaranteed quantity" (MGQ) of 160 million tons for wheat and coarse grains, for the 1988/89 through 1991/92 marketing years. At the start of each marketing year, producers are now charged an additional "co-responsibility levy," or tax of 1.5 percent on all off-farm sales. This charge is in addition to the basic 3 percent levy producers have paid since 1985. Also, if the MGQ is exceeded, there is a reduction in the intervention price. If grain production is estimated by the Commission at less than the ceiling, the new levy will be fully refunded. If production exceeds the ceiling by less than 3 percent, the levy will be partially refunded. In 1988/89, EC cereal production exceeded the MGQ by 1.6 percent, so nearly half of the additional co-responsibility levy collected was refunded. Price cuts due to this new levy have not yet significantly affected the large EC grain surpluses, because the price cuts have been offset to some extent by changes in the payment delay period for grains sold into intervention and currency adjustments.

Much of the wheat produced in the EC comes from four countries: France, West Germany, Italy, and the United Kingdom. Since 1970, these countries have held at least an 80 percent share of total EC wheat production. The internal EC market is dominated by the high consumer prices and low carryover stocks relative to levels in other major exporting countries, but the marketing system is controlled primarily by large producer-owned cooperatives. Licensed elevators deal with agencies in each country to handle intervention purchasing. Many of the same multi-national grain traders who handle wheat exports in the United States also are major players in exports from the EC.

### Price Insulation Mechanisms

Governments in the major wheat exporting countries, by means of various policies, attempt to support the level of returns for wheat produced. In the United States that return (a minimum of loan rate plus deficiency payment for program production) is contingent upon program participation. A similar result has occurred in Canada (at least for quota production) and Australia with their initial payment systems, although Australia dropped this aspect in 1988. Thus, price variability is largely truncated at the low end so that producers are somewhat protected from extreme down-swings in the world price, but can benefit from extreme up-swings. Prices are stabilized within-year and fall between-year only when administered prices drop.

U.S. producers also have received disaster assistance payments (Canadian producers since 1988) and crop insurance

payments when severe droughts occur. Consequently, they have been insulated to some extent from yield shock. Australian and Canadian producers receive additional pool payments when high world prices create export revenue, net of operating expenses and the first payment.

Price variability in the EC also is quite limited because of the insulation that the CAP erects against world price movements, although some price variability exists within the EC. Low world prices have no impact because cheap imports are barred from entry, and producers are guaranteed to receive at least the buy-in price. Some producers are further cushioned from the impact of price movements by the so-called agri-monetary system. The relevant administered prices (target, intervention, and threshold) are established by the EC Agricultural Commission and denominated in European currency units, a combination of EC member currencies. These prices are then translated into national currency values by using special agricultural exchange rates called "green" rates that differ from market exchange rates for all EC countries except Denmark. In Denmark, the green rate is the same as the market exchange rate.

Prices are equalized at national borders in both intra-EC and extra-EC trade by a system of border taxes and subsidies. There are taxes for countries with appreciating currencies or subsidies for countries with depreciating currencies. The taxes and subsidies are called monetary compensatory amounts. The MCA can be manipulated to partially offset subsidy cuts made because the MGQ is violated. However, if these monetary compensatory amounts were not in place, in theory, farm support rates would be relatively lower in nations with weaker currencies and relatively higher in nations with stronger currencies. This would partially defeat the purpose of the creation of the European Community.

### Stock-holding Behavior

An additional important form of government intervention is government stock-holding. In the United States, price support is accomplished by grain entering into government-managed storage, either the non-recourse loan program or Farmer-Owned Reserve. In this way, the government assumes the cost of price risk that would otherwise fall to producers. A high stocks-to-use ratio in the United States usually reflects government acquisition of stocks in a low-price environment (table A-1). However, stocks are also accumulated in private hands. Such behavior supports prices for domestic producers but also tends to support world prices. Removing wheat from the market in a surplus situation supports domestic price, which in turn supports the world price, especially since the United States is a major exporter.

On the other hand, in Canada, high stock levels mean that producer quotas have been filled and the excess grain is stored on-farm. At these times, the marketing system is loaded to capacity and the CWB is likely seeking to sell wheat at terminal elevators to make room for grain moving through the system. Canadian farmers assume both the cost and risk of such stock-holding.

In Australia, AWB-licensed bulk handlers are required to accept all wheat delivered by farmers, so farmers have no incentive to store grain themselves. High stock levels are almost entirely seasonal in nature, and stocks above pipeline levels are unusual.

Australian stocks-to-use ratios are, as a rule, considerably lower than those in the United States and Canada. The average stocks-to-use ratio of 25.3 percent in Australia over the last 15 years is comparable to the current historically low levels seen in the United States and Canada. The Australian Wheat Board does not use its stocks to buffer prices. The Board is mandated to market the grain.

The EC acquires stocks through intervention agencies between November 1 and May 31, but in general holds stocks only long enough to dispose of them to world market traders. Intervention stocks of common and durum wheat have averaged more than 60 percent of EC ending stocks in recent years. Millers usually do not carry more than working stocks because there exists little scope for speculation in the EC market. This stockholding activity tends to stabilize prices within EC countries, but combined with restitutions has over the past decade helped to drive down world prices.

### Trade-Distorting Support

Participants in the Uruguay Round of the General Agreement on Tariffs and Trade (GATT), pledged to seek "substantial and progressive reductions in agricultural support and protection" in the April 1989 Mid-term Review in Geneva. The agricultural negotiations represent the first effort to treat agricultural trade the same as other sectors under GATT rules.

Among internationally-traded commodities, wheat ranks among the most heavily protected, using average Producer Subsidy Equivalents (PSE) calculated for major producers and consumers. A PSE is a measure of government

Table A1--Annual stocks-to-use ratios, 1975/76-90/91

| Year | United States | Canada | Australia | EC |
|---|---|---|---|---|
| 1975/76 | 35.1 | 48.7 | 24.2 | 15.9 |
| 1976/77 | 65.3 | 72.0 | 17.5 | 17.2 |
| 1977/78 | 59.4 | 57.5 | 7.3 | 12.4 |
| 1978/79 | 45.5 | 69.7 | 32.7 | 17.8 |
| 1979/80 | 41.8 | 50.2 | 25.7 | 14.6 |
| 1980/81 | 43.1 | 39.6 | 15.6 | 16.3 |
| 1981/82 | 44.3 | 41.1 | 35.0 | 13.6 |
| 1982/83 | 62.7 | 37.7 | 20.1 | 17.2 |
| 1983/84 | 55.1 | 33.7 | 44.7 | 11.1 |
| 1984/85 | 55.3 | 33.3 | 47.6 | 18.5 |
| 1985/86 | 97.2 | 36.8 | 30.8 | 18.7 |
| 1986/87 | 82.9 | 45.4 | 20.0 | 20.2 |
| 1987/88 | 46.9 | 23.3 | 20.5 | 17.8 |
| 1988/89 | 29.3 | 27.5 | 18.3 | 13.0 |
| 1989/90 | 24.1 | 28.5 | 19.2 | 15.1 |
| 1990/911 | 40.0 | 58.3 | 28.7 | 18.3 |

Note: Ratio of ending stocks to total disappearance (domestic use plus exports) for each country's marketing year.
1 Forecast.
Sources: Wheat Situation and Outlook Yearbook, WS-288, Feb. 1990, and World Agricultural Supply and Demand Estimates, WASDE-248, Nov. 8, 1990.

support for a particular commodity. Calculation of a country PSE can include: aggregated direct government payments; if border measures exist, a price wedge between domestic and world prices times quantity produced; plus other types of subsidies which aid producers. Producers are subsidized most heavily in the major importing countries of Japan, Taiwan, Brazil, and South Korea, followed by the United States, EC, Canada, and Australia (table A-2).

Of the marketing boards established in Canada and Australia, only payments to producers under pool deficits appear as producer support. The remainder of the marketing board system, including the exercise of market power implicit in its operation, has not been treated as a subsidizing policy in the past.

Canadian policies that provide the majority of support to producers are the Special Canadian Grains Program (for grain producers outside of the Western Prairie) and WGSP support program. Adding the WGTA transportation subsidy, these provided 78 percent of producer support in 1986-87. Australian policies, outside of 1986, provide minimal support and are not of the type regarded as trade-distorting. In the United States, support consisting of wheat deficiency payments and the price-enhancement provided by the EEP made up more than 75 percent of total support in 1986-87. The majority of EC policies are measured in the PSE as a single price gap between the world price and the EC intervention price. This "trade measures" figure was nearly all of the soft wheat PSE in 1986-87.

## Conclusion

Producers in most major wheat exporting countries receive some protection from fluctuating world prices. However, the form such protection takes differs widely. The United States makes direct payments and subsidizes exports, while Australia and Canada support producer revenue and operate marketing boards to facilitate exports. The EC heavily supports its domestic producers through a complex administered price framework. Treatment of stocks also differ, though the arrays of policies for all four exporters somewhat limit price risk for producers and place it on the government or the world market, as in the EC.

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Table A2--Producer subsidy equivalents for major wheat producers and consumers, 1986 and 1987

| Producers | 1986 | 1987 |
|---|---|---|
| Argentina | -7 | 6 |
| Australia | 15 | 4 |
| Brazil | -9 | 4 |
| Canada | 53 | 51 |
| China | -13 | -17 |
| Egypt | -9 | 4 |
| EC-10[1] | 59 | 55 |
| Japan | 104 | 108 |
| Taiwan | 70 | 79 |
| United States | 61 | 63 |
| U.S.S.R. | -30 | NA |

1 Excludes support for Spain and Portugal.
Source: Estimates of Producer and Consumer Subsidy Equivalents, USDA-ERS, Stat. Bull. No. 803, Apr. 1990.

# Breakeven Prices for Wheat and Competing Crops

by Edward W. Allen*

**Abstract:** New legislation in 1990 has increased farmers' program planting options, making production decisions more dependant on market returns and less linked to program payments. Prices over the last year have changed significantly, with wheat prices falling more than alternative crop prices. An analysis of farmers costs and returns indicates that planting wheat for harvest in 1991 seems much less attractive than it did a year ago.

**Keywords:** planting flexibility, market returns, profitability.

New legislation in 1990 has increased farmers' program planting options, making production decisions more dependant on market returns and less linked to program payments. Normal Flexible Acres provisions of the Budget Reconciliation Act (except for winter wheat producers in 1991) reduce farmers' payment acres by 15 percent. An additional 10 percent of base can flex under Optional Flexible acres. The crop planted on flexible base acres can be any crop other than fruits and vegetables and other crops as designated by the Secretary. Crop bases are maintained as long as an approved crop is planted or the acreage is placed in conserving use.

Eligible winter wheat producers can elect in 1991 for the reduced payment acres or can have their deficiency payments based on a 12 month season average price (which could result in a deficiency payment rate up to 10 cents/bushel lower). Farmers who do not participate in the government program respond to relative profitability based on expected market returns. With 1990 flexibilty legislation this is expanded to 15 percent of wheat participants' base, with an additional 10 percent alternative, but at the expense of foregone deficiency payments. Most wheat farmers are expected to continue participation in the government program. Most winter wheat producers are expected to elect the 12-month price rather than normal flexible acres, due to higher returns (deficiency payments).

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However, where normal flexible acres provisions apply, market profitability becomes an important factor determining what crop is grown. More specifically, farmers' expectations of profitability at planting time (or at the time they must be in compliance) will determine what crop is grown on flexible acres.

A basic measure of profitability per acre is:

(Price * Yield) - Variable Costs

On a per acre basis, price and yield determine revenue. Variable costs are those that can change depending on what crop is grown.

The profitability of two crops can be compared by the equation that sets the profitability equal. When the profits are the same for the two crops, the farmer is economically indifferent to which is planted. For example, for wheat and barley:

$$(Pw * Yw) - VCw = (Pb * Yb) - VCb$$

Where Pw = Wheat Price, Yw = Wheat yield, VCw = the Variable Costs of producing Wheat, Pb = Barley Price, Yb = Barley Yield, and VCb = the Variable Costs of producing Barley.

Solving the equation for the price of wheat gives a calculation of a breakeven wheat price. A wheat price at that level or higher would be needed to keep area from moving into barley:

$$Pw = \{(Pb * Yb) - VCb + VCw\} / Yw$$

At planting time, prices and yields are uncertain, and even variable production costs can be greater or less than expected. Farmers' expectations regarding the variables in the breakeven equation will determine plantings.

For example, if a farmer expects a 55 bu./acre barley yield, a 32 bu./acre wheat yield, $50/acre variable cash costs for barley, $43/acre costs for wheat, and if the price expected for barley is $1.60/bu., then the breakeven wheat price is $2.53/bu. So that price or higher is needed to make wheat more attractive than barley. That is:

$$Pw = \{(Pb * Yb) - VCb + VCw\} / Yw$$

$$2.53 = \{(\$1.60 * 55) - \$50 + \$43\} / 32$$

The equation can be used to generate a series of breakeven price pairs for wheat and barley that show where this farmer will recieve the same return for each crop. Graphing the price pairs forms a line. This equation can be a useful tool for analysis of planted area changes.

## *Procedure*

To study the planting alternatives facing wheat farmers considering flexible provisions, state level data was used. For the cost of production, the 1987 state level data was compared to the 1987 national cost of production. That differential was applied to a 1991 national cost of production projection. Yield expectations were assumed to be between average and trend, depending on the crop and the state. Several breakeven lines for different competing crops in different states were calculated.

To illustrate how market prices have changed the price signals wheat farmers

face, the monthly average prices received by farmers in specific states have been plotted in relation to the breakeven line in figures B-1-4. Farm prices are used because they more directly reflect what farmers face than do futures prices. However, futures prices would show much the same relationships.

### *Results For Wheat*

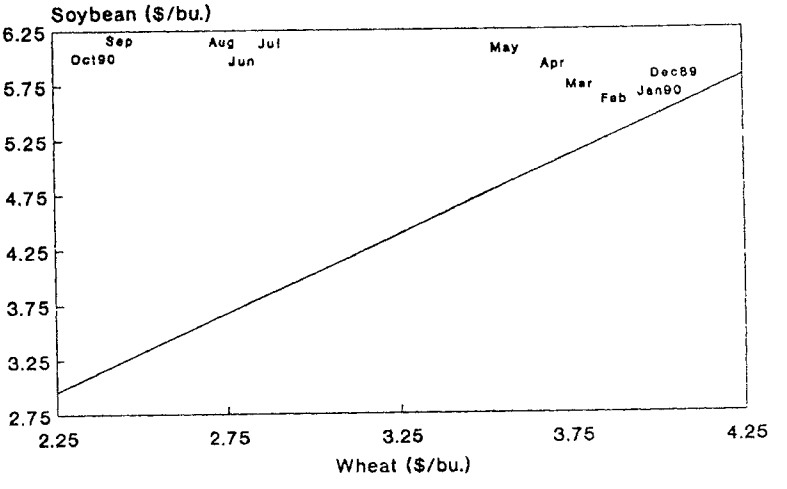
Prices over the last year have changed significantly, with wheat prices falling more than alternative crop prices. Planting wheat for harvest in 1991 seems much less attractive than it did a year ago.

Oilseed prices have strengthened as wheat prices have fallen, making oilseeds a more attractive planting alternative. For example, soybeans in Illinois and sunflowers in North Dakota appear much more attractive than wheat. In 1988, Illinois farms with wheat base had over 4 million acres of soybeans. Plotting farm prices on the same graph as the breakeven line illustrates how much more attractive it has become to plant soybeans in Illinois. However, about a quarter of the wheat acres in Illinois were double cropped with soybeans. The two crops, to a certain extent, compliment, not substitute, on a significant portion of Illinois wheat acreage. Nonetheless, planting soybeans on flexible wheat base acres in Illinois appears to be a viable alternative. However, if the wheat is already planted, the decision is more difficult.

In North Dakota the spring wheat producers face strong incentives to plant flexible acres to alternatives to HRS. Durum wheat prices have been somewhat stronger than HRS, making durum area less vulnerable. The preliminary October HRS price received by farmers was $2.25 bu. This is not only well below the breakeven wheat price for current sunflower seed prices, but also significantly below the breakeven wheat price associated with the sunflower seed marketing loan. The incentives to switch to sunflower appear very strong.

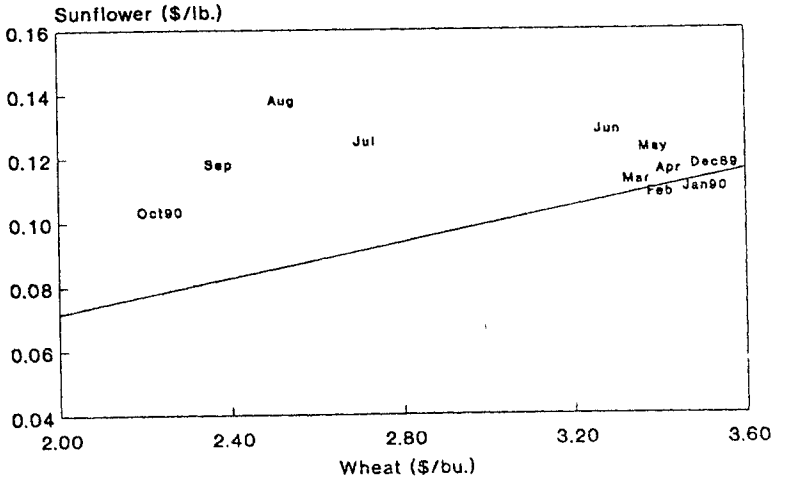
Even barley has become attractive in North Dakota, when compared to HRS. North Dakota farms with wheat base had over 3 million acres of barley base in 1988. A comparison of corn and wheat returns in Missouri illustrates the general attractiveness of coarse grains when compared to wheat. Missouri farms with wheat base also had 2 million acres of corn base.

Figure B-1
Soybean/wheat breakeven prices, flexible base in Illinois.



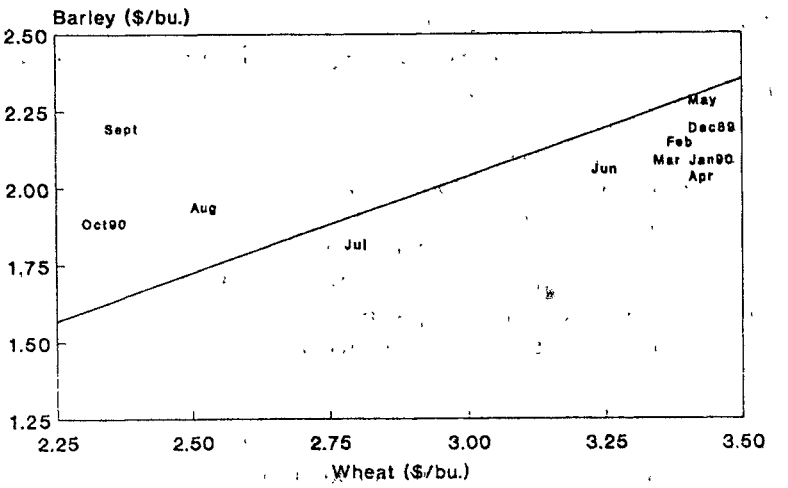

Actual prices, Dec. 89 - Oct. 90.

Figure B-2
Sunflower/wheat breakeven prices, flexible base in North Dakota.



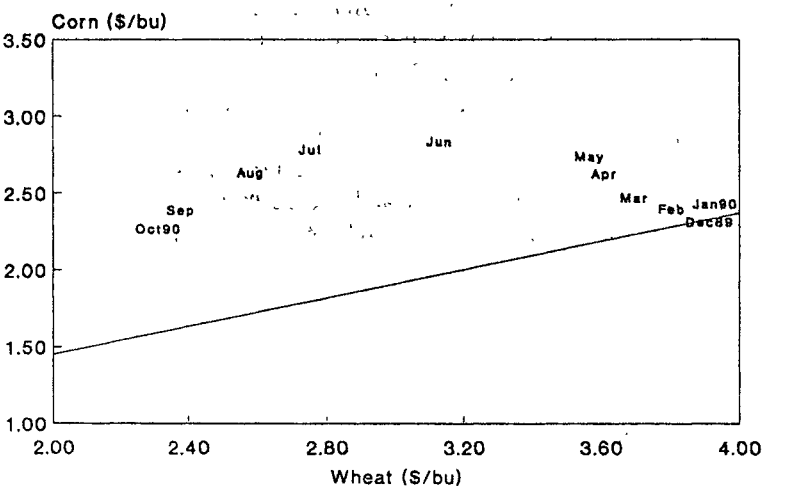

Actual prices, Dec 89 - Oct. 90.

Figure B-3
Barley/wheat breakeven prices, flexible base in North Dakota




Actual prices, Dec. 89 - Oct. 90.

Figure B-4
Corn/wheat breakeven prices, flexible base in Missouri.




Actual prices, Dec 89 - Oct. 90.

Table B-1 North Dakota Breakeven Assumptions

| Variable | Sunflower | HRS | Barley |
|---|---|---|---|
| Assumed Yield | 1200 | 33 | 55 |
| Production Cost/acre | 63 | 43 | 50 |

1991 crops

Table B-2 Illinois and Missouri Breakeven Assumptions

| | Illinois | | Missouri | |
|---|---|---|---|---|
| Variable | Soybeans | Wheat | Corn | Wheat |
| Assumed Yield | 40 | 57 | 100 | 46 |
| Production Cost/acre | 57 | 67 | 113 | 60 |

1991 crops

# List of Tables

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 (Estimated) | 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 | 62.2 | 69.4 |
| Set aside and diverted | 18.3 | 18.8 | 21 | 23.9 | 22.4 | 9.6 | 7.0 |
| Acreage reduction | 9.1 | 11.9 | 15.8 | 20.2 | 19.2 | 6.1 | 2.2 |
| 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 | 4.8 |
| 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 | 32.7 | 39.6 |
| | | | | Million bushels | | | |
| Supply: | | | | | | | |
| June 1 stocks | 1,399 | 1,425 | 1,905 | 1,821 | 1,261 | 702 | 536 |
| Production | 2,595 | 2,424 | 2,091 | 2,108 | 1,812 | 2,037 | 2,744 |
| Imports 2/ | 9 | 16 | 21 | 16 | 23 | 23 | 23 |
| Total supply | 4,003 | 3,865 | 4,017 | 3,945 | 3,096 | 2,762 | 3,303 |
| | | | | Million bushels | | | |
| Disappearance: | | | | | | | |
| Food | 651 | 674 | 712 | 721 | 715 | 731 | 745 |
| Seed | 98 | 93 | 84 | 85 | 103 | 101 | 88 |
| Feed and residual 3/ | 408 | 284 | 401 | 280 | 157 | 160 | 450 |
| Total domestic | 1,157 | 1,051 | 1,197 | 1,086 | 975 | 992 | 1,283 |
| Exports 2/ | 1,421 | 909 | 999 | 1,598 | 1,419 | 1,233 | 1,075 |
| Total disappearance | 2,578 | 1,960 | 2,196 | 2,684 | 2,394 | 2,225 | 2,358 |
| | | | | Million bushels | | | |
| Ending stocks: | | | | | | | |
| May 31 | 1,425 | 1,905 | 1,821 | 1,261 | 702 | 536 | 945 |
| 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 | 147 |
| Outstanding loans 6/ | 175 | 678 | 236 | 178 | 19 | 30 | 75 |
| Other | 215 | 29 | 123 | 333 | 206 | 245 | 723 |
| | | | | $/bushel | | | |
| Prices: | | | | | | | |
| Received by farmers | 3.39 | 3.08 | 2.42 | 2.57 | 3.72 | 3.72 | 2.55-2.75 |
| 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 | 7,576 | 7,408 |

--- = 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 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Domestic use | | | | | | | | |
| | Beginning stocks | Production | Imports 2/ | Total | Food | Seed | Feed 3/ | Total | Exports 2/ | Total disappearance | Govt. owned | Privately owned 4/ | 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 | 2,036.6 | 23.4 | 2,761.6 | 731.0 | 101.1 | 160.1 | 992.2 | 1,233.0 | 2,225.2 | 117.0 | 419.5 | 536.5 |
| 1990/91 6/ | 536.5 | 2,743.6 | 23.0 | 3,303.1 | 745.0 | 88.0 | 450.0 | 1,283.0 | 1,075.0 | 2,358.1 | 147.0 | 798.0 | 945.0 |

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, 1983/84-1990/91 1/

| Year and periods beginning June 1 | Supply | | | | Disappearance | | | | | | Ending stocks | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Domestic use | | | | | | | | |
| | Beginning stocks | Production | Imports 2/ | Total | Food | Seed | Feed 3/ | Total | Exports 2/ | Total disappearance | Govt. owned | Privately owned 4/ | 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 | 2,036.6 | 5.9 | 2,744.1 | 183.1 | 1.7 | 272.2 | 457.0 | 369.9 | 826.9 | 167.9 | 1,749.3 | 1,917.2 |
| Sept.-Nov. | 1,917.2 | --- | 5.3 | 1,922.6 | 183.1 | 68.4 | (81.2) | 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 | 2.7 | 42.3 | 225.5 | 259.7 | 485.2 | 136.5 | 806.6 | 943.1 |
| Mar.-May | 943.1 | --- | 7.5 | 950.6 | 184.3 | 28.3 | (73.2) | 139.4 | 274.8 | 414.2 | 117.0 | 419.5 | 536.5 |
| Mkt. year | 701.6 | 2,036.6 | 23.4 | 2,761.6 | 731.0 | 101.1 | 160.1 | 992.2 | 1,233.0 | 2,225.2 | 117.0 | 419.5 | 536.5 |
| 1990/91: | | | | | | | | | | | | | |
| June-Aug. | 536.5 | 2,743.6 | 8.0 | 3,288.1 | 197.4 | 1.0 | 419.6 | 618.0 | 268.1 | 886.1 | 104.6 | 2,297.4 | 2,402.0 |
| Sept.-Nov. | | | | | | | | | | | | | |
| Dec.-Feb. | | | | | | | | | | | | | |
| Mar.-May | | | | | | | | | | | | | |
| Mkt. year 5/ | 536.5 | 2,743.6 | 23.0 | 3,303.1 | 745.0 | 88.0 | 450.0 | 1,283.0 | 1,075.0 | 2,358.1 | 147.0 | 798.0 | 945.0 |

--- = Not applicable.

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/ Projected.

Appendix table 4--Quarterly Government stock activity for wheat, 1988/89-1990/91

| | 1988/89 | | | | 1989/90 | | | | 1990/91 |
|---|---|---|---|---|---|---|---|---|---|
| | June-Aug. | Sept.-Nov. | Dec.-Feb. | March-May | June-Aug. | Sept.-Nov. | Dec.-Feb. | March-May | June-Aug. |
| | Million bushels | | | | | | | | |
| 9-month loans: | | | | | | | | | |
| Carryin outstanding | 117.0 | 108.1 | 93.1 | 46.9 | 19.2 | 48.2 | 80.4 | 65.4 | 30.0 |
| Loans made | 60.1 | 34.2 | 10.8 | 1.7 | 42.6 | 47.1 | 17.8 | 4.2 | 113.0 |
| Certificate exchange | 5.8 | 0.7 | 0.5 | 0.2 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 |
| Cash redemption | 118.2 | 47.1 | 55.2 | 23.1 | 13.5 | 14.8 | 32.7 | 39.2 | 22.6 |
| CCC collateral acquired | 5.0 | 1.4 | 1.3 | 6.1 | 0.1 | 0.0 | 0.0 | 0.4 | 0.0 |
| Reserve conversion | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Carryout outstanding | 108.1 | 93.1 | 46.9 | 19.2 | 48.2 | 80.4 | 65.4 | 30.0 | 120.3 |
| FOR loans: | | | | | | | | | |
| Carryin FOR | 466.8 | 391.0 | 383.4 | 377.9 | 287.0 | 211.4 | 173.6 | 153.6 | 143.9 |
| Reserve conversion | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Cash redemption | 0.0 | 0.5 | 1.8 | 68.4 | 39.6 | 8.7 | 3.7 | 0.0 | 0.5 |
| CCC collateral acquired | 23.2 | 3.4 | 1.8 | 2.9 | 24.1 | 23.2 | 10.9 | 3.1 | 13.7 |
| Certificate exchange | 52.6 | 3.7 | 1.9 | 19.6 | 11.9 | 5.9 | 5.4 | 6.6 | 10.9 |
| Carryout FOR | 391.0 | 383.4 | 377.9 | 287.0 | 211.4 | 173.6 | 153.6 | 143.9 | 118.8 |
| CCC owned: | | | | | | | | | |
| Carryin CCC | 283.0 | 250.0 | 213.0 | 203.2 | 190.5 | 167.9 | 154.5 | 136.5 | 116.6 |
| CCC collateral acquired | 28.2 | 4.8 | 3.1 | 9.0 | 24.2 | 23.2 | 10.9 | 3.5 | 13.7 |
| Certificate exchange | 20.2 | 23.6 | 9.0 | 6.6 | 3.5 | 42.9 | 13.5 | 3.7 | 1.5 |
| Other 1/ | 41.0 | 18.2 | 3.9 | 15.1 | 43.3 | (6.3) | 15.4 | 19.7 | 24.2 |
| Carryout CCC | 250.0 | 213.0 | 203.2 | 190.5 | 167.9 | 154.5 | 136.5 | 116.6 | 104.6 |

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

Appendix table 5--Wheat: Status of price support loans on specified dates, 1980/81-1990/91

| Crop year | Total stocks | Total CCC inventory | Outstanding CCC loans | Farmer-Owned Reserve 1/ | Unencumbered stocks |
|---|---|---|---|---|---|
| | | | Million bushels | | |
| 1980/81: | | | | | |
| Jun. 1 | 902.0 | 187.8 | 99.3 | 259.9 | 355.0 |
| Sept.1 | 2,714.0 | 202.1 | 96.7 | 211.0 | 2,204.2 |
| Dec. 1 | 2,092.3 | 202.9 | 128.2 | 210.5 | 1,550.7 |
| Mar. 1 | 1,522.8 | 203.2 | 114.3 | 303.8 | 901.5 |
| 1981/82: | | | | | |
| Jun. 1 | 989.1 | 199.7 | 54.6 | 359.6 | 375.2 |
| Sept.1 | 3,056.0 | 195.4 | 147.0 | 398.6 | 2,315.0 |
| Dec. 1 | 2,338.4 | 190.6 | 195.4 | 459.1 | 1,493.3 |
| Mar. 1 | 1,777.6 | 190.2 | 182.2 | 515.2 | 890.0 |
| 1982/83: | | | | | |
| Jun. 1 | 1,159.4 | 190.3 | 112.0 | 560.4 | 296.7 |
| Sept.1 | 3,229.3 | 193.3 | 77.5 | 763.3 | 2,195.2 |
| Dec. 1 | 2,642.8 | 189.7 | 105.6 | 986.3 | 1,361.2 |
| Mar. 1 | 2,072.0 | 184.6 | 92.5 | 1,117.1 | 677.8 |
| 1983/84: | | | | | |
| Jun. 1 | 1,515.1 | 192.0 | 65.2 | 1,060.6 | 197.3 |
| Sept.1 | 3,233.1 | 365.0 | 294.1 | 824.8 | 1,749.2 |
| Dec. 1 | 2,535.7 | 375.8 | 396.0 | 736.6 | 1,027.3 |
| Mar. 1 | 1,951.5 | 313.8 | 443.9 | 610.7 | 583.1 |
| 1984/85: | | | | | |
| Jun. 1 | 1,398.6 | 188.0 | 379.1 | 611.2 | 220.3 |
| Sept.1 | 3,160.1 | 278.1 | 254.9 | 657.9 | 1,969.2 |
| Dec. 1 | 2,338.5 | 359.4 | 247.2 | 674.9 | 1,057.0 |
| Mar. 1 | 1,800.8 | 375.7 | 218.4 | 673.8 | 532.9 |
| 1985/86: | | | | | |
| Jun. 1 | 1,425.2 | 377.6 | 175.0 | 657.1 | 215.5 |
| Sept.1 | 3,203.5 | 406.7 | 493.7 | 689.5 | 1,613.6 |
| Dec. 1 | 2,643.4 | 517.1 | 734.9 | 653.7 | 737.7 |
| Mar. 1 | 2,255.8 | 526.3 | 770.8 | 633.1 | 325.6 |
| 1986/87: | | | | | |
| Jun. 1 | 1,905.0 | 601.7 | 677.7 | 596.4 | 29.2 |
| Sept.1 | 3,156.5 | 793.8 | 455.8 | 629.9 | 1,277.0 |
| Dec. 1 | 2,673.5 | 863.9 | 527.6 | 657.7 | 624.3 |
| Mar. 1 | 2,250.4 | 905.3 | 419.8 | 662.6 | 262.7 |
| 1987/88: | | | | | |
| Jun. 1 | 1,820.9 | 830.1 | 235.6 | 631.8 | 123.4 |
| Sept.1 | 2,976.5 | 798.8 | 245.1 | 597.5 | 1,335.1 |
| Dec. 1 | 2,500.6 | 755.4 | 383.1 | 553.4 | 808.7 |
| Mar. 1 | 1,923.5 | 450.1 | 293.8 | 517.9 | 661.7 |
| 1988/89: | | | | | |
| Jun. 1 | 1,260.8 | 283.0 | 177.5 | 466.8 | 333.5 |
| Sept.1 | 2,253.6 | 250.0 | 108.1 | 391.0 | 1,504.5 |
| Dec. 1 | 1,715.9 | 213.0 | 93.1 | 381.2 | 1,028.6 |
| Mar. 1 | 1,227.7 | 203.2 | 46.9 | 377.9 | 599.7 |
| 1989/90: | | | | | |
| Jun. 1 | 701.6 | 190.5 | 19.2 | 287.0 | 204.9 |
| Sept.1 | 1,917.2 | 167.9 | 48.2 | 211.4 | 1,489.7 |
| Dec. 1 | 1,423.7 | 154.5 | 80.4 | 173.6 | 1,015.2 |
| Mar. 1 | 943.1 | 136.5 | 65.4 | 153.6 | 587.6 |
| 1990/91: | | | | | |
| Jun. 1 | 536.5 | 115.0 | 25.0 | 145.0 | 251.5 |
| Sept.1 | 2,402.0 | 104.6 | 120.3 | 118.8 | 2,058.3 |

1/ Includes any quantity in the special producer storage loan program.

Source: Agricultural Stabilization and Conservation Service, USDA.

Appendix table 6--Wheat classes: Estimated acreage, yield, and production, 1978-1990

| Year | Planted acreage | Harvesteded 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 | 711.9 |
| 1990 | 38.3 | 32.9 | 36.8 | 1,211.0 |
| **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 | 15.3 | 36.2 | 556.2 |
| **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 | 34.8 | 121.7 |
| **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 | 14.1 | 12.7 | 42.9 | 542.7 |
| **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 | 62.8 | 312.0 |

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

Appendix table 7--Wheat classes: Marketing year supply and disappearance, 1982/83-1990/91 1/

| Year beginning June 1 | Supply | | | Disappearance | | | Ending stocks May 31 |
|---|---|---|---|---|---|---|---|
| | Beginning stocks | Production | 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 3/: | | | | | | | |
| Hard winter | 302 | 712 | 1,014 | 439 | 360 | 799 | 215 |
| Hard spring | 219 | 433 | 660 | 225 | 280 | 505 | 155 |
| Soft red | 39 | 548 | 587 | 211 | 345 | 556 | 32 |
| White | 81 | 251 | 335 | 57 | 193 | 250 | 85 |
| Durum | 60 | 92 | 165 | 60 | 55 | 115 | 50 |
| All classes | 702 | 2,037 | 2,762 | 992 | 1,233 | 2,225 | 536 |
| 1990/91 4/: | | | | | | | |
| Hard winter | 215 | 1,211 | 1,426 | 625 | 380 | 1,005 | 421 |
| Hard spring | 155 | 556 | 715 | 264 | 180 | 444 | 271 |
| Soft red | 32 | 543 | 574 | 250 | 285 | 535 | 39 |
| White | 85 | 312 | 405 | 76 | 180 | 256 | 149 |
| Durum | 50 | 122 | 183 | 68 | 50 | 118 | 65 |
| All classes | 536 | 2,744 | 3,303 | 1,283 | 1,075 | 2,358 | 945 |

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. 4/ Projected.

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 | 80,840 | 92,682 | 105,985 | | | | | | | | | |
| | | | | | | 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 | 411 | 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 | 2,244 | 2,785 | 2,865 | | | | | | | | | |
| | | | | | | 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 | 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 | 41 | 65 | 464 | | | | | | | | | |
| | | | | | | 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 | 83,125 | 95,533 | 109,315 | | | | | | | | | |

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--U.S. Wheat exports: By selected programs

| Fiscal year | P.L. 480 | Section 416 | Aid 1/ | Total Concessional | CCC export credit 2/ | Export enhancement program 3/ | Total U.S. wheat exports | P.L. 480, CCC export credit, and EEP exports divided by total exports (%) 4/ |
|---|---|---|---|---|---|---|---|---|
| | 1,000 metric tons | | | | | | | Percent |
| 1978/79 | 3,234 | 0 | 7 | 3,241 | 2,684 | 0 | 31,340 | 19 |
| 1979/80 | 2,785 | 0 | 44 | 2,829 | 1,945 | 0 | 36,066 | 13 |
| 1980/81 | 2,537 | 0 | 4 | 2,541 | 3,261 | 0 | 42,246 | 14 |
| 1981/82 | 2,978 | 0 | 0 | 2,978 | 3,725 | 0 | 44,607 | 15 |
| 1982/83 | 3,340 | 0 | 123 | 3,463 | 8,597 | 0 | 36,701 | 33 |
| 1983/84 | 3,442 | 0 | 0 | 3,442 | 11,406 | 0 | 41,699 | 36 |
| 1984/85 | 4,392 | 0 | 74 | 4,466 | 8,221 | 0 | 28,524 | 44 |
| 1985/86 | 4,685 | 76 | 513 | 5,274 | 7,740 | 4,800 | 24,626 | 59 |
| 1986/87 | 3,927 | 406 | 1 | 4,334 | 8,125 | 12,350 | 28,204 | 68 |
| 1987/88 | 3,321 | 1,186 | 292 | 4,799 | 9,273 | 25,100 | 40,523 | 78 |
| 1988/89 5/ | 3,020 | 138 | 806 | 3,964 | 9,500 | 17,700 | 37,774 | 69 |
| 1989/90 6/ | 3,400 | 0 | 20 | 3,420 | 7,600 | 12,200 | 27,999 | NA |

1/ Shipment mostly under the Commodity Import Program, financed with foreign aid funds. 2/ Source: FAS/USDA. 3/ Unofficial estimates of shipments compiled from EEP press releases. 4/ Adjusted for overlap between CCC export credit and EEP shipments. 5/ Preliminary. 6/ Unofficial estimates. NA = Not available.

Contact: Mark Smith, Karen Ackerman, or Ann Fleming (202) 219-0820.

Appendix table 10--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/ | Byprod-ucts obtained 100 lb. flour 3/ | Total products | | | Bakery flour per 100 lb. 2/ | Byprod-ucts 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-Aug. | 7.46 | 8.62 | 1.29 | 9.91 | 2.45 | 8.03 | 8.85 | 1.21 | 10.06 | 2.03 |
| Sept. | 6.59 | 7.50 | 1.35 | 8.85 | 2.27 | 6.48 | 6.95 | 1.31 | 8.26 | 1.78 |
| Oct. | 6.52 | 7.20 | 1.46 | 8.66 | 2.14 | 6.50 | 6.85 | 1.37 | 8.22 | 1.72 |

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.

Source: Compiled from reports of Agricultural Marketing Service and Department of Labor.

Appendix table 11--Wheat farm prices for leading classes and major feed grains in U.S. regions, 1984/85-1990/91

| Crop year | June | July | Aug. | Sept. | Oct. 1/ | 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 | 2.75 | 2.53 | 2.45 | 2.41 | | | | | | | | | |
| 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 | 2.55 | 2.44 | 2.31 | 2.15 | | | | | | | | | |
| | | | | | | 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 | 2.85 | 2.65 | 2.45 | 2.37 | | | | | | | | | |
| 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 | 2.97 | 2.83 | 2.56 | 2.37 | | | | | | | | | |
| | | | | | | 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 | 2.57 | 2.45 | 2.34 | | | | | | | | | |
| 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 | 3.11 | 2.53 | 2.39 | 2.53 | | | | | | | | | |
| | | | | | | 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 | 3.03 | 2.83 | 2.69 | 2.48 | | | | | | | | | |
| 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 | 3.11 | 2.97 | 2.88 | 2.68 | | | | | | | | | |
| | | | | | | 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 | 2.32 | 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 | 2.79 | 2.58 | 2.46 | 2.39 | | | | | | | | | 1.95 |

1/ October 1990 is 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 12--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 | 2.89 | 2.83 | 2.81 | | | | | | | | |
| 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 | 4.24 | 4.31 | 4.34 | 4.28 | 4.12 | 4.02 | 4.07 | 3.91 | 4.21 |
| 1990/91 | 3.71 | 3.17 | 2.94 | 2.89 | 2.86 | | | | | | | | |
| 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 | 2.83 | 2.62 | 2.62 | | | | | | | | |
| 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 | 3.97 | 4.03 | 4.05 | 4.20 | 4.19 | 4.13 | 4.00 | 3.87 | 3.88 | 3.33 | 3.96 |
| 1990/91 | 3.27 | 3.02 | 2.85 | 2.66 | 2.57 | | | | | | | | |
| 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 | 2.78 | 2.57 | 2.49 | | | | | | | | |
| 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 | 2.69 | 2.48 | 2.39 | | | | | | | | |
| 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 | 4.72 | 4.64 | 4.63 | 4.44 | 4.11 | 3.76 | 3.68 | 3.61 | 4.30 |
| 1990/91 | 3.59 | 3.44 | 3.21 | 3.10 | 2.87 | | | | | | | | |
| 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 | NA | 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 | 3.05 | 2.84 | 2.85 | | | | | | | | |
| 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 | 3.41 | 3.27 | 3.34 | | | | | | | | |

NA = Not available.
Source: Grain and Feed Market News, Agricultural Marketing Service, USDA.

Appendix table 13--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 | 130 | 147 | 161 | 187 | 166 | 165 | 160 |
| 1983 | 130 | 145 | 158 | 185 | 138 | 169 | 161 |
| 1984 | 127 | 140 | 153 | 180 | 135 | 166 | 153 |
| 1985 | 116 | 125 | 137 | 169 | 106 | 173 | 141 |
| 1986 | 98 | 107 | 117 | 148 | 88 | 161 | 120 |
| 1987 | 91 | 104 | 114 | 141 | 89 | 134 | 115 |
| 1988 | 119 | 134 | 146 | 176 | 125 | 177 | 150 |
| 1989 | 141 | 160 | 171 | 190 | 151 | 202 | 176 |
| 1986: | | | | | | | |
| January | 116 | 122 | 133 | 178 | 108 | 189 | 140 |
| February | 114 | 121 | 131 | 176 | 102 | 183 | 133 |
| March | 118 | 123 | 136 | 164 | 97 | 189 | 139 |
| April | 122 | 127 | 138 | 172 | 96 | 187 | 137 |
| May | 107 | 125 | 128 | 163 | 90 | 185 | 131 |
| June | 87 | 102 | 107 | 135 | 85 | 169 | 114 |
| July | 80 | 91 | 103 | 128 | 81 | 160 | 104 |
| August | 82 | 91 | 104 | 124 | 80 | 137 | 104 |
| September | 83 | 93 | 104 | 127 | 81 | 133 | 105 |
| October | 83 | 96 | 105 | 131 | 80 | 130 | 108 |
| November | 88 | 98 | 107 | 137 | 79 | 133 | 111 |
| December | 89 | 99 | 109 | 137 | 78 | 133 | 110 |
| 1987: | | | | | | | |
| January | 90 | 100 | 110 | 141 | 82 | 136 | 110 |
| February | 92 | 103 | 114 | 145 | 92 | 138 | 112 |
| March | 91 | 107 | 116 | 140 | 90 | 139 | 115 |
| April | 93 | 107 | 115 | 138 | 88 | 134 | 115 |
| May | 96 | 111 | 120 | 146 | 88 | 136 | 119 |
| June | 88 | 100 | 110 | 144 | 86 | 130 | 111 |
| July | 83 | 95 | 106 | 134 | 84 | 126 | 107 |
| August | 84 | 97 | 108 | 134 | 84 | 124 | 109 |
| September | 89 | 103 | 114 | 139 | 89 | 130 | 115 |
| October | 92 | 105 | 116 | 139 | 95 | 134 | 118 |
| November | 95 | 105 | 116 | 140 | 95 | 134 | 118 |
| December | 97 | 114 | 126 | 148 | 95 | 142 | 126 |
| 1988: | | | | | | | |
| January | 98 | 118 | 130 | 158 | 94 | 148 | 127 |
| February | 101 | 120 | 132 | 155 | 106 | 151 | 135 |
| March | 100 | 114 | 126 | 149 | 107 | 143 | 131 |
| April | 100 | 115 | 128 | 156 | 108 | 145 | 133 |
| May | 107 | 118 | 130 | 159 | 107 | 152 | 131 |
| June | 121 | 140 | 151 | 191 | 125 | 166 | 158 |
| July | 125 | 139 | 151 | 200 | 141 | 209 | 157 |
| August | 127 | 139 | 151 | 193 | 140 | 206 | 154 |
| September | 133 | 148 | 160 | 190 | 152 | 202 | 160 |
| October | 137 | 152 | 162 | 190 | 147 | 202 | 169 |
| November | 137 | 154 | 165 | 185 | 152 | 202 | 171 |
| December | 140 | 156 | 167 | 189 | NQ | 206 | 173 |
| 1989: | | | | | | | |
| January | 143 | 162 | 175 | 205 | NQ | 213 | 179 |
| February | 144 | 161 | 173 | 207 | NQ | 212 | 178 |
| March | 147 | 166 | 179 | 192 | NQ | 210 | 183 |
| April | 147 | 164 | 176 | 192 | NQ | 207 | 179 |
| May | 147 | 167 | 177 | 193 | NQ | 209 | 182 |
| June | 143 | 161 | 170 | 187 | 156 | 204 | 178 |
| July | 140 | 157 | 168 | 185 | 155 | 204 | 175 |
| August | 136 | 155 | 165 | 181 | 155 | 196 | 170 |
| September | 134 | 153 | 164 | 180 | 149 | 188 | 171 |
| October | 135 | 156 | 165 | 183 | 149 | 190 | 172 |
| November | 136 | 159 | 168 | 183 | 147 | 191 | 174 |
| December | 137 | 161 | 170 | 191 | 149 | 194 | 176 |
| 1990: | | | | | | | |
| January | 136 | 158 | 169 | 193 | 143 | 193 | 175 |
| February | 131 | 151 | 162 | 186 | 137 | 189 | NA |
| March | 129 | 148 | 157 | 178 | 123 | 191 | NA |
| April | 129 | 151 | 162 | 182 | 124 | 179 | NA |
| May | 127 | 143 | 151 | 179 | 122 | 171 | NA |
| June | 112 | 131 | 136 | 171 | 119 | 167 | NA |
| July | 100 | 114 | 125 | 152 | 112 | 148 | NA |
| August | 93 | 105 | 118 | 143 | 95 | 139 | NA |
| September | 89 | 104 | 115 | 142 | 79 | 130 | 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.

Appendix table 14--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 | 18.0 |
| 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 | 6.8 |
| EC-12 | 18.5 | 15.6 | 16.4 | 14.8 | 21.0 | 21.0 | 20.5 |
| 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 | 9.9 | 7.7 | 9.5 |
| Total non-U.S. | 68.9 | 60.0 | 62.3 | 61.6 | 59.2 | 63.1 | 66.3 |
| U.S. 2/ | 38.1 | 25.0 | 28.4 | 43.4 | 37.6 | 33.5 | 29.0 |
| World total | 107.0 | 85.0 | 90.7 | 105.0 | 96.8 | 96.6 | 95.3 |
| **Imports:** | | | | | | | |
| EC-12 | 3.4 | 2.8 | 2.4 | 2.2 | 2.5 | 2.5 | 3.5 |
| USSR | 28.1 | 15.7 | 16.0 | 21.5 | 15.5 | 14.0 | 13.0 |
| 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 | 2.6 | 2.1 | 1.3 |
| China | 7.4 | 6.6 | 8.5 | 15.0 | 15.5 | 13.0 | 11.5 |
| All others | 59.9 | 50.9 | 54.3 | 57.4 | 55.3 | 59.6 | 60.6 |
| World total | 107.0 | 85.0 | 90.7 | 105.0 | 96.8 | 96.6 | 95.3 |
| **Production: 3/** | | | | | | | |
| Canada | 21.2 | 24.3 | 31.4 | 26.0 | 16.0 | 24.3 | 31.0 |
| Australia | 18.7 | 16.2 | 16.1 | 12.4 | 14.1 | 14.1 | 15.5 |
| Argentina | 13.2 | 8.5 | 8.9 | 8.8 | 8.4 | 10.2 | 12.0 |
| EC-12 | 83.1 | 71.6 | 72.0 | 71.4 | 74.7 | 78.5 | 81.0 |
| USSR 3/ | 68.6 | 78.1 | 92.3 | 83.3 | 84.4 | 92.3 | 108.0 |
| E. Europe | 42.1 | 37.1 | 39.2 | 39.9 | 44.8 | 44.2 | 44.4 |
| China | 87.8 | 85.8 | 90.0 | 85.8 | 85.4 | 90.8 | 96.0 |
| India | 45.5 | 44.1 | 47.1 | 44.3 | 46.2 | 54.0 | 54.0 |
| All other foreign | 61.1 | 68.4 | 76.7 | 73.1 | 77.1 | 72.7 | 76.6 |
| U.S. | 70.6 | 66.0 | 56.9 | 57.4 | 49.3 | 55.4 | 74.7 |
| World total | 511.9 | 500.1 | 530.7 | 502.3 | 500.3 | 536.4 | 593.2 |
| **Utilization: 4/** | | | | | | | |
| U.S. | 31.4 | 28.6 | 32.6 | 29.6 | 26.5 | 27.0 | 34.9 |
| USSR 5/ | 91.2 | 91.6 | 102.8 | 101.5 | 100.4 | 103.3 | 116.0 |
| China | 92.2 | 100.4 | 101.5 | 102.8 | 104.4 | 104.5 | 106.1 |
| All other foreign | 275.3 | 274.4 | 285.5 | 296.3 | 300.1 | 301.4 | 309.7 |
| World total | 490.1 | 495.0 | 522.5 | 530.2 | 531.5 | 536.2 | 566.7 |
| Stocks, ending: 6/ | 164.4 | 168.2 | 176.4 | 148.5 | 117.4 | 117.6 | 144.0 |

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 November 1990. 8/ Projected as of November 1990.

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

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 | 1,625 |
| Harvested | 677 | 892 | 979 | 708 | 661 | 671 | 595 | 484 | 373 |
| | | | | Bushels per acre | | | | | |
| Yield/harvested acre | 28.8 | 30.3 | 33.1 | 28.8 | 28.8 | 29.1 | 24.7 | 28.2 | 27.1 |
| | | | | 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 | 13.6 | 10.1 |
| Imports | 3.0 | 1.6 | 0.6 | 2.2 | 1.0 | 1.2 | 0.2 | 0.0 | 0.5 |
| Total supply | 25.5 | 34.4 | 44.2 | 42.4 | 41.9 | 39.3 | 33.8 | 24.0 | 16.2 |
| 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 | 9.0 | 4.2 |
| 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 | 17.5 | 12.7 |
| Exports | 0.2 | 1.0 | 0.4 | 0.2 | 0.5 | 0.5 | 3.4 | 0.8 | 0.5 |
| Total disappearance | 19.7 | 23.2 | 24.4 | 20.5 | 23.4 | 20.4 | 23.5 | 18.3 | 13.2 |
| Ending stocks | 5.8 | 11.2 | 19.8 | 21.9 | 18.6 | 18.9 | 10.3 | 5.6 | 3.0 |
| | | | | $/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 | 21,206 |

1/ Preliminary. 2/ Projected.

Appendix table 16--Rye: Production by major States, 1982-90

| State | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1,000 bushels | | | | | |
| Georgia | 1,470 | 1,470 | 1,760 | 2,070 | 1,785 | 1,540 | 1,890 | 1,610 | 1,320 |
| Indiana | 260 | 270 | 336 | 308 | 280 | 162 | 210 | 204 | 124 |
| Michigan | 522 | 600 | 588 | 651 | 713 | 640 | 650 | 825 | 580 |
| Minnesota | 3,300 | 4,960 | 6,650 | 3,300 | 1,600 | 1,200 | 920 | 1,088 | 868 |
| Nebraska | 1,269 | 1,265 | 1,392 | 1,242 | 1,035 | 1,150 | 1,375 | 600 | 750 |
| N. Jersey | 319 | 390 | 261 | 320 | 310 | 232 | 310 | 182 | 144 |
| N. York | 341 | 416 | 429 | 420 | 429 | 300 | 396 | 480 | 260 |
| N. Carolina | 525 | 440 | 550 | 665 | 595 | 600 | 780 | 525 | 345 |
| N. Dakota | 2,400 | 4,320 | 5,400 | 2,640 | 4,250 | 5,115 | 1,350 | 1,064 | 780 |
| Oklahoma | 736 | 780 | 704 | 828 | 840 | 360 | 720 | 532 | 342 |
| Pennsylvania | 408 | 578 | 578 | 740 | 630 | 525 | 684 | 576 | 496 |
| S. Carolina | 621 | 320 | 546 | 532 | 391 | 528 | 720 | 644 | 594 |
| S. Dakota | 4,680 | 8,740 | 10,800 | 4,440 | 4,440 | 5,040 | 2,250 | 3,240 | 1,870 |
| Virginia | 364 | 312 | 378 | 312 | 364 | 435 | 560 | 264 | 256 |

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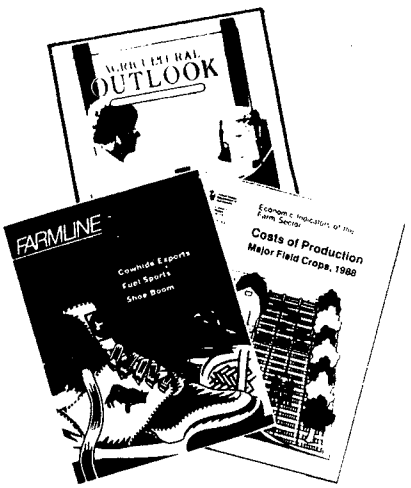


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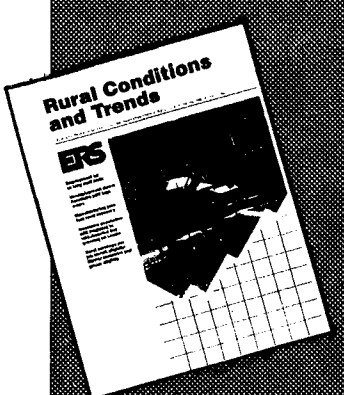


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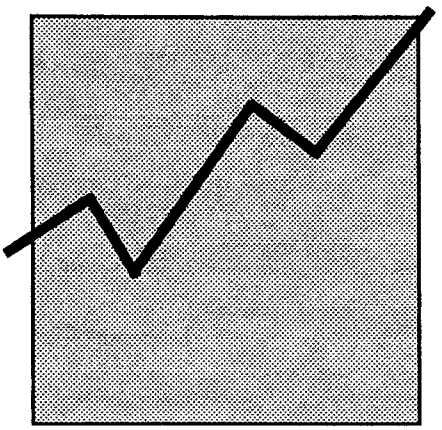

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