Wheat Situation and Outlook Yearbook. Market and Trade Economics Division, Economic Research Service, U.S. Department of Agriculture, WHS-2002, March 2002.

Contents

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The Wheat Yearbook presents preliminary projections for 2002/03 that were released at the 2002 Agricultural Outlook Forum on February 22, 2002.

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The *Wheat Situation and Outlook* may be accessed electronically via the ERS website at www.ers.usda.gov

Summary

Wheat Supplies Drop; Demand Weak

U.S. wheat supplies for 2001/02 are expected to drop 343 million bushels from a year ago to 2,929 million bushels. Total disappearance is forecast to drop 168 million bushels from 2000/01, the result of lower exports and feed and residual. Use will exceed production, and stocks are forecast down 175 million bushels from 2000/01. The season-average farm price is projected to range between $2.75 and $2.85 per bushel, up from $2.62 a year earlier.

Winter wheat plantings for the 2002 crop are down slightly from a year earlier and the lowest since 1971. Durum prospects are somewhat better than most other classes of wheat as a result of a shortfall in 2001's production in Canada and the United States. This has increased prices of milling-quality durum and should promote increased plantings. Spring wheat acreage will continue to face strong competition from oilseeds in 2002 and greater competition from barley in some areas, given tight supplies of malting barley in the United States and Canada. The projected 2002 harvested area is increased by 900,000 acres from last year, assuming a 3-year average harvested-to-planted ratio by State.

Total wheat production for 2002/03 (June/May) is projected to increase 92 million bushels from a year earlier, assuming an average yield of 41.3 bushels per acre, based on 1999-2001 average yields by State. However, the higher production will be more than offset by reduced beginning stocks. Total use is projected down 90 million bushels as exports drop to their lowest level in 30 years.

Winter wheat in the Northern Hemisphere has been planted, and area in several of the largest producing regions has increased. The area increases are large enough so that global wheat production will increase in 2002/03. Global supplies will rise if production gains exceed the 10-million-ton drop in beginning stocks. World wheat use is likely to grow slowly. Increasing wheat supplies in the European Union, and possibly lower prices compared with other grains, increased wheat feeding can be expected in 2002/03.

THE WHEAT SITUATION AT A GLANCE

All wheat: Supply and disappearance 1/

Marketing year beginning June 1	1996/97	1997/98	1998/99	1999/00 2/	2000/01 3/	2001/02 3/
	Million bushels					
Beginning stocks	376	444	722	946	950	876
Production	2,277	2,481	2,547	2,299	2,232	1,958
Imports	92	95	103	94	90	95
Total supply	2,746	3,020	3,373	3,339	3,272	2,929
Domestic Food	891	914	909	921	956	945
Seed	102	92	81	92	80	83
Feed & residual	308	251	391	288	299	225
Domestic use	1,301	1,257	1,381	1,301	1,335	1,253
Exports	1,002	1,040	1,046	1,089	1,061	975
Total disappearance	2,302	2,298	2,427	2,390	2,396	2,228
Ending stocks	444	722	946	950	876	701

Wheat by class: Supply and disappearance 1/

Marketing year beginning June 1	Hard red winter	Hard red spring	Soft red winter	White	Durum	Total
	Million bushels					
2000/2001: 2/						
Beginning stocks	458	218	133	91	50	950
Production	846	502	471	303	110	2,232
Imports	0	59	0	5	26	90
Total supply	1,304	779	604	399	185	3,272
Domestic use	503	343	291	120	79	1,335
Exports	390	226	179	204	62	1,061
Total disappearance	893	569	469	324	140	2,396
Ending stocks	411	210	135	75	45	876
2001/2002: 3/						
Beginning stocks	411	210	135	75	45	876
Production	767	476	400	232	84	1,958
Imports	1	54	0	7	33	95
Total supply	1,179	740	535	314	162	2,929
Domestic use	488	323	261	91	91	1,253
Exports	360	220	200	150	45	975
Total disappearance	848	543	461	241	136	2,228
Ending stocks	331	197	74	73	26	701

1/ Includes flour and products imported and exported in wheat equivalent units. ERS estimates of domestic use. 2/ Estimated. 3/ Projected.

Source: Economic Research Service, USDA.

Winter Wheat Acreage Seeded is the Lowest Since 1971/72

Winter wheat plantings declined slightly from a year earlier to their lowest level since 1971/72. Spring wheat (including durum) plantings are expected to be unchanged, with some decrease in other spring wheat planting offsetting a rise in durum plantings. The U.S. Department of Agriculture will release its first official forecast of the 2002 production on May 10, 2002.

Winter Wheat Acreage Down Slightly From Last Year

The *Winter Wheat Seedings* report released by the National Agricultural Statistics Service (NASS) on January 11, 2002, provides the first indication of wheat plantings for 2002/03 (fig. 1). Winter wheat planted area in 2002 is estimated at 41.0 million acres. This is down only slightly from 2001 and is the lowest level since 1971.

Hard red winter (HRW) wheat seeded area is 29.3 million acres, up .3 million acres, or 1 percent from a year earlier. Texas and Oklahoma led the slight upswing in winter wheat plantings, up a total of .8 million acres and .2 million acres, respectively. Montana also showed a large increase. A notable exception to the increased plantings is Kansas, where growers planted .4 million fewer winter wheat acres than last year.

Figure 1
Winter wheat planted area lowest since 1971

2002 preliminary.
Source: National Agricultural Statistics Service, USDA.

Soft red winter (SRW) seeded area is down .355 million acres, or 4 percent, from last year to 8.3 million acres. Planted area is down in most of the principal SRW States. White winter wheat seeded area for 2002 is 3.4 million acres, down 36,000 acres, or 1 percent from 2001. Durum wheat seeded area in Arizona and California for the 2002 harvest are estimated at a combined .179 million acres, up 6,000 acres, or 3 percent, from a year earlier.

Spring Wheat Acreage Prospects

Even though global and U.S. stocks have been declining, wheat prices have risen only modestly. In most areas, returns for spring wheat relative to competing crops will not provide incentives to expand plantings (figs. 2 and 3), although there could be an expansion in some areas due to plantings on land where the winter wheat crop will be abandoned. Durum prospects are somewhat better than most other classes of wheat as a result of a shortfall in 2001 production in Canada and the United States. This has increased prices of milling quality durum and should promote increased plantings. Spring wheat will continue to face strong competition from oilseeds for acres in 2002, and greater competition from barley in some areas, given tight supplies of malting barley in the United States and Canada. NASS will release an estimate of farmers' intentions to plant durum, other spring wheat, and row crops in the March 28 *Prospective Plantings* report.

Weather in Plains is a Continuing Concern For 2002/03 Crop

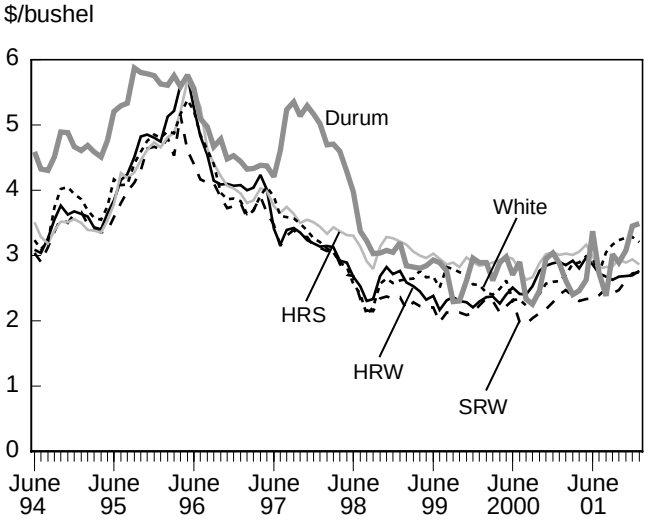
Adverse weather conditions are affecting the condition of the wheat crop on the Plains. In Kansas, 44 percent of the crop was rated poor to very poor on March 25,

2002, while 23 percent of the crop was rated good to excellent. A year earlier, 27 percent of the crop was rated poor to very poor and 33 percent was good to excellent.

Conditions are also poor elsewhere. In Texas, 49 percent of the crop is rated poor to very poor and 17 percent is rated good to excellent. In Oklahoma, 48 percent of the crop is rated poor to very poor and 21 percent is good to excellent. The Nebraska situation is better, where 46 percent of the crop is rated good to excellent and 18 percent is poor to very poor as of March 4, 2002.

Figure 2

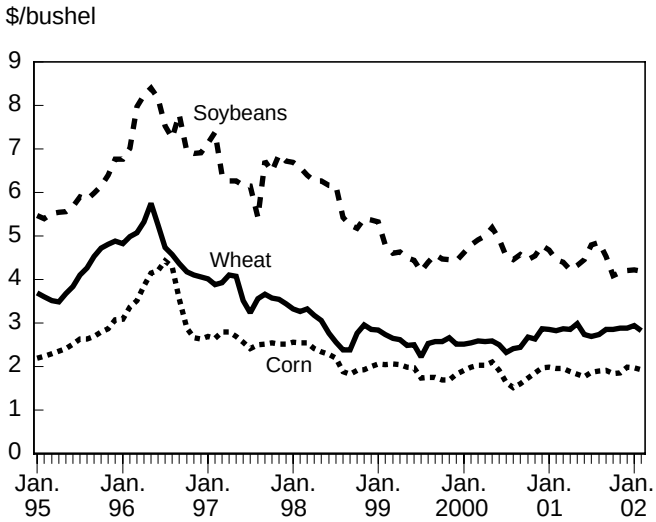
Average monthly prices received by farmers



Source: National Agricultural Statistics Service, USDA.

Figure 3

Prices received by farmers



Source: National Agricultural Statistics Service, USDA.

Wheat Supply and Ending Stocks Likely Down in 2002/03

Slightly higher production due to increased harvested acreage and higher yields in 2002/03, is more than offset by the smaller carryin stocks, resulting in an expected reduction in supplies from a year earlier. Total use of wheat is expected to weaken as exports will likely decline, as will prices.

The following supply and use projections for 2002/03 were released at the 2002 Agricultural Outlook Forum on February 22, 2002. The first official U.S., world, and country-specific supply and use projections for 2002/03 will be in the May 10 *World Agricultural Supply and Demand Estimates* report.

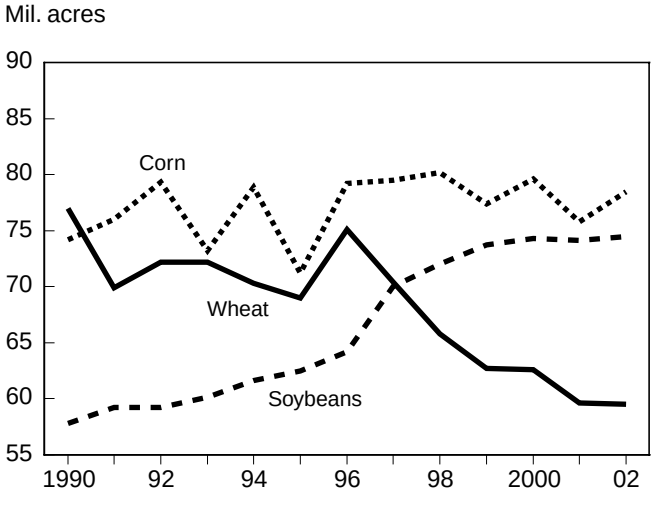
All Wheat Production Is Projected Up from 2001

While there remains many questions about the number of spring wheat acres, especially durum, there also is considerable uncertainty about harvested acres of winter wheat. The forecast harvested area of 49.6 million acres is up almost 1 million from the 2001 crop (fig. 4) when harvested acres were the lowest since 1972. The harvested area in 2002 is projected using a 3-year average harvested-to-planted ratio by State. It is likely that much of the 800,000-acre increase for Texas shown in the *Winter Wheat Seedings* report will be hayed and grazed instead of harvested for grain. Dry areas in parts of the Plains States could result in reduced harvest to planted ratios. Assuming an average wheat yield of 41.3 bushels per acre (fig. 5), based on the average of 1999-2001 yields by State, results in production of 2,050 million bushels, up 92 million bushes from 2001. The higher production will be more than offset by reduced carryin stocks, leaving 2002/03 supplies well below a year earlier.

Total Use Is Projected Down, Price To Decline

Food use will likely increase about 1 percent (fig. 6). This change is commensurate with population growth and the average annual percentage change in food use since 1990. Feed and residual, at 225 million bushels, is unchanged from 2001/02.

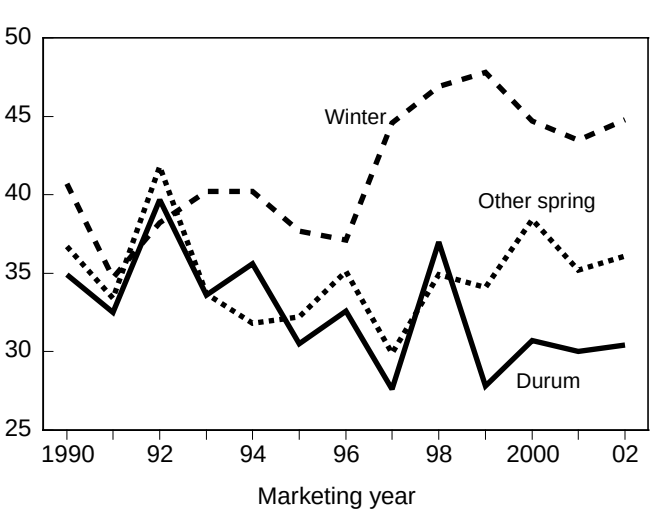
Figure 4
Wheat acreage in 2002/03 almost the same as last year



Note: 2002/03 projection, Agricultural Outlook Forum, February 21-22, 2002.

Source: National Agricultural Statistics Service, USDA.

Figure 5
U.S. wheat yield likely up in 2002



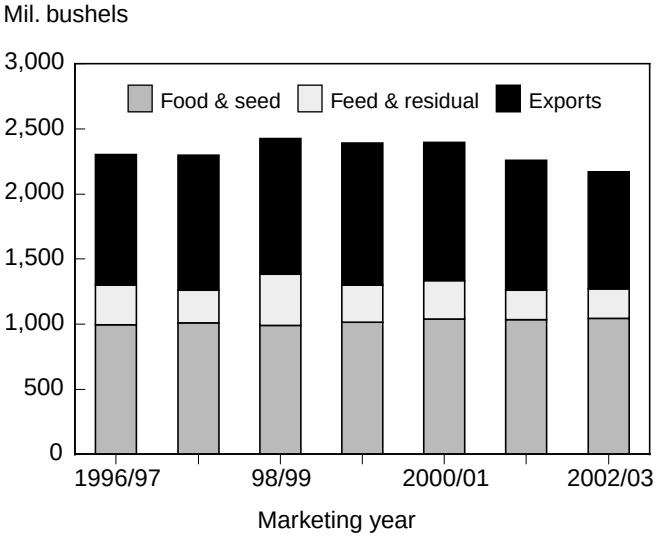
Note: 2002/03 projection, Agricultural Outlook Forum, February 21-22, 2002.

Source: National Agricultural Statistics Service, USDA.

U.S. exports in 2002/03 are expected to fall to 900 million. This level of exports is slightly below the 909 million bushels in 1985/86. The United States will face increased competition from expanding production in the major foreign exporters, especially the European Union, and continued strong competition from exports from Russia, Ukraine, India, and Eastern Europe. Prices are projected down 5 cents from the midpoint of the March price range for 2001/02 to $2.75 per bushel, due to the expected increased international competition.

Figure 6

Disappearance down slightly in 2002/03



Note: 2002/03 projection, Agricultural Outlook Forum, February 21-22, 2002.

Source: National Agricultural Statistics Service, USDA.

Foreign Wheat Production Likely To Increase Significantly in 2002/03

Winter wheat plantings in the Northern Hemisphere were up in several of the largest producing regions. Barring an unexpected dramatic drop in yields, global wheat production will increase in 2002/03. Global supplies will rise if production gains exceed the 10-million-ton drop in forecast beginning stocks. World wheat use is likely to grow slowly, with most of the increase driven by population growth supporting human consumption. However, with increasing wheat supplies in the European Union, and possibly lower prices compared with other grains, increased wheat feeding can be expected in 2002/03.

Global Wheat Production, Declining For the Last 4 Years, Likely To Increase In 2002/03

The U.S. Department of Agriculture will issue its first global and country-specific supply and use projections for 2002/03 on May 10. Winter wheat was planted in the Northern Hemisphere last fall, and area is reportedly up in more regions than have posted declines. However, yields will depend on the weather during coming months. Moreover, spring wheat in the Northern Hemisphere and all wheat in the Southern Hemisphere has not been planted. Global wheat production has declined for the last 4 years, as generally low prices discouraged plantings and unfavorable weather hurt yields in some regions. Wheat prices strengthened modestly in many countries in 2001/02, providing an incentive to increase area planted for 2002/03. World wheat production could post a large increase in 2002/03 if weather continues generally favorable.

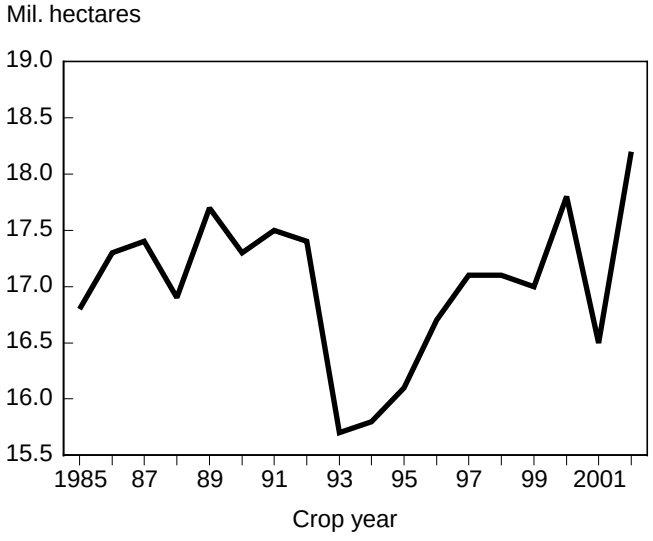
The 2002/03 wheat crop is harvested first in South Asia, beginning in India in March, and soon after in Pakistan. Area in India is reportedly up more than 5 percent, with high government support prices encouraging farmers to plant, even though dryness delayed plantings in some rainfed areas. Yields and production are expected to rebound from last year. Moreover, government wheat stocks are growing.

In Pakistan, favorable February rains followed a very dry first half of the growing season. Production may not change much, but stocks are forecast down, so wheat supplies are likely to be less abundant in 2002/03.

In China, the world's largest wheat producer, the change in area is uncertain. A Ministry of Agriculture survey indicated winter wheat area is down almost 4 percent, while a National Bureau of Statistics (NBS) survey indicated area will be little changed from last year. Some producers are shifting to other crops because of higher returns. The NBS survey indicated a continued shift to quality wheat. Last year's wheat yields were well below trend because of unfavorable weather. Rainfall has been limited since planting and yields will hinge on spring rains. In addition, producers have increased plantings of lower yielding, higher quality varieties. Thus, production is unlikely to increase dramatically, if any.

In the European Union (EU), COCERAL, the major grain trade lobby, has estimated wheat plantings up 14 percent (fig. 7). Durum plantings may be up only slightly from a year earlier. A year ago, excessive rains during planting reduced winter wheat area sharply in

Figure 7
EU wheat area rebounds



Source: USDA except ONIC for 2002 forecast.

Portugal, Spain, France, and the U.K. Plantings for 2002/03 rebounded in those countries because of much more favorable planting conditions. Wheat prices were strong during planting last fall, boosting wheat area in other EU countries as well. Compensatory payments for oilseeds and grains were equalized, favoring wheat. Area shifted to wheat from oilseeds and coarse grains. The increase in area is large enough so that trend yields in 2002/03 would result in record or near-record production.

Eastern Europe's wheat production is expected to decline in 2002/03 if yields return to trend levels from the above-average results last year. Last year's large crop led to increased stocks and depressed producers' returns in several countries. Wheat area is reported lower in Hungary, Romania, and the former Yugoslavia. In Hungary, grains committee officials are predicting a 13-percent decline in production. Bulgaria's Agricultural Ministry reports winter wheat planted area up 8 percent because of improved planting conditions. Poland, the region's largest producer, is expected to maintain the previous year's near-record area, but there may be increased loss from some harsh winter weather.

In the former Soviet Union winter wheat area has increased. Russia's sown winter grain area is reported up more than 10 percent. Despite an intense cold outbreak during December, the Federal Weather Center in Russia estimated that the amount of winter wheat that will need to be replanted to a spring crop will be less than the average of the last 5 years. In Ukraine, winter grain area planted is reported up slightly, but winterkill has clearly increased, so area harvested is expected to decline. Yields last year for both Ukraine and Russia were above average, so a return to average yields in these countries would imply a decline in production. Spring wheat, which last year accounted for over 55 percent of wheat area in the former Soviet Union, but less than 40 percent of production, has not yet been planted.

Production prospects are uncertain in North Africa. Planting conditions last fall were generally favorable and area planted stable, but severe dryness during January and February plagued most of the region. The critical reproduction period for Northwest Africa's winter wheat, the time in which it demands substantial moisture, occurs during March and April. Recent rains have helped in some areas, but given the current lack of sufficient soil moisture, timely spring rains will be critical for the continued development of the crop.

Planting and winter growing conditions across the Middle East were generally favorable this year, except for some dryness in rainfed areas of eastern Iran. A return to average yields would imply a production decline in Syria, which posted record wheat yields last year, but would boost crops in Turkey and Iran where last year's yields were below average. Much will hinge on timely rains, but an increase in production is expected for the region.

Spring wheat producers in the Northern Hemisphere and Southern Hemisphere producers have not yet planted wheat for harvest in 2002/03. This includes major exporters such as Canada, Australia, Argentina, and Kazakstan. Because current prices are somewhat higher than a year ago, some of these exporters are expected to increase area.

In Canada, total wheat area is expected to decline slightly, with area shifting to other crops, especially canola. Producers are expected to plant more durum and less bread wheats. Extremely dry subsoils caused by long-term drought across much of the Canadian prairie will make timely spring and summer rainfall crucial for crop prospects. However, since last year's wheat crop was hurt by drought, a return to average yields would boost production.

According to the Australian Bureau of Agriculture and Resource Economics, Australia's wheat area and production are projected to increase slightly. Returns to sheep and cattle raising have improved, but large investments in increased crop area will limit movement out of wheat.

Higher wheat plantings are expected in Argentina because the exchange rate changes make producing for export very attractive. Wheat is likely to be favored over other crops because the cost of inputs is lower for wheat than for most alternative crops and much of the wheat crop is exported.

Increased wheat production prospects in the EU, South Asia, and most other regions are expected to more than offset declines in Eastern Europe and the former Soviet Union. The declining trend in global production over the last 4 years is likely to be reversed in 2002/03, with a significant increase likely.

Lower Beginning Stocks in 2002/03 To Limit Supplies

Global wheat stocks at the start of 2002/03 are forecast down almost 10 million tons from the previous year.

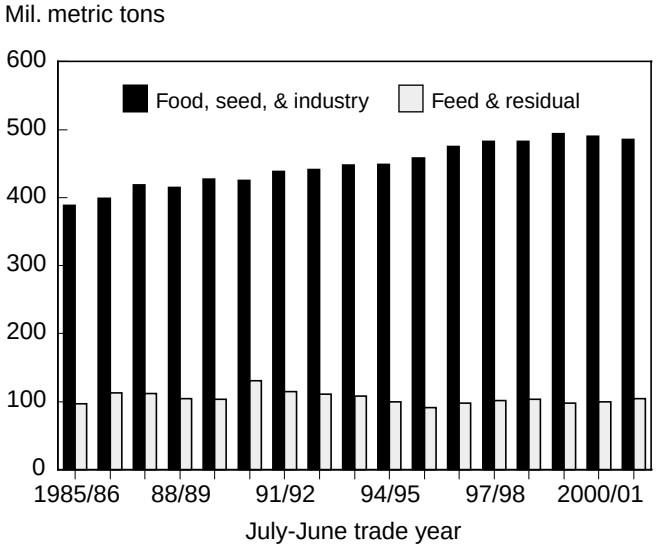
Combined stocks of the major exporters (the United States, Canada, EU, Australia, and Argentina) are expected to drop more than 10 million tons. Large, mostly offsetting shifts in wheat stockholding are occurring in other regions during 2001/02. China's wheat stocks are projected down 19 million tons. However, wheat stocks in the former Soviet Union are forecast up 14.5 million tons as production rebounded, but with animal numbers reduced, feed demand remained low. High support prices maintained production (despite reduced yields) in India larger than consumption, boosting already large stocks another 5.5 million tons despite increased subsidized exports. The quality of the wheat stocks in parts of the former Soviet Union and India are low enough so most of these stocks future use is likely to be animal feed.

World wheat production in 2002/03 is expected to increase by at least 10 million tons, offsetting reduced stocks, so global wheat supplies are likely to increase some in 2002/03 compared with a year earlier. However, low stocks in the major-exporting countries means that supplies of higher quality wheat will depend on 2002/03 production. Production shortfalls could generate strong price responses.

Modest Global Wheat Consumption Growth Expected

In 2002/03, world wheat consumption is expected to rebound some from the previous 2 years' stagnation or decline (fig. 8). Most of the growth in wheat consumption is expected to be the result of population growth slowly boosting food use. There is evidence that per capita wheat food use is declining in some places as incomes increase and diets diversify.

Figure 8
World wheat consumption flat in 2001/02



Source: Foreign Agriculture Service, USDA.

Increased wheat feed and residual use could occur in Eastern Europe and the former Soviet Union, as stocks are large and animal numbers are growing in some countries. EU wheat feed use is also expected to rise, mostly because of bigger production and lower prices. Declining wheat prices in 2002/03, while feed grains prices increase modestly, will result in more wheat feeding in many member countries.

Prices Strengthen As Ending Stocks Decline in 2001/02

U.S. wheat production declined in 2001/02 from last year because of a reduction in planted harvested acres and yields. Lower yields and smaller harvested area reduced winter wheat production. Other spring wheat production was down due to lower yields, even though harvested area was up slightly. Durum harvested area was down sharply, resulting in a substantial decline in production. Supplies for 2001/02 are down more than total use, resulting in declining ending stocks and higher season average prices received by farmers.

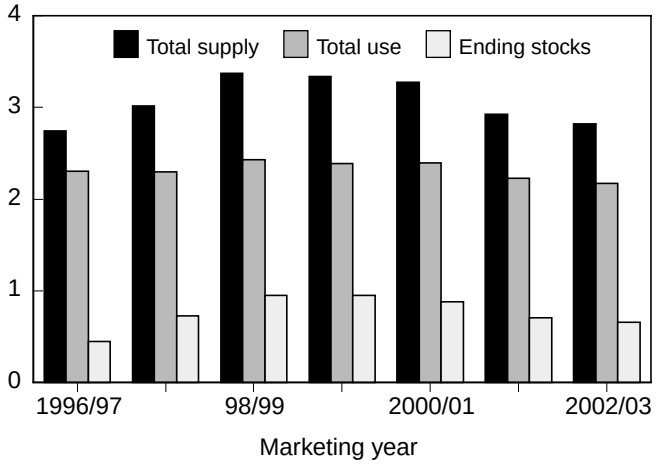
2001/02 Overview: U.S. Wheat Supplies Are Down, Prices Are Up

U.S. wheat production is estimated at 1,958 million bushels in 2001/02, down 275 million bushels from 2000/2001 (table 1). Beginning stocks are 74 million bushels less than a year earlier while imports are projected to be 5 million above last year. The net result is that the U.S. wheat supply in the 2001/02 (June-May) marketing year is forecast to drop 343 million bushels (fig. 9).

The estimated average farm price for all wheat dropped to a monthly low of $2.63 per bushel during July 2001. A year earlier, the July low was $2.32. Prices rose to $2.89 in December. The gap between year-earlier prices narrowed to only 2 cents above December 2000. Prices have declined slightly in recent months, but remain slightly above a year earlier.

Prices will remain sluggish in the coming months in the absence of fresh export demand or a serious weather-related change in crop conditions. The season-average farm price in 2001/02 is forecast at $2.75 - $2.85 per bushel, substantially above the $2.62 season average price per bushel received last year. Current prices are significantly above the $2.48 received by farmers in 1999/2000, but still much below the record $4.55 in 1995/96 (fig. 10). U.S. ending stocks this marketing year are projected to total 701 million bushels, 175 million less than last year and less than each of the past 4 years, but still large enough to put continued pressure on cash and near-term futures prices.

Figure 9
Wheat supply and ending stocks likely down in 2002/03



Note: 2002/03 projection, Agricultural Outlook Forum, February 21-22, 2002.

Source: Economic Research Service, USDA.

Lower Harvested Area and Yields Reduce Production

All-wheat planted and harvested areas continued their trend decline this year from the recent highs in 1996/97. The planted and harvest areas for 2001/02 were 59.6 and 48.7 million acres, respectively. For comparison, planted and harvested areas were 62.6 and 53.1 million acres, respectively, a year earlier and 75.1 and 62.8 million acres, respectively in 1996/97.

The 2001/02 harvested area is down because of both reduced plantings and a higher rate of abandoment in

Table 1--Wheat supply, disappearance, and stocks, June-May

Item	1998/99	1999/2000	2000/01	2001/02P
		Million bushels		
Stocks, June 1	722	946	950	876
CCC inventory	94	128	104	97
Farmer-owned reserve 1/	0	0	0	0
Outstanding 9 months	134	140	62	42
Uncommitted	495	678	784	737
Production	2,547	2,299	2,232	1,958
Imports (June-Aug.)	24	31	20	26
Total supply	3,294	3,275	3,202	2,860
Use, June-Aug.				
Food	226	226	239	238
Seed	1	6	1	3
Feed & residual	425	275	322	243
Exports	257	323	288	219
Total use	909	830	850	704
Stocks, Sept. 1	2,385	2,445	2,353	2,156
CCC inventory	100	132	109	98
Farmer-owned reserve 1/	0	0	0	0
Outstanding 9 months	236	101	118	110
Uncommitted	2,049	2,211	2,126	1,848
Imports (Sept.-Nov.)	24	19	25	29
Total supply	2,409	2,464	2,378	2,185
Use, Sept.-Nov.				
Food	241	241	253	249
Seed	55	55	50	51
Feed & residual	-74	-7	-25	-28
Exports	292	290	293	289
Total use	514	579	572	561
Stocks, Dec. 1	1,896	1,886	1,806	1,623
CCC inventory	127	115	103	97
Farmer-owned reserve 1/	0	0	0	0
Outstanding 9 months	246	117	97	129
Uncommitted	1,523	1,654	1,602	1,398
Imports (Dec.-Feb.)	28	19	21	NA
Total supply	1,923	1,905	1,828	NA
Use, Dec.-Feb.				
Food	213	219	231	NA
Seed	1	2	3	NA
Feed & residual	7	30	8	NA
Exports	251	237	247	NA
Total use	473	489	489	NA
Stocks, March 1	1,450	1,417	1,338	NA
CCC inventory	124	109	104	NA
Farmer-owned reserve 1/	0	0	0	NA
Outstanding 9 months	242	105	78	NA
Uncommitted	1,084	1,203	1,156	NA
Imports (Mar.-May)	27	25	23	NA
Total supply	1,477	1,442	1,361	NA
Use, March-May				
Food	229	235	234	NA
Seed	23	28	25	NA
Feed & residual	33	-10	-6	NA
Exports	246	239	233	NA
Total use	531	492	485	NA

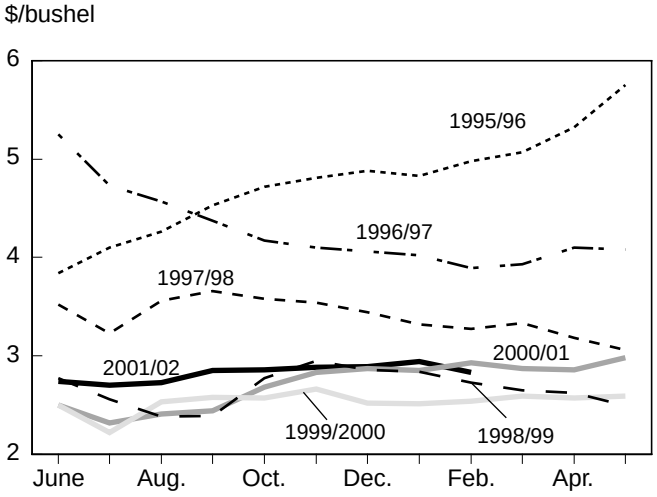
P = Preliminary. NA = Not available.

1/ Includes special producer loan program.

Source: Economic Research Service, USDA.

Figure 10

Wheat prices remain low



Source: National Agricultural Statistics Service, USDA.

some wheat-producing States. The largest year-to-year declines in the ratio of harvest-to-planted acres among the major wheat-producing States were South Dakota, Montana, and Kansas. In contrast, the harvest-to-planted acre ratio for 2001/02 rose in Texas after the very adverse weather conditions of 2000/01. The national harvest-to-planted ratio for 2001/02 was 81.6 percent, down 3.2 percent from last year.

In aggregate, winter wheat harvested area was down 3.8 million acres from last year to 31.3 million. The winter wheat harvest-to-planted ratio declined 4.6 percentage points year-to-year to 76.2 percent for 2001/02. Total spring wheat harvested area was down .7 million acres from last year to 17.36 million. The harvested area of other spring wheat was up .08 million acres while durum harvested was down .78 million acres. The spring wheat harvest-to-planted ratio declined .3 percentage points year-to-year to 93.6 percent for 2001/02.

Because of adverse weather conditions, the all-wheat yield was 40.2 bushels per acre for 2001/02, down from last year's 42.0 and the record high of 43.2 in 1998/99. Among the major-wheat producing States, the largest year-to-year declines in bushels per acre were led by Washington (-12.4), Minnesota (-5.1), Montana (-4.6), South Dakota (-2.1), and North Dakota (-1.5). Improved weather conditions raised wheat yields by 4 bushels per acre in both Texas and Colorado, and 3 bushels per acre in Kansas.

In aggregate, winter wheat yield was down 1.2 bushels per acre from last year, to 43.5. Total spring wheat yield was down 2.6 bushels per acre from last year, to 34.3. Other spring yields were off from a year earlier by 3.2 bushels per acre, while durum yield was down only .8 bushel per acre.

Total Use Increased in 2001/02

Total disappearance of U.S. wheat in 2001/02 is forecast to drop 168 million bushels from a year ago, to 2,228. Both domestic use and exports are down, 82 and 86 million bushels, respectively. Food use is projected at 945 million bushels in 2001/02, down 11 million from a year earlier. Last year's food usage was unusually high because small hard-red-winter kernels resulted in a very low flour-extraction rate. Feed and residual use is projected to drop 74 million bushels year-to-year to 225 in 2001/02. Seed use is forecast up 3 million bushels year-to-year in 2001/02.

Price Support for Wheat Farmers In 2001/02

The 1996 Farm Act's programs to assist farmers facing low market prices include the nonrecourse marketing assistance loans and loan deficiency payments (LDPs). Producers that entered into Production Flexibility Contracts with USDA in 1996 are eligible to participate in these programs.

The nonrecourse marketing assistance loans provide interim financing to eligible producers of wheat and other commodities covered by the program. Producers pledge their wheat as collateral and obtain a loan equivalent to the loan rate established in their county by the Farm Service Agency of USDA. The loan proceeds can cover short-term cash needs. As of March 4, 2002, wheat producers had outstanding loans on 182 million bushels of 2001-crop wheat valued at $469 million. In comparison, a total of $468 million was loaned on 181 million bushels for the 2000 crop.

The loans may be forfeited to the Commodity Credit Corporation at maturity or repaid at the loan repayment rate at, or before, maturity. The loan repayment rate may actually be less than the loan rate if the posted county price (PCP), a proxy for the local price, falls below the local loan rate. The PCP—calculated each day the Federal Government is open—is based on terminal market prices and a fixed differential to each county, largely reflecting transportation and other marketing factors. When a farmer repays the loan at a lower PCP, the difference between the loan rate and the PCP is called a "marketing loan gain."

If the PCP is below the county loan rate, eligible producers may opt for a loan deficiency payment (LDP) on part or all of the crop in lieu of securing a loan. The LDP rate is the amount by which the county loan rate exceeds the PCP on the date the application is made. The wheat cannot be placed under loan once an LDP is paid. If producers take the LDPs and immediately sell their crop and if the PCP accurately reflects local prices, producers effectively receive a per-unit revenue equal to the loan rate, partly from the market and partly from the Government. After an LDP is accepted, the farmer can sell the crop and avoid storage expense or hold it in the expectation of a price rally later in the marketing season.

As of March 4, 2002, eligible producers had collected $158 million in LDPs covering 668 million bushels of 2001-crop wheat or about 34 percent of the 2001 crop. The average payment rate was 24 cents per bushel. Eighty percent of the 2000 crop received an LDP, and LDPs totaled $791 million for the 2000 crop.

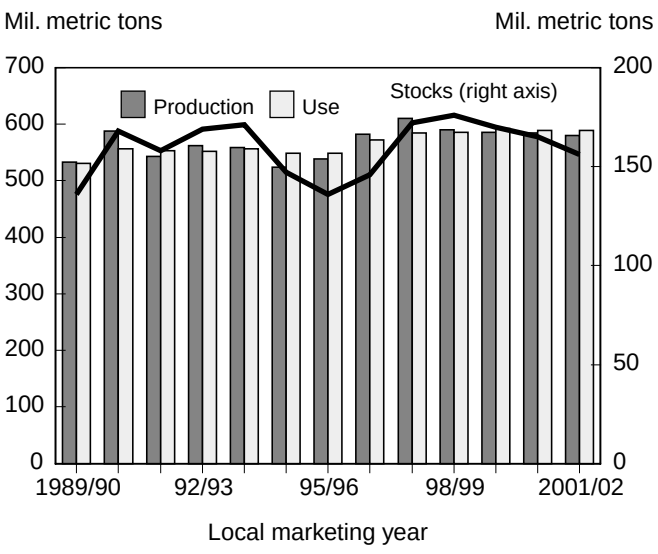
World Wheat Production and Stocks Drop in 2001/02, Trade Rebounds

Global production is estimated down 4 million tons in 2001/02. World consumption is forecast nearly unchanged from the previous year, but is 10 million tons larger than production, dropping stocks to the lowest level in 5 years. However, world wheat trade is expected to increase 4 million tons largely because of increased production and exports of feed-quality wheat from Russia, Ukraine, and Eastern Europe. Although facing a second consecutive year of low wheat production, China is forecast to reduce stocks while increasing imports to 1.5 million tons.

2001/02 World Wheat Production the Lowest in 6 Years

World wheat production in 2001/02 is estimated at 579 million tons, down less than 1 percent from the previous year (fig. 11). Production dropped nearly 14 million tons in the EU as area declined in response to flooding during planting and lower market prices. Wheat production fell 10 million tons in South Asia where India and Pakistan failed to match the previous year's record yields. U.S. wheat production dropped more than 7 million tons, and Canada suffered from drought, reducing production nearly 6 million tons. Reduced area, and a second year of drought in some regions, reduced China's wheat production by almost 6 million tons. Drought in the central Anatolian Plateau reduced production in Turkey nearly 3 million tons.

Figure 11
World production, use, and stocks are down



Source: Foreign Agricultural Service, USDA.

However, these production declines were mostly offset by increased production in the former Soviet Union and Eastern Europe. Wheat production in the former Soviet Union increased almost 28 million tons as the exchange rate and internal prices provided an incentive to increase area, and favorable growing conditions reduced abandonment and boosted yields well above average. Similar incentives and conditions in Eastern Europe increased the region's wheat production more than 7 million tons. In North Africa conditions were mixed, but drought was not as extensive as the previous year, boosting production more than 2 million tons.

Relatively low wheat prices during planting reduced the incentive to plant wheat in some countries, like China and India, but for most countries, low prices for competing crops limited the shifts out of wheat. Foreign wheat area declined only 1 percent from the previous year, with some of the decline the result of drought, not low prices. In 2001/02, foreign area was nearly 5-percent less than the recent peak reached in 1996/97, following higher prices. The foreign 2001/02 average wheat yield matched the 1999/2000 record.

World Wheat Consumption Expected To Stagnate in 2001/02

Global consumption is forecast at 589 million tons, virtually the same as the previous year. Food use is forecast to drop 6 million tons in India, as reported stocks continue to increase despite reduced production. The apparent reduction in consumption may be a result of reduced private stocks not included in USDA's stock estimate, but there are no data available to confirm this. Diets in India may be diversifying, becoming less dependent on wheat, but the increase in forecast rice consumption casts doubt on that hypotheses. Pakistan's wheat food use is similarly also forecast down 1 million tons as supplies are large enough to sustain some

exports despite reduced production. Less unofficial wheat and flour exports are probably the major reason for Pakistan's apparent lower use. U.S. wheat feed and residual use is forecast down 2 million tons in 2001/02. EU wheat consumption is forecast down nearly 2 million tons because of reduced wheat feeding. EU coarse grain consumption is forecast up slightly, replacing some wheat.

Abundant supplies of competitively priced, low quality wheat from India and the Black Sea area are encouraging wheat feed use in countries like South Korea. Wheat feeding in Eastern Europe and the former Soviet Union is expected to increase because of larger supplies, but reduced animal numbers will limit the growth. Global use of wheat for feeding is expected to increase 3 million tons in 2001/02.

Population growth is expected to support some increase in human wheat consumption in most regions around the world. That growth, plus the increase in global feed consumption are enough to offset the apparent drop in wheat consumption in South Asia in 2001/02.

Even though stagnating, 2001/02 world wheat consumption remains large, forecast down only 2 million tons from the 1999/2000 record. World wheat consumption in 2001/02 is up 8 percent compared with a decade earlier, significantly less than population growth. However, world feed wheat use has declined, masking the growth in food use. World wheat feed use peaked in 1990/91 at 129 million tons and dropped to 91 million in 1995/96 as wheat prices peaked. Much of the reduction in feed use occurred in the "transition economies" of Eastern Europe and the former Soviet Union. Global wheat feed use has recovered some since then, and is forecast to reach 104 million tons in 2001/02. World food use growth over the last decade has been large enough to more than offset the drop in feed use. Over the last decade world non-feed consumption of wheat has increased 12 percent, nearly the same as population growth.

World Wheat Stocks Forecast To Drop 10 Million Tons in 2001/02, Lowest Since 1996/97

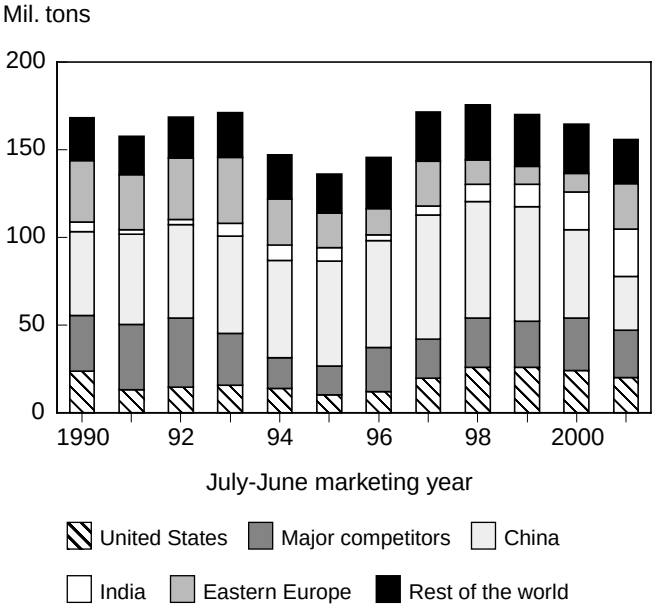
China is expected to show the largest drop in ending stocks during 2001/02, down 19 million tons. The size of China's wheat stocks is considered a state secret, and USDA's estimate is an approximation, so the year-to-year change in stocks is likely more important than the forecast level. Grain stocks in China are large, and supplies are adequate, but such large stocks declines are tightening supplies and supporting market prices. The drop in China's ending stocks is partly offset by increased stocks in the former Soviet Union and Eastern Europe, following bumper crops.

The major exporters' ending stocks are forecast down over 10 million tons, with significant declines in the United States, EU, and Canada. Wheat prices are largely set by supply and demand in exporting countries, and exporters' stocks, though declining, remain sufficient. While the reduction in major exporters' stocks has supported wheat prices during 2001/02, increased net exports from the former Soviet Union and Eastern Europe have limited price increases.

EU Imports Boost World Wheat Trade Expected in 2001/02

Global trade (excluding intra-EU trade) in 2001/02 is forecast at nearly 108 million tons, up more than 4 million from the previous year and higher than the 104 million averaged from 1995/96 to 1999/2000. Trade is up compared with a year earlier, mostly because of a nearly 4-million-ton increase in wheat imports by the EU. Reduced or zero import duties and relatively high internal prices encouraged imports of lower quality wheats for use as feed from origins like the Black Sea. The poor quality of the domestic crop also encouraged strong pur-

Figure 12
China's ending stocks have fallen while India's stocks have increased



Source: Foreign Agricultural Service, USDA.

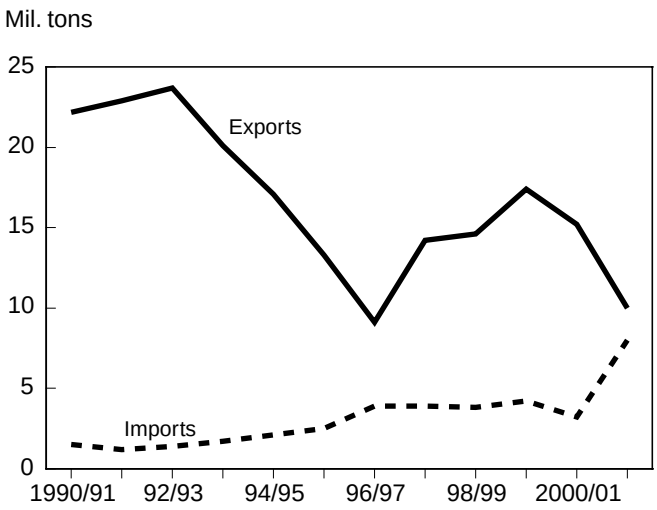
chases of high quality wheat for blending. In 2001/02, the EU is forecast to emerge as the world's largest importer of wheat, even excluding intra-EU trade.

South Korea, Israel, and the Philippines are expected to increase wheat imports in 2001/02 because of the large supplies of competitively priced wheat for feed available from India, China, and the Black Sea Region. Uzbekistan is expected to nearly double wheat imports to 1 million tons because of a combination of reduced production, ample supplies in neighboring Kazakstan, and increased food aid. China, entering the World Trade Organization, is expected to increase wheat imports modestly, forecast to reach 1.5 million tons, up from a record low of less than 0.2 million a year earlier. Turkey is expected to increase wheat imports because of reduced production in 2001/02.

Partly offsetting the aforementioned increases in wheat trade are a drop in imports by Eastern Europe, the former Soviet Union, Algeria, Morocco, and Brazil because of increased production.

Figure 13

European Union net trade drops



Source: Foreign Agricultural Service, USDA.

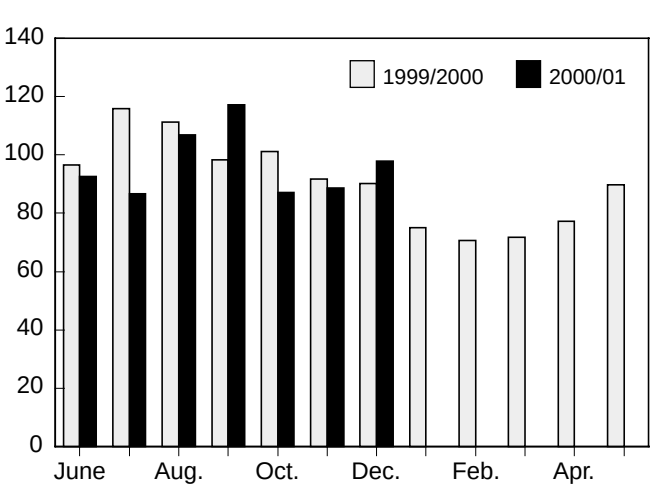
U.S. Wheat Exports Down in 2001/02, U.S. Share of Global Trade To Decline

U.S. wheat exports are forecast to decline 8 percent in 2001/02 because of relatively tight domestic supplies and increased competition from Australia and several "other" exporters, including the former Soviet Union, Eastern Europe, India, and Syria. Reduced competition is expected from the EU, Canada, and Turkey because of lower production. The top markets for U.S. wheat exports are expected to be little changed, including Egypt, Japan, Mexico, and the Philippines. However, the EU and Nigeria have become larger buyers of U.S. wheat in 2001/02.

U.S. Wheat Exports Forecast the Lowest Since 1985/86

U.S. 2001/02 wheat exports are forecast at 26.5 million tons, down 8 percent on a June/May local marketing year. Shipments during the first half of 2001/02 lagged year-earlier levels (fig. 14). Census data from June 2001 through January 2002 show U.S. wheat grain exports of 17.6 million tons, down 1.75 million tons from the previous year's relatively slow pace. Also, grain inspections data for February and March 2002 indicate wheat exports are down from the 4.2 million that Census reported for a year earlier. Moreover, according to *U.S. Export Sales*, as of March 28, 2002, outstanding sales of 3.3 million tons were reported, down 8 percent from a year ago. Wheat sales and shipments during the final months of 2001/02 are expected to slightly exceed the year-ago pace in order to reach the export forecast.

Figure 14
U.S. wheat exports, by month



Includes flour and products in wheat units.
Source: Foreign Agricultural Service, USDA.

Competition from the Southern Hemisphere during the last months of 2001/02 is an important factor determining U.S. export prospects. Australia's production is forecast up slightly in 2001/02, but the Australian Wheat Board is expected to market its crop aggressively, boosting 2001/02 exports almost 2 million tons. Despite a slightly reduced crop, Argentina is expected to sell wheat quickly because recent exchange rate changes make exporting lucrative.

The EU and Nigeria Increasing Purchasers of U.S. Wheat

Since 1993 the level of U.S. wheat exports has ranged between 27 and 33 million tons. Moreover, the major commercial markets for U.S. wheat have also remained largely unchanged. During recent years the top five purchasers of U.S. wheat have been Egypt, Japan, the Philippines, Mexico, and South Korea. According to *U.S. Export Sales*, as of March 28, 2002, commitments (the sum of shipments and outstanding sales) compared with a year ago were down 18 percent to Egypt at 3.7 million tons, up 4 percent to Japan at 3.1 million, down 25 percent to the Philippines at 1.5 million, up 13 percent to Mexico at 2.1 million, and down 11 percent to South Korea at 1.3 million. U.S. wheat shipments to Egypt are struggling because Egypt is reducing imports due to exchange rate constraints. Japan's wheat imports tend to be stable, so steady purchases of U.S. wheat are expected. The Philippines is purchasing wheat for feeding from cheaper, non-U.S. sources such as India and China. Mexico's imports from the United States are up because of higher imports and reduced competition from Canada. South Korea is expected to increase

wheat imports in 2000/01, but has also been purchasing wheat for use as a feed grain from other sources.

In 2001/02 the EU and Nigeria have emerged as larger markets for U.S. wheat than South Korea and the Philippines. EU commitments increased 55 percent to 1.9 million tons, while Nigeria's increased 48 percent to 1.8 million tons. This year the EU has purchased some soft red winter (likely used for feed) as well as a large amount of spring and durum.

U.S. Share of Global Trade Down In 2001/02

The continued relatively strong U.S. currency, and tight domestic supplies have left U.S. prices frequently less competitive than other exporters' prices. The U.S. share of world exports in 2001/02 is expected to drop. The largest competitor in 2000/01 is expected to be Australia, exporting 18.5 million tons. Canada's production is down and exports are expected to only reach 16.5 million tons.

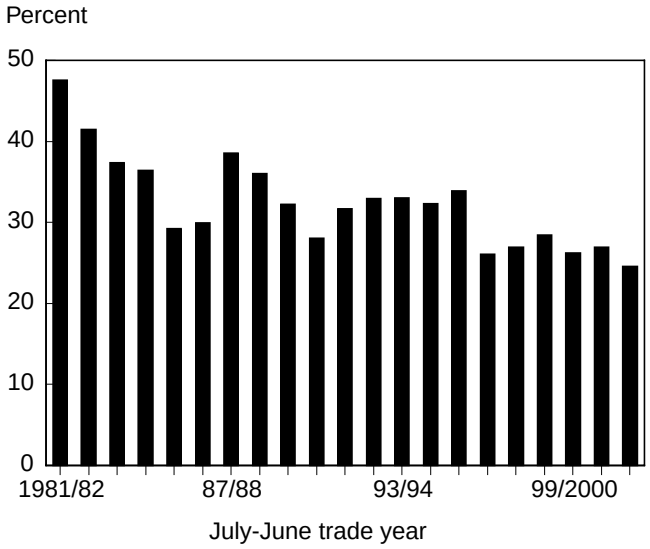
EU wheat exports are forecast to drop 4 million tons to 11 million, as the reduced wheat production in 2001/02 led to higher internal prices. The EU Commission has not subsidized wheat exports because increased exports would have diverted supplies from the domestic market and resulted in even higher prices.

Argentina, harvesting a large, but not record wheat crop, is expected to export 11 million tons of wheat in 2001/02, down slightly from last year's record. Sales and shipments data indicate that much of the increase is to Iran, but Brazil will remain the dominant buyer.

Increased wheat exports by Russia, Ukraine, India, and several East European countries are forecast in 2001/02. These "minor" wheat exporters are emerging as a major force in world wheat trade, offering wheat at very competitive prices for milling use, as well as for feeding.

U.S. wheat exports are forecast to decline only a small amount, but increased competition and growing world trade will drop the U.S. share of world wheat trade to 25 percent (excluding intra-EU trade) in 2001/02, down from 27 percent a year ago (fig. 15). This is the lowest U.S. share of world wheat trade in more than 40 years.

Figure 15
U.S. share of world wheat trade drops in 2001/02



Source: Foreign Agricultural Service, USDA.

Wheat Quality Good in 2001/02

The quality of the 2001 crop is generally better than the 2000 crop. Production of each class of wheat in 2001 was below year-ago levels. Ending stocks of each class were also below last year's ending stocks.

HRW Production Lower Than a Year Ago

Projected hard red winter (HRW) supplies in 2001 are reduced 125 million bushels from a year earlier because production dropped 80 million bushels and beginning stocks were 47 million bushels lower. Total projected use drops 45 million bushels compared with last year, with exports off 30 million bushels. Total projected domestic use is down 10 million because reduced feed and residual use more than offsets a slight increase in food use. Food use of HRW is projected up from a year ago because of improved quality of the HRW crop. The net result is to reduce HRW ending stocks by 80 million bushels compared with a year ago. The projected ending stocks-to-use ratio is 39.0 percent, lower than last year's 46.0 percent.

HRW wheat production was off sharply in the Plains States as harvested area dropped 2.72 million acres from last year to 20.87 million acres. The biggest decrease in production year-to-year was South Dakota's 41.9 million-bushel-drop where both harvested area and yields were down because of unfavorable weather. Montana's production was down 25.4 million bushels, where poor weather conditions also reduced both harvested area and yields. Production was also off sharply in Oklahoma and Kansas. In contrast, Texas production was up 42.8 million bushels because of higher harvested area and yields.

The U.S. average yield for HRW was 36.7 bushels per acre, up .87 bushel from a year earlier's crop. For the 2001 crop, weather patterns were favorable except for some dry conditions during the fall planting season that delayed germination and slowed growth before the winter dormancy. Dry conditions during harvest produced a good crop. The 2000 crop had better processing quality than last year's crop by most characteristics according to the survey published by the U.S. Wheat Associates in their *2001 Crop Quality Report*. Reportedly, millers are getting improved flour yields compared with a year ago because of larger, more vitreous kernels.

Table 2--HRW supply and demand 1/

Item	1997/98	1998/99	1999/00	2000/01P	2001/02P
			Million acres		
Area:					
Planted	34.0	32.4	30.9	30.4	29.0
Harvested	28.7	27.3	24.4	23.6	20.9
			Bushel per harvested acre		
Yield	38.3	43.2	43.1	35.9	36.7
			Million bushels		
Supply:					
Beg. stocks	143	307	435	458	411
Production	1,098	1,179	1,051	846	767
Imports	1	1	0	0	1
Total supply	1,242	1,487	1,486	1,304	1,179
Domestic use:					
Food	381	389	378	377	380
Seed	36	35	34	33	33
Residual	156	172	131	93	75
Total domestic	573	595	543	503	488
Exports	362	457	485	390	360
Total use	935	1,052	1,028	893	848
Ending stocks	307	435	458	411	331

P = projected.
1/ ERS estimates of area, yield, and domestic use.
Source: Economic Research Service, USDA.

The U.S. Wheat Associates' survey found the overall protein percentage, at 12.1 (12 percent moisture basis), only slightly better than the 2000 crop's 12.0, but substantially higher than the 5-year average of 11.8 percent. The overall test weight of 60.4 pounds per bushel was significantly higher than 2000's 59.2 and the 5-year average of 59.7. The average moisture percentage of the crop was 11.7, higher than the previous year's 11.5, and equal to the 5-year average. The 2001 HRW crop's average sampled falling number of 407 seconds was slightly better than the 393 the year before and much better than the 5-year average of 374.

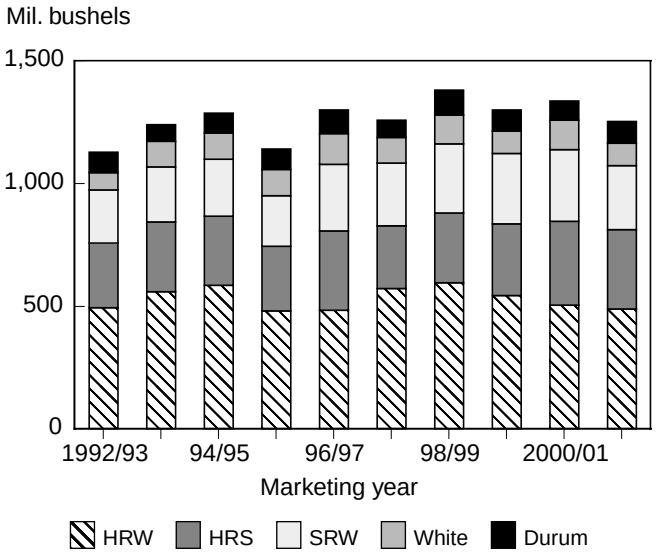
HRS Production Down Compared With a Year Ago

Projected hard red spring (HRS) supplies in 2001 are reduced 39 million bushels from a year earlier. Production was off 27 million bushels and beginning stocks were 5 million less, while imports were down 10 million. Total projected use drops 26 million bushels compared with last year. Projected exports are down 6 million bushels. Total projected domestic use is down 21 million due to declines in both food use and feed and residual use. Food use of HRS is projected down because the improved quality of this year's HRW crop reduced the substitution of HRS for HRW in bread making. The net result is to reduce HRS ending stocks by 13 million bushels compared with a year ago. The projected ending stocks-to-use ratio is 36.3 percent, slightly lower than last year's 36.9 percent.

The U.S. average yield for HRS was 34.6 bushels per acre, down 2.4 bushels from a year earlier. Harvested area was up .16 million acres from last year to 13.75 million. Three States accounted for most of the change in HRS production. Production dropped sharply in Idaho, Minnesota and Montana because of both lower yields and fewer acres harvested due to unfavorable weather conditions.

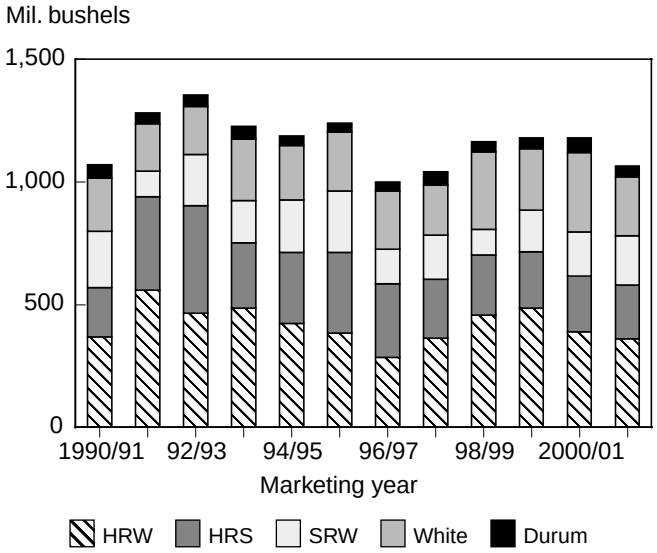
Protein levels were slightly higher than a year earlier and above the long-term average. The U.S. Wheat Associates' HRS survey published in the *2001 Crop Quality Report* for the four States of Minnesota, North and South Dakota, and Montana found the 2001 HRS crop's protein percentage to average 14.5 (12 percent moisture basis), which was slightly higher than 2000's 14.4 and the 5-year average of 14.2 (U.S. Wheat Associates). The 2001 crop faced less fusarium head blight (scab) than in previous years.

Figure 16
Domestic use by class



2001/02 projected.
Source: Economic Research Service, USDA.

Figure 17
Exports by class



2001/02 projected.
Source: World Agricultural Outlook Board, USDA.

Table 3--HRS supply and demand 1/

Item	1997/98	1998/99	1999/00	2000/01P	2001/02P
			Million acres		
Area:					
Planted	18.3	14.8	14.3	14.4	14.8
Harvested	17.5	14.4	13.8	13.6	13.8
			Bushels per harvested acre		
Yield	28.1	33.8	32.5	37.0	34.6
			Million bushels		
Supply:					
Beg. stocks	166	220	233	218	210
Production	491	486	448	502	476
Imports	57	58	60	59	54
Total supply	714	764	741	779	740
Domestic use:					
Food	225	230	242	270	255
Seed	24	18	24	20	23
Residual	5	36	27	53	45
Total domestic	253	284	293	343	323
Exports	241	247	230	226	220
Total use	494	531	523	569	543
Ending stocks	220	233	218	210	197

P = projected.
1/ ERS estimates of area, yield, and domestic use.
Source: Economic Research Service, USDA.

The 2001 crop's average test weight of 59.9 pounds per bushel was lower than the year before's 60.4 and the 5-year average of 60.1. The average falling number of 391 seconds was much better than 2000's 379 and the 5-year average of 373. The average moisture percentage of 11.4 was lower than both last year's 11.6 and the 5-year average of 12.0.

White Winter Wheat Production Down Sharply

White winter wheat production is down from a year ago, mostly because of sharply reduced yields because of unfavorable weather. Growing conditions in Oregon and Washington were very dry during grain filling which increased protein content in most dryland farming areas. However, higher protein levels are a disadvantage for certain types of soft wheat products.

According to the Pacific Northwest harvest survey published by the U.S. Wheat Associates in its *2001 Crop Quality Report*, protein percentages of the soft white and club crops at 9.7 and 9.6 (12 percent moisture basis), respectively, are higher than 2000's 9.2 and 8.3 percent. The 5-year averages for the soft white and the club wheat crops are 9.7 and 9.3 percent, respectively. The 2001 test weights for the soft white and club wheat are 61.4 and 62.0 pounds per bushel, respectively, compared with 61.5 and 61.2 in 2000. The 5-year averages for the soft white and club wheats are 60.8 and 61.4 pounds. The 2001 soft white and club wheats' moisture percentages are 9.7 and 9.6, respectively. These moisture percentages are higher than the year before at 9.2 and 8.3, respectively, and the 5-year averages of 9.7 and 9.3 percent. The 2001 soft white wheat crop's falling number of 353 seconds, is higher than 2000's 327 and the 5-year average of 333 seconds. The 2001 club wheat falling number of 360 is higher than the year before's 319 and the 5-year average of 336 seconds.

The projected 2001/02 total white wheat supplies are 85 million bushels lower than a year ago because production is down 71 million bushels and beginning stocks are down 16 million bushels compared with a year earlier. Total projected use is down 83 million bushels compared with last year as exports are off by 54 million bushels and feed and residual use is down 29 million bushels. Thus ending stocks are almost the same as a year earlier. The projected ending stocks-to-use ratio is 30.3 percent, higher than last year's 23.2 percent.

Soft Red Winter Production Is Down While Exports Rise

The projected 2001/02 soft red winter (SRW) supplies are 70 million bushels lower than a year ago because production is down 72 million bushels. Beginning stocks are 2 million bushels higher this year than last. Total projected use is down 9 million bushels compared with last year as a 29-million-bushel drop in feed and residual use more than offset an increase of 21 million in exports. Ending stocks are projected

Table 4--White wheat supply and demand 1/

Item	1997/98	1998/99	1999/00	2000/01P	2001/02P
	Million acres				
Area:					
Planted	4.9	4.7	4.5	4.4	4.3
Harvested	4.7	4.5	4.1	4.2	4.1
	Bushels per harvested acre				
Yield	70.2	67.0	60.4	71.6	56.9
	Million bushels				
Supply:					
Beg. stocks	59	90	87	91	75
Production	332	301	247	303	232
Imports	8	11	7	5	7
Total supply	399	402	341	399	314
Domestic use:					
Food	80	75	75	75	75
Seed	6	6	6	6	6
Residual	18	36	8	39	10
Total domestic	104	117	90	120	91
Exports	205	198	160	204	150
Total use	309	315	250	324	241
Ending stocks	90	87	91	75	73

P = projected.
1/ ERS estimates of area, yield, and domestic use.
Source: Economic Research Service, USDA.

Table 5--SRW supply and demand 1/

Item	1997/98	1998/99	1999/00	2000/01P	2001/02P
	Million acres				
Area:					
Planted	9.9	10.2	9.1	9.5	8.6
Harvested	8.7	9.1	8.0	8.2	7.2
	Bushels per harvested acre				
Yield	54.2	48.9	56.6	57.8	55.7
	Million bushels				
Supply:					
Beg. stocks	45	80	136	133	135
Production	472	443	454	471	400
Imports	0	0	0	0	0
Total supply	517	523	590	604	535
Domestic use:					
Food	155	150	155	155	155
Seed	20	18	18	17	16
Residual	82	115	114	119	90
Total domestic	257	282	287	291	261
Exports	180	105	170	179	200
Total use	437	387	457	469	461
Ending stocks	80	136	133	135	74

P = projected.
1/ ERS estimates of area, yield, and domestic use.
Source: Economic Research Service, USDA.

down 61 million bushels to 74 million. The projected ending stocks-to-use ratio is 16.0 percent, significantly lower than last year's 28.8 percent.

SRW is grown over a wide geographic region of the eastern United States. Because the growing region is so large, weather patterns are quite diverse, which results in substantial variation in SRW wheat quality. The 2001 SRW crop has similar moisture, higher average protein content and falling numbers, and much higher average test weight than the 2000 crop (U.S. Wheat Associates). There were exceptions in areas where unfavorable weather resulted in lower test weights and falling numbers.

According to the midwestern harvest survey published by the U.S. Wheat Associates in its *2001 Crop Quality Report*, the average protein percentage in 2001 for SRW is nearly the same as 2000, 10.5 and 10.2 (12 percent moisture basis), respectively. The moisture percentage of the 2001 and 2000 crops is also almost the same at 13.3 and 13.2, respectively. Test weights are higher, at 59.1 pounds per bushel for 2001 than the 58 pounds for 2000. The average 2001 falling number of 356 seconds is better than the 2000 crop's 317 seconds.

Durum Production Down Compared With Last Year

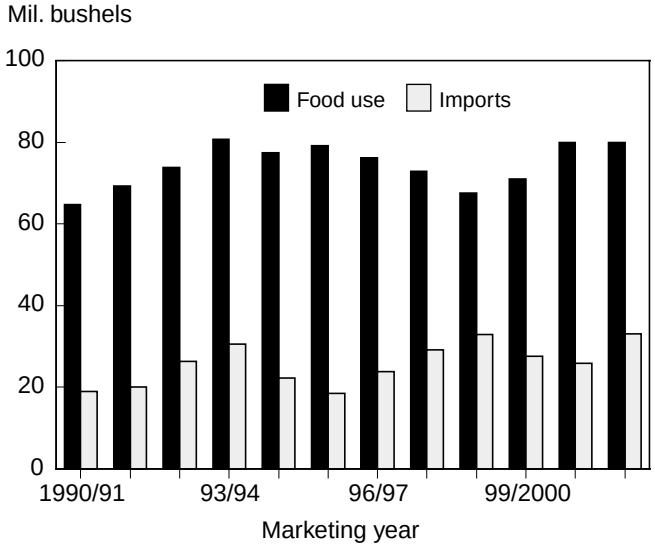
The projected 2001/02 durum supplies are 24 million bushels lower than a year ago because production and beginning stocks are down 26 and 5 million bushels, respectively. Projected imports are 7 million bushels higher than last year. Total projected use is down 5 million from last year as exports declined 17 million bushels. Partially offsetting the lower exports is a higher feed and residual. Ending stocks are projected down 19 million bushels to 26 million. The projected ending stocks-to-use ratio is 19.4 percent, significantly lower than last year's 32.2 percent.

Table 6--Durum supply and demand 1/

Item	1997/98	1998/99	1999/00	2000/01P	2001/02
			Million acres		
Area:					
Planted	3.3	3.8	4.0	3.9	2.9
Harvested	3.2	3.7	3.6	3.6	2.8
			Bushels per harvested acre		
Yield	27.6	37.0	27.8	30.7	30.0
			Million bushels		
Supply:					
Beg. stocks	31	26	55	50	45
Production	88	138	99	110	84
Imports	29	33	27	26	33
Total supply	148	197	182	185	162
Domestic use:					
Food	73	66	71	79	80
Seed	7	4	9	4	6
Residual	-10	33	8	-5	5
Total domestic	69	103	88	79	91
Exports	53	40	44	62	45
Total use	122	142	132	140	136
Ending stocks	26	55	50	45	26

P = projected.
1/ ERS estimates of area, yield, and domestic use.
Source: Economic Research Service, USDA.

Figure 18
U.S. durum wheat: Food use and imports



Imports include products converted to grain equivalent units.
2000/01 projected.
Source: Economic Research Service, USDA.

The Northern Great Plains produced about 80 percent of the total estimated U.S. durum production of 84 million bushels. The 2001 production season had near-normal development and a rapid, dry harvest that produced a crop that is improved over 2000. Last year, widespread rains in late August and early September led to significant sprout damage and low falling numbers.

The protein percentage of the durum crop grown on the Plains averaged 14.4 (12 percent moisture basis), nearly the same as the 14.3 reported for the previous year's crop, according to the U.S. Wheat Associates in their *2001 Crop Quality Report*. The moisture percentage of the 2001 and 2000 crops is also almost the same at 11.0 and 11.5, respectively. Test weights are the same as last year, 58.8 pounds per bushel. However, the average 2001 falling number of 355 seconds is significantly better than the 2000 crop's 216 seconds.

The Southwestern States of California and Arizona accounted for 20 percent of the country's durum production. Desert durum is grown primarily in California's Imperial Valley and adjoining areas in Arizona and is usually delivered "identity preserved" to buyers because of its unique qualities. The U.S. Wheat Associates in their *2001 Crop Quality Report* reported the 2001 crop's falling number of 651 seconds, below the 2000 crop's 699 seconds. The 1999 crop's falling number was 1,156. The 2001 crop's test weight at 63.8 pounds per bushel is above the 2000 crop's 62.3 pounds. The moisture percentage of the 2001 crop was also above the 1999 crop, 7.2 and 6.7, respectively.

Reference

U.S. Wheat Associates. *2001 Crop Quality Report*. 2001.

Economic Analysis of Ending the Issuance of Karnal Bunt Phytosanitary Wheat Export Certificates

Gary Vocke, Edward W. Allen, J. Michael Price[1]

Abstract: Karnal bunt is a wheat disease that is subject to regulation in the United States through quarantining of affected counties to limit its spread. Currently, the Karnal bunt regulatory program allows the U.S. Department of Agriculture (USDA) to issue phytosanitary export certificates stating that wheat in a given shipment is from an area where Karnal bunt is not known to occur. Ending this certification program would jeopardize U.S. exports to some countries. A model developed by the Economic Research Service was used to analyze a scenario of ending the certification. The loss of export markets for U.S. wheat producers would be only partially offset by increased domestic feeding of lower priced wheat. Wheat prices would remain below baseline levels. Reduced wheat production and lower prices for wheat combine to reduce the total value of the wheat produced in the country, as well as the net income in U.S. agriculture. The cumulative reduction of national net farm income from 2003 to 2007 relative to the baseline is $5.3 billion. However, this includes cumulative marketing loan payments associated with all crops of $2.0 billion above the baseline over the 2003-07 period.

Keywords: Wheat, Karnal bunt.

Introduction

Karnal bunt (sometimes called partial bunt), caused by the fungus *Tilletia indica* Mitra, seldom results in significant yield losses to wheat in the field. The fungus does not produce any toxic compounds in leaf, stem tissue, or seed that pose health risks when consumed (Bonde). Because the fungus poses no risk to human health, the U.S. Government does not have any food safety regulations concerning Karnal bunt. However, Karnal bunt affects flour quality if more than 3 percent of the grains are bunted because it produces trimethylamine, which gives off a fishy odor. Pasta products made with flour contaminated with Karnal bunt can have an unacceptable color.

Many U.S. trading partners will not accept U.S. wheat exports unless the wheat is certified to be from areas where Karnal bunt is not known to occur. USDA's Animal and Plant Health Inspection Service (APHIS) imposes quarantines in an attempt to contain the spread of Karnal bunt in the United States and conducts an annual voluntary survey of grain delivered to elevators to check for Karnal bunt across the country. The use of quarantines and the survey are the basis upon which APHIS is able to issue a certificate that is accepted by countries importing U.S. wheat.

Some have proposed that the Karnal bunt quarantine regulations and surveys be ended, suggesting that USDA should consider contaminated wheat a quality issue and establish tolerances for contamination (Combs). This paper analyzes the market effects of abruptly ending the issuance of certificates stating that U.S. wheat is from areas where Karnal bunt is not known to occur in the face of continuing barriers in many overseas markets.

The Incidence of Karnal Bunt

Karnal bunt is geographically isolated, limited to the Indian subcontinent, a small area of Mexico, and the southwestern United States (Murray and Brennan). Karnal bunt is so named because it was discovered in 1931 on wheat grown near Karnal, India. The disease was first confirmed outside of Asia in 1972 in the State

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of Sonora, in northwest Mexico (Dept. for Environment, Food & Rural Affairs).

The disease was first found in the United States in 1996, in Arizona, Texas, and California, and again in Texas in 1998. The latest outbreak was in north Texas in 2001. It is not known how the disease spread to the southwestern United States and then to north Texas. Because the early outbreaks were isolated from the major wheat-producing areas, the possibility of the disease spreading to principal wheat-growing areas was thought to be minimal. However, the 2001 outbreak of Karnal bunt in north Texas was at the edge of the major wheat area of the Southern Plains (see fig. A-1). This raised the prospect that the disease could spread as far north as the spores can tolerate winter weather conditions. Karnal bunt spores may rapidly decay under extreme cold, suggesting that significant portions of the northern United States would not be conducive to long-term survival (and therefore permanent establishment) of Karnal bunt (Dobesberger, Jimenez, and Sequreira).

The occurrence of bunted kernels in areas infested with Karnal bunt spores is typically low. The ideal conditions for infection are temperatures in the range of 59-72 degrees F. and accompanied by rainfall, overhead irrigation, or high humidity. These conditions must occur during heading and for a few weeks afterward for bunted kernels to develop (Forster and Blair). These strict environmental conditions make it possible for problems with Karnal bunt to be only intermittent even if soil spore concentrations are high.

Spreading Karnal Bunt

Karnal bunt spores can be carried in soil and on a variety of surfaces, including seeds and other plant parts, farm equipment, tools, and vehicles. They can also be windborne. Karnal bunt spores are resistant to dry conditions, sunlight, a wide range of temperatures, and most fungicides. Wheat that is not infected can become contaminated with spores by passing through spore-contaminated equipment, transport vessels, or facilities. Other grains can also be contaminated with spores in the same way.

While Karnal bunt is not harmful to animals, it is suspected that spores in contaminated or infected feed (grain or bran from milled wheat) can survive ingestion by animals. Since the manure of livestock fed such feed is potentially a source of inoculum, bunted wheat in quarantined counties must be heat-treated if used for animal feed.

The American Phytopathological Society states that the experience from countries where Karnal bunt occurs suggests that Karnal bunt is a minor disease and the little risk that does exist for grain quality can be effectively managed with resistant varieties without the use of quarantines (American Phytopathological Society). The Society also suggests that although quarantines may delay the introduction of Karnal bunt into new areas, they are unlikely to prevent such introductions and subsequent establishment. This conclusion has been confirmed repeatedly, most recently by the occurrence of Karnal bunt in the United Sates despite quarantines imposed on wheat from countries where the disease has been known to occur.

Quarantines may be ineffective where wheat-growing areas are contiguous, as between Mexico and the United States. However, where longer distances apply, as between continents or where deserts or mountains intervene, quarantines may help to protect countries that do not have Karnal bunt (Murray and Brennan).

Yield Losses to Karnal Bunt

Karnal bunt spores usually replace only a portion of the developing kernel and only a few of the kernels in a head. Complete conversion of kernels to spores is rare. Thus, yield reductions are generally minimal. For example, surveys in India during years of heavy disease infestations revealed a general, area-wide yield loss of less than 0.5 percent (Davila). However, in a few fields with highly susceptible varieties, as much as 89 percent of the kernels were infected, with yield losses ranging from 20 to 40 percent.

Options for Karnal Bunt Control

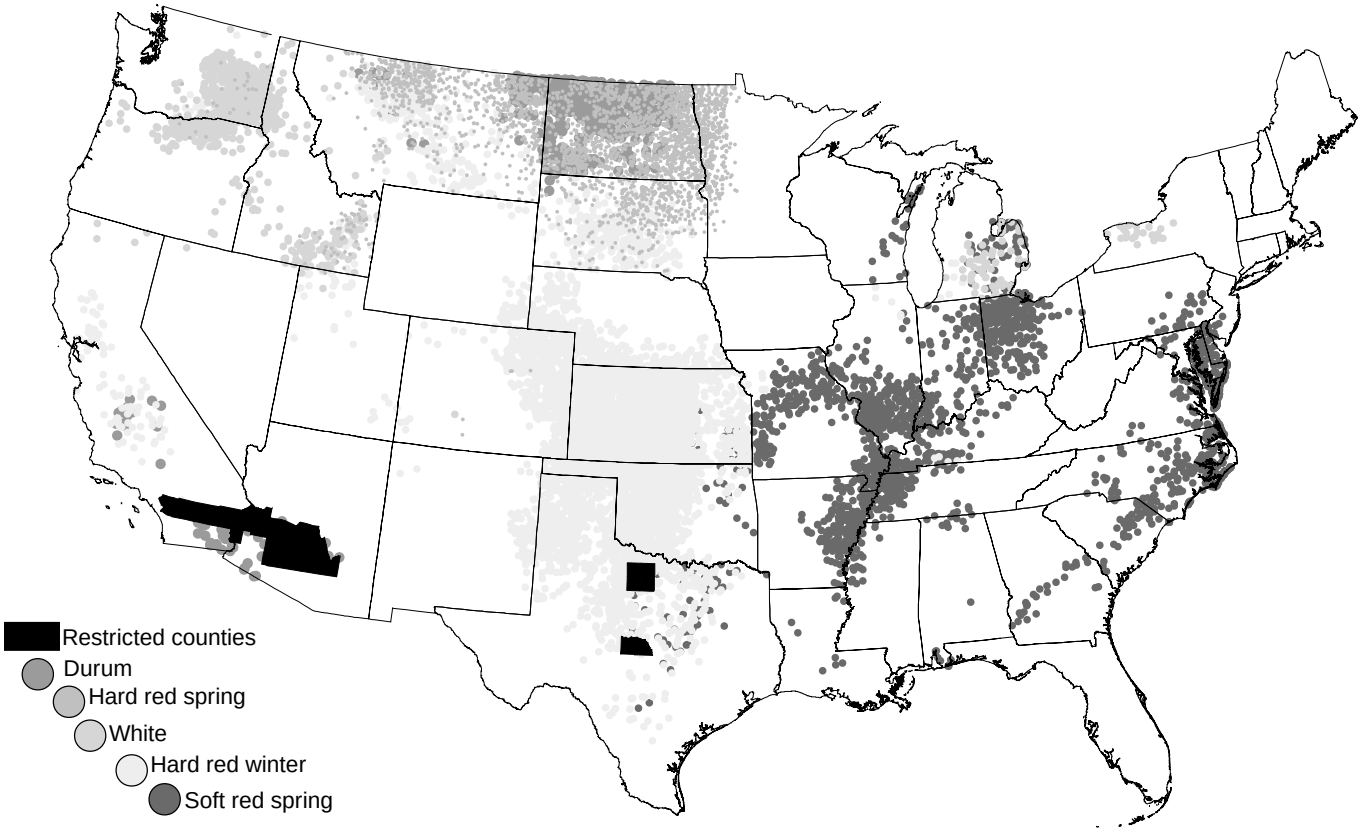
Wheat breeders in areas with Karnal bunt recognize the importance of avoiding the release of highly susceptible varieties.[2] This control measure has proven effective for reducing the level of Karnal bunt sufficiently that quality of the harvested grain is not severely affected. However, resistant varieties do not eradicate the disease, and Karnal bunt epidemics have recurred in India as soon as susceptible varieties were again grown (Murray and Brennan).

Apparently, cultural practices are of little practical value in reducing the probability of an outbreak (Murray and Brennan). Seed treatments can reduce the

[2] International Maize and Wheat Institute (CIMMYT) has identified 98 resistant lines of bread wheat, and Punjab Agricultural University, India, has 68 resistant lines (Davila).

Figure A-1

Karnal bunt now established at the southern edge of hard red winter plantings (area planted 1998)



1 Dot = 5,000 planted acres at the county level
(counties with less than 5,000 acres do not appear)

number of viable spores on seed, and, therefore, the probability that Karnal bunt will be introduced to new areas. Foliar application of fungicides can reduce the level of disease, but more than one application is usually required, making this an expensive control option. Fungicides are likely to be cost effective only if other important diseases, such as rusts or Septoria blotches, are also present. Fumigation of soil with chemicals, such as methyl bromide, metham-sodium, and formaldehyde, has been partially successful in killing the spores.

Exporting Under Deregulation Is Problematic

Not all countries that have restrictions against Karnal bunt would, in practice, strictly prohibit wheat imports from the United States if USDA stopped issuing certificates. Each country has regulations that are often idiosyncratic in how they are written and enforced. For example, Italy and Germany currently import wheat from countries where Karnal bunt is known to occur, after testing to ensure the wheat is free of Karnal bunt, despite European Union regulations against such a practice.

In addition, while some markets would be captured by wheat-exporting countries that are free of Karnal bunt, U.S. wheat exports to countries that have no restrictions against Karnal bunt would likely increase. The longrun effects would likely depend on the extent that world wheat markets treat Karnal bunt as a quality issue.

There is also an issue of what procedure would be used by other countries for Karnal bunt testing if the United States should stop issuing certificates. Currently, there is no accurate Karnal bunt test available that is rapid enough to use during ship loading. Even the microscopic examination for spores with the "wash test" can lead to false positives because of bunt on ryegrass *Tilletia walkeri*. Annual ryegrass is a significant weed problem in wheat fields in the southeastern United States. The wash test is currently used for seed wheat to ensure that

there is no disease present. For non-seed wheat, USDA uses a "bunted kernel test" which involves visual inspection for bunt on the grain kernel. Spore-contaminated grain can pass the bunted kernel test. Currently, most importing countries, even with phytosanitary regulations against Karnal bunt, accept APHIS's certificate that the wheat comes from an area not known to have Karnal bunt, and do not routinely test for Karnal bunt spores or check for bunted kernels.

If even a few important wheat-importing countries maintain prohibitions, shipping companies may have concerns about shipping wheat from a deregulated U.S. wheat sector. Ship owners wishing to protect their interests may insist on a certificate from an authoritative U.S. source that unequivocally confirms that the cargo is free from Karnal bunt spores.

Further, shipping vessels that carried contaminated wheat to countries without prohibitions would have to be sanitized to ensure that later cargoes from other sources going to countries that continue to have prohibitions will not be contaminated. Under U.S. deregulation, spores could spread through the storage and transport equipment to other products like corn and soybeans. The cost of testing and sanitizing to ensure freedom from the disease would likely be considerable.

There may also be issues with transshipment through the St. Lawrence Seaway if the United States deregulates Karnal bunt. Currently, Canada prohibits the entry of wheat from States with Karnal bunt. Any wheat that crosses the Canadian border needs a declaration that the grain originated in an area free of Karnal bunt on the basis of official surveys.

The future importance of these issues will likely depend on whether Karnal bunt becomes widespread across the U.S. wheat sector. However, there is no certainty about how far and how rapidly the disease might spread if the quarantine system is eliminated.

The USDA Regulated Areas

An area that is regulated by USDA for Karnal bunt is a definable commercial wheat-production area that includes at least one field that tested positive for Karnal bunted kernels. USDA restricts movement of wheat grain, straw, hay and farm equipment within and out of these regulated areas. USDA tests wheat grown in regulated areas each year for Karnal bunted kernels.

Currently, in a regulated area, a grain sample must be drawn by an APHIS inspector or State cooperator at the time of harvest, or if already harvested, from the storage bins, and examined for bunted kernels. If the sample is taken from the field as it is being harvested and no bunted kernels are found, a certificate will be issued and the grain allowed to be transported to any market. If the grain sample came from grain already in storage and no bunted kernels are found, then a permit will be issued for the grain to be transported to any market. If one or more bunted kernels are found in the sample, then a notice will be issued and the grain sealed in the storage facility prior to approved treatment or disposal.

In a regulated area, wheat grown to produce seed can be planted only within the regulated area and only if the seed tests spore negative through the wash test. Seed wheat cannot be moved outside the regulated area. Any seed grown in a regulated area that tests spore positive (based on the wash test), but is bunt negative (based on visual inspection) cannot leave the area for seeding purposes, but it can leave the area for export as grain to a country that does not require an APHIS Karnal bunt certificate or for domestic use for livestock feed or milling.

Wheat grain, straw, or wheat hay that tests bunt positive cannot be moved outside the regulated area without APHIS approval. If needed, a permit is issued to allow the transport of these products to an approved facility outside the regulated area for treatment or disposal.

Karnal bunt quarantines have been controversial since they were initiated in 1996. To increase cooperation, USDA compensates producers, grain handlers, and other affected parties for losses suffered due to the Federal quarantine action. Compensation payments have totaled about $35 million since 1996 (U.S. Department of Agriculture).

Estimating the Effects of Karnal Bunt Deregulation

Even though Karnal bunt poses no health risk, many U.S. wheat export markets have a precautionary stance against the acceptance of wheat without a certificate indicating the wheat is from an area where Karnal bunt is not known to occur. Thus, if the United States were to stop its certification, U.S. wheat would not meet those importing countries' phytosanitary requirements.

It is uncertain how the wheat-importing countries of the world would react if the United States were to end its Karnal bunt quarantine regulation. The reaction of many countries would likely depend upon how fre-

quent and how widespread Karnal bunt outbreaks occurred in the United States and the availability of wheat from other sources. However, it is possible to anticipate the likely reactions of governments and industry to deregulation not accompanied by a severe outbreak. This study does not attempt to forecast future incidence of Karnal bunt in U.S. wheat fields.

The scenario analyzed assumes a unilateral end to U.S. karnal bunt certification, without significant success in getting importing countries to accept something other than a zero tolerance level for karnal bunt spores. If ongoing scientific research and diplomatic efforts cause a significant number of wheat importers to accept a more relaxed standard than a zero tolerance, then trade effects would likely be smaller. However, such efforts would undoubtedly take time.

With unilateral deregulation, we assumed that most of the adverse reactions of U.S. wheat customers would fall on hard red winter wheat (HRW) producers in the Central and Southern Plains and soft red winter wheat (SRW) producers (these two classes averaged 62 percent of U.S. wheat production between 1996 and 2000). The combination of weather conditions and stage of plant growth needed to result in Karnal bunt infection are most likely in areas where these two classes of wheat are grown (Dobeseberger, Jimenez, and Sequeira). Because U.S. wheat is blended, we also assumed that HRW and SRW from northern States that might not be susceptible to karnal bunt cannot be certified as free of spores. However, the harsh winters in the northern United States where the other classes of wheat are principally grown are expected to prevent the spread of the disease into those regions. U.S. domestic and international customers for the three classes of wheat: hard red spring (HRS), durum in the Northern Plains, and white wheat (from the traditional Pacific Northwest and Northeastern white wheat areas, not Kansas) are assumed to be unconcerned about Karnal bunt contamination, even with decertification. This lack of concern assumes that some alternative government or private certification is found acceptable for importers of spring and white wheat and is a major reason why this scenario does not have a larger U.S. trade loss. Moreover, Canada is also assumed to accept alternative certification, allowing transshipments through the Saint Lawrence. For many common uses, HRS and HRW are readily substituted, as are SRW and soft white wheat.

A world wheat trade model that appropriately estimates trade flows by class and country was not available to analyze the issue, so a scenario was developed based on expert judgment of USDA analysts. A set of assumptions about prices and trade impacts by country was developed using the February 2002 trade matrix of 2001/02 world wheat trade. The percent changes in U.S. wheat exports were then applied, beginning in 2003, relative to the *USDA Agricultural Baseline Projections to 2011*, in a U.S. agricultural sector model to calculate the impacts on the domestic farm sector.

As a first step, countries were classified by their antipathy to Karnal bunt and their presumed response to U.S. deregulation (table A-1). For this analysis, each significant market for U.S. wheat exports was put into one of three categories.

Group A, accounting for 25 percent of forecast U.S. exports, includes countries that: (1) have strict requirements on Karnal bunt as reported by APHIS, (2) have a history of strict observance of phytosanitary regulations, (3) normally import hard red winter (HRW) or soft red winter wheat (SRW), and (4) could be expected to remain intransigent about only importing wheat that is certified as coming from a Karnal bunt-free zone. Important markets in this group include EU-15, Eastern Europe, China, Egypt, Algeria, Morocco, Libya, Tunisia, and Brazil.

Group B, accounting for 35 percent of forecast U.S. exports, includes countries that: (1) have strict requirements on Karnal bunt, as reported by APHIS, (2) may be somewhat more flexible in implementation of phytosanitary regulations, (3) normally import only a portion of U.S. wheat from regions potentially at risk, and (4) although decertification would disrupt HRW and SRW shipments in the first year, over the next 2 years these countries would be expected to relax Karnal bunt standards to tolerance levels that would permit trade and a resumption of imports from the United States. Important markets in this group include the former Soviet Union, Yemen, South Korea, Indonesia, Taiwan, Sri Lanka, Mexico, Venezuela, Colombia, and other Western Hemisphere countries.

Group C, about 40 percent of forecast U.S. exports, consists of countries: (1) without strict requirements on Karnal bunt, as reported by APHIS, (2) that import only U.S. spring or white wheat, and (3) without significant wheat production, and (4) could be expected to demand that less than 3 percent of bunted kernels be allowed according to milling standards, but would not test for spores. Important countries in this group

Table A-1--Likely trade effect of unilateral U.S. deregulation of Karnal bunt 1/

Major importers	KB antipathy	Total U.S. wheat exports 2001/02 forecast	HRW share of U.S. exports	SRW share of U.S. exports	Other classes share of U.S. exports	1st year U.S. export loss 2/	2nd year U.S. export loss 2/	3rd year U.S. export loss 2/	Long term U.S. export loss 2/
					1,000 metric tons				
Total Western Europe		2,300	0	550	1,750	385	1,152	439	404
EU-15	high	2,200	0	550	1,650	385	1,122	424	404
Other West Europe	high	100	0	0	100	0	30	15	0
Eastern Europe	high	100	80	0	20	78	96	86	82
FSU	medium	125	100	13	13	111	120	56	28
Total Asia & Middle East		11,975	2,725	523	8,727	1,280	1,958	455	6
Total Middle East		2,425	1,565	131	729	928	1,019	233	73
Iran		0					0	0	0
Iraq		0					0	0	0
Yemen	medium	625	0	31	594	31	75	38	19
Israel	low	700	630	56	14	-70	-35	-53	-70
Other Mid East	medium	1,100	935	44	121	967	979	248	124
Total East & SE Asia		9,550	1,160	391	7,998	352	939	222	-66
Japan	low	3,040	152	30	2,858		0	0	0
South Korea	medium	1,300	260	26	1,014	185	406	92	0
Pakistan	low	395	8	0	387	-40	-20	-30	-40
Indonesia	medium	250	25	25	200	50	85	43	21
Philippines	low	1,700	17	255	1,428	-170	-85	-128	-170
China	high	275	14	55	206	69	165	76	69
Malaysia	low	200	20	0	180	-20	-10	-15	-20
Bangladesh	low	300	195	0	105	-30	-15	-23	-30
Taiwan	medium	930	279	0	651	214	172	86	43
Sri Lanka	medium	560	101	0	459	55	119	60	30
Other Asia	medium	600	90	0	510	39	122	61	30
Total Africa		6,700	3,862	1,834	1,005	3,535	4,239	3,638	3,371
Total North Africa		4,100	1,910	1,598	593	3,329	3,943	3,676	3,502
Egypt	high	3,500	1,680	1,470	350	2,975	3,500	3,273	3,124
Algeria	high	175	35	0	140	35	70	53	44
Morocco	high	225	113	90	23	200	225	220	210
Libya	high	125	75	38	13	111	125	122	117
Tunisia	high	75	8	0	68	8	23	8	8
Sub-Saharan Afr.		2,600	1,952	236	412	206	296	-38	-132
Nigeria	low	1,800	1,584	180	36	-180	-90	-135	-180
Other Sub-Sahar.	medium	800	368	56	376	386	386	97	48
Total Western Hemisphere		6,150	2,908	2,025	1,218	1,486	1,943	733	265
Brazil	high	175	105	70	0	175	175	193	184
Mexico	low	2,150	1,290	774	86	-215	-99	-157	-215
Peru	low	550	451	88	11	-55	28	-14	-55
Venezuela	medium	550	165	220	165	369	422	184	92
Colombia	medium	550	402	138	11	538	550	269	134
Cuba	low	75	75	0	0	-8	-4	-8	-8
Other West Hem.	medium	2,100	420	735	945	683	872	265	133
Unaccounted		150	75	75	0				
2001/02 total		27,500	9,750	5,018	12,732	6,876	9,508	5,405	4,156
Percent of total exports						25	35	20	15

1/ Assumes increased U.S. shipments of HRS and White to markets not accepting HRW and SRW as well as increased shipments of HRW and SRW to markets with low antipathy to Karnal Bunt. After the first year, increased competitors' production also reduces U.S. market share.

2/ A positive number indicates a loss of exports, a negative number indicates an increase.

Examples By Country

Egypt is an important example of how a country might react to Karnal bunt decertification. Egypt has strict phytosanitary regulations regarding Karnal bunt. Moreover, it is a significant producer, with irrigated land that could be quite susceptible to the disease. These factors would likely cause Egypt to be inflexible about accepting wheat with Karnal bunt spores (a Group A country). However, while most U.S. exports to Egypt have been HRW or SRW, some are other classes. U.S. shipments of white wheat could be expected to increase, limiting U.S. losses in the first year of the scenario (2003) to less than 3 million tons (see table A-1). However, in 2004, increased competition, in this case especially from Australian white wheat, is expected to push U.S. wheat out of the Egyptian market. In the third year and later, after prices and production in Australia decline from the peak in the second year, U.S. white wheat shipments to Egypt recoup losses, ending up higher than without Karnal bunt. However, without SRW and HRW, the United States has still lost most of its wheat export market to Egypt.

Venezuela is an example of a Group B country (with medium Karnal bunt antipathy). While Venezuela has regulations prohibiting Karnal bunt in wheat imports, and Karnal bunt might propagate in that climate, Venezuela's wheat production is insignificant. Eventually, Venezuela could be expected to accept a Karnal bunt spore tolerance greater than zero. However, it would likely take extensive negotiations. About 70 percent of U.S. exports to Venezuela are HRW or SRW. In the first year of the scenario, U.S. HRS shipments would be expected to increase some, but Canada and Argentina would be expected to provide intense competition, replacing most of U.S. HRW and SRW shipments. In the second year, with negotiations ongoing and intense competition from Canada, even the U.S. HRS share is reduced. In the third year, Venezuela is assumed to accept a reasonable tolerance for Karnal bunt spores, and U.S. exports increase dramatically, but in the long run Canada has gained a competitive edge, and the U.S. share remains about 17 percent below what it would have been without Karnal bunt.

A Group C country, with low Karnal Bunt antipathy, like Israel, has no regulation concerning Karnal bunt. Imports of U.S. wheat are above baseline levels throughout the scenario, but the increase in 2004 is less because increased competitor supplies and reduced prices limit U.S. gains. In 2005 and later, the U.S. share increases again because the price of U.S. HRW and SRW is comparatively attractive.

include Israel, Japan, Pakistan, Philippines, Malaysia, Bangladesh, and Nigeria.

U.S. wheat exports were examined to evaluate the effect of reducing U.S. HRW and SRW exports to zero for Groups 1 and 2 during the first year (see table A-1). This means that about 60 percent of U.S. customers would find about 55 percent of U.S. exports unacceptable. Some switching to other U.S. wheat classes is assumed, but switching would be limited by supplies and by limited substitutability for some uses. The world wheat market is segmented: some countries have inelastic demand, are willing to pay high premiums, and are expected to be concerned about Karnal bunt; other countries like discounted, cheap wheat and are not concerned about Karnal bunt. Assumptions about responsiveness in each country drives the analysis of changes in world wheat trade and U.S. exports.

In the first year, U.S. exports of HRW and SRW are calculated to increase to those markets still accepting them, while overall U.S. wheat exports are calculated to drop nearly 7 million tons, or 25 percent below baseline levels. Most of the drop in U.S. exports is expected to be gained by competitors' exports and reduced ending stocks (boosting prices in those countries). Importers also draw down stocks some, but the decline in world wheat trade is small because some importers actually increase imports of cheaper U.S. HRW and SRW.

While the U.S. average farm price for wheat drops significantly (45 cents per bushel in 2003) under this scenario, the premium for spring wheat (relative to the all-wheat average farm price) is assumed to be about 50 cents per bushel greater than normal, while the discount for HRW and SRW would be at least 50 cents greater than normal. The market impacts of by-class premiums and discounts are larger than the change in the average

U.S. price received by farmers for wheat. The assumed relative international price changes (about $1.00 per bushel) are thus similar enough in magnitude to price changes in 1995/96 (when the average farm price increased $1.10) so that the 1994 to 1998 reaction of U.S. competitors to high prices can provide insight into their likely reaction in this scenario.

In 1994/95, the major competitors (Canada, Australia, EU, and Argentina) reduced wheat stocks more than 11 million tons, while in the Karnal bunt scenario, a 6-million-ton reduction is anticipated. These countries increased wheat production by over 30 million tons in 1996/97, but a smaller increase, about 15 million tons, is assumed in the Karnal bunt scenario because their price increases would be less than occurred in 1995/96. Moreover, competitors are currently planting more wheat than in 1994/95, so it will be more difficult for them to expand from this higher base.

In the second year of the scenario (2004), some of the importing countries in Group B (see table A-1) are assumed to adopt less restrictive Karnal bunt standards, opening imports to U.S. HRW and SRW, thereby reducing the direct effect of Karnal bunt trade barriers. However, in that second year, foreign competitors' production (and U.S. HRS and White wheat) is expected to increase strongly in response to the first year's higher prices. Although a portion of competitors' increased production is used to replenish stocks, much is expected to move into export channels, further reducing U.S. market share. In the second year of the scenario, U.S. wheat exports are estimated down 9.5 million tons, 35 percent below the baseline level (without Karnal bunt).

In the third year after deregulation, the rest of Group B countries further relax Karnal bunt import standards, and competitors' response is muted, as wheat prices and premiums in those countries decline. However, in the third year, U.S. wheat exports are 20 percent below baseline levels. In subsequent years, the U.S. recaptures some lost market share as price premiums in competing countries become small. However, the exclusion of U.S. HRW and SRW from group A markets results in a small premium for U.S. competitors that are free of Karnal bunt and reduces long-term U.S. wheat exports by 15 percent below baseline levels. This long-term decline represents a loss in market share despite the development of alternative regulatory mechanisms in markets accounting for 80 percent of U.S. wheat exports.

No model is available that includes the effects of wheat classes on world trade or U.S. regional and class differences with appropriate substitution elasticities. Therefore, a more general model was used to quantify price changes and address the effects on U.S. agriculture.

Model Simulation Results

The U.S. domestic impacts of terminating certificates for Karnal bunt were estimated with the Food and Agricultural Policy Simulator (FAPSIM). FAPSIM is a large-scale econometric model of the U.S. agricultural sector maintained by the Economic Research Service (ERS). The model contains submodels for 24 agricultural commodities, including wheat.[3] The model also includes submodels to estimate the value of exports, net farm income, and Government outlays on farm programs for the United States.

These submodels are linked together through the variables that they share in common. The model computes the set of market prices that equilibrate supply and demand in all of the commodity markets simultaneously, given any set of exogenous conditions.

The estimated trade impacts were introduced into the model by exogenously reducing wheat exports from their baseline levels over the 2003-07 period by the percentages already mentioned. The initial export levels used in the analysis were obtained from the February 2002 USDA baseline (USDA, Office of the Chief Economist). All of the model simulation results from the scenario are compared against the USDA baseline projections in the discussion that follows.

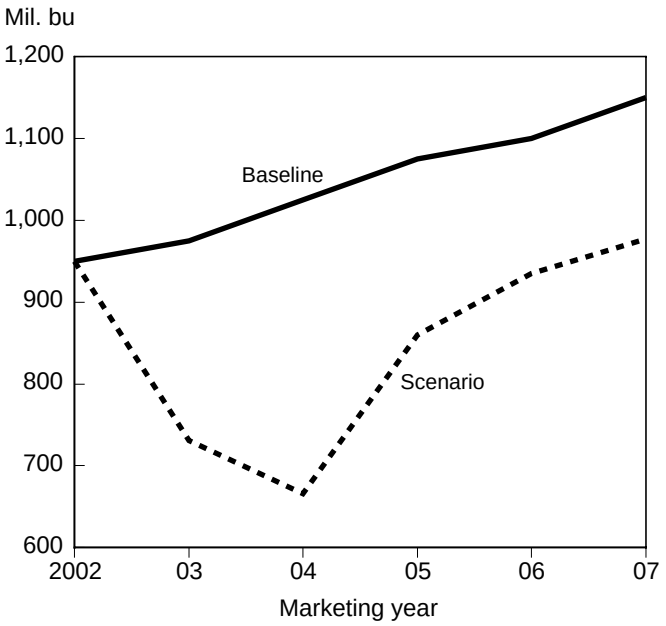
Figure A-2 shows the assumed reduction in wheat exports under the scenario compared with the baseline. In 2003/04 and 2004/05, exports under the scenario decline relative to the baseline by 25 and 35 percent, or by 244 million and 359 million bushels, respectively. Exports partly recover in the succeeding years of the analysis, averaging 15 percent less than the baseline.

The decline in exports under the scenario reduces the farmgate price of wheat (fig. A-3). Prices decline from the baseline by 17 and 19 percent, or by 45 and 53 cents per bushel, in 2003/04 and 2004/05, respectively. The loss is larger in the second year because the sharply higher prices expected to be received by U.S. competitors in 2003/04 result in significantly expanded

[3] The wheat submodel in FAPSIM is an aggregate model. It does not distinguish between the different classes of wheat.

Figure A-2

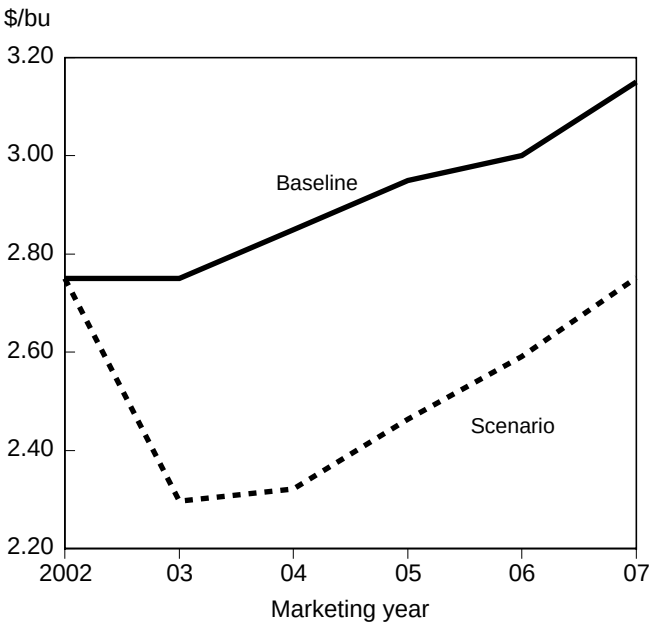
U.S. wheat exports



Source: FAPSIM.

Figure A-3

U.S. wheat price



Source: FAPSIM.

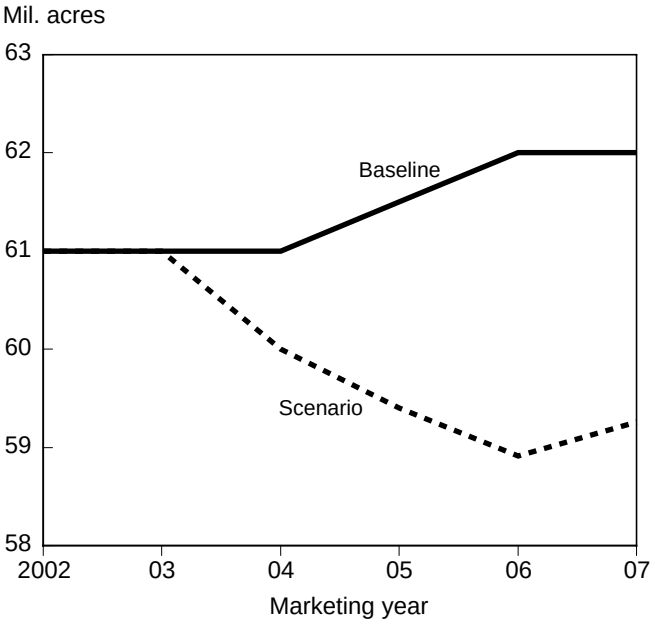
production in 2004/05. We assumed that the European Union would not put a tax on wheat exports to hold down its domestic prices. U.S. domestic prices partially recover relative to the baseline in succeeding years with recovery of some of the lost export markets. The prices under the scenario are still below baseline prices by 13 percent in 2007/08.

With domestic prices lower under the scenario, the U.S. area planted to wheat declines relative to the baseline (fig. A-4). However, the response by producers to the lower wheat prices is muted somewhat over the initial years because of U.S. Government farm programs. Part of the market revenue loss that producers experience due to lower farm prices over this period is offset by an increase in marketing loan benefits that they receive from the government. As a result, the area planted to wheat declines relative to the baseline by 2 and 3 percent, or by 1.0 and 2.1 million acres, respectively, in 2004/05 and 2005/06. In contrast, area planted to wheat declines by 2.7 million acres below the baseline level in 2007/08 when producers are not expected to receive any offsetting compensation through marketing loans. Because the production response is muted in the early years, excess production occurs, causing the price impacts to be larger than they would be in the absence of government programs.

With lower prices under the scenario, domestic feeding of wheat increases sharply, by 32 and 107 percent, or by 88 and 295 million bushels, in 2003/04 and 2004/05, respectively. With smaller price impacts in the succeeding years, the changes in feed demand also become smaller. Nonetheless, wheat feeding under the scenario remains above the baseline level by about 32

Figure A-4

U.S. wheat planted area



Source: FAPSIM.

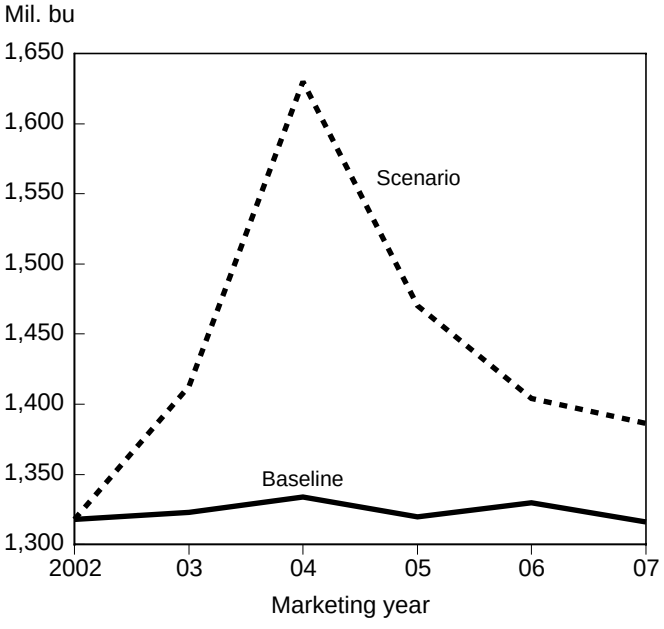
percent in 2007/08. Part of the reason these impacts are large is that the model solution was constrained to ensure that the price of wheat never falls below its feed value in relation to the price of corn. Wheat displaced corn as an animal feed to the extent necessary to ensure this constraint was satisfied.

Total domestic use of wheat is estimated to rise by 7 and 22 percent, or by 90 and 296 million bushels, for 2003/04 and 2004/05, respectively (fig. A-5). This rise is almost entirely due to the increased feeding of wheat, with only a slight increase in food use. Seed use declines under the scenario relative to the baseline because of the reduction in area planted to wheat.

Even though wheat feeding increases sharply under the scenario, this rise is not enough to offset export losses. Thus, ending stocks are estimated to rise above the baseline by 22 and 27 percent, or by 154 and 179 million bushels, for 2003/04 and 2004/05, respectively (fig. A-6). Although the impacts on ending stocks become smaller in the succeeding years of the scenario, stocks remain above baseline levels by 21 percent in 2007/08.

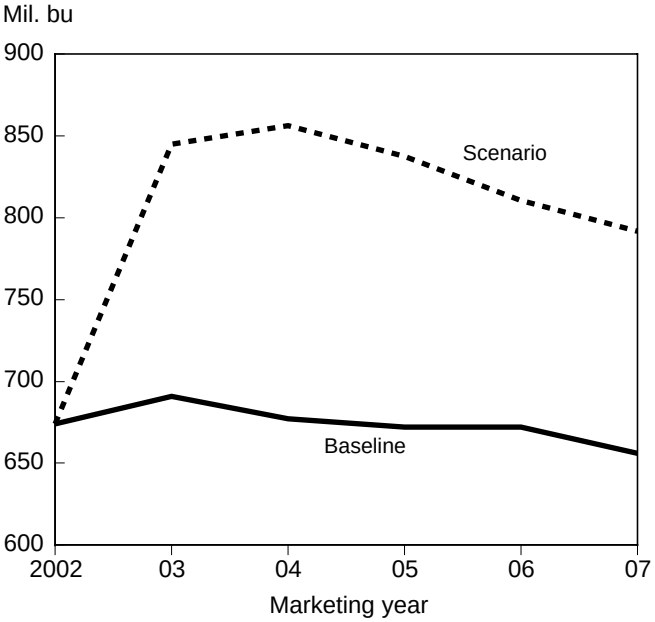
The reduction in wheat production and the lower farmgate prices under the scenario combine to reduce U.S. cash receipts received by wheat producers from farm marketings (fig. A-7). Cash receipts for wheat are estimated to drop below the baseline by $915 million and $1,293 million in 2003 and 2004, respectively. By the final year of the analysis, cash receipts remain below baseline levels by $1,167 million. Cumulative wheat

Figure A-5
U.S. domestic use of wheat



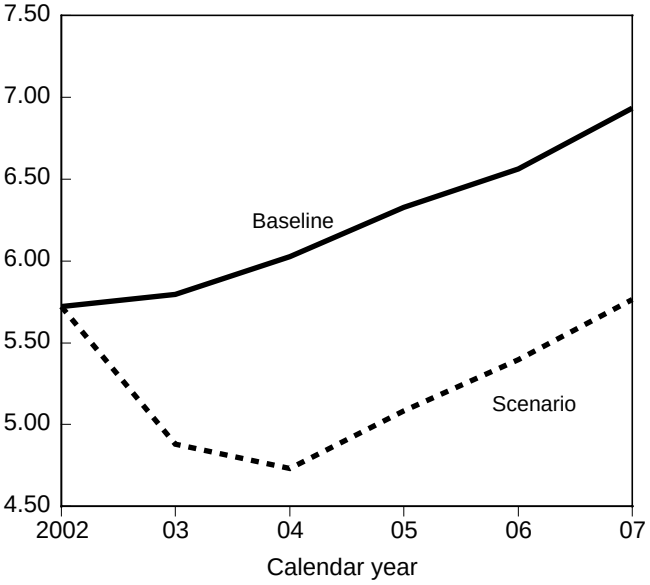
Source: FAPSIM.

Figure A-6
U.S. wheat ending stocks



Source: FAPSIM.

Figure A-7
U.S. wheat cash receipts



Source: FAPSIM.

cash receipts decline by $5.8 billion below the baseline over the 2003-07 period.

No marketing loan payments are assumed for wheat over the 2003-07 period under the baseline. However, the price declines for wheat over the 2003-05 period under the scenario are sufficient to trigger marketing loan benefits. The payments to wheat producers are $0.7, $0.6, and $0.2 billion for 2003/04, 2004/05, and 2005/06, respectively. The cumulative marketing loan benefits associated with all crops increase by $2.0 billion above the baseline over the 2003-07 period.

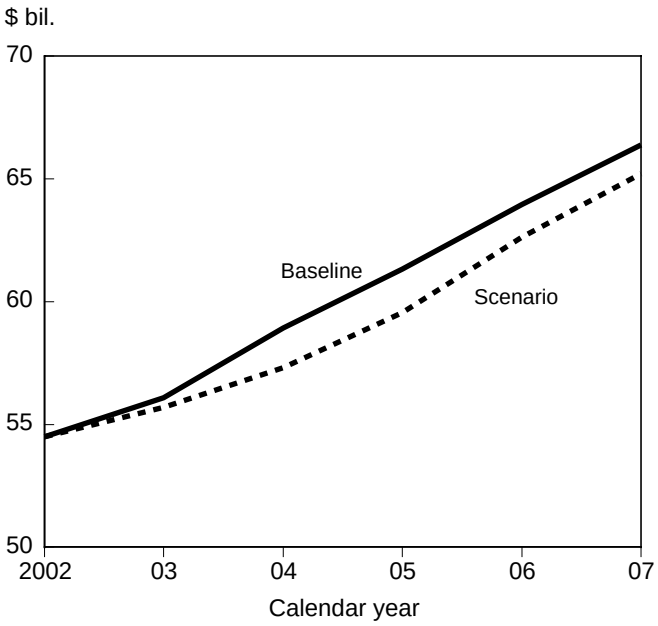
As suggested above, other commodities are also affected by the price adjustments that occur in the wheat sector under the scenario. As the profitability of wheat production declines, producers shift production from wheat to alternative crops. The increase in production causes the prices for other crops to decline. However, the price changes associated with other crops are small in relation to the price changes for wheat. Farm prices of other crops change by less than 5 percent from their baseline levels over the 2003-07 period. The price impacts for the livestock sector, stemming from lower feed costs, are even smaller.

The farm price of corn is estimated to decline below the baseline level by 4.5 percent in 2003/2004 as livestock producers shift from corn to the lower priced wheat in their feed rations. On average, corn prices are 1.3 percent below baseline levels over the 2003-07 period, with comparable changes for other feed grain prices. As a result, cumulative cash receipts for feed grains decline by $1.2 billion below the baseline over the 2003-07 period.

With lower wheat exports and prices under the scenario, the value of U.S. exports of wheat declines below baseline levels. The cumulative value of total U.S. agricultural exports is estimated to fall by over $6.3 billion over the 2003-07 period under the scenario (fig. A-8). Although most of the decrease is associated with wheat, there are also downward adjustments in the value of exports for other commodities due to lower prices.

Because prices of all agricultural commodities decline under the scenario, total U.S. cash receipts from the farm marketings decline below baseline levels. Cumulative cash receipts over the 2003-07 period are estimated to be $10.4 billion below the baseline level. More than half of this decline is associated directly with wheat. There are also some offsetting adjustments. Because there is less total crop area planted under the scenario, producers incur fewer production expenses. In aggregate, cumulative farm expenses are seen as $2.9 billion below the baseline level over the 2003-07 period. In addition, with producers receiving increased government support payments through marketing loan benefits, cumulative net farm income over the 2003-07 period is estimated to be $5.3 billion lower than the baseline level (fig. A-9).

Figure A-8
U.S. value of agricultural exports



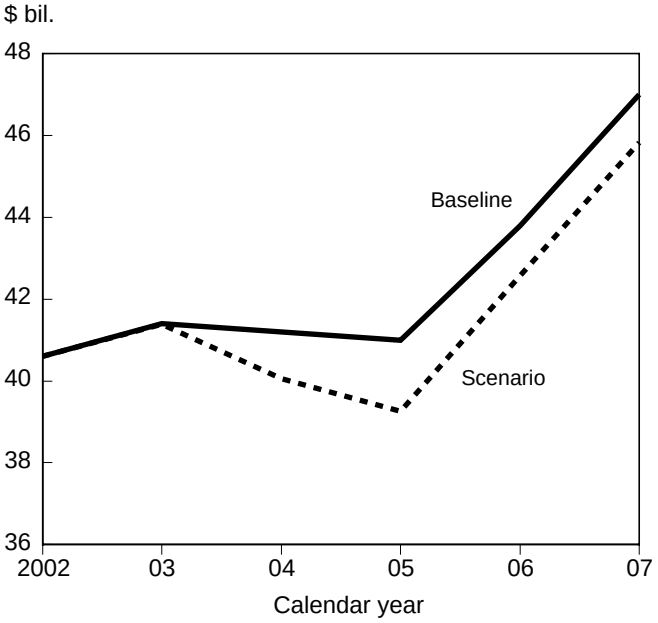
Source: FAPSIM.

The average impacts discussed here would not be spread evenly across the Nation's wheat sector. Because Karnal bunt deregulation would be focused on hard red winter and soft red winter exports, impacts would center on wheat producers in the Central and Southern Plains and the Southeastern region of the country. It is possible that a longer run effect of deregulation would be to reduce wheat acreage in the Central and Southern Plains and to increase wheat acreage in the Northern Plains, if foreign customers continue to be reluctant to purchase wheat grown in areas potentially affected by Karnal bunt.

The analysis assumes that domestic millers of wheat are not affected by deregulation. However, if domestic millers do respond negatively to wheat from potentially affected areas, the economic incentives to shift wheat acreage to the North would be enhanced.

Figure A-9

U.S. net farm income



Source: FAPSIM.

Conclusions

Karnal bunt seldom results in significant yield losses to wheat in the field. However, Karnal bunt affects flour quality if more than 3 percent of the grains are bunted because it gives off a fishy odor. In addition, pasta products made with flour contaminated with Karnal bunt can have an unacceptable color. The fungus that causes Karnal bunt does not produce any toxic compounds in leaf, stem tissue, or seed that pose health risks when consumed. Thus, Karnal bunt is a food quality issue rather than a food safety issue. Because the fungus poses no risk to human health, the U.S. Government does not have any food safety regulations concerning wheat infected with Karnal bunt. However, the compensation payments for the Karnal bunt quarantine regulatory program have totaled about $35 million from 1996 through 2001.

Even though scientific evidence is that Karnal bunt posses no health risk, many U.S. wheat export markets require that wheat from the United States be from areas where Karnal bunt is not known to occur. Such countries would likely resist importing U.S. wheat if the certification procedures were terminated.

The assumed impact of terminating Karnal bunt certification is entirely through reduced exports. Using an ERS model of U.S. agriculture, an export scenario was evaluated. Domestic prices dropped sharply, which, in turn, reduced the area planted to wheat. Although wheat feeding rose with the lower prices, the increase was not nearly enough to offset the loss of export markets. Wheat prices remained below baseline levels. The reduction in wheat production and the lower prices combined to reduce the total value of the wheat produced in the country, as well as the net income of U.S. agriculture. The effects primarily affected producers in the Central and Southern Plains and in the Southeast.

The cumulative total reduction of national net farm income from 2003 to 2007 is $5.3 billion. The cumulative marketing loan payments associated with all crops increase by $2.0 billion above the baseline over the 2003-07 period.

This article does not consider the cost of testing of wheat for Karnal bunt contamination, or the wheat quality discounts that could emerge in the world marketplace. Other important issues include possible contamination of vessels and handling facilities, regulations for the transhipment of grain through the St. Lawrence Seaway, and possible trade impacts for other grains such as corn and soybeans if the Karnal bunt quarantine system is deregulated.

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How Wheat Production Costs Vary

Mir Ali and Gary Vocke[1]

Abstract: Data for 1998, from the most recent Agricultural Resource Management Study (ARMS) for wheat farms, show that costs of producing wheat per acre and per bushel varied greatly among wheat growers, due primarily to differences in production practices and yields. The growers in the survey produced wheat at an average total cost of $3.97 per bushel (or $166 per acre).

Keywords: wheat, costs of production, cost variation, Agricultural Resource Management Study.

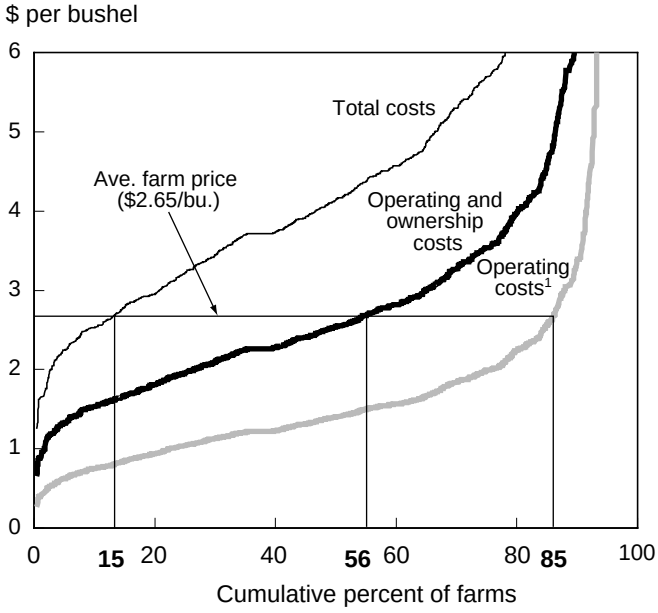
Wheat production costs vary widely across the country because of regional differences in cropping practices, yields, and costs of land, labor, and capital.[2] This variation can be shown by ranking the wheat farms with the lowest to highest costs per bushel to form a cumulative distribution of farms and production in 1998. Data are from the 1998 Agricultural Resource Management Study (ARMS) of the Wheat Production Practices and Costs Report.[3] Such a distribution of operating costs (operating costs include hired labor for this analysis) reveals that 50 percent of farms in the survey incurred operating costs of $1.40 per bushel or less and 75 percent incurred costs of $2.00 per bushel or less (fig. B-1). The cumulative distribution of operating and ownership costs reveals that 50 percent of farms in the survey incurred costs of $2.50 per bushel or less and 75 percent incurred costs of $3.65 per bushel or less. The study showed that 50 percent of farms in the survey incurred total costs of $4.10 per bushel or less, and 75 percent incurred total costs of $6.00 or less (see box for discussion of types of costs).

While planted area has dropped over the past few years, this distribution analysis helps to explain why U.S. farmers have continued to plant wheat despite the low prices of recent years. For example, 85 percent of surveyed wheat farms produced wheat at an operating cost of $2.65 per bushel or less in 1998. The average farm-level wheat price in the 1998/99 marketing year was $2.65. However, only about half of U.S. wheat farmers covered both operating and ownership costs at

Figure B-1

Cumulative distribution of farms at different cost levels, 1998

Price at $2.65 per bushel covered operating costs on more than 80 percent of farms while it covered operating plus ownership costs on just half of the wheat farms.



1/ Operating costs include hired labor.
Source: 1998 USDA Agricultural Resource Management Study.

[1] Agricultural Economists with Resource Economics Division and Market & Trade Economics Division, respectively, ERS.

[2] For more information on characteristics of wheat farms at the regional level see Mir Ali, *Characteristics and Production Costs of U.S. Wheat Farms*. Economic Research Service. *http://www.ers.usda.gov/publications/SB974/*. (Forthcoming)

[3] Twenty wheat-producing States were included in the survey. Respondents to the wheat survey (1,941 farms) represented 183,373 farms or 57.7 million acres of the 59 million acres planted in 1998.

$2.65 per bushel. Farmers cannot continue to grow wheat if they cannot cover ownership costs and thus replace capital stock as it deteriorates. When the opportunity costs of land, farmers' labor, and other farm overhead expenses are included, only 15 percent of farmers produced wheat at or below $2.65 per bushel. The low proportion of farms covering all their costs raises concerns about the long-term sustainability of many wheat producers. Their resources may be able to earn a higher return in other uses.

Although Government program payments are not included in the Economic Research Service (ERS) costs and returns accounts, wheat growers who participated in the program received additional receipts through the marketing assistance loan program, production flexibility contracts, and crop insurance. Also, note that some wheat producers received income from secondary products such as grazing and wheat straw. While these additional revenues varied widely among wheat growers, the revenues offset some production costs.

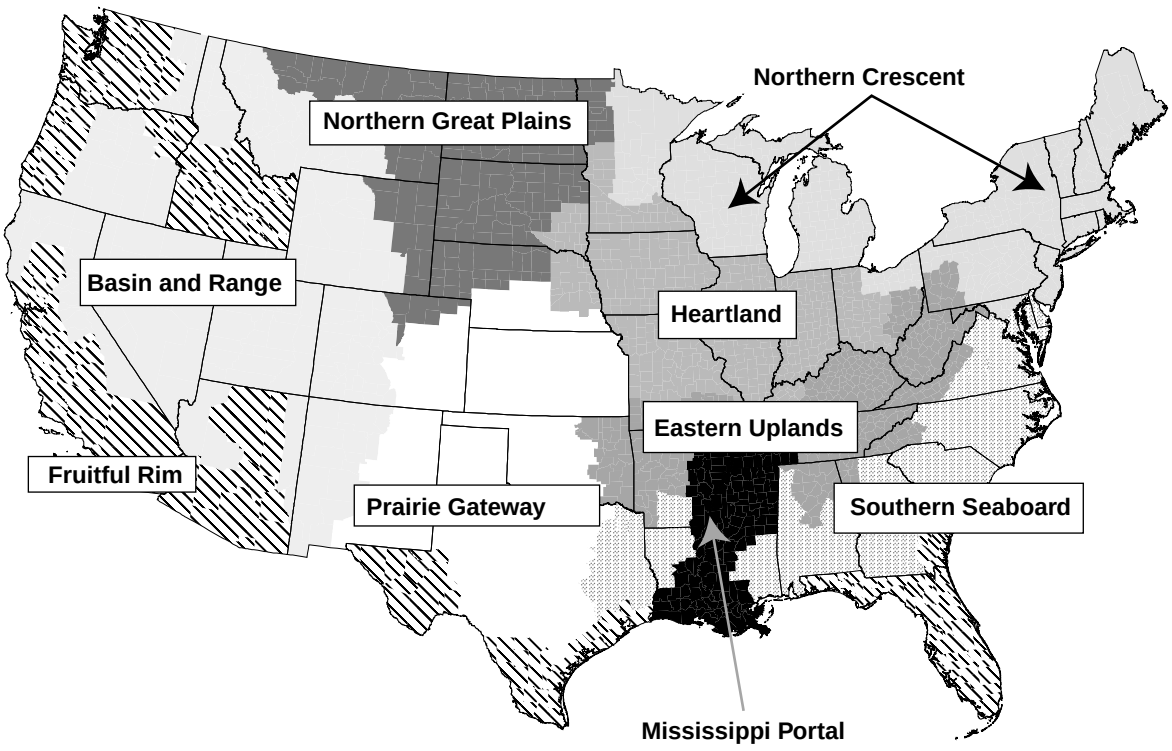
Regional Analysis of Costs And Returns

The national data show that, on average for 1998, aggregate wheat returns were enough to cover aggregate operating costs, but not adequate to cover total costs. Disaggregating the national data to a regional level allows inspection of the variation in costs and returns across the country. For this article, some of the ERS farm resource regions are combined into larger regions (fig. B-2). The Northern Crescent and the Heartland regions are combined into a region called the North Central region, while the Eastern Uplands,

Figure B-2

U.S. farm resources regions

In 1998, the Prairie Gateway had the largest share of ARMS wheat farms.



The Northern Crescent and the Heartland regions were combined into the North Central region while the Eastern Uplands, Southern Seaboard and Mississippi Portal regions were combined into the Southeast.

ERS Costs of Production and Returns Accounts

Economic Research Service (ERS) costs of production accounts include estimates of both cash and non-cash costs (sometimes called economic or opportunity costs). Cash costs are incurred when factors of production are purchased or rented. Non-cash costs occur when factors are owned. For example, a farmer who fully owns the land used to produce a commodity (e.g., wheat) has no cost for land rental or loans to pay for purchasing land. Yet, an economic cost arises. By owning the land and using it to grow wheat, the farmer forgoes income from other uses of the land, such as renting it to another producer. If a farmer uses savings to pay for operating inputs, such as fertilizer, chemicals, and fuel, and thus pays no interest on operating loans, the farmer still incurs an economic cost because the savings could have earned a return in another use. Likewise, the farmer has an opportunity cost of his/her labor used in the production of the commodity because it could have been used on another farm or in off-farm employment. The opportunity cost of farm operators' unpaid labor was imputed by using off-farm wage equations for U.S. farm operators based on production region, size of farm, and farm type. Owned farm inputs are not without costs because they are limited and have alternative uses. Non-cash costs in the ERS accounts are estimated using methods recommended by the American Agricultural Association Task Force on Commodity Costs and Returns in 1998.

Returns above total costs in ERS accounts are consistently negative for several commodities over many years. Reasons for negative returns are:

Impact of government programs. Because government payments are excluded from the accounts, the estimated gross value of production is less than what farmers actually receive for being engaged in the enterprise.

Exclusion of marketing costs and returns. Accounts include only costs associated with crop production and end at the point when the commodity is hauled from the field to storage or directly to market. Production is then valued at the harvest period price. However, farmers often delay sales and store grain with the expectation that the price in later months will exceed the harvest period price plus any costs associated with storing the crop.

Non-cash costs. Accounting methods and measurement procedures used for noncash costs affect costs and return estimates. For example, opportunity costs are used to value capital, land, and unpaid labor. Because of various farm financial arrangements and the unique nature of many farm production inputs, opportunity cost estimates may not exactly represent exactly individual farmers' true opportunity costs.

Southern Seaboard, and Mississippi Portal regions are combined into a region called the Southeast.

The most important wheat-producing regions are the Prairie Gateway and the Northern Great Plains. These two Plains regions accounted for 79 percent of acreage and 70 percent of total U.S. wheat production in 1998. These two regions had the lowest gross returns per acre in the country because they had the lowest yields in that year (table B-1). Per-acre gross returns were higher in the North Central region than the Plains regions because of both higher yields and substantial income from wheat straw. Gross returns per acre were highest in the Basin and Range and the Fruitful Rim regions where irrigation helped produce the highest yields in the country. In the Fruitful Rim, 35 percent of the wheat acres were irrigated on the farms surveyed. In the Basin and Range region, 8 percent of the wheat acres were irrigated.

Per-bushel costs also varied widely across regions. Average operating and ownership costs ranged from a low of $2.28 per bushel in the North Central region to a high of $3.12 in the Southeast. The data reflect the substantial effect of weather on yields in some areas. For example, low yields in the Southeast because of dry weather raised costs per bushel higher than if normal yields had been attained. The average total production cost ranged from a low of $3.63 per bushel in the Prairie Gateway region to a high of $4.54 in the Southeast. For comparison, the average farm price for all wheat was $2.65 for the 1998/99 marketing year. The average prices for the previous 1996/97 and 1997/98 marketing years were $4.30 and $3.38, respectively.

No region showed enough average returns to cover all costs, indicating that the relatively low prices of 1998 were below long-term sustainable levels. The largest

Table B-1--Wheat production costs and returns per planted acre, by region, 1998

Item	Prairie Gateway	Northern Great Plains	Fruitful Rim	Basin and Range	North Central 1/	Southeast 2/	All ARMS farms
				Dollars per planted acre			
Gross value of production	107.15	102.53	173.65	159.23	144.29	121.50	115.07
Wheat grain	104.91	100.79	169.59	158.71	127.25	113.71	111.75
Wheat straw/grazing	2.24	1.74	4.06	0.52	17.04	7.79	3.32
Operating costs 3/							
Seed	5.13	7.64	12.33	10.80	13.26	14.15	7.61
Fertilizer	14.27	14.78	30.97	29.83	37.55	38.40	18.61
Chemicals	3.30	10.61	14.49	16.13	3.70	4.50	7.36
Custom operations	8.07	4.04	13.73	4.36	6.84	12.87	6.77
Fuel, lube, and electricity	7.03	4.25	13.89	6.68	4.32	5.47	6.14
Repairs	8.84	8.10	14.41	13.19	7.08	9.65	9.00
Purchased irrigation water and baling	0.15	0.16	6.04	1.12	0.63	0.21	0.58
Interest on operating capital	1.12	1.19	2.54	1.97	1.76	2.04	1.34
Hired labor	1.77	1.45	6.56	5.02	1.22	4.16	2.12
Ownership costs							
Capital recovery (machinery and equipment)	40.66	41.23	63.31	64.10	38.39	45.40	43.34
Taxes and insurance	3.03	3.76	5.86	7.06	3.33	3.36	3.70
Other costs							
General farm overhead	5.67	6.32	10.12	11.46	7.27	6.06	6.59
Opportunity cost of land	28.18	35.09	76.64	49.50	63.60	38.26	37.52
Opportunity cost of unpaid labor	15.80	10.77	20.52	25.41	16.44	19.56	14.85
Total operating costs	49.68	52.22	114.96	89.10	76.36	91.44	59.53
Total operating and ownership costs	93.37	97.21	184.13	160.26	118.08	140.20	106.57
Total costs	143.02	149.39	291.41	246.63	205.39	204.08	165.53
Returns above							
Operating costs	57.47	102.53	173.65	159.23	144.29	121.50	115.07
Operating and ownership costs	13.78	5.32	-10.48	-1.03	26.21	-18.70	8.50
Total costs	-35.87	-46.86	-117.76	-87.40	-61.10	-82.58	-50.46
				Bushels per planted acre			
Actual yield	39.40	34.70	68.60	65.00	51.80	45.00	41.70
Expected yield	36.70	36.20	69.00	60.90	52.20	50.50	41.10
				Dollars per bushel			
Price at harvest	2.66	2.91	2.47	2.44	2.46	2.53	2.68
Costs per bushel of actual yield							
Operating costs	1.26	1.50	1.68	1.37	1.47	2.03	1.43
Operating and ownership costs	2.37	2.80	2.68	2.47	2.28	3.12	2.56
Total costs	3.63	4.31	4.25	3.79	3.97	4.54	3.97
Costs per bushel of expected yield							
Operating costs	1.35	1.44	1.67	1.46	1.46	1.81	1.45
Operating and ownership costs	2.54	2.69	2.67	2.63	2.26	2.78	2.59
Total costs	3.90	4.13	4.22	4.05	3.93	4.04	4.03

1/ North Central = Northern Crescent and Heartland production regions. 2/ Southeast = Eastern Uplands, Southern Seaboard, and Mississippi Portal production regions. 3/ Operating costs include hired labor.

Source: 1998 USDA Agricultural Resource Management Study.

shortfalls from covering total costs were in the Fruitful Rim and the Basin and Range regions, with losses ranging from $87 to $118 per acre due to irrigation-related expenses. Producers in the two Plains regions had the smallest shortfalls in the country, but these losses were still a very substantial $36 to $47 per acre.

Total operating and ownership costs per acre were lowest in the Prairie Gateway and the Northern Great Plains regions. The per-acre operating and ownership costs are much higher in the Fruitful Rim and the Basin and Range regions because of irrigation-related expenses.

Weather conditions in 1998 affected survey results. On average, U.S. wheat yields in the 1998 survey were slightly higher than growers expected based on past years. That year, the United States had a record all-wheat yield, yet total costs still exceeded total returns for every region.

Even so, some areas were adversely affected by weather in 1998. Wheat producers in the Southeast region, in particular, were hard hit by drought in 1998. This region's actual yields were down 6 bushels per acre from expected yields. The expected yield represents the yield farmers reported in the survey that they expected at the time they planted their crop. Wheat producers in the Basin and Range region, on the other hand, benefited from favorable conditions in 1998. Actual yields in this region were 4 bushels per acre above expected yields.

Comparing Low-Cost and High-Cost Producers

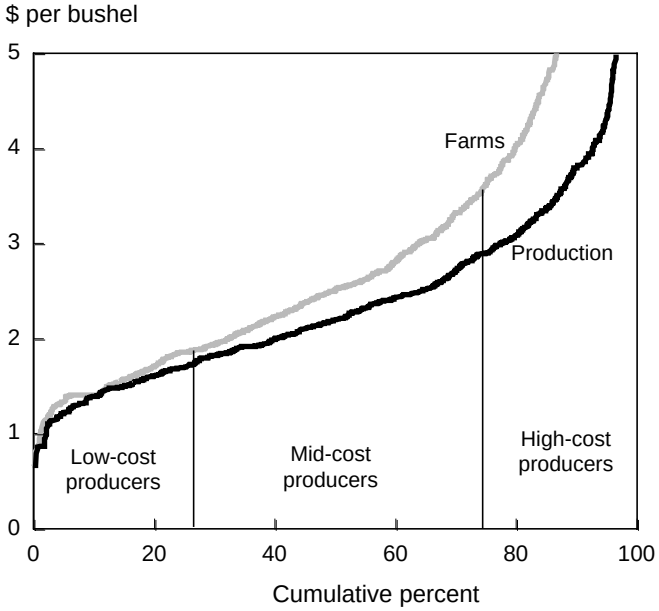
Another view of the cost and return characteristics of the U.S. wheat producers is provided using the cumulative distribution of costs to classify farms into one of three cost categories. The low-cost group is comprised of the 25 percent of farms with the lowest operating and ownership costs, and the high-cost group is comprised of the 25 percent of farms with the highest operating and ownership costs (fig. B-3). Mid-cost farms constitute the remaining 50 percent of the farms.

The low-cost farms had operating and ownership costs of $1.86 or less per bushel and accounted for a third of the total production on the farms surveyed in 1998 (table B-2). Thirty-five percent of Prairie Gateway wheat farms were in the low-cost group, compared with about 10 percent of farms in the Northern Great Plains, Fruitful Rim, and Southeast (fig. B-4). At the other end

Figure B-3

Cumulative distribution of wheat operating and ownership costs per bushel, 1998

High-cost farms produced wheat for $3.62 or more per bushel but accounted for only 12 percent of total U.S. wheat production.

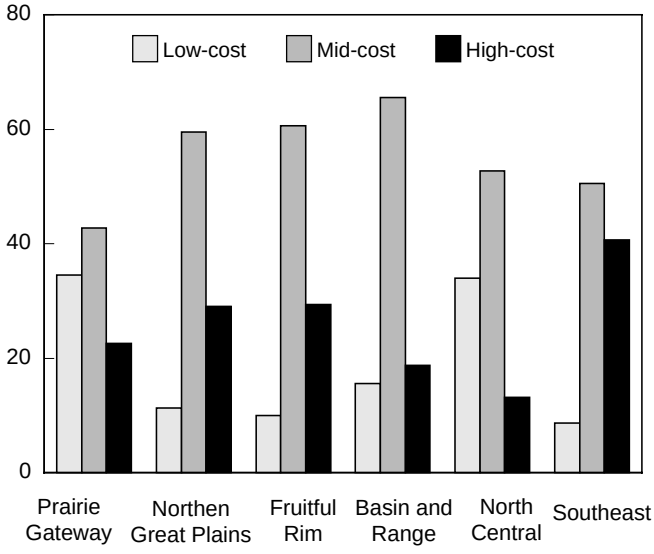


Source: 1998 USDA Agricultural Resource Management Study.

Figure B-4

Distribution of costs groups by region, 1998

Nearly half of the Southeast wheat farms were in the high-cost group.



Source: 1998 USDA Agricultural Resource Management Study.

Table B-2--Wheat production costs and returns, by operating plus ownership cost group, 1998

Item	Low-cost farms 1/	Mid-cost farms 2/	High-cost farms 3/
		Dollars per planted acre	
Gross value of production	147.62	120.39	66.08
Wheat grain	143.83	117.25	62.85
Wheat straw/grazing	3.79	3.14	3.23
Operating costs 4/			
Seed	6.45	8.07	7.77
Fertilizer	15.06	20.12	18.80
Chemicals	3.97	8.36	8.65
Custom operations	6.82	7.34	5.31
Fuel, lube, and electricity	4.23	5.64	9.49
Repairs	6.76	8.85	11.86
Purchased irrigation water and baling	0.23	0.74	0.58
Interest on operating capital	1.04	1.42	1.50
Hired labor	1.22	2.39	2.45
Ownership costs			
Capital recovery (machinery and equipment)	33.16	43.32	54.61
Taxes and insurance	3.41	3.80	3.77
Other costs			
General farm overhead	6.33	6.84	6.27
Opportunity cost of land	35.50	39.52	34.81
Opportunity cost of unpaid labor	11.78	14.33	19.53
Total operating costs	45.78	62.93	66.41
Total operating and ownership costs	82.35	110.05	124.79
Total costs	135.96	170.74	185.40
Returns above			
Operating costs	101.84	57.46	-0.33
Operating and ownership costs	65.27	10.34	-58.71
Total costs	11.66	-50.35	-119.32
		Bushels per planted acre	
Actual yield	54.7	43.5	23.0
Expected yield	43.2	42.0	36.7
		Dollars per planted acre	
Price at harvest	2.63	2.69	2.74
Costs per bushel of actual yield			
Operating costs	0.84	1.45	2.89
Operating and ownership costs	1.51	2.53	5.43
Total costs	2.49	3.93	8.06
Costs per bushel of expected yield			
Operating costs	1.06	1.50	1.81
Operating and ownership costs	1.91	2.62	3.40
Total costs	3.15	4.07	5.05
ARMS share		Percent	
Wheat farms	25	50	25
Wheat acres	24	54	22
Wheat production	32	56	12

1/ Low cost = The 25 percent of producers with the lowest operating and ownership costs.

2/ Mid-cost = The 25 percent of producers in the mid-range of operating and ownership costs.

3/ High-cost = The 25 percent of producers with the highest operating and ownership costs.

4/ Operating costs include hired labor.

Source: 1998 USDA Agricultural Resource Management Study.

of the distribution, the high-cost farms had operating and ownership costs of $3.62 or more per bushel and accounted for 12 percent of U.S. wheat production. Forty percent of the Southeast wheat producers were in the high-cost group, followed by Northern Great Plains and Prairie Gateway farms with about 30 percent.

While the three groups of farms did have significant per-acre cost differences, these differences become much sharper on a per-bushel basis (table B-2). On a per-acre basis, the total costs of the high-cost producers were 36 percent greater than for the low-cost farms. On a per bushel basis the high-cost group's costs were $5.43 per bushel, or nearly four times higher than those of the low-cost group. The 1998 returns were adequate to cover all costs for the low-cost producers, but not for the mid- and high-cost producers. The high-cost producers were barely able to cover their operating costs in 1998.

The differences of cost per bushel between the groups are substantially overstated because unusual weather conditions in 1998 affected yields. Favorable weather raised actual yields above expected yields in some regions and lowered yields in other regions. The actual yield for the group of high-cost producers was 14 bushels below what was expected, while low-cost producers surpassed their expected yields in 1998 by an average of 12 bushels per acre (table B-2). On the basis of expected yields, per-bushel operating and ownership costs were still nearly $1.50 more for high-cost producers than low-cost producers. The data suggest that many of the high-cost producers would be high-cost producers regardless of weather conditions.

Summary

Wheat is grown under a wide range of conditions in the United States, from the humid East to the arid Plains, and even significantly irrigated areas in the Pacific Northwest. Production costs vary widely across this range of climatic/production conditions. With low returns to wheat production, many growers were unable to cover all their production costs. If wheat prices remain low, producers may look for alternative crops that offer higher returns, such as corn, soybeans, and sorghum in areas where they can be grown. Some producers may leave the land fallow, especially in the dry areas. This substitution of competing crops for wheat has been facilitated by legislation passed in the 1990s, allowing crop-planting decisions to be more market oriented.

International Wheat Breeding and Future Wheat Productivity in Developing Countries

Paul W. Heisey[1]

Abstract: International wheat breeding for developing countries has been marked by a predominance of public sector research, multilateral exchange of wheat germplasm, and notable success in the widespread diffusion of modern wheat varieties in the developing world. Since the Green Revolution, wheat yields have grown much faster in developing countries than in developed nations. Between the mid-1960s and 1980, however, net wheat imports by most developing countries increased rapidly. Since 1980 aggregate net imports have stabilized, almost entirely because of higher production levels in three large producers, China, India, and Argentina. Wheat yield growth is slowing in developing countries, partly because varietal replacement is now more important than initial adoption, but perhaps also because of environmental factors. Future challenges for wheat breeding in developing countries include maintaining the level of investment in the international system, adapting to greater use of intellectual property in genetic material, and overcoming environmental constraints to intensified wheat production.

Keywords: wheat, plant breeding, wheat yields, wheat consumption, wheat imports, research investment.

Introduction

Today, developing countries (not including transitional economies of Eastern Europe or the former Soviet Union) produce just under half of the world's wheat, on half of the total harvested area devoted to wheat. Developing countries' share of world wheat consumption is even higher, at slightly under 60 percent, implying that as a whole, the developing countries function as a net wheat importer. Over the last 40 years, production and yields of wheat in developing countries have grown faster than they have in high-income countries. Today, average wheat yields in developing countries are about the same as the world average, above yields in Eastern Europe and the former Soviet Union, but slightly below yields in high-income countries.

Much of the initial growth in developing country wheat production has come as a result of technological change, known loosely as the "Green Revolution." The Green Revolution was based on the introduction and diffusion of high-yielding, short statured wheat varieties that were more responsive to fertilizer. Shorter wheat with greater stalk strength permitted higher rates of fertilizer application without lodging. Irrigated wheat area also increased, particularly in Asia.

The new varieties at the center of the Green Revolution were the product of an international wheat breeding network that included national agricultural research systems (NARS) and the International Maize and Wheat Improvement Center (CIMMYT), which was founded in 1966 and grew out of an earlier Rockefeller Foundation program in Mexico. Since the Green Revolution, this wheat breeding system has continued to develop new wheat varieties. In the post-Green Revolution period, wheat breeders have continued to improve yield potential, stress resistance, and input use efficiency. In other words, wheat varieties released today in developing countries are in general superior to the original Green Revolution varieties (Evans and Fischer 1999). In the first post-Green Revolution period, total factor productivity in wheat production (as measured primarily in India) grew even faster than it did in the immediate Green Revolution era. More recently, however, both total factor produc-

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tivity (TFP) and yield growth have slowed in the most intensely cultivated irrigated wheat areas (Rejesus, Heisey, and Smale, 1999); declining land quality has been observed in some of these areas (Ali and Byerlee 2001); the level of future investments in international wheat improvement has become more uncertain (Heisey, Lantican, and Dubin 2002); and public wheat breeders in both high income and developing countries have expressed concern over the effects of greater intellectual property protection on plant breeding (Kronstad 1996).

This article begins with a history of the international wheat breeding system. The paper outlines the current structure of this system and makes a rough estimate of resources devoted to wheat breeding for developing countries. The paper then summarizes the diffusion of high-yielding, semidwarf wheat varieties in the developing world. The final section assesses recent changes in the system, and briefly discusses some of the challenges it faces.

Throughout the report the world's wheat breeding and production areas will be divided into three major areas. "High-income" or developed countries, whose recent (1996-2000) wheat production ranged from 205-220 million metric tons annually, will include wheat producers such as the United States, Canada, Australia, and the European Union. Countries of the former Soviet Union and Eastern Europe, in which recent annual wheat production was about 90-115 million metric tons, will be designated "transitional economies." "Developing countries" make up the rest of the world, with annual wheat production of about 270-285 million metric tons. These divisions attempt to take into account political and economic realities, which are subject to change, as well as environmental factors that affect wheat production.

The Development of International Wheat Breeding Efforts

Perhaps more than for any other major world crop, modern wheat varieties are based on genetic material from many parts of the world. Germplasm from developing countries has been used to improve the varieties grown in high-income countries, and germplasm from high-income countries and transitional economies has been used to improve varieties planted in developing countries (Smale et al. 1996; Pardey et al. 1996). Although the ancient zones of origin of wheat were in Mesopotamia, wheat spread east and west from these zones very early. Wheat was cultivated in many parts of Eurasia and North Africa by 3000 B.C. and reached China by the second millennium B.C. (Harlan 1987). More recent diffusion of wheat can be described as "colonial" wheat germplasm flows, which began about 1500 A.D. (Smale and McBride 1996).

Modern scientific plant breeding can trace its development to cereal hybridization or planned cross-breeding which began in England in the 1790s and continued there through the work of Sherriff in the mid-19th century. The last decades of the 19th century were marked by greater interest in both cross-breeding and better methods of selection in Europe, North America, and Australia. Wheat improvement began to take the form of crossing locally adapted material with wheat from other areas in an effort to improve production characteristics or quality (Lupton 1987). The rediscovery of Mendel's laws of heredity at the turn of the 20th century led to renewed interest in using genetics to improve crops.

The narrow economics of plant breeding—defined by the costs of achieving a given objective by alternative means—have been marked by a tradeoff between working with the germplasm most suited for the target area and acquiring genetic material from outside to address problems that cannot be solved within the basic gene pool. Using traditional plant breeding methods, the genetically more distinct the source plant population for a desired trait is from the target plant population, the higher the costs of incorporating that trait into the target population. The success of a modern plant breeding program depends, among other things, on access to a large pool of germplasm agronomically suited to the target area, ability to tap new genetic resources as the need arises, and the capacity to recombine large amounts of genetic material and efficiently evaluate the resulting progeny over a wide variety of conditions. The cost of a plant breeding program is reduced to the extent that it can rely on other institutions to store and test genetic resources, and incorporate these resources into agronomically adapted material. These technical factors help to explain the historical path of plant breeding in developing countries.

The advent of scientific plant breeding in areas of the world characterized as "developing" probably began in India in the first decade of the 20th century (Jain and Byerlee 1999). Research stations with the aim of wheat improvement were founded in Turkey in the 1920s and the 1930s, and planned crosses were made in Argentina and Brazil in the 1930s. Although some crossing was done in China as early as the 1920s, it was not until the 1950s that planned crossing began to

replace selection from landraces[2] as the primary means of wheat improvement. Introduction of foreign germplasm into China also became more prominent in the 1950s (Dalrymple 1986; Smale and McBride 1996; Yang and Smale 1996; He and Rajaram 1997).

The evolution of the modern system of wheat improvement in the developing world has often been linked to the Green Revolution. The Green Revolution had its origins in the transfer of semidwarf wheat varieties developed by the Rockefeller Foundation research program in Mexico to India and Pakistan. This initial transfer was followed by the establishment of CIMMYT in Mexico in 1966 as the successor to the Rockefeller Foundation program. Countries that already had wheat improvement programs reorganized and expanded them, and countries without wheat research programs began to develop them. The pace of interchange of wheat germplasm between NARS and CIMMYT and among NARS accelerated. International nursery activity became a major feature of the international wheat breeding effort, and visits of wheat scientists to CIMMYT and other countries also grew rapidly (Dalrymple 1986; Byerlee and Moya 1993; Maredia and Byerlee 1999; Smale and McBride 1996; Skovmand *et al.* 1995; Smale *et al.* 1996). Although China also participated in NARS-CIMMYT interchange, wheat-growing environments in China differ somewhat from those originally targeted by the rest of the international system. The international system originally primarily targeted low latitude spring wheat environments (70 percent of the total wheat area in developing countries, or 85 percent if China is excluded), while over half the Chinese wheat area was winter wheat. Chinese breeders developed many of their modern varieties independently of the international system.

In high-income countries much wheat breeding has also remained within the public sector, especially in Australia, Canada, and the United States. As with developing countries, the public wheat breeding system developed with an emphasis on germplasm exchange among different research institutions (Kronstad 1996). Wheat germplasm flows also continued between high income and developing countries. This is in contrast to corn, where the innovation of hybrid varieties led to technical means of intellectual property protection through inbred line development, encouraged widespread private sector investment in corn breeding, and resulted in fewer direct germplasm exchanges among distinct breeding programs.

In the case of wheat, factors such as plant varietal protection, the role of wheat within the cropping system, and level of wheat yields affected incentives for private companies to invest in wheat breeding. Private sector wheat breeding was practiced in Western Europe from the early 20th century and accelerated since the mid-1960s. Today 70 percent or more of the European Union wheat area is planted to private varieties. In comparison with other high-income wheat producers, European Union wheat production is technically higher yielding, and high subsidies in the European Union encourage more input use and yield-enhancing investment. Intellectual property rights applied to plant breeding have also had a longer history in Europe. Private varieties are less common in the United States, Canada, and Australia, but institutional developments such as research funding through farmer check-offs, or the strengthening of intellectual property rights in plant breeding, continue to influence the organization of wheat breeding in these countries (Heisey, Srinivasan, and Thirtle 2001).

In developing countries, private sector wheat breeding has a long history in the Southern Cone of South America, particularly in Argentina. Outside of the Southern Cone, the only countries where private sector wheat breeding is currently important are South Africa and Zimbabwe. With the partial exception of South Africa, private breeders in developing countries make extensive use of genetic material developed by the international public sector wheat breeding system (Heisey, Lantican, and Dubin 2002). Developing countries that have notable levels of private sector wheat breeding investment are usually characterized by the presence of large-scale commercial farmers in wheat production. The early introduction of intellectual property rights for plants in Argentina also played a role.

The wheat areas of Eastern Europe and the former Soviet Union have played an interesting role within the international wheat breeding system. These areas have been a major source of wheat germplasm for the world. Furthermore, in the 1920s, the Russian scientist N.I. Vavilov was the foremost explorer of plant genetic resources for a variety of crops. But for both historical and technical reasons transfer of genetic material from the currently "transitional economies" to developing countries has been indirect for the most part. For example, the related winter landraces Turkey and Turkey Red, which originated in the Crimea, appear in many pedigrees of spring bread wheat varieties that are grown

[2] Landraces are usually varieties developed in traditional agriculture by many years of farmer selection. They are not the result of planned crosses between two distinct breeding lines.

in developing countries. But the first commercial spring bread wheat variety in the developing world that descended from Turkey was probably five generations removed from Turkey, and resulted from the use of many other genetic sources as well (Smale and McBride 1996).[3] In the early 1970s, CIMMYT began to incorporate winter habit germplasm, much of it from the Soviet Union, into the spring wheat gene pool. The Soviet variety Kavkaz (which descended from the widely used Soviet variety Bezostaya on both sides of the pedigree) was an important ancestor of many of the spring bread wheats grown in developing countries today.[4] As the economies of the countries of the former Soviet Union contracted, plant breeding in those countries has also faced increasingly severe resource constraints. CIMMYT began collaborating with countries of Central Asia and the Caucasus in the mid-1990s and opened a regional office in Kazakhstan in 1998.

To cross winter with spring varieties using traditional breeding methods, as in the examples just cited, requires environments where the winter wheat can be planted at a time that its growth cycle will pass through temperatures cold enough that it will vernalize, enabling it to flower later, but the spring variety can be planted at a time that it will not be subject to winter kill. Flowering of the two varieties must also be synchronized. CIMMYT has locations in the highlands of Mexico where such crossing is possible. Day length considerations also affect the manner in which higher latitude wheat germplasm, of both winter and spring habit, can be incorporated into wheat varieties planted at the lower latitudes more typical of much developing country production.

In summary, the global wheat improvement system consists of both national and international public sector wheat improvement programs and private sector firms. Exchange of genetic material among different wheat research programs has been commonplace, but environmental considerations have influenced the ways in which germplasm with different genetic backgrounds has been combined. Over time and space, public sector programs have provided the majority of wheat varieties grown, although private sector breeding programs have become increasingly important in Europe and, to a more limited extent, in the United States. Public sector wheat breeding continues to provide the vast majority of wheat varieties planted in developing countries.

Wheat Production in Developing Countries and the Structure of Wheat Breeding Programs

Since the breakup of the Soviet Union, the two largest wheat producers in the developing world, China and India, are now the two largest single country producers in the world. Argentina, the fifth largest wheat producer in the developing world in most years from 1996 to 2000 (after China, India, Turkey, and Pakistan), is one of the major world wheat exporters. Wheat area and production in China, India, and Argentina, as well as other world regions, are summarized in the second and third columns of table C-1. After China and India, developing country wheat production is largest in the Middle East (including North Africa),[5] where roughly 50 million metric tons of wheat are produced annually. Turkey is the largest producer in this group of countries. Latin America and Asia, excluding China and India, each produce roughly 20 million metric tons annually, with Argentina being the largest producer in Latin America and Pakistan the largest producer in Asia after China and India. Relatively little wheat is produced in Sub-Saharan Africa.

Because of the importance of growth habit and day length in shaping conventional breeding possibilities, it is important to distinguish growth habit from time of planting in characterizing major wheat growing environments around the world. Spring bread wheat is the dominant type of wheat grown in developing countries, although at the low latitudes characteristic of many of the wheat growing environments in these countries, it is usually planted in the fall to take advantage of cooler growing conditions. Facultative[6] and winter habit

[3] Along some branches of the pedigree, the path that Turkey followed passed through both the U.S. and Japan.

[4] CIMMYT probably obtained Soviet germplasm from the country of Turkey, which in turn had received it from the former Yugoslavia.

[5] Within the international agricultural research system, the Middle East and North Africa are usually referred to as West Asia/North Africa, or WANA.

[6] Facultative wheats are intermediate in growth habit between winter and spring types. They possess fewer of the major genes for vernalization than winter types. They are usually planted in the fall, but in somewhat warmer environments (e.g. parts of the U.S. Pacific Northwest, central and southern Texas) than environments in which winter wheats are grown (e.g. Kansas), although the growing environments may overlap. A good variety with some facultative characteristics such as Jagger is sometimes planted in colder environments, although winterhardiness, which is often linked with the vernalization characteristics, may be an important factor in farmers' planting decisions.

Table C-1--Wheat production and imports in developing countries

Country/region	Average wheat area, 1996-2000	Average wheat production, 1996-2000	Major wheat types (percent wheat area)	Percent wheat area irrigated or high rainfall	Imports as a percent of total consumption, 1996-2000	Imports from U.S., 1999-2000
	(m ha)	(m mt)				(m mt)
China	29.1	111.9	W bread, 56% S bread, 44%	85	1	0.2
India	26.5	68.9	S bread, ≈100%	87	1	--
Other Asia (not including West Asia)	10.2	21.4	S bread, 100%	74	S Asia 18% E, SE Asia 99%	1.1 6.3
Middle East (West Asia/ North Africa)	26.9	47.9	S bread, 44% W bread, 31% S durum, 21%	47	37	6.6
Argentina	6.1	15.0	S bread, ≈100%	48	major exporter	--
Other Latin America/ Caribbean	3.3	8.2	S bread, 79%	94	68	5.8
Sub-Saharan Africa	2.8	4.9	S bread, 65%	60	58	2.4

Note: S=spring habit wheat. W=winter or facultative habit wheat.

Sources: USDA-ERS; Wheat Situation and Outlook Yearbook, March 2001; FAO; International Maize and Wheat Improvement Center (CIMMYT) Wheat Impacts Data Base, 1997.

wheats are very important in China, and winter wheat is also important in the Middle East, particularly in Turkey and Iran. Outside of these regions, facultative or winter wheats are grown in South Africa and parts of southern South America. Because growing areas often overlap, facultative and winter wheats are often grouped together as "winter" wheat, and the rest of this article will follow that convention.[7] Durum wheat is also important in the Middle East. Outside of the Middle East, durum wheat is grown in Ethiopia, parts of Latin America, and to a relatively minor degree in India (fourth column, table C-1).

Much of the wheat grown in China and South Asia is grown under irrigated or high rainfall conditions. In general, outside of China and South Asia less wheat area is irrigated or high rainfall (fifth column, table C-1).[8] Some of the irrigated/high rainfall wheat area is subject to other non-biological stresses such as heat, cold, or acid soil conditions. Much of the world's wheat area, including that situated in developing countries, is subject to biological stresses, particularly wheat rusts, which are fungal diseases.

As noted, both national and international wheat breeding efforts attempt to increase wheat yield potential and overcome both biotic and abiotic stresses. It is very difficult to get accurate estimates of the resources devoted to wheat breeding worldwide. In the 1990s, investment in wheat breeding research across all developing countries was estimated to fall somewhere between $110 and $170 million (1996 U.S. dollars) annually. This figure consists primarily of public sector investment. In addition, wheat breeding expenditures at CIMMYT and elsewhere in the international public research system were estimated from $10 to $15 million (1996 U.S. dollars) each year (Heisey,

[7] Failure to distinguish growth habit from time of planting can lead to considerable confusion. For example, official statistics for China call all wheat planted in the fall "winter" wheat. This provides useful marketing information, but it is less useful from a breeding perspective. In fact, some of China's "winter" wheat area is planted to pure winter varieties, much is planted to facultative habit varieties, and some is planted to spring habit wheat planted in the fall (He and Rajaram 1997).

[8] Much of the "irrigated/high rainfall" wheat area in China and South Asia actually receives some irrigation water. In Latin America, in contrast, most of the "irrigated/high rainfall" wheat area is high rainfall, with the exception of northwest Mexico, where considerable wheat area is irrigated.

Lantican, and Dubin 2002). As a point of comparison, in roughly the same time period, wheat breeding investment in the United States was estimated at about $50 million annually. Investment in the U.K. was around $20 million each year, and in Canada, Australia, and Germany annual wheat breeding expenditures were estimated to fall between $10 and $12 million (Heisey, Srinivasan, and Thirtle 2001).

Although CIMMYT's investment has been a relatively small proportion of the overall wheat breeding effort directed at developing countries, this investment continues to have a large impact, particularly in spring habit wheats and particularly outside of China. The large impact of CIMMYT may be attributed to many factors, but three technical explanations and one institutional reason stand out. The most widely noted explanation is that CIMMYT (including its predecessor, the Rockefeller Foundation program in Mexico) was the first institution to incorporate dwarfing genes into wheat varieties aimed at the developing world. Less widely known technical factors include an early commitment to improved disease resistance, which was deliberate, and the incorporation of day-length insensitivity into much of the CIMMYT germplasm, which was a byproduct of early shuttle breeding between different latitudes in Mexico. The institutional factor was the widespread collaboration between CIMMYT and NARS wheat breeding programs, and the resulting access to trial performance data across an extremely wide number of locations and wheat growing environments.

In the 1990s, over half the spring bread wheat varieties released in developing countries were based on crosses made by CIMMYT, with further selection done by NARS. Nearly 90 percent of spring bread wheat releases contained some CIMMYT germplasm. If anything, CIMMYT's influence in spring durum wheat in developing countries was even larger, with over three-quarters of the crosses made by CIMMYT and nearly all the releases containing some CIMMYT germplasm. In contrast, only 15 percent of the winter bread wheat crosses were made by CIMMYT, and only 40 percent of the releases contained some CIMMYT germplasm. Furthermore, unlike spring habit wheats, in earlier periods very little CIMMYT germplasm was present in winter wheats released in developing countries (Heisey, Lantican, and Dubin 2002). This is because wheat breeding in China, the major winter wheat producer among the developing countries, developed rather independently of the international system, and CIMMYT only began to target the winter wheat areas in the Middle East in 1985.

Diffusion of Semidwarf Wheat in Developing Countries

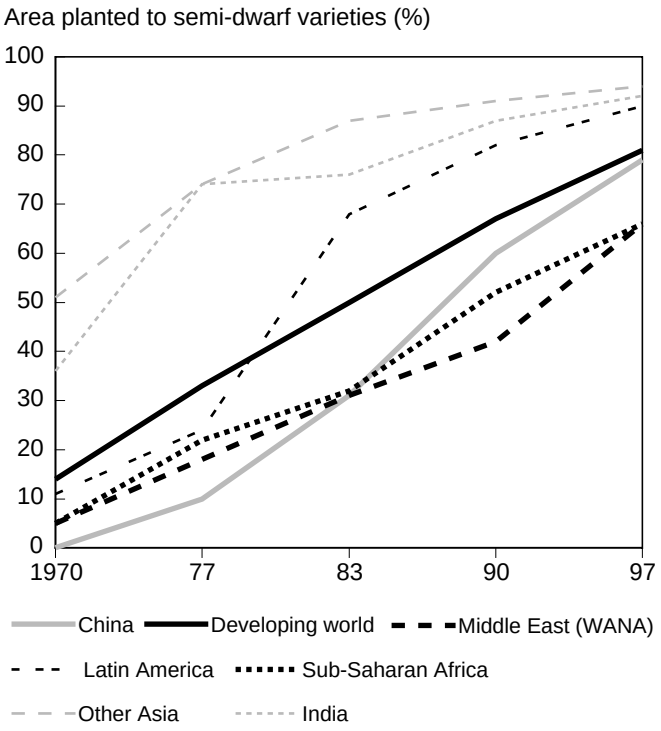
In the developing world, semidwarf Green Revolution varieties diffused fastest and most quickly in South Asia, after their initial use in irrigated wheat production in northwest Mexico.[9] Diffusion in Latin America has also been particularly widespread, and in more recent years shorter stature wheats have covered increasing percentages of wheat area in China. Even in the Middle East and Sub-Saharan Africa, the areas in which diffusion of semidwarf wheats has been slowest, adoption in the late 1990s stood at about two-thirds of total wheat area. In the aggregate, semidwarf wheat varieties are now planted on about 80 percent of the total wheat area in developing countries (fig. C-1). Across the developing world, adoption of modern spring bread wheat varieties, the most commonly grown wheat type, stood at just under 90 percent of spring bread wheat area. Adoption of spring durum wheat high-yielding varieties (HYV) and winter bread wheat HYV was just over 70 percent of the area planted to each of these wheat types.

One of the early criticisms of the Green Revolution was that HYV wheat was thought to require optimum growing conditions in terms of moisture and fertilizer use. In reality, in many instances HYV wheat varieties have performed well in less favorable environments too, compared with earlier varieties grown in these areas, or they have been actively adapted to these less favorable areas. Although adoption of semidwarfs was fastest and highest in more optimum moisture environments, the technology has spilled out into less favorable environments as well. By the late 1990s, adoption of HYV wheat ranged from 80 percent to 100 percent in nearly all irrigated or high rainfall environments for both spring and winter wheat, and between 50 percent and 60 percent in dry spring wheat environments.

[9] Both before and after the Green Revolution, scientific wheat breeding programs in both developed and developing countries continued to release improved tall varieties as well as semidwarfs. Taller improved varieties continue to be widely grown in major wheat-producing regions such as Canada and parts of the United States. Although a few improved tall varieties are still released and grown in a few developing countries, in this latter group of countries the terms "HYV" (high-yielding varieties), "semidwarf" (referring to shorter stature conferred by genes for reduced height) and "improved" (referring to scientifically-bred varieties) have become almost synonymous.

Figure C-1

Percentage wheat area planted to semi-dwarfs in developing countries



Source: Dalrymple 1986; Byerlee and Moya 1993; Heisey, Lantican and Dubin 2002.

HYV wheat was least widely grown (around 30-40 percent) in dry winter wheat environments, in part because these dry winter wheat environments were among the last targeted by the international system (Heisey, Lantican, and Dubin 2001).[10] Lantican, Pingali, and Rajaram (2001) found that in dry and hot spring wheat environments in developing countries about three-quarters of the *improved* wheat area (i.e. area excluding landraces and unknown varieties) was planted to varieties that had one or both parents originating in irrigated environments. This demonstrates that spillover effects from favorable environments have played a major role in the use of HYV wheat in less favorable environments.

In much of the developing world, nearly all the HYV spring wheat varieties released and planted contain considerable genetic material from CIMMYT and the international wheat breeding system. Today, CIMMYT also plays a major role in winter varieties released in the Middle East and Latin America. China is the major exception in the use of CIMMYT-related varieties. Although some CIMMYT germplasm has found its way to China and has been used there, Chinese wheat breeders developed shorter stature wheats more or less independently from the international system. Since the major genes conferring shorter stature appear to have originated in East Asia (Korea or Japan), Chinese breeders independently may have been using the same sources of short stature that also found their way into international wheat breeding from Japan through the United States or Italy (Dalrymple 1986).

India, the other very large developing country wheat producer, has an extensive wheat breeding program with a long history dating to the early 1900s. Many of the post-Green Revolution varieties released by the major wheat breeding programs in India are now several generations removed from original Green Revolution varieties. Much of the crossing has been done by Indian scientists, who have also incorporated some local genetic material. In the late 1990s, large portions of India's wheat area were planted to varieties based on several generations of crosses by these scientists. However, India still makes use of the international system; over the last 5 years the wheat variety that has diffused most rapidly in India is based on a cross made by CIMMYT (Dr. J. Singh, Punjab Agricultural University, personal communication).

One major result of the diffusion of HYV wheat, starting in the early to mid-1960s, has been rapid growth in wheat yields in developing countries. Since the Green Revolution, wheat yields have grown particularly rapidly in China and South Asia. If this yield growth is broken down by periods, however, it is shown that growth has slowed considerably since the mid-1980s (table C-2). The next section looks more closely at this and other phenomena that might provide a few clues about future trends in wheat production in developing countries.

Changes and Challenges in the International Wheat Breeding System

Despite the increases in wheat yields and wheat production in developing countries driven by technological change, production has not kept pace with increases in wheat consumption. Wheat imports have increased rather steadily in most regions of the developing world since the advent of the Green Revolution, with a few notable exceptions (table C-1, sixth column). The exceptions are, as indicated earlier, China, India, and Argentina. China's wheat imports increased

[10] In contrast, scientific plant breeding has developed varieties for the dry, hard red winter wheat environment in the United States over a much longer period of time.

Table C-2--Wheat yield growth in developing countries, 1966-2000

Country/region	Wheat yield growth, 1966-77	Wheat yield growth, 1977-85	Wheat yield growth, 1985-2000	Wheat yield growth, 1966-2000
		Percent/year		
China	4.39	8.36	2.16	4.27
India	4.00	3.85	2.37	3.11
Other Asia (not including West Asia)	4.79	1.87	2.06	2.45
Middle East (West Asia/ North Africa)	2.34	1.67	1.75	2.18
Argentina	3.27	2.69	2.88	2.13 1/
Other Latin America/ Caribbean	-1.70	7.93	1.27	2.28
Sub-Saharan Africa	4.34	0.54	2.26	2.64

1/ Lower total figure for entire period in Argentina is consistent with higher estimates for shorter periods because of the endpoints used.

Source: Calculated from ERS production data with semilog regressions.

in the late 1970s, but fell to relatively modest levels in the late 1990s. Over the past 25 years, India's wheat imports have generally declined. Since the mid-1980s, India has been nearly self-sufficient in wheat. Argentina has always been a wheat exporter, and the trend in its net exports over the past 35 years has generally been upward.

Predicted future wheat consumption and imports by developing countries depend crucially on two sets of assumptions—those that concern production and those that concern consumption. For the most part ERS International Agricultural Baseline Projections (ERS 2002), with a 10-year horizon, make similar predictions to the longer term (to 2020) projections of the International Food Policy Research Institute (IFPRI) (Rosegrant *et al.* 2001). These would include increasing wheat imports by most developing countries, and increasing exports by Argentina. However, these projections differ sharply in the aggregate, largely because of differences in assumptions for China and India. ERS predicts per capita wheat consumption in these countries to remain basically flat from the present onwards, while IFPRI projects modest increases in per capita wheat consumption will continue for most of the next 20 years as income growth and urbanization promote shifts from rice to wheat. ERS projects supply shifts basically on an analysis of trends, while IFPRI explicitly models the effects of investments both in agricultural research as well as in irrigation, rural roads, and education. Both forecasts suggest modest increases in net wheat imports in China, which may be the biggest single uncertain factor in the future of world wheat trade (ERS 2002). ERS expects India to remain a small net exporter, while IFPRI predicts a modest increase in Indian wheat imports over the longer term.

Over the past 10 or 15 years, the rate of growth of wheat yields in developing countries has already decelerated notably. Nonetheless, there is little hard evidence that breeders are making slower progress in increasing wheat yield potential than they have over the entire post-Green Revolution period. Furthermore, breeders have been making gains not only in wheat yield potential, but also in more robust disease resistance. In fact, in favored environments, better disease resistance may be the largest component of current increases in average experimental yields (Sayre *et al.* 1998). There is also evidence that although yield growth has slowed in favored wheat production environments, it has grown faster over certain limited periods in some marginal environments, relative to previous yield increases in these marginal environments. These increases in marginal areas, for example in drier regions of Argentina, or some parts of the Middle East such as Syria and Tunisia, are in large part the result of increased HYV adoption and HYV yield growth. Both the increased adoption and yield growth in marginal environments have resulted primarily from spillovers from research in more favored areas. The evidence for these contentions comes from some analysis of experimental trials, some circumstantial aggregate evidence from farmers' fields, and a few micro-level studies in favorable wheat-growing areas that have been characterized by early HYV adoption and relatively high yields (Byerlee and Moya 1993; Heisey, Lantican, and

Dubin 2002). Because of the difficulties in obtaining aggregate yields based on environments rather than political units, these arguments are not completely conclusive, but they do bear some weight and deserve further scrutiny.

The evidence to date also suggests that the broad international public sector strategy of directing more breeding research efforts on more favored wheat-growing environments, at the same time that some resources are devoted to maximizing spillovers into less-favored environments, has been a successful one. Furthermore, payoffs to investments in disease resistance, for example non-race-specific resistance to leaf rust, are likely to continue to be high. What is less clear is what combination of tactics will be most successful in continuing to advance yield potential in wheat—conventional breeding, hybrid wheat, wide crossing,[11] biotechnology (including functional genomics), and the like. It will also be useful to analyze further the apparent slowdown in wheat yield gains in highly productive environments. This analysis would help to determine possible environmental factors in this slowdown, and to consider what combination of wheat breeding, wheat crop management, and policy will continue to best advance wheat yields, wheat production, and most importantly wheat productivity worldwide. Furthermore, relative prices and changes in consumer tastes and preferences will play an increasing role in determining wheat breeding priorities.

Several major sets of factors related to wheat breeding will be crucial to achieving continued growth in wheat yields and production in developing countries in the future. The first set of factors are development investments, including investment in wheat breeding research, which will be discussed here, as well as complementary investments, which will not be considered in detail. The second set of factors concerns potential environmental constraints to further increases in wheat yields. The third set of factors are institutional, particularly those that affect seed production and distribution, intellectual property, and the flow of germplasm within the international system.

Over the 1990s, there have been notable changes in funding for international wheat improvement research. These changes have been exemplified by a decline in real resources committed to wheat improvement research at CIMMYT since the late 1980s (Heisey, Lantican, and Dubin 2002). CIMMYT wheat improvement research constitutes a relatively small part of the international breeding effort in expenditure terms, but as shown above, its influence is large.

The view has often been expressed that overall real resources devoted to wheat breeding research for developing countries have also declined. At the level of the NARS, there is relatively little hard evidence to support this view. Declines in NARS public-sector investments in wheat breeding research may be easiest to document in Sub-Saharan Africa and possibly parts of Latin America, with anecdotal evidence from other developing countries. It is possible that increases in wheat breeding investment in large producers such as China may have masked declines in investment in smaller producers, but this remains conjecture rather than demonstrable fact. For many countries, even those in which real resources allocated to wheat research have not declined, several additional features may be important. A very high proportion of wheat research investment (80 percent, 90 percent, or higher) in national wheat breeding programs has often gone to salaries, with limited funds remaining for operational budgets crucial to conducting research.[12] Furthermore, it might be possible to increase breeding efficiency with greater reliance on the international system or reallocation of resources within larger countries. In general, many wheat breeding programs targeting relatively small areas within developing countries maintain their own crossing programs, when it would be more cost effective for them either only to test varieties from other programs, or perhaps shut down completely (Maredia and Byerlee 1999).

It is too soon to say how the decline in real breeding resources at CIMMYT will affect the international wheat breeding system. Up through the late 1990s, the pivotal role of CIMMYT in many developing country wheat releases was maintained with some actual increases in the frequency of CIMMYT-related winter releases, a wheat type for which CIMMYT research efforts only really began in the mid-1980s. Since lag times in agricultural research tend to be long, however, it is possible that this decline in real CIMMYT funding may have an adverse effect on the number of wheat varieties that NARS will release from the present onwards.

[11] Wide crossing refers to the incorporation of genetic material from wheat's wild relatives into the wheat breeding germplasm pool.

[12] Anecdotal evidence suggests that large private sector breeding firms in the U.S. may spend about 70 percent of their research budgets on salaries.

What will determine the likely investment in wheat improvement research in China and India, the two largest sources of uncertainty in the level of wheat production in the developing world over the next 20 years or more? On the one hand, these countries stand counter to the trends of stagnant or declining investments in public sector agricultural research, and so simple trend projections would suggest some increases in wheat breeding expenditures. On the other hand, other observers might conclude that having stemmed the tide of rising imports notable in most other developing countries, China and India might not find wheat breeding investment as crucial. One trend is already observable in China, where shifting consumer tastes and preferences have resulted in the development of several different kinds of higher quality wheat varieties. Quality wheat area was estimated to be as high as 3.9 million hectares in 2001/02, but price policies and state grain procurement have not completely adjusted to support incentives for high quality wheat production (Hsu *et al*. 2001). Possibly 30 percent of Chinese wheat breeding resources are currently directed at producing high quality varieties, and this may increase. Management conditions as well as the varieties planted, however, will also influence the quality of harvested wheat (Dr. He Zhong-Hu, CIMMYT regional wheat coordinator, East Asia, personal communication).

Some perspective might come from U.S. experience. Although there have been wide fluctuations in the real price of wheat, the long-run trend for this price has been downwards at least since the end of the Civil War. Technological change has been almost surely a major factor in this trend—first changes in mechanical technology, and, from about 1940, changes in biological technology (new varieties, increasing fertilizer use) that have resulted in a long-run increase in U.S. wheat yields. Long-run levels of investment in wheat research seem to bear little predictable relationship to the long-run declining real price of wheat.

There are a number of reasons why developing countries, including China and India, might continue to invest in wheat improvement research. First, a considerable proportion of current research expenditures in both high-income and developing countries is now devoted to research simply aimed at maintaining yields in the face of evolving pests and diseases (Adusei and Norton 1990; Collins 1995). Second, policymakers and research scientists are concerned about a notable productivity slowdown in the most favorable and most intensively cropped wheat production regions, and the possible environmental factors contributing to this slowdown (Ali and Byerlee 2001). Since it often takes 15 to 20 years from the time a cross is made until the resulting variety reaches its peak area in developing countries (Heisey, Lantican, and Dubin 2002), committing wheat breeding resources now is partially akin to taking out an insurance policy on a highly uncertain future. Demand for wheat will continue to rise in these countries, even if only through population growth, and policymakers usually show marked preferences for meeting a sizeable proportion of domestic demand for such an important commodity through domestic production. Third, once a country's farmers start using the results of scientifically based agricultural research, they are, in a sense, on a "technological treadmill." The relatively modest amounts necessary to fund cost-reducing wheat improvement research can be complementary, not competitive, with more market-oriented price policies at a national level.

Potential effects of environmental factors are also illustrated by the two crucial large wheat producers, China and India, as well as other countries in Asia. Some observers feel that wheat breeding investments alone may not be sufficient to overcome land degradation or competition with nonagricultural sectors for crucial resources such as water (Rosegrant *et al.* 2001). Ali and Byerlee (2001) provide a fairly comprehensive study, in this case for Pakistan, of the effects of declining land quality on agricultural production in wheat based systems, and suggest that greater attention will need to be given to crop and water management in addition to varietal development in research for these systems.

One institutional issue affecting future impacts of wheat breeding research has been evident for some time. In areas where HYV wheat was adopted relatively early, older varieties are continuously replaced by newer ones. However, lengthy adoption lags often continue to reduce research impacts below what they would be were new varieties to reach farmers faster. These adoption lags are related to the performance of wheat seed systems, and to the performance of institutions such as agricultural extension.

More recently, increased intellectual property rights (IPR) protection for plants has influenced plant breeding in both developed and developing countries. There is fairly widespread acceptance that some level of IPR protection for plant varieties is desirable, but there is considerable disagreement over how strong this protection should be in the future. For example, should research and farmer exemptions to plant IPR be limited, as they have been increasingly in many high

income nations? In theory, IPR encourage innovation (in this case the development of new wheat varieties) at some cost in temporary monopoly granted to the innovator (in this case the wheat breeding institution). But some observers have also noted a second potential cost of increased IPR for products in which innovation is cumulative, which is certainly the case in wheat breeding. If initial IPR for plant varieties are too strong, progress in plant breeding may be slowed if other researchers are not allowed to use these varieties in their breeding programs.

IPR are almost certain to be a crucial factor in the use of biotechnology innovations in wheat, where they have not yet reached commercial varieties. But they are also already influencing so-called conventional wheat breeding as well. Formal materials transfer agreements are becoming commonplace, and there are continuing controversies over issues such as private firms securing IPR for varieties that have been developed from germplasm obtained freely from the international system. Because of the long history of widespread exchange of genetic material among different wheat breeding programs in both developed and developing countries, wheat breeders are sometimes at the forefront of those warning of potentially deleterious effects of increasing IPR protection (Kronstad 1996). Empirical evidence of the effects of IPR protection on innovation in general is mixed, varying widely by industry, (Jaffe 2000), and this is certainly the case for plant breeding. In the United States, for example, Knudson and Hansen (1991) found that private wheat seed producers often were unable to charge a price high enough to cover the costs of their breeding programs at the same time that the price was low enough to make the use of private wheat seed attractive to farmers. Furthermore, Alston and Venner (2000) concluded that the U.S. Plant Varietal Protection Act (PVPA) contributed to increased investment by State agricultural experiment stations in developing new wheat varieties, but that private sector efforts in developing non-hybrid wheat varieties had not increased. In addition, the PVPA did not appear to have contributed to greater technical progress in wheat breeding.

As a result, it is not possible to make strong *a priori* arguments about the likely net impacts of increasing IPR on wheat breeding. Given the importance of widespread germplasm exchange in the international system, however, and the relative unimportance of private wheat breeding for much of the developing world, it seems quite unlikely that in the near future stronger IPR would call forth sufficiently increased private sector wheat breeding investment to replace public sector breeding to any significant degree.

Conclusion

The international wheat breeding system that developed with and after the Green Revolution has had several major impacts. First, adoption of modern wheat varieties continued in the post-Green Revolution period, with new modern varieties replacing older ones in areas of early adoption, and the spread of modern varieties into other wheat growing areas as well. Second, particularly outside of China, the international wheat breeding system as exemplified by CIMMYT and its NARS partners has continued to be an important source of genetic material for post-Green Revolution wheat varieties. Third, diffusion of modern wheat varieties has been a major factor in the rapid growth of wheat yields in many developing countries, and the internal rate of return to investment in international wheat breeding research has been high, estimated at 52 percent for the period 1977-90 (Byerlee and Moya, 1993; Byerlee and Traxler 1995).

However, the future performance of the system remains in question. Already wheat yield increases have slowed in many developing regions, in part because steady increases in post-Green Revolution yields are nonetheless not as spectacular as one-time yield increases resulting from the initial adoption of high-yielding wheat varieties. Other potential explanations for slowing yield growth include declining returns to wheat production and environmental constraints to further intensification of wheat production. Although investments in wheat breeding have apparently remained strong in the very largest developing-country wheat producers, in other NARS and at CIMMYT, real resources devoted to wheat breeding have declined over the past 10 to 15 years. Finally, institutional changes, particularly the strengthening of intellectual property protection for plant varieties, will have large but uncertain effects on the impacts of international wheat breeding research.

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Appendix table 1--Wheat: Marketing year supply, disappearance, area, and price, 1994/95-2001/02

Item	1994/95	1995/96	1996/97	1997/98	1998/99	1999/2000	2000/2001 (Preliminary)	2001/2002 (Projected)
Acreage:								
National base acreage	88.9	88.5	87.9	0.0	0.0	0.0	0.0	0.0
ARP (%)	0.0	0.0	---	---	---	---	---	---
Acreage reduction	0.0	0.0	---	---	---	---	---	---
0,50/92,85	5.2	6.1	0.0	0.0	0.0	0.0	0.0	0.0
Conservation Reserve Program	10.8	10.8	10.6	10.1	9.7	0.0	0.0	0.0
Program participation (%) 1/	87.0	84.8	99.1	0.0	0.0	0.0	0.0	0.0
Planted	70.3	69.0	75.1	70.4	65.8	62.7	62.6	59.6
Harvested	61.8	61.0	62.8	62.8	59.0	53.8	53.1	48.7
Planted by participants	55.5	52.3	---	---	---	---	---	---
Yield	37.6	35.8	36.3	39.5	43.2	42.7	42.0	40.2
Supply:								
June 1 stocks	568	507	376	444	722	946	950	876
Production	2,321	2,183	2,277	2,481	2,547	2,299	2,232	1,958
Imports 2/	92	68	92	95	103	94	90	95
Total supply	2,981	2,757	2,746	3,020	3,373	3,339	3,272	2,929
Disappearance:								
Food	853	883	891	914	909	921	956	945
Seed	89	103	102	92	81	92	80	83
Feed and residual 3/	345	154	308	251	391	288	299	225
Total domestic	1,287	1,140	1,301	1,257	1,381	1,301	1,335	1,253
Exports 2/	1,188	1,241	1,002	1,040	1,046	1,089	1,061	975
Total disappearance	2,475	2,381	2,302	2,298	2,427	2,390	2,396	2,228
Ending stocks:								
31-May	507	376	444	722	946	950	876	701
Farmer-owned reserve	0	0	0	0	0	0	0	0
Special program 4/	0	0	0	0	0	0	0	0
CCC inventory 5/	142	118	93	94	128	104	97	94
Outstanding loans 6/	0	13	72	134	140	62	70	85
Other	365	245	279	494	678	784	709	522
Prices:								
Received by farmers	3.45	4.55	4.30	3.38	2.65	2.48	2.62	2.75-2.85
Loan rate	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58
Target	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00
Value of production	8,007	9,787	9,782	8,287	6,781	5,594	5,782	5,481

1/ Set-aside participation. 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 (4 million tons) in Food Security Reserve. 6/ Projected amount of free-stock carryover under 9-month loan.

Source: Economic Research Service, USDA.

Appendix table 2--Wheat: Area, yield, and production by major States, 1990-2001

State	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 1/	2001 2/
Area harvested (million acres):												
Arkansas	1.4	0.9	0.9	1.0	0.9	1.0	1.2	0.8	0.9	0.9	1.1	1.0
Colorado	2.6	2.3	2.4	2.6	2.6	2.7	2.3	2.8	2.6	2.5	2.4	2.0
Idaho	1.4	1.2	1.4	1.4	1.4	1.3	1.6	1.4	1.3	1.4	1.3	1.2
Illinois	1.9	1.4	1.2	1.6	0.9	1.4	1.1	1.1	1.2	1.0	0.9	0.7
Kansas	11.8	11.0	10.7	11.1	11.4	11.0	8.8	10.9	10.1	9.2	9.4	8.2
Minnesota	2.9	2.2	2.8	2.3	2.5	2.2	2.5	2.4	2.0	2.0	2.0	1.8
Missouri	2.0	1.5	1.4	1.4	1.1	1.2	1.3	1.1	1.3	0.9	1.0	0.8
Montana	5.2	4.5	4.9	5.3	5.4	5.4	6.4	5.8	5.3	5.3	4.9	4.2
Nebraska	2.3	2.1	1.9	2.1	2.1	2.1	2.1	1.9	1.8	1.7	1.7	1.6
N. Dakota	10.9	9.8	11.5	10.9	11.2	11.1	12.5	11.1	9.6	8.7	9.4	9.1
Ohio	1.3	1.1	1.1	1.0	1.2	1.2	1.3	1.1	1.2	1.0	1.1	0.9
Oklahoma	6.2	5.0	5.9	5.4	5.3	5.2	4.9	5.3	5.1	4.3	4.2	3.7
Oregon	1.0	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.9
S. Dakota	3.8	3.1	3.7	3.5	3.4	2.8	3.9	3.4	3.3	3.0	2.9	2.0
Texas	4.2	2.8	3.8	3.7	2.9	2.8	2.9	4.1	3.9	3.4	2.2	3.2
Washington	2.5	2.2	2.4	2.8	2.5	2.6	2.7	2.6	2.6	2.3	2.4	2.4
Yield (bu/acre):												
Arkansas	35.0	22.0	46.0	40.0	46.0	47.0	54.0	48.0	51.0	56.0	54.0	52.0
Colorado	33.6	31.7	30.9	37.5	30.8	38.4	33.3	32.8	39.6	43.8	29.8	33.8
Idaho	72.7	70.4	69.5	79.4	71.1	77.7	76.4	79.6	80.0	77.4	83.4	71.0
Illinois	48.0	32.0	54.0	44.0	56.0	49.0	38.0	61.0	48.0	60.0	57.0	61.0
Kansas	40.0	33.0	34.0	35.0	38.0	26.0	29.0	46.0	49.0	47.0	37.0	40.0
Minnesota	48.4	31.1	49.9	31.0	28.0	32.0	41.9	32.0	40.6	39.8	49.0	43.9
Missouri	38.0	32.0	48.0	38.0	45.0	39.0	39.0	54.0	46.0	48.0	52.0	54.0
Montana	28.1	36.5	30.1	39.2	31.7	36.0	27.5	31.1	32.0	29.0	27.5	22.9
Nebraska	38.0	32.0	30.0	35.0	34.0	41.0	35.0	37.0	46.0	48.0	36.0	37.0
N. Dakota	35.3	31.0	41.1	31.0	31.7	27.0	31.6	24.3	32.0	28.0	33.7	32.2
Ohio	60.0	49.0	53.0	52.0	58.0	61.0	39.0	63.0	64.0	70.0	72.0	67.0
Oklahoma	32.0	27.0	28.5	29.0	27.0	21.0	19.0	32.0	39.0	35.0	34.0	33.0
Oregon	59.5	51.9	51.7	70.2	63.1	66.9	70.7	64.6	65.0	44.3	58.8	38.0
S. Dakota	33.8	30.9	32.0	32.0	28.4	33.0	36.1	28.7	36.7	39.9	39.7	37.6
Texas	31.0	30.0	34.0	32.0	26.0	27.0	26.0	29.0	35.0	36.0	30.0	34.0
Washington	60.5	45.9	49.4	63.6	52.7	59.3	66.5	64.0	61.4	54.2	68.1	55.7
Production (million bushels):												
Arkansas	49.0	20.5	39.1	41.6	40.5	47.0	67.0	39.4	45.9	51.5	59.4	50.4
Colorado	87.0	74.0	74.1	97.0	79.7	105.3	75.5	90.1	103.5	107.2	71.4	69.2
Idaho	99.6	81.7	100.1	110.4	100.3	103.3	119.2	113.8	102.4	104.5	108.5	85.2
Illinois	88.8	44.8	62.1	68.2	50.4	68.1	41.8	66.5	57.6	60.6	52.4	43.9
Kansas	472.0	363.0	363.8	388.5	433.2	286.0	255.2	501.4	494.9	432.4	347.8	328.0
Minnesota	138.6	67.1	139.9	71.2	71.3	71.8	106.6	77.3	80.4	79.2	96.5	79.7
Missouri	76.0	48.0	64.8	53.2	50.4	48.0	48.8	58.3	57.5	44.2	49.4	41.0
Montana	145.9	163.5	149.2	206.3	170.6	195.8	175.0	181.5	168.8	154.3	135.2	96.6
Nebraska	85.5	67.2	55.5	73.5	71.4	86.1	73.5	70.3	82.8	81.6	59.4	59.2
N. Dakota	385.2	303.7	472.9	336.6	356.4	300.3	395.1	269.3	307.7	242.3	317.0	292.4
Ohio	76.2	52.9	59.1	52.5	68.4	73.8	51.9	68.7	74.2	72.1	79.9	60.3
Oklahoma	198.4	135.0	168.2	156.6	143.1	109.2	93.1	169.6	198.9	150.5	142.8	122.1
Oregon	57.6	43.9	47.8	65.0	58.6	60.9	65.1	60.4	57.5	34.7	53.5	33.3
S. Dakota	128.0	96.2	119.6	111.5	95.3	90.7	139.3	98.0	120.9	120.6	114.3	76.8
Texas	130.2	84.0	129.2	118.4	75.4	75.6	75.4	118.9	136.5	122.4	66.0	108.8
Washington	150.1	98.6	119.6	177.6	134.0	153.8	182.7	165.1	157.4	124.1	164.9	132.6

1/ Revised. 2/ Preliminary.

Source: National Agricultural Statistics Service, USDA. Internet address: http://www.nass.usda.gov/ipedb/

Appendix table 3--Wheat: Estimated acreage, yield, and production, 1973-2001

Year	Planted	Harvested	Yield	Production	Planted	Harvested	Yield	Production
	--1,000 acres--		Bushels per acre	1,000 bushels	--1,000 acres--		Bushels per acre	1,000 bushels
	--- All wheat ---				--- Durum wheat ---			
1973	59,254	54,148	31.6	1,710,787	2,952	2,884	27.2	78,455
1974	71,044	65,368	27.3	1,781,918	4,174	4,099	19.8	81,245
1975	74,900	69,499	30.6	2,126,927	4,830	4,680	26.4	123,362
1976	80,395	70,927	30.3	2,148,780	4,748	4,584	29.4	134,914
1977	75,410	66,686	30.7	2,045,527	3,183	3,025	26.4	79,964
1978	65,989	56,495	31.4	1,775,524	4,110	4,024	33.1	133,328
1979	71,424	62,454	34.2	2,134,060	4,042	3,932	27.1	106,654
1980	80,788	71,125	33.5	2,380,934	5,525	4,840	22.4	108,395
1981	88,251	80,642	34.5	2,785,357	5,776	5,655	32.4	183,040
1982	86,232	77,937	35.5	2,764,967	4,290	4,177	34.9	145,863
1983	76,419	61,390	39.4	2,419,824	2,565	2,492	29.3	72,979
1984	79,213	66,928	38.8	2,594,777	3,277	3,219	32.1	103,439
1985	75,535	64,704	37.5	2,424,115	3,207	3,094	36.4	112,510
1986	71,998	60,688	34.4	2,090,570	2,994	2,877	34.0	97,907
1987	65,829	55,945	37.7	2,107,685	3,341	3,279	28.2	92,617
1988	65,529	53,189	34.1	1,812,201	3,336	2,847	15.7	44,831
1989	76,615	62,189	32.7	2,036,618	3,791	3,673	25.1	92,229
1990	77,041	69,103	39.5	2,729,778	3,570	3,507	34.9	122,430
1991	69,881	57,803	34.3	1,980,139	3,253	3,197	32.5	103,957
1992	72,219	62,761	39.3	2,466,798	2,547	2,519	39.7	99,906
1993	72,168	62,712	38.2	2,396,440	2,241	2,100	33.6	70,476
1994	70,349	61,770	37.6	2,320,981	2,823	2,715	35.6	96,747
1995	69,031	60,955	35.8	2,182,708	3,436	3,356	30.5	102,280
1996	75,105	62,819	36.3	2,277,388	3,630	3,556	32.6	116,090
1997	70,412	62,840	39.5	2,481,466	3,310	3,177	27.6	87,783
1998	65,821	59,002	43.2	2,547,321	3,805	3,728	37.0	138,119
1999	62,714	53,823	42.7	2,299,010	4,035	3,569	27.8	99,322
2000 1/	62,629	53,133	42.0	2,232,460	3,937	3,572	30.7	109,805
2001 2/	59,617	48,653	40.2	1,957,643	2,910	2,789	30.0	83,556
	--- Winter wheat ---				--- Other spring wheat ---			
1973	43,501	38,747	33.0	1,278,220	12,801	12,517	28.3	354,112
1974	52,023	46,778	29.4	1,375,526	14,847	14,491	22.4	325,147
1975	55,954	51,376	32.0	1,642,900	14,116	13,443	26.8	360,665
1976	57,822	49,578	31.5	1,564,118	17,825	16,765	26.8	449,748
1977	56,469	48,772	31.6	1,540,419	15,758	14,889	28.6	425,144
1978	47,549	38,491	31.8	1,222,446	14,330	13,980	30.0	419,750
1979	51,787	43,427	36.9	1,601,234	15,595	15,095	28.2	426,172
1980	57,771	51,635	36.8	1,902,011	17,492	14,650	25.3	370,528
1981	65,547	58,476	35.9	2,097,057	16,928	16,511	30.6	505,260
1982	65,516	57,633	36.0	2,073,560	16,426	16,127	33.8	545,544
1983	62,105	47,584	41.8	1,988,304	11,749	11,314	31.7	358,541
1984	63,419	51,513	40.0	2,060,266	12,517	12,196	35.3	431,072
1985	57,712	47,923	38.1	1,826,625	14,616	13,687	35.4	484,980
1986	53,895	43,170	35.2	1,520,433	15,109	14,641	32.3	472,230
1987	48,806	39,332	39.8	1,565,381	13,682	13,334	33.7	449,687
1988	48,800	39,800	39.2	1,561,910	13,393	10,542	19.5	205,460
1989	55,091	41,509	35.0	1,454,642	17,733	17,007	28.8	489,747
1990	56,748	49,721	40.7	2,024,224	16,723	15,875	36.7	583,124
1991	51,024	39,506	34.7	1,371,617	15,604	15,100	33.4	504,565
1992	50,922	42,123	38.2	1,609,284	18,750	18,119	41.8	757,608
1993	51,587	43,811	40.2	1,760,143	18,340	16,801	33.7	565,821
1994	49,197	41,355	40.2	1,661,943	18,329	17,700	31.8	562,291
1995	48,591	40,987	37.7	1,545,303	17,004	16,612	32.2	535,125
1996	51,445	39,574	37.1	1,469,618	20,030	19,689	35.1	691,680
1997	47,985	41,340	44.6	1,845,528	19,117	18,323	29.9	548,155
1998	46,449	40,126	46.9	1,880,733	15,567	15,148	34.9	528,469
1999	43,331	35,486	47.8	1,696,580	15,348	14,768	34.1	503,108
2000 1/	43,393	35,072	44.7	1,566,023	15,299	14,489	38.4	556,632
2001 2/	41,078	31,295	43.5	1,361,479	15,629	14,569	35.2	512,608

1/ Revised. 2/ Preliminary.

Source: National Agricultural Statistics Service, USDA. Internet address: http://www.nass.usda.gov/ipedb/

Appendix table 4--Wheat classes: Production, 1955-2001

Crop year	All wheat	Hard red winter	Hard red spring	Soft red winter	White winter	White spring	Eastern white 1/	Durum
				Million bushels				
1955	937.1	415.4	184.0	174.9	143.2	NA	NA	19.6
1956	1,005.3	446.0	177.7	187.7	155.1	NA	NA	38.8
1957	955.7	429.3	168.6	154.6	163.3	NA	NA	39.9
1958	1,457.5	836.4	232.8	192.2	174.4	NA	NA	21.7
1959	1,117.8	619.4	150.5	156.3	171.4	NA	NA	20.2
1960	1,354.7	794.4	187.9	189.8	127.2	21.0	NA	34.4
1961	1,232.4	753.8	116.5	201.5	119.5	19.7	NA	21.3
1962	1,092.0	535.2	178.7	155.6	132.1	20.1	NA	70.3
1963	1,146.8	543.9	167.9	218.3	151.9	13.4	NA	51.4
1964	1,283.4	634.8	179.8	222.4	163.8	14.4	NA	68.2
1965	1,315.6	673.9	209.1	183.2	160.0	19.5	NA	69.9
1966	1,304.9	677.0	174.8	215.0	165.4	10.1	NA	62.6
1967	1,507.6	703.4	230.0	270.2	220.6	17.0	NA	66.4
1968	1,556.6	801.7	228.9	218.1	197.7	10.6	NA	99.6
1969	1,442.7	788.6	189.7	185.2	157.7	13.1	24.1	108.4
1970	1,351.6	755.1	197.8	174.2	162.4	9.3	20.3	52.8
1971	1,618.6	747.8	366.4	211.9	185.3	15.4	19.2	91.8
1972	1,546.2	761.7	275.9	226.4	198.4	10.9	23.1	72.9
1973	1,710.8	961.2	328.2	161.4	155.7	25.8	21.2	78.5
1974	1,781.9	882.6	293.1	272.7	220.3	32.0	36.6	81.2
1975	2,126.9	1,054.8	327.3	330.9	257.2	33.3	36.5	123.4
1976	2,148.8	977.4	411.9	337.4	249.4	37.8	31.4	134.9
1977	2,045.5	996.4	399.1	349.1	194.9	26.1	29.2	80.0
1978	1,775.5	829.9	379.7	188.9	203.6	40.1	16.5	133.3
1979	2,134.1	1,091.6	368.8	309.6	200.0	57.4	29.3	106.7
1980	2,380.9	1,181.3	311.4	441.8	278.9	59.1	33.0	108.4
1981	2,785.4	1,112.1	463.8	678.0	307.1	41.5	38.1	183.0
1982	2,765.0	1,243.6	492.7	588.9	241.1	52.9	20.9	145.9
1983	2,419.8	1,197.8	322.7	504.2	286.2	35.8	35.0	73.0
1984	2,594.8	1,250.6	408.8	531.4	278.3	22.3	43.2	103.4
1985	2,424.1	1,230.1	460.2	367.4	229.1	24.8	44.2	112.5
1986	2,090.6	1,017.2	451.4	292.0	211.2	20.8	32.4	97.9
1987	2,107.7	1,019.2	430.6	349.5	196.7	19.1	17.6	92.6
1988	1,812.2	881.9	181.2	472.7	207.4	24.3	24.4	44.8
1989	2,036.6	711.0	433.5	548.9	194.7	56.3	32.4	92.2
1990	2,729.8	1,195.6	554.7	547.1	285.0	28.4	NA	122.4
1991	1,980.1	900.8	431.2	325.2	145.6	73.3	NA	104.0
1992	2,466.8	967.2	706.7	426.7	215.4	50.9	NA	99.9
1993	2,396.4	1,065.9	511.8	401.3	292.9	54.0	NA	70.5
1994	2,321.0	971.2	515.3	438.2	252.6	47.0	NA	96.7
1995	2,182.7	825.0	474.8	455.6	264.7	60.3	NA	102.3
1996	2,277.4	759.3	630.7	419.8	290.5	61.0	NA	116.1
1997	2,481.5	1,098.3	491.3	472.0	275.2	56.8	NA	87.8
1998	2,547.4	1,179.5	486.4	442.7	258.6	42.1	NA	138.1
1999	2,299.0	1,050.7	447.9	454.3	191.6	55.2	NA	99.3
2000 2/	2,223.5	846.3	502.3	471.4	248.3	54.3	NA	109.8
2001 3/	1,957.6	766.8	475.7	399.7	195.0	37.0	NA	83.6

NA = Not available.

1/ White wheat grown in Michigan, New York, and Wisconsin; total included in white winter; 1950-68 included in white winter. 2/ Revised. 3/ Preliminary.

Source: National Agricultural Statistics Service, USDA.

Appendix table 5--Wheat classes: Acreage, percentage breakdown by State, 1998-2001 1/

State	Winter									Spring 2/					
	Hard red			Soft red			White			Hard red			White		
	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001
	Percent														
Alabama	--	--	--	100	100	100	--	--	--	--	--	--	---	--	--
Arizona	100	100	100	--			--	--	--	--	--	--	---	--	--
Arkansas	--	--	--	100	100	100	--	--	--	--	--	--	---	--	--
California	95	95	95	--	--	--	5	5	5	--	--	--	--	--	
Colorado	100	100	100	--	--	--	--	--	--	84	84	84	16	16	16
Delaware	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Florida	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Georgia	--			100	100	100	--	--	--	--	--	--	--	--	--
Idaho	16	16	19	--	--	--	84	84	81	43	48	56	57	52	44
Illinois	2	2	2	98	98	98	--	--	--	--	--	--	--	--	--
Indiana	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Iowa	70	70	70	30	30	30	--	--	--	--	--	--	--	--	--
Kansas	99	99	99	1	1	1	--	--	--	--	--	--	--	--	--
Kentucky	4	4	4	96	96	96	--	--	--	--	--	--	--	--	--
Louisiana	2	2	4	98	98	96	--	--	--	--	--	--	--	--	--
Maryland	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Michigan	3	3	2	58	51	56	39	46	42	--	--	--	--	--	--
Minnesota	100	100	100	--	--	--	--	--	--	100	100	100	--	--	--
Mississippi	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Missouri	3	3	3	97	97	97	--	--	--	--	--	--	--	--	--
Montana	99	99	97	--	--	--	1	1	3	99	99	99	1	1	1
Nebraska	100	100	100	--	--	--	--	--	--	--	--	--	--	--	--
Nevada	--	--	--	--	--	--	100	100	100	12	12	12	88	88	88
New Jersey	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
New Mexico	100	100	100	--	--	--	--	--	--	--	--	--	--	--	--
New York	1	1	2	2	2	8	97	97	90 --	--	--	--	--	--	--
North Carolina	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
North Dakota	100	100	100	--	--	--	--	--	--	100	100	100	--	--	--
Ohio	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Oklahoma	99	99	99	1	1	1	--	--	--	--	--	--	--	--	--
Oregon	1	1	2	--	--	--	99	99	98	27	25	23	73	75	77
Pennsylvania	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
South Carolina	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
South Dakota	100	100	100	--	--	--	--	--	--	100	100	100	--	--	--
Tennessee	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Texas	94	94	92	6	6	8	--	--	--	--	--	--	--	--	--
Utah	93	93	83	--	--	--	7	7	17	71	71	71	29	29	29
Virginia	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Washington	8	8	5	--	--	--	92	92	95	26	29	35	74	71	65
West Virginia	--	--	--	100	100	100	--	--	--	--	--	--	--	--	--
Wisconsin	--	--	--	93	93	96	7	7	4	100	100	100	--	7	--
Wyoming	100	100	100	--	--	--	--	--	--	97	97	99	3	3	1

-- = Not applicable.

1/ Acreage percentages are based on a variety acreage survey collected at 5-year intervals from all wheat-producing States, adjusted as other variety survey information becomes available to USDA's Agricultural Statistics Board. The percentages are used for U.S. wheat class production estimates and forecasts. 2/ Excludes durum.

Source: National Agricultural Statistics Service, USDA.

Appendix table 6--Wheat classes: Estimated acreage, yield, and production, 1982-2002 1/

Year	Planted acreage	Harvested acreage	Yield	Production
	---Million acres---		Bu./acre	Million bushels
Hard red winter:				
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	1,017.2
1987	36.3	28.6	35.6	1,019.2
1988	34.4	26.8	32.9	881.9
1989	37.5	26.1	27.2	711.0
1990	38.0	32.6	36.7	1,195.6
1991	35.5	27.4	32.8	900.8
1992	36.2	29.5	32.8	967.2
1993	36.3	30.1	35.4	1,065.9
1994	34.9	28.7	33.8	971.2
1995	33.8	27.7	29.8	825.0
1996	35.4	25.7	29.5	759.3
1997	34.0	28.7	38.3	1,098.3
1998	32.2	27.2	43.3	1,179.5
1999	30.8	24.4	43.1	1,050.7
2000	30.4	23.6	35.9	846.3
2001	29.0	20.9	36.7	766.8
2002	29.3	NA	NA	NA
Hard red spring:				
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	33.1	430.6
1988	13.0	10.1	17.9	181.2
1989	16.5	15.9	27.3	433.5
1990	16.2	15.4	36.1	554.7
1991	14.0	13.5	31.9	431.2
1992	17.8	17.3	40.9	706.7
1993	17.5	16.0	31.9	511.8
1994	17.6	17.0	30.3	515.3
1995	16.1	15.7	30.2	474.8
1996	19.1	18.8	33.6	630.7
1997	18.3	17.5	28.1	491.3
1998	14.8	14.4	33.8	486.4
1999	14.3	13.8	32.5	447.9
2000	14.4	13.6	37.0	502.3
2001	14.8	13.8	34.6	475.7
2002	NA	NA	NA	NA
Durum:				
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	33.8	97.9
1987	3.3	3.3	28.1	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	34.9	122.4
1991	3.3	3.2	32.5	104.0
1992	2.5	2.5	39.7	99.9
1993	2.2	2.1	33.6	70.5
1994	2.8	2.7	35.6	96.7
1995	3.4	3.4	30.5	102.3
1996	3.6	3.6	32.6	116.1
1997	3.3	3.2	27.6	87.8
1998	3.8	3.7	37.0	138.1
1999	4.0	3.6	27.8	99.3
2000	3.9	3.6	30.7	109.8
2001	2.9	2.8	30.0	83.6
2002	NA	NA	NA	NA

See footnotes at end of table.

Continued--

Appendix table 6--Wheat classes: Estimated acreage, yield, and production, 1982-2002--Continued

Year	Planted acreage	Harvested acreage	Yield	Production
	---Million acres---		Bu./acre	Million bushels
Soft red winter:				
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	40.4	367.4
1986	10.1	7.7	37.9	292.0
1987	9.0	7.6	46.0	349.5
1988	10.9	9.6	49.2	472.7
1989	13.4	12.0	45.8	548.9
1990	14.2	12.8	42.9	547.1
1991	11.4	9.5	34.4	325.2
1992	10.5	8.6	49.3	426.7
1993	10.7	9.3	43.1	401.3
1994	9.9	8.5	51.6	438.2
1995	10.6	9.3	49.0	455.6
1996	11.7	9.7	43.4	419.8
1997	9.9	8.7	54.2	472.0
1998	10.2	9.1	48.9	442.7
1999	9.1	8.0	56.6	454.3
2000	9.5	8.1	57.8	471.4
2001	8.6	7.2	55.7	399.7
2002	8.3	NA	NA	NA
White:				
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	61.0	231.6
1989	5.4	4.5	55.8	251.0
1990	5.2	5.0	62.7	313.4
1991	5.8	4.2	52.1	218.9
1992	5.2	4.9	54.3	266.3
1993	5.5	5.2	66.7	346.9
1994	5.1	4.9	61.1	299.6
1995	5.1	4.9	66.6	325.1
1996	5.3	5.1	68.9	351.6
1997	4.9	4.7	70.2	332.1
1998	4.8	4.6	65.3	300.7
1999	4.5	4.2	59.3	246.8
2000	4.4	4.2	71.6	302.7
2001	4.3	4.1	56.9	232.0
2002	3.4 2/	NA	NA	NA

NA = Not available.

1/ Data for 2002 based on winter wheat seedings. 2/ Winter only.

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

Appendix table 7--Wheat: Marketing year supply and disappearance, 1970/71-2001/02 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	Gov't. owned	Privately owned 4/	Total
	Million bushels												
1970/71	982.6	1,351.6	1.4	2,335.7	517.1	62.0	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	83.1	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	91.4	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	0.2	665.4	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	0.1	1,113.1	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	157.5	836.9	1,194.2	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	85.9	783.0	1,375.3	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	290.2	1,096.0	1,587.9	2,683.8	283.0	977.8	1,260.8
1988/89	1,260.8	1,812.2	22.7	3,095.7	725.8	103.0	150.5	979.2	1,414.9	2,394.1	190.5	511.1	701.6
1989/90	701.6	2,036.6	22.5	2,760.7	748.9	104.3	139.1	992.3	1,232.0	2,224.3	116.6	419.9	536.5
1990/91	536.5	2,729.8	36.4	3,302.6	789.8	92.9	482.4	1,365.1	1,069.5	2,434.5	162.7	705.4	868.1
1991/92	868.1	1,980.1	40.7	2,889.0	789.5	97.7	244.5	1,131.6	1,282.3	2,413.9	152.0	323.0	475.0
1992/93	475.0	2,466.8	70.0	3,011.8	834.8	99.1	193.6	1,127.6	1,353.6	2,481.2	150.0	380.7	530.7
1993/94	530.7	2,396.4	108.8	3,035.9	871.7	96.3	271.7	1,239.7	1,227.8	2,467.4	150.3	418.2	568.5
1994/95	568.5	2,321.0	91.9	2,981.4	853.0	89.0	344.5	1,286.6	1,188.3	2,474.8	142.1	364.5	506.6
1995/96	506.6	2,182.7	67.9	2,757.2	882.9	103.5	153.7	1,140.1	1,241.1	2,381.2	118.2	257.8	376.0
1996/97	376.0	2,277.4	92.3	2,745.7	890.7	102.3	307.6	1,300.6	1,001.5	2,302.1	93.0	350.6	443.6
1997/98	443.6	2,481.5	94.9	3,020.0	914.1	92.5	250.5	1,257.1	1,040.4	2,297.5	94.0	628.5	722.5
1998/99	722.5	2,547.3	102.9	3,372.7	909.1	80.5	391.2	1,380.8	1,046.0	2,426.8	128.0	817.9	945.9
1999/00	945.9	2,299.0	94.4	3,339.3	921.0	91.8	288.1	1,301.0	1,088.6	2,389.5	104.0	845.7	949.7
2000/01	949.7	2,232.5	89.8	3,272.0	956.5	79.8	298.9	1,335.2	1,060.6	2,395.9	97.0	779.2	876.2
2001/02 5/	876.2	1,957.6	95.0	2,928.8	945.0	83.0	225.0	1,253.0	975.0	2,228.0	94.0	606.8	700.8

NA = Not available.

1/ Totals might 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.

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

Appendix table 8--Wheat: Quarterly supply and disappearance, 1978/79-2001/02 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	Gov't. owned	Privately owned 4/	Total
	Million bushels												
1978/79:													
Jun-Aug	1,177.8	1,775.5	0.6	2,953.9	145.2	1.0	80.8	227.0	366.8	593.8	49.4	2,310.7	2,360.1
Sep-Nov	2,360.1	---	0.5	2,360.6	151.8	58.0	33.0	242.8	342.2	585.0	50.0	1,725.6	1,775.6
Dec-Feb	1,775.6	---	0.4	1,776.0	145.9	2.0	21.4	169.3	238.0	407.3	50.3	1,318.4	1,368.7
Mar-May	1,368.1	---	0.4	1,369.1	149.5	26.0	22.3	197.8	247.2	445.0	51.1	873.0	924.1
Mkt. year	1,177.8	1,775.5	1.9	2,955.2	592.4	87.0	157.5	836.9	1,194.2	2,031.1	51.1	873.0	924.1
1979/80:													
Jun-Aug	924.1	2,134.1	0.6	3,058.8	150.1	1.0	38.1	189.2	374.6	563.8	49.9	2,445.1	2,495.0
Sep-Nov	2,495.0	---	0.6	2,495.6	159.3	66.0	-8.5	216.8	402.8	619.6	49.9	1,826.1	1,876.0
Dec-Feb	1,876.0	---	0.5	1,876.5	148.4	3.0	31.1	182.5	301.5	484.0	49.5	1,343.0	1,392.5
Mar-May	1,392.5	---	0.4	1,392.9	138.3	31.0	25.2	194.5	296.4	490.9	187.8	714.2	902.0
Mkt. year	924.1	2,134.1	2.1	3,060.3	596.1	101.0	85.9	783.0	1,375.3	2,158.3	187.8	714.2	902.0
1980/81:													
Jun-Aug	902.0	2,380.9	0.8	3,283.7	144.2	2.0	48.1	194.3	375.4	569.7	202.1	2,511.9	2,714.0
Sep-Nov	2,714.0	---	0.6	2,714.6	162.1	76.0	4.9	243.0	379.3	622.3	202.9	1,889.4	2,092.3
Dec-Feb	2,092.3	---	0.6	2,092.9	158.8	4.0	8.1	170.9	399.2	570.1	203.2	1,319.6	1,522.8
Mar-May	1,522.8	---	0.5	1,523.3	145.4	31.0	-2.1	174.3	359.9	534.2	199.7	789.4	989.1
Mkt. year	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													
Jun-Aug	989.1	2,785.4	0.7	3,775.2	149.2	1.0	144.9	295.1	424.1	719.2	195.4	2,860.6	3,056.0
Sep-Nov	3,056.0	---	0.8	3,056.8	161.7	78.0	-7.1	232.6	485.8	718.4	190.6	2,147.8	2,338.4
Dec-Feb	2,338.4	---	0.7	2,339.1	150.1	4.0	-7.6	146.5	415.0	561.5	190.2	1,587.4	1,777.6
Mar-May	1,777.6	---	0.6	1,778.2	141.4	27.0	4.6	173.0	445.8	618.8	190.3	969.1	1,159.4
Mkt. year	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:													
Jun-Aug	1,159.4	2,765.0	1.2	3,925.6	152.9	1.0	131.3	285.2	411.1	696.3	193.3	3,036.0	3,229.3
Sep-Nov	3,229.3	---	3.0	3,232.3	159.5	74.0	18.8	252.3	337.2	589.5	189.7	2,453.1	2,642.8
Dec-Feb	2,642.8	---	2.6	2,645.4	152.4	3.0	24.2	179.6	393.8	573.4	184.6	1,887.4	2,072.0
Mar-May	2,072.0	---	0.8	2,072.8	151.6	19.0	20.5	191.1	366.6	557.7	192.0	1,323.1	1,515.1
Mkt. year	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:													
Jun-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
Sep-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	3,938.7	642.6	100.0	371.1	1,113.7	1,426.3	2,540.0	188.0	1,210.6	1,398.6

See footnotes at end of table.

Continued---

Appendix table 8--Wheat: Quarterly supply and disappearance, 1978/79-2001/02 1/--Continued

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	Gov't. owned	Privately owned 4/	Total
	Million bushels												
1984/85:													
Jun-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
Sep-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	1,421.5	2,577.6	377.6	1,047.6	1,425.2
1985/86:													
Jun-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
Sep-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	16.4	3,865.7	674.4	93.0	284.3	1,051.7	909.0	1,960.7	601.7	1,303.3	1,905.0
1986/87:													
Jun-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
Sep-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	21.2	4,016.8	712.3	84.0	401.1	1,197.4	998.6	2,196.0	830.1	990.8	1,820.9
1987/88:													
Jun-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
Sep-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	12.8	210.4	457.4	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	290.2	1,096.0	1,587.9	2,683.8	283.0	977.8	1,260.8
1988/89:													
Jun-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
Sep-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	173.4	3.0	-44.5	131.9	360.0	491.9	203.2	1,024.5	1,227.7
Mar-May	1,227.7	---	4.2	1,231.9	171.8	32.0	-37.8	166.0	364.2	530.2	190.5	511.1	701.6
Mkt. year	1,260.8	1,812.2	22.7	3,095.7	725.8	103.0	150.5	979.2	1,414.9	2,394.1	190.5	511.1	701.6
1989/90:													
Jun-Aug	701.6	2,036.6	5.9	2,744.1	190.7	1.7	264.9	457.4	368.7	826.1	167.9	1,750.1	1,918.0
Sep-Nov	1,918.0	---	7.1	1,925.2	191.7	70.3	-87.8	174.1	328.6	502.7	154.5	1,268.0	1,422.5
Dec-Feb	1,422.5	---	4.7	1,427.1	184.3	2.7	37.4	224.4	259.6	484.0	136.5	806.6	943.1
Mar-May	943.1	---	4.8	947.9	182.2	29.6	-75.4	136.4	275.1	411.5	116.6	419.9	536.5
Mkt. year	701.6	2,036.6	22.5	2,760.7	748.9	104.3	139.1	992.3	1,232.0	2,224.3	116.6	419.9	536.5

See footnotes at end of table.

Continued---

Appendix table 8--Wheat: Quarterly supply and disappearance, 1978/79-2001/02 1/--Continued

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	Gov't. owned	Privately owned 4/	Total
	Million bushels												
1990/91:													
Jun-Aug	536.5	2,729.8	8.0	3,274.2	194.1	1.7	399.7	595.5	267.7	863.1	104.6	2,306.5	2,411.1
Sep-Nov	2,411.1	---	13.4	2,424.5	210.6	62.9	-38.3	235.2	279.4	514.5	129.9	1,780.0	1,909.9
Dec-Feb	1,909.9	---	7.8	1,917.7	191.0	2.1	101.5	294.6	225.5	520.0	152.5	1,245.2	1,397.7
Mar-May	1,397.7	---	7.2	1,404.9	194.1	26.3	19.5	239.9	296.9	536.8	162.7	705.4	868.1
Mkt. year	536.5	2,729.8	36.4	3,302.6	789.8	92.9	482.4	1,365.1	1,069.5	2,434.5	162.7	705.4	868.1
1991/92:													
Jun-Aug	868.1	1,980.1	7.8	2,856.1	189.4	1.2	359.1	549.6	251.7	801.3	162.8	1,891.9	2,054.7
Sep-Nov	2,054.7	---	7.3	2,062.0	213.0	62.2	-26.9	248.3	365.9	614.2	160.7	1,287.1	1,447.8
Dec-Feb	1,447.8	---	10.7	1,458.5	192.9	2.4	-0.5	194.8	371.7	566.5	156.9	735.1	892.0
Mar-May	892.0	---	14.9	906.9	194.2	31.9	-87.3	138.9	293.0	431.9	152.0	268.6	475.0
Mkt. year	868.1	1,980.1	40.7	2,889.0	789.5	97.7	244.5	1,131.6	1,282.3	2,413.9	152.0	323.0	475.0
1992/93:													
Jun-Aug	475.0	2,466.8	20.1	2,962.0	211.5	1.4	345.9	558.8	282.6	841.4	151.6	1,969.0	2,120.6
Sep-Nov	2,120.6	---	16.4	2,137.0	218.8	63.4	-81.9	200.3	345.0	545.3	151.1	1,440.6	1,591.7
Dec-Feb	1,591.7	---	17.4	1,609.1	197.0	2.6	4.8	204.5	356.3	560.8	150.4	897.9	1,048.3
Mar-May	1,048.3	---	16.1	1,064.4	207.5	31.7	-75.2	164.0	369.7	533.7	150.0	380.7	530.7
Mkt. year	475.0	2,466.8	70.0	3,011.8	834.8	99.1	193.6	1,127.6	1,353.6	2,481.2	150.0	380.7	530.7
1993/94:													
Jun-Aug	530.7	2,396.4	14.6	2,941.7	211.3	1.3	295.8	508.4	300.7	809.1	149.9	1,982.7	2,132.6
Sep-Nov	2,132.6	---	30.1	2,162.7	225.3	60.9	-38.5	247.7	329.2	577.0	150.3	1,435.4	1,585.7
Dec-Feb	1,585.7	---	26.9	1,612.6	211.0	2.3	39.0	252.3	332.3	584.6	150.4	877.6	1,028.0
Mar-May	1,028.0	---	37.2	1,065.2	224.1	31.8	-24.6	231.2	265.5	496.7	150.3	418.2	568.5
Mkt. year	530.7	2,396.4	108.8	3,035.9	871.7	96.3	271.7	1,239.7	1,227.8	2,467.4	150.3	418.2	568.5
1994/95:													
Jun-Aug	568.5	2,321.0	30.7	2,920.2	213.2	1.6	376.3	591.0	259.6	850.7	146.4	1,923.1	2,069.5
Sep-Nov	2,069.5	---	21.4	2,090.9	229.3	61.0	-28.6	261.6	338.2	599.8	142.8	1,348.3	1,491.1
Dec-Feb	1,491.1	---	17.7	1,508.8	201.6	2.2	25.3	229.2	310.4	539.6	142.3	826.8	969.2
Mar-May	969.2	---	22.2	991.3	208.9	24.3	-28.5	204.7	280.1	484.8	142.1	364.5	506.6
Mkt. year	568.5	2,321.0	91.9	2,981.4	853.0	89.0	344.5	1,286.6	1,188.3	2,474.8	142.1	364.5	506.6
1995/96:													
Jun-Aug	506.6	2,182.7	22.7	2,712.0	215.3	8.0	305.1	528.4	302.5	830.9	141.5	1,739.6	1,881.1
Sep-Nov	1,881.1	---	16.3	1,897.4	232.2	64.4	-98.2	198.3	360.8	559.1	141.2	1,197.1	1,338.3
Dec-Feb	1,338.3	---	11.8	1,350.0	215.8	2.9	13.3	232.1	294.5	526.6	137.5	686.0	823.5
Mar-May	823.5	---	17.2	840.7	219.6	28.2	-66.5	181.3	283.4	464.6	118.2	257.8	376.0
Mkt. year	506.6	2,182.7	67.9	2,757.2	882.9	103.5	153.7	1,140.1	1,241.1	2,381.2	118.2	257.8	376.0

See footnotes at end of table.

Continued---

Appendix table 8--Wheat: Quarterly supply and disappearance, 1978/79-2001/02 1/--Continued

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	Gov't. owned	Privately owned 4/	Total
	Million bushels												
1996/97:													
Jun-Aug	376.0	2,277.4	14.9	2,668.3	223.7	8.7	377.5	610.0	334.1	944.1	109.5	1,614.7	1,724.2
Sep-Nov	1,724.2	---	20.7	1,744.9	233.8	59.9	-76.0	217.8	308.3	526.1	96.1	1,122.7	1,218.8
Dec-Feb	1,218.8	---	27.1	1,245.9	212.7	1.8	30.3	244.7	179.3	424.1	95.3	726.5	821.8
Mar-May	821.8	---	29.7	851.6	220.5	31.8	-24.2	228.1	179.8	407.9	93.0	350.6	443.6
Mkt. year	376.0	2,277.4	92.3	2,745.7	890.7	102.3	307.6	1,300.6	1,001.5	2,302.1	93.0	350.6	443.6
1997/98:													
Jun-Aug	443.6	2,481.5	22.7	2,947.8	227.9	3.1	352.2	583.2	288.2	871.4	93.2	1,983.1	2,076.3
Sep-Nov	2,076.3	---	22.8	2,099.1	238.7	58.6	-113.4	183.9	296.0	479.9	93.1	1,526.1	1,619.2
Dec-Feb	1,619.2	---	23.8	1,643.0	219.2	2.1	0.3	221.6	254.9	476.4	93.0	1,073.6	1,166.6
Mar-May	1,166.6	---	25.7	1,192.2	228.3	28.7	11.4	268.4	201.3	469.8	94.2	628.3	722.5
Mkt. year	443.6	2,481.5	94.9	3,020.0	914.1	92.5	250.5	1,257.1	1,040.4	2,297.5	94.2	628.3	722.5
1998/99:													
Jun-Aug	722.5	2,547.3	24.4	3,294.2	225.7	1.0	424.9	651.6	257.3	908.9	99.8	2,285.5	2,385.3
Sep-Nov	2,385.3	---	23.9	2,409.2	240.7	54.9	-73.8	221.8	291.8	513.6	126.6	1,769.1	1,895.7
Dec-Feb	1,895.7	---	27.7	1,923.4	213.4	1.4	7.3	222.1	250.8	472.9	124.2	1,326.2	1,450.4
Mar-May	1,450.4	---	26.9	1,477.3	229.3	23.2	32.8	285.3	246.1	531.4	127.9	818.0	945.9
Mkt. year	722.5	2,547.3	102.9	3,372.7	909.1	80.5	391.2	1,380.8	1,046.0	2,426.8	127.9	818.0	945.9
1999/2000:													
Jun-Aug	945.9	2,299.0	30.5	3,275.5	225.9	6.4	275.1	507.4	323.0	830.4	132.2	2,312.8	2,445.0
Sep-Nov	2,445.0	---	19.4	2,464.4	241.1	54.6	-6.6	289.1	289.7	578.8	115.0	1,770.6	1,885.6
Dec-Feb	1,885.6	---	19.4	1,905.0	219.2	2.3	29.9	251.4	237.1	488.5	108.7	1,307.8	1,416.5
Mar-May	1,416.5	---	25.0	1,441.5	234.8	28.5	-10.2	253.0	238.8	491.8	103.9	845.8	949.7
Mkt. year	945.9	2,299.0	94.4	3,339.3	921.0	91.8	288.1	1,301.0	1,088.6	2,389.5	103.9	845.8	949.7
2000/01													
Jun-Aug	949.7	2,232.5	20.4	3,202.6	238.8	1.1	322.2	562.1	287.8	849.9	108.9	2,243.8	2,352.7
Sep-Nov	2,352.7	---	25.1	2,377.8	253.0	50.1	-24.7	278.4	293.3	571.7	102.9	1,703.2	1,806.1
Dec-Feb	1,806.1	---	21.4	1,827.5	231.0	3.5	7.8	242.3	246.9	489.1	104.4	1,234.0	1,338.4
Mar-May	1,338.4	---	22.9	1,361.3	233.7	25.2	-6.4	252.5	232.6	485.1	96.9	779.3	876.2
Mkt. Year	949.7	2,232.5	89.8	3,272.0	956.5	79.8	298.9	1,335.2	1,060.6	2,395.9	96.9	779.3	876.2
2001/02 5/													
Jun-Aug	876.2	1,957.6	25.7	2,859.5	237.6	3.4	243.4	484.4	219.3	703.7	97.7	2,058.1	2,155.8
Sep-Nov	2,155.8	---	29.0	2,184.9	249.1	50.9	-27.6	272.4	289.1	561.5	96.9	1,526.5	1,623.4
Dec-Feb													
Mar-May													
Mkt. Year	876.2	1,957.6	95.0	2,928.8	945.0	83.0	225.0	1,253.0	975.0	2,228.0	94.0	606.8	700.8

--- = Not applicable.

1/ Totals might 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.

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

Appendix table 9--Wheat: Farm prices, support prices, and ending stocks, 1955/56-2001/02

Crop year	Ending stocks				Price received	Loan rate	Target price	Direct payment
	CCC	FOR 1/	Free	Total 2/				
	---------- Million bushels ----------					---------- $/bushel ----------		
1955/56	922	---	209	1,130	1.98	2.08	---	---
1956/57	808	---	196	1,004	1.97	2.00	---	---
1957/58	813	---	149	962	1.93	2.00	---	---
1958/59	1,084	---	284	1,368	1.75	1.82	---	---
1959/60	1,198	---	186	1,384	1.76	1.81	---	---
1960/61	1,225	---	278	1,502	1.74	1.78	---	---
1961/62	1,074	---	346	1,421	1.83	1.79	---	---
1962/63	1,102	---	168	1,270	2.04	2.00	---	---
1963/64	800	---	194	993	1.85	1.82	---	4/ 0.18
1964/65	635	---	286	921	1.37	1.30	---	5/ 0.70
1965/66	299	---	361	660	1.35	1.25	---	0.75
1966/67	122	---	391	513	1.63	1.25	---	1.32
1967/68	100	---	530	630	1.39	1.25	---	1.36
1968/69	140	---	765	904	1.24	1.25	---	1.38
1969/70	277	---	705	983	1.25	1.25	---	1.52
1970/71	353	---	470	823	1.33	1.25	---	1.57
1971/72	355	---	628	983	1.34	1.25	---	1.63
1972/73	6	---	591	597	1.76	1.25	---	1.34
1973/74	1	---	340	340	3.95	1.25	---	0.68
1974/75	---	---	435	435	4.09	1.37	2.05	---
1975/76	---	---	666	666	3.56	1.37	2.05	---
1976/77	---	---	1,113	1,113	2.73	2.25	2.29	---
1977/78	48	342	788	1,178	2.33	2.25	2.90	0.65
1978/79	51	393	481	924	2.97	2.35	3.40	0.52
1979/80	188	260	454	902	3.80	2.50	3.40	---
1980/81 *	200	360	429	989	3.99	3.00	3/ 3.63	---
1981/82 *	190	562	407	1,159	3.69	3.20	3.81	6/ 0.15
1982/83 *	192	1,061	262	1,515	3.45	3.55	4.05	0.50
1983/84 *	188	611	600	1,399	3.51	3.65	4.30	0.65
1984/85 *	378	7/ 654	393	1,425	3.39	3.30	4.38	1.00
1985/86 *	602	7/ 433	870	1,905	3.08	3.30	4.38	1.08
1986/87 *	830	7/ 463	528	1,821	2.42	2.40	4.38	1.98
1987/88 *	283	467	511	1,261	2.57	2.28	4.38	1.81
1988/89 *	190	287	225	702	3.72	2.21	4.23	0.69
1989/90 *	117	144	275	536	3.72	2.06	4.10	0.32
1990/91 *	163	14	691	868	2.61	1.95	4.00	1.28
1991/92 *	152	50	273	475	3.00	2.04	4.00	8/ 1.35
1992/93 *	150	28	353	531	3.24	2.21	4.00	0.81
1993/94 *	150	6	412	568	3.26	2.45	4.00	1.03
1994/95 *	142	0	365	507	3.45	2.58	4.00	0.61
1995/96 *	118	0	258	376	4.55	2.58	4.00	0.00
1996/97 *	93	0	351	444	4.30	2.58	---	9/ 0.87
1997/98 *	94	0	628	722	3.38	2.58	---	0.63
1998/99 *	128	0	818	946	2.65	2.58	---	0.66 (.33)
1999/00*	104	0	846	950	2.48	2.58	---	0.64 (.64)
2000/01*	97	0	779	876	2.62	2.58	---	0.59 (.62)
2001/02* 10/	94	0	607	701	2.75-2.85	2.58	---	0.59 (.52)

--- = Not applicable. NA = Not available.

* Includes Food Security Reserve. 1/ Farmer-owned reserve. 2/ Totals might not add because of rounding. 3/ Growers who planted in excess of their normal crop acreage were eligible for a target price of $3.08 a bushel. 4/ Price support payment. 5/ Value of domestic marketing certificate, 1964/65-1973/74. 6/ Deficiency payment, 1981/82 to 1995/96. 7/ Includes special producer storage loan program. 8/ Winter wheat option 1.25. 9/ 1996/97 and forward-Production Flexibility Contract payments. Numbers in parenthesis are market loss assistance payments under emergency legislation, 1988-2001. 10/ Projected.

Source: Farm Service Agency and National Agricultural Stastics Service, USDA.

Appendix table 10--Wheat: Status of price support loans on specified dates, 1968/69-2001/02

Crop year	Total stocks	Total CC inventory	Outstanding CCC loans	Farmer-owned reserve 1/	Unencumbered stocks
			Million bushels		
1968/69:					
Jun. 1	630.2	103.6	227.2	0.0	299.4
Oct. 1	1,679.3	101.7	472.7	0.0	1,104.9
Jan. 1	1,341.4	100.4	536.2	0.0	704.8
Apr. 1	1,109.5	98.8	553.7	0.0	457.0
1969/70:					
Jun. 1	904.0	143.3	493.6	0.0	267.1
Oct. 1	1,872.4	166.2	725.9	0.0	980.3
Jan. 1	1,532.8	168.8	705.5	0.0	658.5
Apr. 1	1,197.2	167.6	654.5	0.0	375.1
1970/71:					
Jun. 1	982.6	289.6	620.0	0.0	73.0
Oct. 1	1,788.5	296.9	534.1	0.0	957.5
Jan. 1	1,410.0	282.9	477.0	0.0	650.1
Apr. 1	1,060.4	259.8	403.1	0.0	397.5
1971/72:					
Jun. 1	822.8	358.6	282.8	0.0	181.4
Oct. 1	1,873.8	376.9	425.9	0.0	1,071.0
Jan. 1	1,547.6	369.2	485.9	0.0	692.5
Apr. 1	1,210.7	363.6	457.4	0.0	389.7
1972/73:					
Jun. 1	983.4	366.1	428.3	0.0	189.0
Oct. 1	1,870.9	294.5	367.8	0.0	1,208.6
Jan. 1	1,399.0	267.3	304.9	0.0	826.8
Apr. 1	927.3	222.0	204.8	0.0	500.5
1973/74:					
Jun. 1	597.1	212.6	125.7	0.0	258.8
Oct. 1	1,451.6	139.7	49.4	0.0	1,262.5
Jan. 1	928.3	139.1	32.2	0.0	757.0
Apr. 1	548.1	135.8	1.1	0.0	411.2
1974/75:					
Jun. 1	340.1	133.0	0.4	0.0	206.7
Oct. 1	1,562.1	17.3	24.9	0.0	1,519.9
Jan. 1	1,107.5	15.6	20.7	0.0	1,071.2
Apr. 1	662.1	13.0	14.1	0.0	635.0
1975/76: 2/					
Jun. 1	435.0	0.9	13.6	0.0	420.5
Sept.1	2,100.7	0.3	19.9	0.0	2,080.5
Dec. 1	1,548.3	0.2	31.5	0.0	1,516.6
Mar. 1	1,085.5	0.0	N.A.	0.0	N.A.
1976/77:					
Jun. 1	665.6	0.2	21.4	0.0	644.0
Sept.1	2,385.2	0.0	32.9	0.0	2,352.3
Dec. 1	1,894.2	0.0	151.4	0.0	1,742.8
Mar. 1	1,524.9	0.2	285.5	0.0	1,239.2
1977/78:					
Jun. 1	1,113.2	0.1	378.2	0.0	734.9
Sept.1	2,631.7	7.8	715.4	10.4	1,898.1
Dec. 1	2,139.4	29.0	724.0	44.5	1,341.9
Mar. 1	1,706.6	39.1	590.9	100.2	976.4
1978/79:					
Jun. 1	1,177.8	48.3	266.3	341.7	521.5
Sept.1	2,360.1	49.4	184.0	389.7	1,737.0
Dec. 1	1,775.6	50.0	188.9	407.2	1,129.5
Mar. 1	1,368.1	50.3	170.6	411.2	736.0

See footnote at end of table.

Continued--

Appendix table 10--Wheat: Status of price support loans on specified dates, 1968/69-2001/02--Continued

Crop year	Total stocks	Total CC inventory	Outstanding CCC loans	Farmer-owned reserve 1/	Unencumbered stocks
			Million bushels		
1979/80:					
Jun. 1	924.1	51.1	121.7	403.1	348.2
Sept.1	2,495.0	49.9	94.3	259.8	2,091.0
Dec. 1	1,876.0	49.9	141.4	233.8	1,450.9
Mar. 1	1,392.5	49.5	133.1	240.2	969.7
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	1,918.0	167.9	48.2	211.4	1,490.5
Dec. 1	1,422.5	154.5	80.4	173.6	1,014.0
Mar. 1	943.1	136.5	65.4	153.6	587.6

See footnote at end of table.

Continued--

Appendix table 10--Wheat: Status of price support loans on specified dates, 1968/69-2001/02--Continued

Crop year	Total stocks	Total CC inventory	Outstanding CCC loans	Farmer-owned reserve 1/	Unencumbered stocks
			Million bushels		
1990/91:					
Jun. 1	536.5	116.6	30.0	143.9	246.0
Sept.1	2,411.1	104.6	120.3	118.8	2,067.4
Dec. 1	1,909.9	129.9	260.9	64.6	1,454.5
Mar. 1	1,397.7	152.5	328.6	19.1	897.5
1991/92:					
Jun. 1	868.1	162.7	216.8	13.7	474.9
Sept.1	2,054.7	162.8	149.1	76.1	1,666.7
Dec. 1	1,447.8	160.7	105.3	126.7	1,055.1
Mar. 1	892.0	156.9	47.3	85.2	602.6
1992/93:					
Jun. 1	475.0	152.0	19.8	49.9	253.3
Sept.1	2,120.6	151.6	76.8	37.4	1,854.8
Dec. 1	1,591.7	151.1	181.2	36.0	1,223.4
Mar. 1	1,048.3	150.4	120.4	33.0	744.5
1993/94:					
Jun. 1	530.7	150.0	47.3	28.1	305.3
Sept.1	2,132.6	149.9	103.3	21.5	1,857.9
Dec. 1	1,585.7	150.3	192.5	19.1	1,223.8
Mar. 1	1,028.0	150.4	120.9	11.5	745.2
1994/95:					
Jun. 1	568.5	150.3	67.2	5.6	345.4
Sept.1	2,069.5	146.4	147.8	0.2	1,775.1
Dec. 1	1,491.1	142.8	155.3	0.0	1,193.0
Mar. 1	969.2	142.3	110.7	0.0	716.2
1995/96:					
Jun. 1	506.6	142.1	63.7	0.0	300.8
Sept.1	1,881.1	141.5	56.7	0.0	1,682.9
Dec. 1	1,338.3	141.2	86.4	0.0	1,110.7
Mar. 1	823.5	137.5	42.6	0.0	643.4
1996/97:					
Jun. 1	376.0	118.2	13.0	0.0	244.8
Sept.1	1,724.2	109.5	42.0	0.0	1,572.7
Dec. 1	1,218.8	96.1	131.2	0.0	991.5
Mar. 1	821.8	95.3	130.3	0.0	596.2
1997/98:					
Jun. 1	443.6	93.0	72.2	0.0	278.4
Sept.1	2,076.3	93.2	101.0	0.0	1,882.1
Dec. 1	1,619.2	93.1	169.1	0.0	1,357.0
Mar. 1	1,166.6	93.0	191.3	0.0	882.3
1998/99:					
Jun. 1	722.5	94.2	133.9	0.0	494.4
Sept.1	2,385.3	99.8	236.4	0.0	2,049.1
Dec. 1	1,895.7	126.6	246.1	0.0	1,523.0
Mar. 1	1,450.4	124.2	242.2	0.0	1,084.0
1999/00: 3/					
Jun. 1	945.9	127.9	140.0	0.0	678.0
Sept.1	2,445.0	132.2	101.4	0.0	2,211.4
Dec. 1	1,883.7	115.0	117.4	0.0	1,651.3
Mar. 1	1,416.5	108.7	105.0	0.0	1,202.8
2000/01:					
Jun. 1	949.7	103.9	62.0	0.0	783.8
Sept.1	2,352.7	108.9	117.6	0.0	2,126.2
Dec. 1	1,806.1	102.9	97.4	0.0	1,605.8
Mar. 1	1,338.4	104.4	77.9	0.0	1,156.1
2001/02:					
Jun. 1	876.2	96.9	42.2	0.0	737.1
Sept.1	2,155.8	97.7	109.8	0.0	1,948.3
Dec. 1	1,623.5	96.9	128.6	0.0	1,398.0
Mar. 1	1,210.7	96.5	125.3	0.0	988.9

1/ Includes any quantity in the special producer storage loan program. 2/ The crop year was changed from July 1 to June 1 in 1976. However, the data have been adjusted to a June 1 basis. 3/ Projected. NA = Not available.

Source: Farm Service Agency and National Agricultural Stastics Service, USDA.

Appendix table 11--Wheat classes: Marketing year supply and disappearance, 1978/79-2001/02 1/

Year beginning June 1	Supply			Disappearance			Ending stocks May 31
	Beginning stocks	Production	Total 2/	Domestic use	Exports	Total	
	Million bushels						
1978/79:							
Hard winter	632	830	1,462	429	610	1,039	423
Hard spring	335	380	715	163	232	395	320
Soft red	71	189	260	138	95	233	27
White	73	243	316	63	185	248	68
Durum	67	133	202	44	72	116	86
All classes	1,178	1,775	2,955	837	1,194	2,031	924
1979/80:							
Hard winter	423	1,092	1,515	350	725	1,075	440
Hard spring	320	369	690	188	217	405	285
Soft red	27	309	336	142	154	296	40
White	68	257	325	53	196	249	76
Durum	86	107	194	50	83	133	61
All classes	924	2,134	3,060	783	1,375	2,158	902
1980/81:							
Hard winter	440	1,181	1,621	379	701	1,080	541
Hard spring	285	312	598	153	188	341	257
Soft red	40	442	482	145	299	444	38
White	76	338	414	54	267	321	93
Durum	61	108	171	52	59	111	60
All classes	902	2,381	3,286	783	1,514	2,297	989
1981/82:							
Hard winter	541	1,112	1,653	361	754	1,115	538
Hard spring	257	464	722	171	205	376	346
Soft red	38	678	716	196	460	656	60
White	93	348	441	62	270	332	109
Durum	60	183	245	57	82	139	106
All classes	989	2,785	3,777	847	1,771	2,618	1,159
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	172	183	355	372
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	4,003	1,156	1,421	2,578	1,425
1985/86:							
Hard winter	717	1,230	1,947	545	393	938	1,009
Hard spring	372	460	842	179	165	344	498
Soft red	64	367	431	204	148	352	79
White	173	254	428	80	150	230	198
Durum	100	113	217	42	53	95	121
All classes	1,425	2,424	3,866	1,052	909	1,961	1,905

See footnotes at end of table.

Continued--

Appendix table 11--Wheat classes: Marketing year supply and disappearance, 1978/79-2001/02 1/--Continued

Year beginning June 1	Supply			Disappearance			Ending stocks May 31
	Beginning stocks	Production	Total 2/	Domestic use	Exports	Total	
	Million bushels						
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	524	901	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	53	62	115	83
All classes	1,821	2,108	3,945	1,096	1,588	2,684	1,261
1988/89:							
Hard winter	567	882	1,449	507	639	1,146	302
Hard spring	402	181	590	177	194	371	219
Soft red	75	473	547	193	315	508	39
White	135	232	370	43	247	290	81
Durum	83	45	139	59	20	79	60
All classes	1,261	1,812	3,096	979	1,415	2,394	702
1989/90:							
Hard winter	302	711	1,013	439	359	798	215
Hard spring	219	433	659	224	280	504	155
Soft red	39	549	588	212	345	557	32
White	81	251	335	57	193	250	85
Durum	60	92	165	60	55	115	50
All classes	702	2,037	2,761	992	1,232	2,224	536
1990/91:							
Hard winter	215	1,196	1,411	681	369	1,050	360
Hard spring	155	555	718	238	201	439	279
Soft red	32	544	575	265	230	495	80
White	85	313	408	105	216	321	87
Durum	50	122	191	76	53	129	62
All classes	536	2,730	3,303	1,365	1,069	2,435	868
1991/92:							
Hard winter	360	901	1,261	507	559	1,067	194
Hard spring	279	431	726	215	380	595	131
Soft red	80	325	405	259	105	364	41
White	87	219	311	65	193	258	54
Durum	62	104	186	86	45	131	55
All classes	868	1,980	2,889	1,132	1,282	2,414	475
1992/93:							
Hard winter	194	967	1,162	494	464	958	204
Hard spring	131	707	873	264	438	702	171
Soft red	41	427	468	215	210	425	43
White	54	266	329	70	195	265	64
Durum	55	100	180	85	47	132	49
All classes	475	2,467	3,012	1,128	1,354	2,481	531
1993/94:							
Hard winter	204	1,066	1,273	560	486	1,046	227
Hard spring	171	512	749	282	266	548	201
Soft red	43	401	444	226	173	399	45
White	64	347	420	104	249	353	67
Durum	49	70	150	68	54	122	28
All classes	531	2,396	3,036	1,240	1,228	2,467	568

See footnotes at end of table.

Continued--

Appendix table 11--Wheat classes: Marketing year supply and disappearance, 1978/79-2001/02 1/--Continued

Year beginning June 1	Supply			Disappearance			Ending stocks May 31
	Beginning stocks	Production	Total 2/	Domestic use	Exports	Total	
	Million bushels						
1994/95:							
Hard winter	227	971	1,202	586	422	1,008	194
Hard spring	201	515	767	282	292	574	193
Soft red	45	438	484	235	212	447	37
White	67	300	382	103	222	325	57
Durum	28	97	147	81	40	121	26
All classes	568	2,321	2,981	1,287	1,188	2,475	507
1995/96:							
Hard winter	194	825	1,019	481	384	865	154
Hard spring	193	475	698	262	330	592	106
Soft red	37	456	492	207	250	457	35
White	57	325	401	108	238	346	55
Durum	26	102	147	82	39	121	25
All classes	507	2,183	2,757	1,140	1,241	2,381	376
1996/97:							
Hard winter	154	759	914	485	286	771	143
Hard spring	106	631	790	324	300	624	166
Soft red	35	420	455	270	140	410	45
White	55	352	422	126	237	363	59
Durum	25	116	165	96	38	135	31
All classes	376	2,277	2,746	1,301	1,002	2,302	444
1997/98:							
Hard winter	143	1,098	1,242	573	362	935	307
Hard spring	166	491	714	253	241	494	220
Soft red	45	472	517	257	180	437	80
White	59	332	399	104	205	309	90
Durum	31	88	148	69	53	122	26
All classes	444	2,481	3,020	1,257	1,040	2,298	722
1998/99:							
Hard winter	307	1,179	1,487	595	457	1,052	435
Hard spring	220	486	764	284	247	531	233
Soft red	80	443	523	282	105	387	136
White	90	301	402	117	198	315	87
Durum	26	138	197	103	40	142	55
All classes	722	2,547	3,373	1,381	1,046	2,427	946
1999/2000:							
Hard winter	435	1,051	1,486	543	485	1,028	458
Hard spring	233	448	741	293	230	523	218
Soft red	136	454	590	287	170	457	133
White	87	247	341	90	160	250	91
Durum	55	99	182	88	44	132	50
All classes	946	2,299	3,339	1,301	1,089	2,390	950
2000/2001: 3/							
Hard winter	458	846	1,304	503	390	893	411
Hard spring	218	502	779	343	226	569	210
Soft red	133	471	604	291	179	469	135
White	91	303	399	120	204	324	75
Durum	50	110	185	79	62	140	45
All classes	950	2,232	3,272	1,335	1,061	2,396	876
2001/2002: 3/							
Hard winter	411	767	1,179	488	360	848	331
Hard spring	210	476	740	323	220	543	197
Soft red	135	400	535	261	200	461	74
White	75	232	314	91	150	241	73
Durum	45	84	162	91	45	136	26
All classes	876	1,958	2,929	1,253	975	2,228	701

1/ Data, except production, are approximations. Imports and exports include flour and products in wheat equivalent. 2/ Total supply includes imports. 3/ Projected.

Source: Economic Research Service and National Agricultural Statictics Service, USDA.

Appendix table 12--U.S. wheat exports: Grain, flour, and products, by month, 1980/81-2001/02 1/

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
						1,000 bushels							
						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	1,448,556
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	127,060	141,780	115,916	90,658	1,346,336
1989/90	90,490	137,933	131,176	150,698	89,336	68,664	81,813	78,343	87,647	104,903	84,576	71,572	1,177,152
1990/91	88,235	80,831	92,441	108,812	84,488	76,800	56,444	66,463	91,314	112,809	88,526	81,760	1,028,923
1991/92	59,167	79,319	97,794	94,991	127,116	136,378	112,445	132,413	115,126	103,024	116,850	59,764	1,234,386
1992/93	75,045	96,382	99,290	92,723	132,232	108,235	111,389	111,584	118,607	118,782	126,820	104,540	1,295,629
1993/94	85,874	103,836	100,516	104,723	100,618	112,667	121,900	109,389	87,250	96,872	71,575	82,838	1,178,058
1994/95	73,364	66,314	103,941	117,555	101,450	107,549	104,139	93,735	97,478	98,876	85,251	75,006	1,124,657
1995/96	78,355	88,649	119,797	131,424	117,679	105,535	99,175	96,085	91,876	108,800	90,373	78,303	1,206,051
1996/97	73,715	108,437	145,840	125,910	98,302	75,245	50,979	63,431	59,039	55,936	69,821	47,640	974,296
1997/98	65,654	92,465	123,141	119,029	89,331	79,528	80,906	97,090	68,972	63,914	64,623	68,359	1,013,012
1998/99	67,372	86,605	96,664	90,507	109,168	81,913	96,486	73,026	68,041	61,598	88,479	86,103	1,005,962
1999/2000	87,677	109,832	108,745	89,973	104,092	81,221	87,521	70,633	64,684	68,819	73,816	87,796	1,032,809
2000/01	88,786	86,194	102,848	104,017	81,659	87,182	92,047	60,743	85,797	71,502	83,157	68,908	1,022,840
2001/02	59,190	64,911	89,582	86,941	94,598	99,800	81,369	72,114					
						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	48,210
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	823	2,463	2,520	50,790
1988/89	7,036	6,400	6,002	2,402	7,908	3,368	6,086	4,108	6,040	3,974	6,469	5,205	64,998
1989/90	907	1,897	5,775	8,917	3,579	6,817	3,606	4,943	3,124	4,466	6,132	3,287	53,450
1990/91	1,035	2,207	2,785	1,464	3,303	3,407	4,480	2,698	3,809	6,301	3,719	3,525	38,733
1991/92	5,582	5,362	4,207	3,743	1,179	2,222	3,140	2,549	5,549	4,630	3,771	4,579	46,514
1992/93	3,257	5,284	2,856	2,325	3,840	4,641	3,903	2,325	7,744	5,832	7,499	5,285	54,789
1993/94	4,408	3,793	1,811	3,642	3,840	3,416	3,170	5,838	4,390	6,099	4,198	3,368	47,972
1994/95	2,922	6,824	5,636	3,407	3,105	4,721	4,734	2,805	7,085	7,617	6,945	6,005	61,807
1995/96	2,822	5,018	7,520	2,249	2,080	1,221	3,458	808	2,537	1,230	2,415	1,831	33,189
1996/97	2,006	2,008	1,669	3,133	2,496	2,748	2,240	1,347	1,920	2,521	1,259	2,125	25,472
1997/98	1,803	2,900	1,621	3,101	2,524	1,634	3,118	1,426	2,725	1,309	1,269	963	24,393
1998/99	1,971	1,740	2,027	2,914	3,812	2,354	6,838	2,637	3,006	4,147	3,085	1,960	36,429
1999/2000	5,890	5,120	3,973	6,260	5,047	2,050	6,427	3,513	5,456	2,602	3,194	1,331	50,862
2000/01	3,573	3,854	1,580	3,826	3,553	2,245	2,750	2,236	2,365	2,200	3,868	2,163	34,212
2001/02	1,412	661	1,990	1,005	3,226	2,534	2,479	2,207					

See footnotes at end of table.

Continued--

Appendix table 12--U.S. wheat exports: Grain, flour, and products, by month, 1980/81-2001/02 1/--Continued

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
							1,000 bushels						
							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	557	86	26	110	101	28	3,519
1989/90	31	33	457	74	463	38	46	44	44	50	45	32	1,356
1990/91	50	41	65	464	533	104	61	107	103	95	76	97	1,797
1991/92	86	105	80	84	100	113	121	187	138	128	119	143	1,405
1992/93	144	136	196	140	195	633	475	132	165	141	101	703	3,162
1993/94	110	179	135	130	90	121	111	142	141	157	212	199	1,729
1994/95	229	223	195	130	145	141	147	112	136	137	109	109	1,812
1995/96	113	115	146	186	193	193	174	200	165	160	130	128	1,904
1996/97	133	113	142	149	172	135	119	110	155	168	166	192	1,753
1997/98	207	180	265	221	329	269	240	205	188	336	173	371	2,985
1998/99	218	396	272	344	510	237	274	262	270	271	248	214	3,516
1999/2000	523	574	656	403	373	283	247	325	304	304	240	679	4,910
2000/01	441	271	293	293	278	257	349	297	283	291	267	269	3,589
2001/02	1,036	245	281	286	331	350	267	304					
							Total wheat, flour, and products						
1980/81	101,335	126,902	147,183	142,948	121,017	115,369	135,017	133,529	130,624	136,237	139,432	84,239	1,513,833
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	134,484	102,953	99,725	89,928	147,935	155,951	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	150,520	156,426	150,437	1,587,876
1988/89	129,299	118,322	114,013	130,455	101,735	96,831	106,791	120,040	133,126	145,864	122,486	95,891	1,414,852
1989/90	91,429	139,863	137,408	159,688	93,378	75,519	85,465	83,330	90,814	109,419	90,753	74,891	1,231,958
1990/91	89,320	83,079	95,292	110,740	88,324	80,311	60,985	69,268	95,226	119,205	92,320	85,382	1,069,452
1991/92	64,835	84,786	102,080	98,818	128,396	138,713	115,707	135,149	120,813	107,781	120,740	64,486	1,282,305
1992/93	78,446	101,801	102,342	95,188	136,268	113,509	115,767	114,041	126,517	124,755	134,420	110,527	1,353,580
1993/94	90,393	107,809	102,462	108,494	104,548	116,204	125,181	115,369	91,781	103,128	75,985	86,405	1,227,759
1994/95	76,515	73,361	109,772	121,091	104,699	112,411	109,020	96,652	104,699	106,631	92,305	81,120	1,188,277
1995/96	81,290	93,783	127,463	133,859	119,952	106,948	102,806	97,093	94,578	110,189	92,919	80,262	1,241,143
1996/97	75,854	110,558	147,651	129,192	100,970	78,129	53,338	64,889	61,114	58,625	71,246	49,957	1,001,522
1997/98	67,665	95,545	125,028	122,352	92,184	81,430	84,264	98,722	71,885	65,560	66,065	69,692	1,040,391
1998/99	69,562	88,740	98,963	93,765	113,490	84,505	103,598	75,925	71,317	66,015	91,813	88,277	1,045,970
1999/2000	94,091	115,526	113,373	96,636	109,512	83,553	92,195	74,470	70,444	71,725	77,249	89,806	1,088,582
2000/01	92,800	90,319	104,721	18,136	85,489	89,684	95,146	63,275	88,445	73,992	87,292	71,341	1,060,640
2001/02	61,638	65,817	91,853	88,231	98,154	102,684	84,115	74,625					

1/ Totals might not add because of independent rounding. 2/ Includes meal and groats, and durum. 3/ Includes pasta, rolled wheat, couscous, and bulgur.

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

Appendix table 13--U.S. wheat imports: Grain, flour, and products, by month, 1983/84-2001/02 1/

Crop year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
							1,000 bushels						
1983/84:													
Grain	0	6	17	27	8	1	0	0	5	4	7	2	78
Flour and products	326	67	283	266	274	355	342	403	336	324	408	379	3,762
Total	326	73	300	293	282	356	342	403	341	328	415	382	3,840
1984/85:													
Grain	1,247	721	734	506	449	33	1	1	10	12	15	1,100	4,829
Flour and products	332	413	357	394	391	419	412	346	349	467	358	374	4,611
Total	1,578	1,134	1,091	900	840	451	412	346	360	479	374	1,474	9,440
1985/86:													
Grain	1,564	1,758	513	2,187	716	1,001	1,120	226	66	194	411	1,655	11,412
Flour and products	482	325	426	389	450	323	414	464	403	419	435	347	4,875
Total	2,046	2,083	939	2,576	1,165	1,325	1,533	690	469	612	846	2,002	16,287
1986/87:													
Grain	968	408	1,791	222	1,088	983	1,776	1,327	1,514	1,353	2,403	1,987	15,821
Flour and products	333	428	373	345	430	570	525	445	436	548	554	443	5,430
Total	1,301	836	2,165	567	1,519	1,553	2,300	1,772	1,950	1,900	2,957	2,430	21,250
1987/88:													
Grain	432	218	559	1,087	940	948	943	460	803	1,131	1,060	1,409	9,989
Flour and products	470	529	501	362	581	607	522	539	455	590	460	480	6,097
Total	902	747	1,060	1,449	1,521	1,555	1,465	999	1,259	1,721	1,520	1,889	16,086
1988/89:													
Grain	1,956	2,372	2,698	1,824	2,094	880	520	819	813	679	958	257	15,870
Flour and products	508	463	586	438	492	539	591	492	428	890	702	669	6,798
Total	2,464	2,835	3,284	2,262	2,586	1,419	1,111	1,311	1,241	1,569	1,660	926	22,668
1989/90:													
Grain	655	641	1,830	785	931	2,785	1,194	985	471	412	864	1,029	12,583
Flour and products	1,025	945	772	863	1,071	672	678	591	732	595	689	1,250	9,884
Total	1,680	1,587	2,602	1,648	2,002	3,457	1,873	1,576	1,203	1,008	1,553	2,279	22,467
1990/91:													
Grain	1,105	842	3,013	3,868	3,776	3,265	2,687	835	1,347	1,331	2,404	1,103	25,574
Flour and products	741	1,393	905	935	784	762	1,276	604	1,032	749	890	763	10,832
Total	1,846	2,234	3,918	4,803	4,560	4,026	3,963	1,440	2,379	2,079	3,294	1,866	36,407
1991/92:													
Grain	1,302	1,421	2,573	407	2,747	1,815	3,547	2,077	2,754	2,969	4,026	5,380	31,019
Flour and products	838	817	860	765	836	719	811	827	642	870	900	790	9,675
Total	2,140	2,238	3,433	1,171	3,583	2,534	4,358	2,904	3,396	3,839	4,926	6,170	40,694

See footnotes at end of table.

Continued--

Appendix table 13--U.S. wheat imports: Grain, flour, and products, by month, 1983/84-2001/02 1/--Continued

Crop year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
							1,000 bushels						
1992/93:													
Grain	4,481	4,579	6,871	5,395	4,706	3,377	6,295	3,715	4,727	4,998	4,267	3,448	56,859
Flour and products	953	1,085	2,168	859	1,045	1,051	1,029	902	686	1,079	1,140	1,146	13,142
Total	5,434	5,664	9,040	6,254	5,751	4,428	7,324	4,617	5,413	6,077	5,406	4,594	70,001
1993/94:													
Grain	2,579	2,048	6,205	7,089	9,544	9,530	8,274	6,413	7,784	8,243	10,559	13,020	91,288
Flour and products	1,232	1,227	1,304	1,244	1,432	1,282	1,402	1,442	1,542	1,805	1,655	1,962	17,529
Total	3,810	3,275	7,510	8,333	10,976	10,812	9,676	7,855	9,326	10,048	12,214	14,982	108,817
1994/95:													
Grain	11,009	8,932	5,672	5,253	5,801	5,462	4,327	4,109	3,344	4,487	5,771	6,395	70,562
Flour and products	1,829	1,557	1,724	1,368	1,673	1,868	2,382	1,790	1,699	2,044	1,713	1,740	21,386
Total	12,837	10,489	7,395	6,621	7,473	7,329	6,709	5,899	5,043	6,531	7,484	8,135	91,946
1995/96:													
Grain	6,626	5,895	4,832	4,494	3,478	3,339	3,058	2,333	1,825	3,869	4,312	3,693	47,753
Flour and products	1,810	1,867	1,692	1,405	1,750	1,785	1,700	1,395	1,448	1,546	1,972	1,808	20,180
Total	8,436	7,762	6,524	5,899	5,228	5,124	4,757	3,728	3,273	5,415	6,284	5,501	67,933
1996/97:													
Grain	3,528	2,875	3,392	2,997	5,498	7,160	6,780	5,712	9,533	8,703	6,587	8,963	71,727
Flour and products	1,606	1,708	1,742	1,389	1,833	1,791	1,960	1,570	1,528	1,647	2,023	1,809	20,605
Total	5,134	4,583	5,135	4,386	7,331	8,950	8,740	7,282	11,061	10,350	8,610	10,772	92,333
1997/98:													
Grain	6,623	5,217	5,887	4,333	6,348	6,893	6,638	5,145	6,534	7,171	5,619	6,837	73,245
Flour and products	1,562	1,680	1,746	1,526	1,909	1,768	2,216	1,624	1,610	1,944	2,113	1,859	21,556
Total	8,184	6,897	7,633	5,859	8,257	8,661	8,854	6,769	8,144	9,115	7,732	8,696	94,801
1998/99:													
Grain	5,391	6,090	6,771	4,770	7,585	5,728	6,064	7,704	8,196	6,929	5,630	8,910	79,768
Flour and products	2,168	1,887	2,066	1,746	2,077	2,022	2,090	1,914	1,746	1,852	1,842	1,808	23,220
Total	7,559	7,976	8,837	6,516	9,662	7,750	8,154	9,618	9,942	8,782	7,472	10,718	102,987
1999/2000:													
Grain	7,565	9,401	8,205	5,213	4,193	4,712	4,711	3,276	5,826	6,547	6,623	6,134	72,408
Flour and products	1,936	1,706	1,773	1,581	1,818	1,940	2,068	1,796	1,769	2,108	1,648	1,961	22,103
Total	9,501	11,107	9,977	6,745	6,011	6,652	6,779	5,071	7,595	8,655	8,271	8,095	94,510
2000/01:													
Grain	5,821	5,973	2,881	4,798	7,158	7,306	6,099	4,526	4,979	5,945	5,171	5,653	66,311
Flour and products	1,811	1,846	2,058	1,755	1,973	2,129	2,032	2,037	1,736	2,124	2,009	2,017	23,528
Total	7,631	7,819	4,939	6,553	9,131	9,435	8,132	6,563	6,717	8,070	7,180	7,669	89,839
2001/02:													
Grain	5,540	7,633	6,240	6,290	7,076	9,779	8,282	6,162					
Flour and products	2,048	2,065	2,182	1,565	2,158	2,170	2,015	2,096					
Total	7,588	9,698	8,422	7,856	9,235	11,949	10,297	8,258					

1/ Totals might not add because of rounding.

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

Appendix table 14--Wheat: Inspections for export by class and country of destination, June 1, 2000 - May 31, 2001

Country	Hard red spring	Hard red winter	Soft red winter	Hard white 1/	Soft white 1/	Durum	Total
				1,000 bushels			
Albania	0	0	0	0	0	0	0
Algeria	0	5,598	0	0	0	9,228	14,826
Angola	0	551	0	0	0	0	551
Bangladesh	0	4,411	0	0	4,921	0	9,332
Barbados	1,416	67	138	0	0	0	1,621
Belgium	6,475	0	0	0	0	0	6,475
Belize	259	355	0	0	0	0	614
Bolivia	0	481	195	0	0	0	676
Benin	0	0	0	0	0	0	0
Bosnia-Herc	0	2,701	0	0	0	0	2,701
Botswana	463	202	0	0	0	0	665
Brazil	0	1,949	822	0	0	0	2,771
Cameroon	184	184	0	0	0	0	368
Cape Verde	0	129	0	0	0	0	129
Chile	0	262	1,554	0	1,448	0	3,264
China, People's Republic	3,315	410	0	0	829	0	4,554
China, Taiwan	24,148	9,191	0	0	5,055	105	38,499
Colombia	0	17,383	5,451	0	0	0	22,834
Congo (Braz)	61	1,506	0	0	0	0	1,567
Costa Rica	2,770	567	1,545	0	0	333	5,215
Cyprus	437	0	0	0	0	233	670
Djibouti	0	0	367	0	0	0	367
Dominican Republic	5,592	1,963	765	0	0	801	9,121
Ecuador	3,615	1,042	2,081	285	0	0	7,023
Egypt	1,767	83,339	45,480	0	41,550	0	172,136
El Salvador	4,095	1,360	3,626	0	0	0	9,081
Eritrea	0	367	3,183	0	1,788	0	5,338
Ethiopia	0	8,946	12,239	0	422	0	21,607
Gabon	196	0	0	0	0	0	196
Georgia	0	1,433	0	0	0	0	1,433
Ghana	3,132	0	0	0	0	0	3,132
Grenada	0	0	0	0	0	0	0
Guadeloupe	0	0	0	0	0	0	0
Guatemala	1,109	817	600	0	0	0	2,526
Guyana	818	658	98	0	0	0	1,574
Haiti	1,229	4,056	0	0	0	0	5,285
Honduras	2,906	1,814	2,418	0	0	129	7,267
Iceland	204	0	0	0	0	0	204
Indonesia	4,852	3,133	2,223	0	19,695	0	29,903
Iraq	0	0	0	0	0	0	0
Israel	0	23,591	2,843	0	0	0	26,434
Italy	16,815	0	0	0	0	13,800	30,615
Jamaica	3,321	0	3,380	0	0	0	6,701
Japan	45,275	39,307	110	0	29,062	0	113,754
Jordan	0	14,090	0	0	0	0	14,090

See footnotes at end of table.

Continued--

Appendix table 14--Wheat: Inspections for export by class and country of destination, June 1, 2000 - May 31, 2001--Continued

Country	Hard red spring	Hard red winter	Soft red winter	Hard white 1/	Soft white 1/	Durum	Total
				1,000 bushels			
Korea, North	0	3,306	0	0	1,837	0	5,143
Korea, Republic	14,523	12,897	597	0	22,838	0	50,855
Lebanon	1,365	6,046	210	0	0	0	7,621
Malaysia	2,523	0	0	0	196	0	2,719
Libya	0	1,164	1,884	0	0	1,838	4,886
Malta	1,124	0	0	0	0	0	1,124
Mexico	0	24,017	28,268	0	0	0	52,285
Mongolia	0	1,102	0	0	0	0	1,102
Morocco	0	11,860	6,307	0	0	368	18,535
Mozambique	2,999	2,229	121	0	0	0	5,349
Netherlands	2,734	0	0	0	0	1,651	4,385
Netherlands Antilles	140	177	0	0	0	0	317
New Zealand	0	0	0	0	0	0	0
Nicaragua	1,635	57	342	0	0	0	2,034
Nigeria	1,013	45,001	5,280	0	0	294	51,588
Norway	0	0	0	0	0	0	0
Pakistan	0	129	0	0	5,570	0	5,699
Panama	3,079	81	877	0	0	282	4,319
Peru	162	10,516	3,711	0	0	0	14,389
Philippines	23,244	0	13,516	202	35,261	86	72,309
Poland	0	0	0	0	0	0	0
Portugal	1,899	0	0	0	0	0	1,899
Rep. of South Africa	3,215	1,738	877	0	0	438	6,268
Russia	0	5,236	0	0	0	0	5,236
Saint Vincent	459	0	0	0	0	0	459
Singapore	579	0	0	0	933	0	1,512
Spain	4,225	0	0	0	0	0	4,225
Sri Lanka	0	3,088	13,503	0	1,929	0	18,520
Sudan	1,787	2,433	0	0	0	0	4,220
Suriname	911	0	0	0	0	0	911
Swaziland	0	0	0	0	0	0	0
Sweden	0	0	0	0	0	0	0
Tanzania	0	0	0	0	0	0	0
Thailand	7,959	2,587	0	0	4,379	0	14,925
Trinidad	2,373	1,192	1,738	0	0	0	5,303
Turkey	0	0	1,010	0	0	0	1,010
Uganda	0	581	0	0	0	0	581
United Arab Emirates	0	0	1,058	0	2,054	0	3,112
United Kingdom	3,329	0	0	0	0	0	3,329
Uzbekistan	0	0	0	0	1,403	0	1,403
Venezuela	6,514	5,825	5,370	0	0	683	18,392
Vietnam	448	367	0	0	473	0	1,288
Yemen	0	1,286	845	0	21,369	0	23,500
Zaire	0	0	0	0	0	0	0
Zimbabwe	0	0	0	0	0	0	0
Other	3,617	15,104	1,967	0	-1,403	10,827	30,112
Total	226,310	389,882	176,599	487	201,609	41,096	1,035,983

1/ Prior to May 1, 1990, all hard and soft white wheat varieties were classified as white wheat.

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

Appendix table 15--Wheat farm programs and participation, 1976-2001

Crop year	Target price	Loan rate	Programs			Deficiency/ contract payment rate 1/	Diversion payment rate 2/	MLA payment rate	Partici-pation rate 3/	Program acres idled by			Area planted	Program yield
			Set-aside	Diversion	PIK, 0-50/92-85					Set-aside	Diversion	PIK, 0-50/92		
	$/bushel			Percent		$/bushel			Percent	---1,000 acres---			Mil. acres	Bu/acre
1976	2.29	2.25	---	---	---	---	---	---	---	0.0	0.0	---	80.4	33.1
1977	2.90	2.25	---	---	---	0.65	---	---	---	0.0	0.0	---	75.4	32.0
1978	3.40	2.35	20.0	4/ 20	---	0.52	---	---	63	8,400.0	1,200.0	---	66.0	31.3
1979	3.40	2.50	20.0	4/ 15	---	---	---	---	51	7,300.0	900.0	---	71.4	32.4
1980	5/ 3.63/3.08	3.00	---	---	---	---	---	---	---	0.0	0.0	---	80.8	33.7
1981	3.81	3.20	---	---	---	0.15	---	---	---	0.0	0.0	0.0	88.3	34.6
1982	4.05	3.55	15.0	---		0.50	---	---	48	5,800.0	0.0	0.0	86.2	32.5
1983	4.30	3.65	15.0	5	6/ 10-30	0.65	2.70/95	---	78	8,770.5	3,503.4	17,742.7	76.4	33.3
1984	4.38	3.30	20.0	10	10-20	1.00	2.70/85	---	60	9,326.0	5,655.4	3,625.0	79.2	33.0
1985	4.38	3.30	20.0	10		1.08	2.70	---	73	11,911.8	6,879.3	0.0	75.5	35.0
1986	4.38	2.40	22.5	7/ 2.5	8/ 50-92	1.98	1.10/2.00	---	85	15,799.3	3,939.6	1,275.3	72.0	9/ 35.0
1987	4.38	2.28	27.5	---	8/ 50-92	1.81	---	---	88	20,210.3	0.0	3,721.4	65.8	9/ 35.0
1988	4.23	2.21	27.5	---	10/ 0-92	0.69	---	---	86	19,216.6	0.0	3,246.3	65.5	34.0
1989	4.10	2.06	10.0	---	10/ 0-92	0.32	---	---	78	6,119.7	0.0	3,460.8	76.6	33.8
1990	4.00	1.95	11/ 5.0	---	10/ 0-92	1.28	---	---	83	3,216.2	0.0	5,304.4	77.0	34.1
1991	4.00	2.04	15.0	---	10/ 0-92	12/ 1.25/1.35	---	---	85	10,111.1	0.0	5,813.2	69.9	34.4
1992	4.00	2.21	5.0	---	10/ 0-92	0.81	---	---	83	3,280.5	0.0	4,041.0	72.2	34.4
1993	4.00	2.45	0.0	---	10/ 0-92	1.03	---	---	88	0.0	0.0	5,696.7	72.2	34.4
1994	4.00	2.58	0.0	---	10/ 0-85	0.61	---	---	87	0.0	0.0	5,194.7	70.3	34.4
1995	4.00	2.58	0.0	---	10/ 0-85	0.00	---	---	85	0.0	0.0	6,129.2	69.0	34.4
1996	13/ NA	2.58	13/ NA	13/ NA	13/ NA	0.87	---	---	99	13/ NA	13/ NA	13/ NA	75.1	34.7
1997	13/ NA	2.58	13/ NA	13/ NA	13/ NA	0.63	---	---	14/	13/ NA	13/ NA	13/ NA	70.4	34.7
1998	13/ NA	2.58	13/ NA	13/ NA	13/ NA	0.66	---	0.33	14/	13/ NA	13/ NA	13/ NA	65.8	34.5
1999	13/ NA	2.58	13/ NA	13/ NA	13/ NA	0.64	---	0.64	14/	13/ NA	13/ NA	13/ NA	62.7	34.5
2000	13/ NA	2.58	13/NA	13/ NA	13/ NA	0.59	---	0.59	14/	13/ NA	13/ NA	13/ NA	62.6	34.5
2001	13/ NA	2.58	13/NA	13/ NA	13/ NA	0.59	---	0.59	14/	13/ NA	13/ NA	13/ NA	59.6	34.5

1/ Prior to 1996/97 Deficiency paymant rate; 1996/97 contract rate. 2/ For 1978, payment rate per bushel on the normal production from planted acres. For 1983 and 1984, first figure denotes diversion payment rate and the second number is PIK payment percentage. 3/ In years with dashes all producers were eligible for program benefits. For 1978 and 1979 participation = program acreage on complying farms as a percentage of total planted acreage. For 1982 and subsequent years participation = acreage base on complying farms as a percent of total base. 4/ Voluntary set-aside requirement applies to previous year's plantings. 5/ The first entry is the target price applicable to those producers who planted within the farm NCA; the second is for those who planted in excess of the farm NCA. 6/ An alternative for the farmer is withdrawing the whole base from production, with the producer bidding the percentage of program yield up to a maximum of 95 percent. However, bids would not be accepted if they would cause the combined acreage taken out of production under the acreage reduction, cash diversion, and PIK programs to exceed 45 percent of the county's total acreage. 7/ Winter wheat producers have the option of an additional 5 to 10 percent paid land diversion, with a rate of $2.00. 8/ Under the 50-92 rule, growers who plant between 50 and 92 percent of the permitted acreage to feed grains and devote the remaining permitted acres to a conserving use are eligible to receive deficiency payments on 92 percent of the permitted acreage. 9/ Average of the program payment yields for 1981-85 crops, excluding high and low years. 10/ Under the 0-92 rule, growers who plant between 0 and 92 percent of the permitted acreage to wheat and devote the remaining permitted acres to a conserving use are eligible to receive deficiency payments on 92 percent of the permitted acreage. Beginning in 1994, the standard program is a 0-85 program. 11/ Also offered wheat modified programs whereby participants could plant up to 105 percent of their base. 12/ The first entry is the deficiency payment rate for the 1991 winter wheat option; the second entry is for the 1991 standard wheat program. 13/ The 1996 farm legislation eliminated target prices, deficiency payments, and annual acreage programs including ARP and 0-85. 14/ All base was terminated after 1996 sign-up for Production Flexibility Contracts.

Source: Farm Service Agency, USDA.

Appendix table 16--World wheat production, consumption, trade, and ending stocks, 1960/61-2001/02

Crop year 1/	Area harvested	Yield	Production	Consumption	Trade 1/	Ending stocks 2/	Stocks-to-consumption
	Million hectares	Tons per hectare		---Million metric tons---			Percent
1960/61	202.2	1.15	233.5	230.9	41.9	82.8	35.8
1961/62	203.5	1.08	220.1	233.1	46.8	69.9	29.9
1962/63	206.9	1.19	246.8	240.8	44.3	75.8	31.5
1963/64	206.3	1.12	230.4	235.9	56.0	70.3	29.8
1964/65	215.9	1.23	264.9	256.8	52.0	78.5	30.6
1965/66	215.5	1.20	259.3	277.1	61.0	60.7	21.9
1966/67	213.8	1.41	300.7	273.8	56.0	87.6	32.0
1967/68	219.2	1.33	291.9	281.9	51.0	97.7	34.6
1968/69	223.9	1.45	323.8	300.1	45.0	121.3	40.4
1969/70	217.8	1.40	304.0	321.8	50.0	103.5	32.2
1970/71	207.0	1.48	306.5	329.5	55.0	80.5	24.4
1971/72	212.7	1.62	344.1	335.4	52.0	89.2	26.6
1972/73	210.9	1.60	337.5	351.8	69.7	74.9	21.3
1973/74	217.0	1.69	366.1	358.3	63.0	82.7	23.1
1974/75	220.0	1.61	355.2	356.5	64.3	81.4	22.8
1975/76	225.3	1.57	352.6	347.3	66.7	86.7	25.0
1976/77	233.1	1.78	414.3	373.7	63.3	127.4	34.1
1977/78	227.2	1.66	377.8	396.0	72.8	109.2	27.6
1978/79	228.9	1.92	438.9	413.3	71.9	134.8	32.6
1979/80	228.5	1.83	418.3	431.9	86.0	121.3	28.0
1980/81	237.1	1.84	436.3	444.1	94.1	113.8	25.6
1981/82	239.0	1.86	445.1	445.1	101.3	113.7	25.5
1982/83	237.7	1.99	472.8	455.6	98.9	131.1	28.8
1983/84	229.3	2.11	484.4	469.0	103.5	146.4	31.2
1984/85	231.7	2.20	509.0	486.3	106.0	169.1	34.8
1985/86	229.9	2.15	494.9	485.0	84.7	179.0	36.9
1986/87	227.9	2.30	524.1	511.4	90.7	191.7	37.5
1987/88	219.7	2.26	496.0	530.1	115.6	157.6	29.7
1988/89	217.4	2.28	495.0	518.6	103.7	134.0	25.8
1989/90	225.8	2.36	533.2	531.0	102.8	136.1	25.6
1990/91	231.4	2.54	588.1	556.1	100.9	168.2	30.2
1991/92	222.5	2.44	542.9	553.2	110.7	157.9	28.5
1992/93	222.9	2.52	562.1	551.6	113.1	168.6	30.6
1993/94	221.9	2.52	558.6	556.2	101.6	171.1	30.8
1994/95	214.5	2.44	524.0	547.9	101.5	147.2	26.9
1995/96	218.7	2.46	538.4	549.3	99.1	136.2	24.8
1996/97	230.0	2.53	581.9	572.4	95.1	145.8	25.5
1997/98	228.0	2.68	610.1	584.1	104.3	171.8	29.4
1998/99	225.0	2.62	589.6	585.8	102.1	175.6	30.0
1999/00	216.6	2.71	586.2	591.5	112.6	170.3	28.8
2000/01 3/	219.0	2.66	583.7	589.4	103.4	164.6	27.9
2001/02 4/	215.6	2.69	580.3	589.0	107.7	155.9	26.5

1/ July-June year, excludes intra-EU trade. 2/ Ending stocks data are based on an aggregate of differing local marketing years. 3/ Preliminary. 4/ Projected.

Source: USDA.

Appendix table 17--Wheat production, trade, and ending stocks, world and United States, 1965-2001

Year	Production			Exports			Ending stocks		
	World	United States	U.S. share	World 1/	United States	U.S. share	World	United States	U.S. share
	Million bushels		Percent	Million bushels		Percent	Million bushels		Percent
1965	9,528	1,283	13.47	2,244	852	37.97	2,232	660	29.57
1966	11,047	1,315	11.90	2,146	771	35.93	3,220	513	15.93
1967	10,727	1,507	14.05	1,968	765	38.88	3,589	630	17.56
1968	11,897	1,557	13.09	1,847	544	29.45	4,457	904	20.28
1969	11,171	1,443	12.92	2,051	603	29.40	3,805	983	25.84
1970	11,263	1,352	12.00	2,075	741	35.71	2,959	823	27.81
1971	12,644	1,619	12.80	2,060	599	29.10	3,279	985	30.04
1972	12,400	1,546	12.47	2,631	1,116	42.43	2,753	597	21.68
1973	13,451	1,711	12.72	2,682	1,217	45.37	3,040	340	11.18
1974	13,052	1,782	13.65	2,514	1,018	40.51	2,989	435	14.55
1975	12,958	2,127	16.41	2,718	1,173	43.16	3,186	666	20.89
1976	15,225	2,149	14.11	2,602	950	36.50	4,678	1,113	23.80
1977	13,883	2,046	14.73	2,775	1,124	40.50	4,013	1,178	29.35
1978	16,128	1,776	11.01	3,087	1,194	38.68	4,955	924	18.65
1979	15,372	2,134	13.88	3,428	1,375	40.12	4,452	902	20.26
1980	16,029	2,381	14.85	3,561	1,514	42.51	4,183	989	23.64
1981	16,353	2,785	17.03	3,961	1,771	44.71	4,177	1,159	27.76
1982	17,372	2,765	15.92	3,960	1,509	38.10	4,816	1,515	31.46
1983	17,797	2,420	13.60	4,049	1,426	35.23	5,386	1,399	25.97
1984	18,701	2,595	13.87	4,230	1,421	33.60	6,105	1,425	23.35
1985	18,183	2,424	13.33	3,525	909	25.79	6,269	1,905	30.39
1986	19,259	2,091	10.86	3,758	999	26.57	6,581	1,821	27.67
1987	18,224	2,108	11.57	4,654	1,588	34.12	5,425	1,261	23.24
1988	18,189	1,812	9.96	4,285	1,415	33.02	4,351	702	16.13
1989	19,591	2,037	10.40	4,264	1,232	28.89	4,370	536	12.28
1990	21,607	2,730	12.63	4,309	1,069	24.82	6,180	868	14.05
1991	19,949	1,980	9.93	4,547	1,282	28.20	5,802	475	8.19
1992	20,654	2,467	11.94	4,577	1,354	29.57	6,195	531	8.57
1993	20,525	2,396	11.68	4,400	1,228	27.91	6,287	568	9.04
1994	19,252	2,321	12.06	4,178	1,188	28.44	5,409	507	9.37
1995	19,783	2,183	11.03	4,334	1,241	28.63	5,004	376	7.51
1996	21,382	2,277	10.65	4,493	1,002	22.29	5,357	444	8.28
1997	22,417	2,481	11.07	4,638	1,040	22.43	6,313	722	11.45
1998	21,664	2,547	11.76	4,511	1,046	23.19	6,452	946	14.66
1999	21,539	2,302	10.69	4,959	1,089	21.96	6,257	950	15.18
2000	21,447	2,223	10.37	4,640	1,061	22.87	6,048	876	14.48
2001 1/ 2/	21,322	1,958	9.18	4,736	975	20.59	5,728	701	12.24

1/ Includes intra-EU trade. 2/ Preliminary.

Source: USDA.

Appendix table 18--Wheat: Production and exports, major foreign exporters, and total foreign, 1965-2001

Year	Australia		Canada		Argentina		EU-15		Total foreign 1/	
	Production	Exports	Production	Exports	Production	Exports	Production	Exports 2/	Production	Exports
	Million bushels									
1965	260	172	649	585	223	205	1,722	262	8,245	1,392
1966	467	312	827	515	230	82	1,510	222	9,732	1,375
1967	277	208	593	336	269	81	1,797	283	9,220	1,203
1968	544	234	650	306	211	92	1,815	355	10,340	1,303
1969	387	296	671	346	258	85	1,721	398	9,728	1,448
1970	290	336	332	435	181	36	1,675	230	9,911	1,334
1971	316	286	530	504	209	60	1,956	344	11,026	1,461
1972	242	157	533	577	254	117	1,970	471	10,854	1,515
1973	440	258	594	419	241	58	1,958	453	11,740	1,465
1974	417	315	489	395	219	66	2,183	499	11,270	1,496
1975	440	318	628	450	315	116	1,868	568	10,831	1,545
1976	434	349	867	494	404	217	1,945	444	13,076	1,652
1977	344	298	730	588	209	65	1,848	504	11,838	1,651
1978	665	430	777	480	298	150	2,248	590	14,353	1,893
1979	595	485	631	584	298	175	2,145	675	13,238	2,053
1980	399	352	709	598	286	141	2,476	826	13,649	2,047
1981	601	404	911	678	305	134	2,329	849	13,567	2,190
1982	326	295	982	785	551	363	2,593	849	14,607	2,451
1983	809	501	972	800	468	288	2,610	878	15,377	2,623
1984	686	516	779	645	485	346	3,336	1,102	16,107	2,809
1985	594	589	891	650	312	158	2,901	1,069	15,759	2,616
1986	592	572	1,152	764	328	163	2,936	1,081	17,168	2,759
1987	454	362	953	864	323	136	2,895	1,119	16,116	3,067
1988	517	415	585	457	309	148	2,995	1,220	16,377	2,870
1989	522	396	911	620	373	223	3,148	1,284	17,554	3,032
1990	554	432	1,179	798	401	205	3,274	1,311	18,878	3,240
1991	388	261	1,174	900	363	212	3,443	1,350	17,969	3,265
1992	595	362	1,098	724	360	215	3,223	1,404	18,187	3,223
1993	605	504	1,001	702	356	184	3,047	1,326	18,129	3,172
1994	327	233	850	766	415	269	3,106	1,198	16,931	2,990
1995	606	489	920	600	316	165	3,166	1,176	17,600	3,093
1996	842	706	1,095	717	584	375	3,619	1,406	19,104	3,491
1997	706	564	892	740	578	410	3,461	1,324	19,936	3,598
1998	789	605	885	540	489	315	3,788	1,320	19,117	3,465
1999	910	656	988	704	603	426	3,543	1,409	19,237	3,870
2000	873	585	985	636	596	414	3,854	1,426	19,224	3,579
2001 2/ 3/	882	680	783	588	570	397	3,372	1,168	19,365	3,761

1/ Aggregate of differing local marketing years including Canada (Aug./Jul.), Australia (Oct./Sept.), Argentina (Dec./Nov.), EC-12 (July/June).

2/ Includes intra-EU trade. 3/ Projected.

Source: USDA.

Appendix table 19--Wheat and wheat flour: World trade, production, stocks, and use, 1993/94-2001/02 1/

Country or region	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00 11/	2000/01 12/	2001/02 12/
					Million metric tons				
Exports:									
Canada	18.7	21.8	17.1	18.1	21.3	14.4	19.4	17.4	16.5
Australia	12.8	7.8	12.1	18.2	15.4	16.1	17.1	16.7	18.5
Argentina	4.5	7.9	4.4	10.1	9.8	9.2	11.1	11.4	11.0
EU 2/	36.1	32.6	22.0	33.2	36.0	35.9	38.3	38.8	31.8
Former USSR 3/	6.6	4.3	6.0	4.6	6.4	8.9	9.2	4.7	11.3
All others	5.9	10.0	22.5	7.9	9.0	9.8	8.8	10.2	14.0
Total non-U.S.	84.6	84.4	84.1	92.0	98.0	94.4	104.0	99.1	103.0
U.S. 4/	33.1	32.5	33.7	27.1	28.1	29.0	29.4	27.8	26.5
World total	117.7	117.0	117.8	119.1	126.1	123.4	133.5	127.0	129.5
Imports:									
EU 2/	17.4	17.3	21.5	22.9	25.8	25.2	25.1	26.7	29.8
Former USSR 3/	13.4	8.3	9.7	6.8	6.8	5.6	9.8	5.3	4.1
Japan	6.0	6.3	6.1	6.3	6.2	6.0	6.0	5.9	5.8
E. Europe 5/	2.5	2.1	2.4	4.4	2.0	2.1	1.5	3.1	1.7
China	4.3	10.3	12.5	2.7	1.9	0.8	1.0	0.2	1.5
Algeria	4.8	5.8	3.8	3.6	5.2	4.3	4.8	5.6	4.5
Brazil	5.8	6.6	5.6	5.8	6.0	7.4	7.3	7.5	6.5
Egypt	5.9	5.9	5.9	6.9	7.1	7.5	5.9	6.1	5.8
South Korea	5.6	4.3	2.6	3.5	3.9	4.7	3.8	3.1	4.1
Morocco	2.4	1.3	2.3	1.6	2.6	2.8	3.1	3.6	2.8
Indonesia	2.9	3.9	3.6	4.2	3.7	3.1	3.7	4.1	4.0
Iran	3.5	3.3	2.8	7.1	3.6	2.6	7.4	6.2	6.0
Philippines	2.3	2.1	2.0	2.2	2.0	2.3	3.0	3.0	3.3
U.S.	3.2	2.4	1.7	2.6	2.5	2.8	2.5	2.4	2.7
All others	34.9	34.7	33.1	41.0	44.5	44.1	45.9	43.3	46.0
World total	114.8	114.5	115.6	121.5	124.0	121.3	130.8	126.1	128.6
Production: 6/									
Canada	27.2	23.1	25.0	29.8	24.3	24.1	26.9	26.8	21.3
Australia	16.5	8.9	16.5	22.9	19.2	21.5	24.8	23.8	24.0
Argentina	9.7	11.3	8.6	15.9	15.7	13.3	16.4	16.2	15.5
EU 2/	82.9	84.5	86.2	98.5	94.2	103.1	96.4	104.9	91.8
Former USSR 7/	83.5	60.5	60.4	64.5	82.3	57.6	66.1	64.9	92.9
E. Europe	30.0	33.7	34.9	26.0	34.3	33.9	28.2	28.4	36.2
China	106.4	99.3	102.2	110.6	123.3	109.7	113.9	99.6	94.0
India	57.2	59.8	65.5	62.1	69.4	66.4	70.8	76.4	68.8
All other foreign	79.9	79.7	79.7	89.7	80.0	90.8	80.2	82.0	82.7
U.S.	65.2	63.2	59.4	62.0	67.5	69.3	62.6	60.8	53.3
World total	558.6	524.0	538.4	581.9	610.1	589.6	586.2	583.7	580.3
Utilization: 8/									
U.S.	33.7	35.0	31.0	35.4	34.2	37.6	35.4	36.3	33.4
Former USSR 9/	89.3	76.3	71.6	70.4	73.6	65.9	67.2	65.0	72.4
China	107.7	109.0	110.1	111.3	113.8	114.7	115.6	113.9	113.5
All others	325.4	327.6	336.5	355.4	362.5	367.6	373.2	374.2	369.7
World total	556.2	547.9	549.3	572.4	584.1	585.8	591.5	589.4	589.0
Stocks, ending: 10/	171.1	147.2	136.2	145.8	171.8	175.6	170.3	164.6	155.9

1/ July-June years. 2/ European Union (formerly EC) includes former East Germany. 3/ Includes intra-trade among the individual FSU countries. 4/ Includes transshipments through Canadian ports; excludes products other than flour. 5/ Excludes former East Germany. 6/ Production data include all harvests occurring within the July-June year shown, except that small-grain crops from the early-harvesting areas of the Northern Hemisphere are moved forward; i.e., the May 1993 harvests in areas such as India, North Africa, and southern United States are actually included in 1993/94 accounting period, which begins July 1, 1993. 7/ "Clean-weight" basis; discounted for excess moisture and foreign material. 8/ 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. 9/ Use data adjusted for "clean-weight" basis. 10/ 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. 11/ Estimate as of March 2002. 12/ Projected as of March 2002.

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

Appendix table 20--Wheat farm prices by class, 1982/83-2001/02

Crop year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb. 1/	Mar.	Apr.	May	Average	Loan rate
							$/60-pound bushel							
							Hard Red Winter Wheat 2/							
1982/83	3.49	3.37	3.34	3.38	3.36	3.43	3.49	3.51	3.51	3.60	3.71	3.68	3.50	3.47
1983/84	3.49	3.34	3.54	3.59	3.56	3.49	3.45	3.48	3.41	3.48	3.62	3.63	3.51	3.56
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	3.31	3.36	3.42	3.62	3.72	3.74	3.90	3.93	3.93	4.04	4.03	4.02	3.75	2.21
1989/90	3.84	3.80	3.74	3.74	3.77	3.79	3.84	3.82	3.58	3.50	3.55	3.31	3.69	2.04
1990/91	3.02	2.75	2.53	2.45	2.40	2.34	2.37	2.36	2.37	2.52	2.56	2.62	2.52	1.94
1991/92	2.58	2.54	2.69	2.87	3.16	3.29	3.49	3.63	3.93	3.84	3.67	3.47	3.26	2.00
1992/93	3.43	3.13	2.90	3.07	3.21	3.31	3.37	3.46	3.38	3.34	3.24	2.94	3.23	2.20
1993/94	2.72	2.80	2.82	2.88	3.02	3.29	3.57	3.49	3.43	3.20	3.17	3.11	3.13	2.43
1994/95	3.09	3.04	3.26	3.55	3.76	3.63	3.68	3.64	3.60	3.43	3.40	3.65	3.48	2.57
1995/96	3.84	4.16	4.24	4.51	4.82	4.85	4.80	4.74	5.13	5.21	5.61	5.74	4.80	2.58
1996/97	5.26	4.83	4.54	4.15	4.09	4.10	4.07	4.08	4.00	4.04	4.23	4.01	4.28	2.57
1997/98	3.41	3.17	3.39	3.42	3.35	3.24	3.19	3.14	3.15	3.13	2.92	2.89	3.20	2.57
1998/99	2.68	2.53	2.30	2.33	2.69	2.82	2.72	2.76	2.59	2.53	2.45	2.32	2.55	2.57
1999/00	2.38	2.17	2.31	2.36	2.30	2.28	2.21	2.29	2.36	2.37	2.27	2.40	2.28	2.57
2000/01	2.51	2.41	2.40	2.53	2.76	2.84	2.88	2.90	2.85	2.92	2.80	2.97	2.64	2.57
2001/02	2.86	2.73	2.68	2.63	2.68	2.69	2.70	2.76	2.67	2.72				2.54
							Soft Red Winter Wheat 3/							
1982/83	3.18	3.08	2.98	2.89	2.75	3.02	3.13	3.18	3.20	3.30	3.29	3.30	3.11	3.56
1983/84	3.25	3.25	3.54	3.49	3.36	3.33	3.43	3.46	3.26	3.38	3.54	3.44	3.40	3.66
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	3.97	4.06	4.13	4.10	4.14	4.00	3.93	3.84	2.33
1989/90	3.80	3.75	3.76	3.82	3.87	3.95	4.01	3.99	3.85	3.73	3.62	3.53	3.81	2.14
1990/91	3.04	2.85	2.66	2.45	2.39	2.34	2.42	2.38	2.36	2.52	2.63	2.68	2.56	2.00
1991/92	2.52	2.37	2.69	2.86	3.12	3.35	3.51	3.50	3.74	3.57	3.40	3.40	3.17	2.09
1992/93	3.41	3.16	2.86	3.07	3.16	3.34	3.44	3.52	3.49	3.48	3.49	3.06	3.29	2.32
1993/94	2.71	2.71	2.76	2.72	2.84	3.11	3.34	3.41	3.36	3.24	3.12	2.97	2.82	2.51
1994/95	3.04	2.90	3.13	3.36	3.57	3.50	3.64	3.67	3.48	3.40	3.35	3.38	3.09	2.53
1995/96	3.59	3.80	3.98	4.12	4.30	4.64	4.67	4.63	4.80	4.53	5.15	4.61	3.87	2.54
1996/97	4.40	4.17	4.12	4.11	3.89	3.72	3.75	3.80	3.58	3.70	3.90	3.66	4.11	2.53
1997/98	3.47	3.15	3.30	3.39	3.28	3.28	3.15	3.12	3.07	3.10	2.87	2.71	3.21	2.53
1998/99	2.69	2.33	2.16	2.15	2.34	2.37	2.34	2.36	2.18	2.28	2.23	2.21	2.40	2.53
1999/00	2.21	1.98	2.13	2.13	2.13	2.09	2.12	2.24	2.34	2.30	2.13	2.23	2.10	2.53
2000/01	2.31	1.98	1.95	2.04	2.12	2.18	2.28	2.40	2.47	2.38	2.30	2.33	2.16	2.53
2001/02	2.34	2.39	2.49	2.42	2.47	2.62	2.73	2.75	2.71	2.68				2.55
							Hard Red Spring Wheat 4/							
1982/83	3.62	3.59	3.46	3.45	3.44	3.51	3.47	3.45	3.41	3.59	3.79	3.84	3.56	3.57
1983/84	3.81	3.80	3.78	3.69	3.68	3.66	3.59	3.62	3.59	3.68	3.78	3.87	3.71	3.68
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	2.66	2.70	2.77	2.78	2.74	2.78	2.95	2.65	2.28
1988/89	3.30	3.62	3.66	3.80	3.83	3.74	3.81	3.92	3.90	3.99	3.96	3.99	3.79	2.21
1989/90	3.89	3.81	3.68	3.59	3.59	3.58	3.60	3.58	3.51	3.47	3.49	3.49	3.61	2.06
1990/91	3.33	2.96	2.58	2.46	2.44	2.40	2.43	2.45	2.44	2.52	2.60	2.65	2.61	1.95
1991/92	2.57	2.49	2.56	2.76	3.03	3.26	3.44	3.56	3.83	3.79	3.82	3.86	3.25	2.04
1992/93	3.87	3.63	3.12	3.19	3.18	3.28	3.24	3.33	3.34	3.32	3.34	3.19	3.34	2.21
1993/94	3.21	3.50	3.51	3.37	3.50	3.67	3.75	3.69	3.67	3.66	3.68	3.63	3.57	2.45
1994/95	3.51	3.28	3.19	3.38	3.52	3.51	3.56	3.50	3.39	3.38	3.35	3.54	3.43	2.58
1995/96	3.78	4.26	4.19	4.27	4.46	4.62	4.73	4.66	4.81	4.87	5.20	5.68	4.63	2.58
1996/97	5.50	5.28	4.63	4.41	4.21	4.07	4.03	3.95	3.80	3.84	4.03	3.99	4.31	2.58
1997/98	3.75	3.66	3.74	3.64	3.50	3.55	3.51	3.44	3.33	3.43	3.37	3.31	3.52	2.58
1998/99	3.30	3.14	2.91	2.79	3.14	3.28	3.26	3.22	3.17	3.06	3.00	2.96	3.10	2.58
1999/00	3.03	2.95	2.86	2.89	2.82	2.97	2.90	2.84	2.86	2.89	2.93	2.98	2.91	2.58
2000/01	2.95	2.78	2.63	2.67	2.88	3.02	3.05	3.01	3.03	3.01	3.06	3.17	2.91	2.58
2001/02	2.99	2.80	2.82	2.83	2.94	2.89	2.94	2.86	2.83	2.89				2.64

See footnotes at end of table.

Continued--

Appendix table 20--Wheat farm prices by class, 1982/83-2001/02--Continued

Crop year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb. 1/	Mar.	Apr.	May	Average	Loan rate
							$/60-pound bushel							
							White Wheat 5/							
1982/83	3.71	3.62	3.74	3.76	3.86	3.91	3.98	4.07	4.15	4.18	4.13	4.04	3.93	3.65
1983/84	3.78	3.61	3.68	3.70	3.62	3.59	3.51	3.49	3.31	3.48	3.57	3.64	3.58	3.75
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	3.43	3.71	3.78	3.97	4.13	4.20	4.34	4.48	4.48	4.36	4.40	4.31	4.13	2.32
1989/90	4.13	4.12	4.14	4.04	4.06	3.98	4.15	4.06	3.66	3.47	3.37	3.37	3.88	2.17
1990/91	3.26	3.04	2.82	2.69	2.48	2.47	2.51	2.56	2.62	2.78	2.86	2.94	2.75	2.06
1991/92	2.98	2.98	3.06	3.23	3.47	3.81	4.01	3.95	4.19	4.09	4.00	4.02	3.65	2.14
1992/93	3.94	3.76	3.61	3.82	3.85	3.80	3.81	3.86	3.70	3.52	3.40	3.25	3.69	2.37
1993/94	3.09	3.03	3.07	2.98	2.95	3.07	3.15	3.16	3.13	3.11	3.16	3.18	3.08	2.69
1994/95	3.24	3.10	3.22	3.73	4.02	4.05	3.94	3.86	3.70	3.58	3.55	3.75	3.65	2.71
1995/96	4.17	4.08	4.09	4.41	4.59	4.75	4.85	4.80	4.90	4.87	5.16	5.38	4.61	2.76
1996/97	5.21	4.85	4.62	4.40	3.96	3.86	3.87	3.83	3.64	3.69	3.92	4.05	4.04	2.71
1997/98	3.90	3.61	3.59	3.57	3.49	3.38	3.26	3.21	3.11	3.05	2.89	2.82	3.35	2.71
1998/99	2.57	2.41	2.10	2.21	2.57	2.65	2.58	2.62	2.64	2.65	2.76	2.67	2.43	2.71
1999/00	2.68	2.51	2.82	2.79	2.75	2.71	2.56	2.55	2.43	2.40	2.49	2.62	2.63	2.71
2000/01	2.32	2.32	2.24	2.30	2.41	2.57	2.60	2.61	2.71	2.87	2.89	2.99	2.50	2.71
2001/02	2.95	2.74	3.05	3.17	3.24	3.27	3.28	3.21	3.28	3.14				2.70
							Durum							
1982/83	3.50	3.36	3.10	3.09	3.19	3.25	3.16	3.40	3.22	3.47	3.82	3.96	3.66	NA
1983/84	4.01	3.96	4.11	4.07	4.04	3.97	3.83	3.84	3.67	3.88	3.91	4.07	4.01	3.68
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	3.75	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	2.65	2.89	2.93	3.04	3.12	3.14	2.70	2.40
1987/88	3.15	3.02	2.87	3.19	3.29	3.33	3.20	3.21	3.27	2.93	3.22	3.40	3.18	2.28
1988/89	4.61	5.18	5.28	5.21	4.99	4.93	4.72	4.31	4.61	4.44	3.78	4.19	4.70	2.21
1989/90	3.83	3.65	3.48	3.25	3.31	3.27	3.36	3.33	3.31	3.34	3.44	3.50	3.46	2.06
1990/91	3.36	3.11	2.53	2.39	2.44	2.44	2.47	2.61	2.55	2.62	2.61	2.61	2.63	1.95
1991/92	2.55	2.44	2.24	2.36	2.62	2.68	2.75	2.98	3.34	3.24	3.33	3.40	2.82	2.04
1992/93	3.31	3.03	2.75	2.96	2.92	3.04	3.00	3.00	3.08	3.09	3.10	3.26	3.05	2.21
1993/94	3.18	3.26	3.43	3.92	4.23	4.91	4.92	4.97	5.41	5.75	5.73	5.06	4.48	2.45
1994/95	4.59	4.32	4.30	4.51	4.89	4.88	4.67	4.61	4.68	4.59	4.51	4.76	4.62	2.58
1995/96	5.20	5.29	5.33	5.87	5.80	5.78	5.75	5.63	5.61	5.75	5.59	5.76	5.65	2.58
1996/97	5.56	5.10	4.97	4.67	4.78	4.48	4.53	4.44	4.32	4.33	4.38	4.37	4.45	2.58
1997/98	4.20	4.61	5.23	5.35	5.14	5.29	5.16	5.02	4.69	4.70	4.60	4.28	4.92	2.58
1998/99	3.98	3.37	3.23	3.03	3.04	3.08	3.05	3.20	2.84	2.82	2.80	2.84	3.15	2.58
1999/00	2.93	2.89	2.76	2.29	2.30	2.62	2.96	2.89	2.89	2.62	2.89	2.98	2.73	2.58
2000/01	2.71	2.90	2.33	2.26	2.46	2.95	3.04	2.88	2.62	2.40	2.46	2.63	2.66	2.58
2001/02	3.37	2.74	2.38	3.02	2.89	3.08	3.45	3.49	3.49	3.33	3.16			2.56
							U.S. average 6/							
1982/83	3.39	3.26	3.34	3.38	3.43	3.48	3.51	3.57	3.57	3.66	3.75	3.73	3.45	3.55
1983/84	3.50	3.34	3.61	3.65	3.60	3.54	3.48	3.50	3.40	3.49	3.63	3.66	3.51	3.65
1984/85	3.46	3.29	3.43	3.43	3.43	3.45	3.38	3.38	3.38	3.38	3.43	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	2.45	2.31	2.35	2.54	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	3.48	3.49	3.40	3.72	2.06
1990/91	3.08	2.79	2.58	2.46	2.43	2.39	2.40	2.42	2.42	2.53	2.60	2.65	2.61	1.95
1991/92	2.55	2.50	2.63	2.80	3.07	3.25	3.44	3.54	3.78	3.72	3.65	3.64	3.00	2.04
1992/93	3.43	3.15	3.01	3.20	3.22	3.29	3.31	3.37	3.33	3.30	3.26	3.11	3.24	2.21
1993/94	2.84	2.85	2.96	3.10	3.25	3.47	3.63	3.58	3.60	3.70	3.56	3.43	3.26	2.45
1994/95	3.21	3.04	3.25	3.57	3.76	3.75	3.74	3.69	3.61	3.52	3.48	3.67	3.45	2.58
1995/96	3.84	4.10	4.26	4.53	4.72	4.81	4.88	4.83	4.98	5.07	5.32	5.75	4.55	2.58
1996/97	5.25	4.73	4.57	4.37	4.17	4.10	4.06	4.02	3.89	3.93	4.10	4.08	4.30	2.58
1997/98	3.52	3.23	3.56	3.66	3.58	3.54	3.44	3.32	3.27	3.33	3.18	3.06	3.38	2.58
1998/99	2.77	2.56	2.38	2.39	2.77	2.95	2.86	2.84	2.73	2.65	2.62	2.49	2.65	2.58
1999/00	2.50	2.22	2.53	2.58	2.57	2.66	2.52	2.51	2.54	2.59	2.57	2.59	2.48	2.58
2000/01	2.50	2.32	2.41	2.44	2.68	2.83	2.87	2.85	2.83	2.87	2.86	2.98	2.62	2.58
2001/02	2.74	2.70	2.73	2.85	2.86	2.88	2.89	2.87	2.83	2.87	2.80			2.58

1/ March and April 2002 data are preliminary. 2/ Data are average of Kansas, Nebraska, Texas, Oklahoma, and Arkansas wheat prices through 1993/94. Subsequent data are hard red winter wheat prices from the National Agricultural Statistics Service (NASS). 3/ Data are average of Ohio, Indiana, Illinois, and Missouri wheat prices through 1993/94. Subsequent data are soft red winter wheat prices from NASS. 4/ Average prices for other spring for the entire United States through 1997/98. Subsequent prices are hard red spring wheat prices from NASS. 5/ Data are average of Washington, Oregon, and Idaho wheat prices through 1992/93. Subsequent data are white wheat prices from NASS. 6/ Season-average prices do not include an allowance for unredeemed loans and purchases beginning 1979/80. NA = Not available.

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

Appendix table 21--Wheat cash prices for leading classes at major markets, 1970/71-2001/02

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
							$/bushel						
							KANSAS CITY, NO. 1 HARD RED WINTER (ORDINARY PROTEIN)						
1970/71	1.40	1.38	1.47	1.59	1.58	1.59	1.59	1.58	1.58	1.55	1.56	1.61	1.54
1971/72	1.63	1.54	1.54	1.53	1.56	1.56	1.58	1.58	1.57	1.58	1.61	1.62	1.58
1972/73	1.52	1.58	1.82	2.10	2.15	2.25	2.62	2.67	2.48	2.42	2.51	2.63	2.23
1973/74	2.69	2.90	4.67	5.01	4.67	4.78	5.22	5.68	5.82	5.01	4.07	3.59	4.51
1974/75	4.05	4.36	4.33	4.35	4.94	4.88	4.66	4.15	3.93	3.69	3.66	3.34	4.20
1975/76	3.23	3.61	4.12	4.21	4.09	3.71	3.50	3.57	3.81	3.81	3.61	3.57	3.74
1976/77	3.75	3.63	3.21	3.01	2.77	2.62	2.64	2.70	2.73	2.63	2.52	2.36	2.88
1977/78	2.31	2.35	2.31	2.47	2.56	2.81	2.80	2.82	2.84	3.07	3.21	3.21	2.72
1978/79	3.12	3.14	3.14	3.24	3.42	3.48	3.39	3.42	3.50	3.52	3.53	3.64	3.38
1979/80	4.17	4.34	4.12	4.26	4.39	4.53	4.51	4.33	4.32	4.07	3.90	4.10	4.25
1980/81	4.07	4.21	4.31	4.45	4.70	4.89	4.54	4.60	4.47	4.35	4.48	4.36	4.45
1981/82	4.24	4.25	4.14	4.19	4.31	4.46	4.35	4.33	4.26	4.25	4.28	4.22	4.27
1982/83	4.06	3.74	3.70	3.75	3.61	3.86	3.98	4.00	4.08	4.18	4.21	4.05	3.94
1983/84	3.92	3.71	3.88	3.90	3.84	3.82	3.85	3.81	3.71	3.85	3.93	3.89	3.84
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	2.82	2.81	2.78	2.78	2.71	2.77	2.94	2.98	3.04	2.94
1991/92	2.99	2.91	3.10	3.31	3.64	3.76	4.06	4.66	4.51	4.33	4.02	3.90	3.77
1992/93	3.91	3.52	3.27	3.56	3.60	3.78	3.81	3.97	3.75	3.74	3.59	3.51	3.67
1993/94	3.33	3.38	3.34	3.37	3.52	3.39	4.15	4.00	3.80	3.64	3.63	3.65	3.60
1994/95	3.60	3.48	3.70	4.05	4.31	4.24	4.27	4.06	3.98	3.87	3.86	4.22	3.97
1995/96	4.72	4.98	4.76	5.00	5.28	5.34	5.51	5.40	5.67	5.63	6.60	7.02	5.49
1996/97	6.12	5.34	5.01	4.70	4.76	4.78	4.70	4.61	4.52	4.58	4.78	4.61	4.88
1997/98	4.08	3.57	3.84	3.86	3.88	3.87	3.72	3.61	3.64	3.61	3.39	3.41	3.71
1998/99	3.16	3.02	2.74	2.81	3.30	3.42	3.31	3.27	3.05	3.02	2.94	2.89	3.08
1999/00	2.93	2.68	2.85	2.92	2.80	2.89	2.81	2.90	2.94	2.91	2.84	2.95	2.87
2000/01	3.07	2.97	2.89	3.13	3.41	3.45	3.47	3.54	3.35	3.45	3.41	3.49	3.30
2001/02	3.32	3.20	3.15	3.18	3.28	3.37	3.26	3.29	3.25				
							KANSAS CITY, NO. 1 HARD RED WINTER (13 % PROTEIN)						
1965/66	1.56	1.67	1.74	1.76	1.78	1.77	1.76	1.72	1.71	1.72	1.74	1.82	1.73
1966/67	1.99	2.06	2.03	1.97	1.84	1.89	1.89	1.80	1.76	1.84	1.78	1.81	1.89
1967/68	1.73	1.65	1.60	1.61	1.63	1.59	1.60	1.62	1.62	1.62	1.57	1.56	1.62
1968/69	1.53	1.48	1.49	1.53	1.59	1.62	1.61	1.61	1.58	1.60	1.59	1.57	1.57
1969/70	1.57	1.60	1.61	1.66	1.70	1.71	1.72	1.71	1.64	1.61	1.65	1.60	1.65
1970/71	1.59	1.55	1.65	1.74	1.70	1.72	1.75	1.74	1.72	1.70	1.68	1.69	1.69
1971/72	1.73	1.59	1.59	1.58	1.62	1.63	1.65	1.64	1.64	1.67	1.69	1.69	1.64
1972/73	1.61	1.68	1.90	2.15	2.21	2.30	2.65	2.68	2.49	2.45	2.55	2.69	2.28
1973/74	2.80	3.06	4.74	5.04	4.70	4.78	5.23	5.68	5.86	5.13	4.24	3.76	4.59
1974/75	4.47	4.78	4.74	4.85	5.47	5.36	5.15	4.64	4.31	4.08	4.07	3.71	4.64
1975/76	3.81	4.10	4.45	4.55	4.46	4.13	3.97	4.00	4.26	4.23	4.04	3.88	4.16
1976/77	4.10	3.96	3.45	3.35	3.09	3.02	2.99	2.99	3.01	2.89	2.75	2.62	3.19
1977/78	2.51	2.43	2.38	2.53	2.61	2.86	2.87	2.92	2.92	3.09	3.36	3.25	2.81
1978/79	3.20	3.17	3.15	3.26	3.42	3.48	3.40	3.43	3.52	3.55	3.58	3.71	3.41
1979/80	4.22	4.42	4.28	4.39	4.55	4.67	4.60	4.40	4.35	4.14	3.96	4.14	4.34
1980/81	4.12	4.25	4.34	4.49	4.70	4.91	4.60	4.67	4.50	4.40	4.57	4.44	4.50
1981/82	4.36	4.26	4.16	4.22	4.29	4.44	4.33	4.35	4.32	4.29	4.32	4.24	4.30
1982/83	4.15	4.12	4.00	3.94	3.80	4.09	4.24	4.19	4.17	4.27	4.35	4.22	4.13
1983/84	4.22	4.15	4.16	4.21	4.20	4.17	4.11	4.06	3.95	4.12	4.22	4.17	4.15
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

See footnotes at end of table.

Continued--

Appendix table 21--Wheat cash prices for leading classes at major markets, 1970/71-2001/02--Continued

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
							$/bushel						
							KANSAS CITY, NO. 1 HARD RED WINTER (13 % PROTEIN)						
1985/86	3.72	3.53	3.36	3.41	3.50	3.70	3.81	3.69	3.65	3.67	3.70	3.65	3.62
1986/87	2.90	2.70	2.55	2.66	2.75	2.84	2.89	2.95	2.98	3.00	3.05	3.17	2.87
1987/88	2.95	2.86	2.90	3.01	3.10	3.15	3.20	3.30	3.38	3.21	3.26	3.31	3.14
1988/89	3.92	3.85	3.85	4.08	4.16	4.23	4.26	4.41	4.40	4.55	4.50	4.60	4.23
1989/90	4.48	4.29	4.24	4.18	4.23	4.31	4.34	4.28	4.12	4.02	4.07	3.91	4.21
1990/91	3.71	3.17	2.94	2.89	2.86	2.84	2.87	2.83	2.88	3.03	3.04	3.05	3.01
1991/92	3.00	2.92	3.11	3.34	3.67	3.79	4.07	4.36	4.53	4.34	4.10	3.95	3.77
1992/93	4.03	3.68	3.41	3.64	3.72	3.49	3.94	4.05	3.82	3.83	3.68	3.58	3.74
1993/94	3.60	3.89	3.88	4.23	4.58	4.98	5.11	4.69	4.54	4.39	4.42	4.46	4.40
1994/95	3.85	3.63	3.78	4.12	4.37	4.31	4.32	4.07	4.01	3.91	3.95	4.35	4.06
1995/96	4.90	5.24	5.01	5.26	5.59	5.60	5.71	5.62	5.81	5.67	6.71	7.16	5.69
1996/97	6.20	5.35	5.04	4.71	4.75	4.78	4.72	4.63	4.57	4.67	4.85	4.76	4.92
1997/98	4.19	3.80	4.11	4.07	4.09	4.09	4.01	3.80	3.86	3.94	3.82	3.75	3.96
1998/99	3.57	3.57	3.12	3.17	3.67	3.89	3.74	3.61	3.35	3.34	3.34	3.49	3.49
1999/00	3.22	3.39	3.42	3.52	3.40	3.54	3.44	3.46	3.37	3.29	3.30	3.52	3.41
2000/01	3.59	3.25	3.13	3.32	3.59	3.60	3.60	3.64	3.46	3.50	3.49	3.64	3.48
2001/02	3.47	3.35	3.27	3.27	3.33	3.44	3.56	3.41	3.37				
							CHICAGO, NO. 2 SOFT RED WINTER 1/						
1970/71	1.41	1.45	1.52	1.67	1.74	1.77	1.74	1.75	1.74	1.70	1.67	1.61	1.65
1971/72	1.64	1.54	1.45	1.45	1.53	1.60	1.71	1.69	1.61	1.62	1.66	1.63	1.59
1972/73	1.46	1.53	1.76	2.02	2.11	2.28	2.60	2.65	2.47	2.37	2.45	2.71	2.20
1973/74	2.82	3.08	4.75	5.11	4.75	5.47	5.84	6.30	6.50	5.59	4.33	3.48	4.84
1974/75	3.91	4.40	4.34	4.41	5.03	4.86	4.60	4.02	3.84	3.62	3.63	3.25	4.16
1975/76	3.03	3.42	3.82	4.06	3.84	3.49	3.32	3.45	3.78	3.66	3.34	3.30	3.54
1976/77	3.47	3.37	3.01	2.89	2.72	2.60	2.66	2.73	2.74	2.63	2.53	2.35	2.81
1977/78	2.29	2.20	2.08	2.20	2.27	2.59	2.65	2.69	2.64	2.82	3.11	3.14	2.56
1978/79	3.18	3.22	3.32	3.42	3.51	3.68	3.68	3.73	3.88	3.79	3.60	3.86	3.57
1979/80	4.36	4.39	4.23	4.28	4.30	4.13	4.26	4.36	4.39	4.18	3.96	4.04	4.24
1980/81	3.96	4.17	4.21	4.38	4.70	4.92	4.54	4.57	4.34	4.15	4.18	3.80	4.33
1981/82	3.60	3.70	3.70	3.87	3.97	4.08	3.86	3.77	3.57	3.59	3.70	3.43	3.74
1982/83	3.34	3.36	3.35	3.18	2.98	3.33	3.23	3.32	3.40	3.36	3.51	3.55	3.33
1983/84	3.53	3.59	3.71	3.62	3.56	3.42	3.55	3.47	3.34	3.57	3.65	3.65	3.56
1984/85	3.51	3.44	3.49	3.47	3.51	3.62	3.49	3.51	3.55	3.55	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	2.41	2.52	2.50	2.53	2.76	2.80	2.83	2.73
1991/92	2.86	2.79	2.97	3.24	3.50	3.57	3.79	4.12	4.15	3.71	3.53	3.68	3.49
1992/93	3.60	3.39	3.09	3.24	3.39	3.60	3.59	3.77	3.67	3.58	3.72	3.19	3.49
1993/94	2.82	3.03	3.12	2.99	3.09	3.29	3.53	3.67	3.48	3.28	3.19	3.15	3.22
1994/95	3.21	3.14	3.37	3.75	3.83	3.63	3.76	3.68	3.55	3.39	3.40	3.56	3.52
1995/96	3.91	4.41	4.28	4.53	4.72	4.85	5.04	4.92	5.10	4.99	5.65	5.57	4.83
1996/97	4.94	4.64	4.49	4.33	3.96	3.57	3.54	3.47	3.29	3.49	3.77	3.57	3.92
1997/98	3.38	3.30	3.52	3.49	3.51	3.44	3.31	3.27	3.26	3.25	2.91	2.87	3.29
1998/99	2.72	2.51	2.39	2.32	2.56	2.58	2.49	2.46	2.28	2.63	2.31	2.24	2.46
1999/00	2.20	1.94	2.09	2.12	1.98	1.96	2.12	2.34	2.38	2.34	2.30	2.45	2.19
2000/01	2.41	2.14	2.08	2.13	2.36	2.42	2.47	2.57	2.49	2.56	2.52	2.51	2.39
2001/02	2.40	2.56	2.57	2.57	2.68	2.75	2.83	2.96	2.74				

See footnotes at end of table.

Continued--

Appendix table 21--Wheat cash prices for leading classes at major markets, 1970/71-2001/02--Continued

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
							$/bushel						
							ST. LOUIS, NO. 2 SOFT RED WINTER						
1970/71	1.41	1.42	1.45	1.64	1.69	1.71	1.68	1.71	1.71	1.63	1.57	1.49	1.59
1971/72	1.52	1.44	1.34	1.33	1.41	1.49	1.57	1.57	1.52	1.57	1.65	1.64	1.50
1972/73	1.37	1.46	1.63	1.92	2.09	2.23	2.59	2.64	2.47	2.32	2.34	2.50	2.13
1973/74	2.64	2.91	4.37	4.94	4.53	4.69	5.46	6.22	5.96	5.08	4.02	3.31	4.51
1974/75	3.84	4.35	4.24	4.36	4.86	4.70	4.57	4.04	3.86	3.68	3.58	3.20	4.11
1975/76	2.94	3.29	3.71	3.76	3.63	3.50	3.36	3.49	3.68	3.57	3.30	3.28	3.46
1976/77	3.39	3.32	2.98	2.86	2.60	2.60	2.65	2.68	2.67	2.62	2.53	2.32	2.77
1977/78	2.15	2.14	1.97	2.01	2.28	2.70	2.74	2.75	2.71	2.90	3.09	2.99	2.54
1978/79	3.05	3.16	3.21	3.23	3.41	3.57	3.50	3.57	3.66	3.51	3.62	3.68	3.43
1979/80	4.08	4.18	4.04	4.08	4.02	4.10	4.28	4.26	4.32	4.11	3.80	3.93	4.10
1980/81	3.73	4.10	4.19	4.42	4.78	4.96	4.78	4.80	4.57	4.32	4.36	3.67	4.39
1981/82	3.41	3.54	3.56	3.67	3.74	4.05	3.90	3.76	3.60	3.61	3.72	3.31	3.66
1982/83	3.25	3.27	3.14	3.06	3.06	3.38	3.28	3.33	3.41	3.43	3.58	3.61	3.32
1983/84	3.46	3.51	3.79	3.70	3.62	3.58	3.67	3.62	3.46	3.71	3.82	3.51	3.62
1984/85	3.45	3.44	3.50	3.52	3.60	3.72	3.67	3.69	3.65	3.67	3.65	3.24	3.57
1985/86	3.29	3.07	2.84	2.85	3.10	3.42	3.58	3.48	3.49	3.64	3.66	2.74	3.26
1986/87	2.61	2.60	2.54	2.55	2.88	3.05	3.06	3.08	3.05	3.09	2.88	3.03	2.87
1987/88	2.63	2.58	2.59	2.77	2.95	2.97	3.22	3.24	3.18	2.98	3.10	3.20	2.95
1988/89	3.50	3.56	3.73	3.94	4.13	4.22	4.33	4.46	4.30	4.39	4.22	4.20	4.08
1989/90	3.89	3.95	3.79	4.03	4.05	4.20	4.19	4.13	4.00	3.87	3.88	3.33	3.94
1990/91	3.27	3.02	2.85	2.66	2.57	2.65	2.71	2.61	2.64	2.85	2.91	2.98	2.81
1991/92	2.89	2.65	2.76	2.86	3.00	3.34	3.63	3.83	3.94	3.81	3.53	3.57	3.32
1992/93	3.55	3.39	3.09	3.19	3.34	3.71	3.74	3.99	3.85	3.98	3.73	2.93	3.54
1993/94	2.83	2.94	2.98	2.75	2.93	3.33	3.62	3.83	3.61	3.36	3.29	3.24	3.23
1994/95	3.22	3.11	3.31	3.69	3.89	3.84	4.00	3.83	3.74	3.59	3.55	3.62	3.62
1995/96	3.90	4.35	4.13	4.56	4.92	5.07	5.14	4.84	4.83	4.79	5.65	5.61	4.82
1996/97	4.84	4.72	4.62	4.38	4.02	3.85	3.90	3.78	3.55	3.71	3.99	3.80	4.10
1997/98	3.46	3.34	3.64	3.62	3.58	3.57	3.53	3.87	3.32	3.24	3.05	2.89	3.43
1998/99	2.66	2.43	2.26	2.12	2.23	2.41	2.54	2.51	2.33	2.44	2.44	2.45	2.40
1999/00	2.31	NA	2.22	2.48	2.31	2.50	2.26	2.38	2.51	2.40	2.38	2.56	2.39
2000/01	2.59	2.17	2.04	2.06	2.41	2.42	2.48	2.52	2.55	2.53	2.40	2.45	2.39
2001/02	2.41	2.67	2.66	2.73	2.94	2.90	2.96	2.99	2.85				
							TOLEDO, NO. 2 SOFT RED WINTER						
1970/71	1.43	1.43	1.51	1.64	1.69	1.73	1.72	1.73	1.74	1.65	1.60	1.58	1.62
1971/72	1.60	1.46	1.35	1.35	1.45	1.52	1.57	1.59	1.52	1.55	1.60	1.68	1.52
1972/73	1.51	1.43	1.62	1.92	2.07	2.30	2.64	2.66	2.46	2.38	2.45	2.61	2.17
1973/74	2.68	3.10	4.71	5.07	4.70	5.22	5.50	6.18	6.52	5.50	4.17	3.27	4.72
1974/75	3.77	4.29	4.28	4.33	4.93	4.81	4.59	4.00	3.83	3.60	3.52	3.07	4.09
1975/76	2.96	3.27	3.71	3.86	3.69	3.34	3.28	3.37	3.64	3.56	3.27	3.22	3.43
1976/77	3.40	3.27	2.96	2.90	2.70	2.59	2.64	2.69	2.68	2.55	2.46	2.30	2.76
1977/78	2.21	2.13	2.03	2.08	2.21	2.53	2.57	2.62	2.55	2.77	3.07	3.03	2.48
1978/79	3.09	3.13	3.21	3.32	3.46	3.73	3.72	3.73	3.69	3.66	3.56	3.71	3.50
1979/80	4.17	4.37	4.22	4.28	4.29	4.21	4.28	4.21	4.32	4.08	3.80	3.90	4.18
1980/81	3.84	4.14	4.16	4.38	4.82	5.02	4.65	4.70	4.47	4.16	4.16	3.76	4.36
1981/82	3.55	3.63	3.71	3.83	3.98	4.08	3.85	3.71	3.47	3.46	3.63	3.45	3.70
1982/83	3.35	3.36	3.28	3.09	2.84	3.19	3.23	3.28	3.32	3.29	3.45	3.47	3.26
1983/84	3.42	3.48	3.69	3.54	3.43	3.37	3.46	3.43	3.26	3.50	3.61	3.60	3.48
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

See footnotes at end of table.

Continued--

Appendix table 21--Wheat cash prices for leading classes at major markets, 1970/71-2001/02--Continued

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
							$/bushel						
							TOLEDO, NO. 2 SOFT RED WINTER						
1990/91	3.28	3.05	2.78	2.57	2.49	2.41	2.49	2.37	2.52	2.72	2.75	2.77	2.68
1991/92	2.82	2.78	3.01	3.25	3.51	3.58	3.93	4.28	4.26	3.75	3.56	3.55	3.52
1992/93	3.54	3.30	3.03	3.16	3.24	3.42	3.44	3.63	3.56	3.45	3.38	3.02	3.35
1993/94	2.77	2.95	3.05	3.02	3.16	3.36	3.57	3.70	3.57	3.24	3.15	3.13	3.22
1994/95	3.15	3.05	3.20	3.52	3.66	3.46	3.66	3.62	3.59	3.44	3.41	3.52	3.44
1995/96	3.87	4.35	4.18	4.40	4.78	4.80	4.99	4.90	5.04	4.87	5.67	5.67	4.79
1996/97	4.85	4.55	4.48	4.25	3.56	3.34	3.93	3.87	3.58	3.75	3.99	3.79	4.00
1997/98	3.38	3.29	3.50	3.44	3.41	3.30	3.22	3.16	3.20	3.17	2.86	2.77	3.23
1998/99	2.57	2.41	2.23	2.24	NQ	NQ	2.42	2.40	2.26	2.37	2.28	2.22	2.34
1999/00	2.18	2.02	2.24	2.23	2.12	2.06	2.00	2.23	2.26	2.17	2.11	2.28	2.16
2000/01	2.27	2.06	2.00	1.98	2.15	2.15	2.26	2.33	2.43	2.36	2.32	2.30	2.22
2001/02	2.21	2.52	2.58	2.57	2.70	2.93	2.96	2.90	2.72				
							TOLEDO, NO. 2 SOFT WHITE						
1970/71	1.41	1.45	1.51	1.64	1.69	1.73	1.72	1.70	1.69	1.59	1.55	1.51	1.60
1971/72	1.57	1.49	1.44	1.46	1.53	1.58	1.61	1.61	1.54	1.57	1.63	1.68	1.56
1972/73	1.51	1.49	1.72	1.97	2.07	2.30	2.64	2.65	2.46	2.38	2.44	2.58	2.18
1973/74	2.66	3.10	4.76	5.14	4.71	5.22	5.50	6.18	6.53	5.60	3.91	3.27	4.72
1974/75	3.75	4.24	4.22	4.22	4.78	4.63	4.44	3.85	3.67	3.44	3.37	2.95	3.96
1975/76	2.85	3.21	3.62	3.78	3.60	3.28	3.23	3.32	3.59	3.52	3.22	3.14	3.36
1976/77	3.35	3.24	2.94	2.89	2.71	2.57	2.64	2.70	2.69	2.54	2.45	2.29	2.75
1977/78	2.21	2.16	2.04	2.06	2.18	2.52	2.56	2.62	2.56	2.77	3.07	3.03	2.48
1978/79	3.10	3.26	3.45	3.63	3.69	3.87	3.78	3.72	3.63	3.44	3.35	3.53	3.54
1979/80	4.08	4.13	4.15	4.17	4.12	4.20	4.18	4.10	4.14	3.90	3.63	3.74	4.05
1980/81	3.71	4.05	4.15	4.31	NA	NA	4.44	4.40	4.21	3.98	3.99	3.62	4.09
1981/82	3.43	3.62	3.77	3.91	3.99	4.10	3.82	3.68	3.49	3.47	3.61	3.45	3.70
1982/83	3.35	3.49	3.42	3.22	2.92	3.22	3.29	3.25	3.39	3.43	3.49	3.48	3.33
1983/84	3.42	3.51	3.71	3.56	3.42	3.36	3.46	3.43	3.25	3.50	3.62	3.49	3.48
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	3.91	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	2.28	2.38	2.37	2.40	2.61	2.67	2.68	2.59
1991/92	2.69	2.62	2.86	3.09	3.32	3.41	3.73	4.07	4.15	4.09	3.44	3.43	3.41
1992/93	3.37	3.11	2.86	3.02	3.12	3.30	3.26	3.43	3.34	3.09	3.13	NQ	3.18
1993/94	2.61	2.83	2.91	2.94	3.11	3.30	3.51	3.66	3.56	3.24	3.16	3.09	3.16
1994/95	3.11	3.02	3.13	3.42	3.61	3.43	3.67	3.59	3.45	3.24	3.33	3.44	3.37
1995/96	3.77	4.22	3.96	4.17	NQ	4.62	4.79	4.68	4.80	4.64	NQ	NQ	4.41
1996/97	NQ	4.44	4.22	3.98	3.40	3.20	3.69	3.58	3.32	3.55	3.81	3.60	3.71
1997/98	3.19	3.17	3.40	3.37	3.31	3.20	3.12	3.04	3.14	3.06	2.75	2.67	3.12
1998/99	2.49	2.32	2.13	2.12	NQ	NQ	NQ	NQ	NQ	NQ	NQ	NQ	2.27
1999/00	NQ	NQ	NQ	2.00	1.78	1.76	1.78	2.02	2.04	2.00	1.95	2.15	1.94
2000/01	2.16	1.93	1.73	1.72	1.85	1.86	1.99	2.10	2.04	2.17	2.14	2.10	1.98
2001/02	2.01	2.29	2.45	2.47	2.56	2.63	2.67	2.82	2.64				

See footnotes at end of table.

Continued--

Appendix table 21--Wheat cash prices for leading classes at major markets, 1970/71-2001/02--Continued

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
							$/bushel						
							PORTLAND, NO. 1 SOFT WHITE						
1970/71	1.57	1.53	1.53	1.59	1.63	1.72	1.77	1.78	1.77	1.77	1.77	1.83	1.69
1971/72	1.75	1.60	1.55	1.54	1.56	1.55	1.56	1.57	1.57	1.60	1.70	1.74	1.61
1972/73	1.67	1.61	1.82	2.12	2.41	2.54	2.78	2.80	2.56	2.59	2.61	2.77	2.36
1973/74	3.13	3.43	4.88	5.20	4.95	4.81	5.27	5.72	6.01	5.26	4.19	3.69	4.71
1974/75	4.30	4.66	4.57	4.57	5.17	5.16	5.01	4.45	4.15	3.94	3.88	3.48	4.45
1975/76	3.33	3.79	4.27	4.39	4.23	3.85	3.73	3.80	4.03	3.90	3.71	3.55	3.88
1976/77	3.60	3.58	3.35	3.25	3.02	2.94	2.78	2.88	2.98	2.95	2.96	2.93	3.10
1977/78	2.79	2.88	2.88	2.80	2.75	2.91	2.97	3.17	3.33	3.41	3.62	3.60	3.09
1978/79	3.60	3.74	3.72	3.77	3.76	3.76	3.71	3.70	3.65	3.70	3.70	3.91	3.73
1979/80	4.46	4.67	4.45	4.31	4.13	4.16	4.10	4.10	4.26	4.13	4.02	3.91	4.23
1980/81	3.92	4.15	4.06	4.23	4.48	4.68	4.40	4.52	4.52	4.41	4.51	4.41	4.36
1981/82	4.26	4.27	4.25	4.21	4.38	4.42	4.00	4.12	4.09	4.02	4.14	4.24	4.20
1982/83	4.18	4.13	4.16	4.29	4.29	4.44	4.45	4.52	4.59	4.68	4.62	4.35	4.39
1983/84	4.15	4.08	4.06	4.12	4.03	3.90	3.81	3.79	3.69	3.73	4.03	4.05	3.95
1984/85	4.03	3.73	3.74	3.70	3.73	3.78	3.76	3.77	3.83	3.93	3.94	3.91	3.82
1985/86	3.73	3.57	3.45	3.57	3.72	3.77	3.80	3.75	3.74	3.85	3.88	3.78	3.72
1986/87	3.03	2.75	2.68	2.70	2.78	2.84	2.86	2.93	3.07	3.07	2.99	3.09	2.90
1987/88	2.87	2.79	2.73	2.94	3.08	2.97	3.05	3.26	3.21	3.10	3.32	3.36	3.06
1988/89	3.79	4.05	4.15	4.39	4.46	4.68	4.81	4.98	4.97	4.81	4.63	4.66	4.53
1989/90	4.47	4.47	4.50	4.56	4.55	4.56	4.63	4.44	4.11	3.76	3.68	3.61	4.28
1990/91	3.59	3.44	3.21	3.10	2.87	2.86	2.89	2.92	3.03	3.20	3.35	3.43	3.16
1991/92	3.45	3.37	3.48	3.67	3.91	4.28	4.55	4.57	4.76	4.52	4.39	4.37	4.11
1992/93	4.46	4.19	3.99	4.33	4.34	4.21	4.20	4.34	4.05	3.85	3.77	3.53	4.11
1993/94	3.46	3.57	3.44	3.42	3.42	3.47	3.61	3.63	3.52	3.46	3.58	3.74	3.53
1994/95	3.64	3.52	3.71	4.32	4.61	4.54	4.49	4.33	4.23	3.98	4.08	4.45	4.16
1995/96	4.65	4.94	4.65	4.96	5.17	5.35	5.50	5.44	5.59	5.38	5.66	6.00	5.27
1996/97	5.55	4.96	5.02	4.79	4.28	4.10	4.06	4.10	4.13	4.25	4.54	4.70	4.54
1997/98	4.20	4.20	4.10	4.12	3.98	3.88	3.79	3.67	3.58	3.56	3.34	3.28	3.81
1998/99	2.93	2.72	2.66	2.69	3.15	3.15	3.12	3.15	3.10	3.22	3.23	3.17	3.02
1999/00	3.17	3.06	3.14	3.25	3.24	3.09	2.83	2.91	2.88	2.84	2.89	2.97	3.02
2000/01	2.92	2.78	2.65	2.78	2.86	2.94	2.98	3.01	3.15	3.26	3.20	3.37	2.99
2001/02	3.37	3.45	3.52	3.65	3.73	3.75	3.71	3.68	3.64				
							MINNEAPOLIS, DARK NO. 1 SPRING (13% PROTEIN)						
1970/71	1.78	1.81	1.81	1.88	1.91	1.92	1.88	1.83	1.79	1.74	1.75	1.72	1.82
1971/72	1.71	1.66	1.55	1.55	1.58	1.59	1.61	1.61	1.59	1.59	1.57	1.59	1.60
1972/73	1.56	1.63	1.79	2.00	2.10	2.16	2.41	2.42	2.26	2.32	2.37	2.52	2.13
1973/74	2.71	3.04	4.47	4.76	4.40	4.47	4.99	5.52	5.81	5.25	4.29	4.06	4.48
1974/75	4.70	5.04	4.82	4.85	5.46	5.54	5.18	4.53	4.26	4.18	4.19	4.34	4.76
1975/76	3.96	4.24	4.58	4.59	4.46	4.07	3.90	3.98	4.24	4.13	3.94	3.92	4.17
1976/77	4.19	4.04	3.51	3.25	3.09	2.98	2.95	3.01	3.04	2.99	2.91	2.76	3.23
1977/78	2.59	2.49	2.41	2.66	2.75	2.88	2.88	2.93	2.88	3.03	3.23	3.27	2.83
1978/79	3.19	3.08	3.11	3.23	3.40	3.47	3.34	3.30	3.32	3.38	3.44	3.72	3.33
1979/80	4.32	4.42	4.18	4.25	4.43	4.32	4.16	4.06	4.10	4.04	3.96	4.26	4.21
1980/81	4.29	4.65	4.29	4.30	4.70	4.85	4.67	4.71	4.67	4.52	4.60	4.61	4.57
1981/82	4.45	4.34	4.13	4.19	4.30	4.37	4.21	4.28	4.21	4.14	4.25	4.20	4.26
1982/83	4.12	4.13	3.92	3.94	3.93	4.01	3.90	3.88	3.90	4.08	4.41	4.37	4.05
1983/84	4.32	4.24	4.32	4.31	4.33	4.23	4.20	4.15	4.06	4.21	4.32	4.45	4.26
1984/85	4.45	4.31	3.93	3.78	3.84	3.85	3.68	3.71	3.75	3.78	3.89	3.81	3.90
1985/86	3.79	3.57	3.27	3.43	3.57	3.77	3.79	3.69	3.62	3.71	3.84	3.63	3.64
1986/87	2.91	2.69	2.59	2.64	2.77	2.91	2.88	3.03	2.95	2.94	2.91	2.95	2.85
1987/88	2.74	2.60	2.64	2.82	2.97	2.93	3.01	3.12	3.30	3.11	3.22	3.31	2.98
1988/89	4.21	4.05	4.19	4.27	4.28	4.15	4.22	4.44	4.40	4.56	4.49	4.54	4.32
1989/90	4.33	4.28	4.20	4.10	4.14	4.13	4.24	4.21	4.06	3.98	4.08	4.09	4.15

See footnotes at end of table.

Continued--

Appendix table 21--Wheat cash prices for leading classes at major markets, 1970/71-2001/02--Continued

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
							$/bushel						
							MINNEAPOLIS, DARK NO. 1 SPRING (13% PROTEIN)						
1990/91	3.90	3.54	3.01	2.78	2.80	2.75	2.79	2.82	2.85	3.00	3.09	3.11	3.04
1991/92	3.03	2.93	3.11	3.19	3.68	3.76	4.12	4.36	4.56	4.35	4.28	4.44	3.82
1992/93	4.42	4.03	3.49	3.51	3.55	3.68	3.72	3.90	3.75	3.75	3.67	3.47	3.75
1993/94	3.49	4.08	3.84	4.23	4.54	4.68	4.82	4.77	4.56	4.23	4.50	4.44	4.35
1994/95	3.92	3.82	3.88	4.14	4.29	4.28	4.28	4.13	4.06	4.04	4.10	4.40	4.11
1995/96	4.70	5.40	4.98	5.22	5.45	5.56	5.70	5.54	5.75	5.72	6.34	7.31	5.64
1996/97	6.63	5.91	5.13	4.60	4.57	4.62	4.46	4.57	4.40	4.53	4.71	4.52	4.89
1997/98	4.31	4.08	4.34	4.33	4.32	4.30	4.18	4.03	4.05	4.19	4.19	4.06	4.20
1998/99	3.91	3.83	3.46	3.39	3.87	3.98	3.86	3.72	3.67	3.75	3.55	3.53	3.71
1999/00	3.65	3.46	3.29	3.32	3.23	3.42	3.38	3.19	3.37	3.44	3.50	3.50	3.40
2000/01	3.50	3.24	2.99	3.10	3.52	3.64	3.60	3.60	3.53	3.45	3.59	3.69	3.45
2001/02	3.63	3.51	3.37	3.47	3.68	3.61	3.54	3.51	3.51				
							MINNEAPOLIS, DARK NO. 1 SPRING (15% PROTEIN)						
1970/71	1.92	1.90	1.87	1.92	1.96	1.97	1.90	1.90	1.87	1.82	1.83	1.82	1.89
1971/72	1.80	1.73	1.66	1.72	1.77	1.72	1.72	1.74	1.69	1.70	1.73	1.76	1.73
1972/73	1.70	1.74	1.96	2.09	2.14	2.22	2.42	2.42	2.29	2.33	2.39	2.57	2.19
1973/74	2.80	3.07	4.50	4.80	4.50	4.48	4.98	5.52	5.83	5.33	4.41	4.23	4.54
1974/75	5.07	5.36	5.07	5.20	5.63	5.62	5.38	4.80	4.49	4.53	4.56	4.64	5.03
1975/76	4.30	4.69	4.90	5.12	5.03	4.74	4.46	4.54	4.70	4.66	4.48	4.65	4.69
1976/77	4.75	4.44	3.79	3.56	3.41	3.30	3.14	3.13	3.15	3.13	3.09	2.91	3.48
1977/78	2.71	2.60	2.56	2.93	3.00	3.11	2.97	3.02	3.01	3.10	3.26	3.31	2.97
1978/79	3.24	3.16	3.18	3.31	3.45	3.48	3.34	3.35	3.48	3.55	3.54	3.81	3.41
1979/80	4.37	4.45	4.25	4.52	4.63	4.46	4.28	4.24	4.25	4.21	4.14	4.49	4.36
1980/81	4.52	4.90	4.75	4.97	5.16	5.28	5.07	5.06	5.05	4.92	5.12	5.10	4.99
1981/82	4.89	4.71	4.34	4.35	4.34	4.42	4.25	4.30	4.23	4.17	4.27	4.20	4.37
1982/83	4.13	4.24	4.04	4.16	4.14	4.23	4.06	4.02	4.00	4.18	4.49	4.46	4.18
1983/84	4.50	4.51	4.39	4.38	4.38	4.27	4.26	4.20	4.13	4.20	4.44	4.48	4.35
1984/85	4.48	4.34	4.29	4.23	4.27	4.28	4.24	4.23	4.22	4.24	4.39	4.29	4.29
1985/86	4.28	4.02	3.87	4.22	4.25	4.44	4.50	4.31	4.23	4.25	4.47	4.37	4.27
1986/87	3.44	3.31	3.22	3.21	3.34	3.53	3.29	3.52	3.57	3.68	3.82	4.22	3.51
1987/88	4.14	3.61	3.43	3.59	3.69	3.63	3.59	3.64	3.73	3.52	3.71	3.82	3.68
1988/89	4.57	4.54	4.36	4.39	4.39	4.30	4.30	4.43	4.40	4.56	4.47	4.57	4.44
1989/90	4.48	4.44	4.17	4.07	4.14	4.11	4.22	4.21	4.05	3.96	4.07	4.09	4.17
1990/91	3.94	3.58	3.18	3.16	3.14	3.11	3.05	3.04	3.05	3.18	3.22	3.26	3.24
1991/92	3.20	3.09	3.23	3.30	3.76	3.84	4.18	4.40	4.59	4.45	4.36	4.52	3.91
1992/93	4.71	4.18	4.33	5.18	5.12	5.05	4.64	4.92	4.69	4.81	4.58	4.59	4.73
1993/94	4.97	5.75	6.06	5.87	6.60	7.19	6.61	6.30	6.28	5.96	5.91	5.87	6.11
1994/95	4.81	4.72	4.24	4.96	5.00	5.15	5.04	4.39	4.36	4.48	4.60	4.98	4.73
1995/96	5.26	5.91	5.30	5.42	5.82	5.87	6.00	5.82	5.98	6.00	6.63	7.27	5.94
1996/97	6.85	6.28	5.76	5.40	5.66	5.21	4.95	4.95	4.70	4.93	5.14	5.04	5.41
1997/98	4.82	4.82	4.67	4.22	4.50	4.61	4.28	4.41	4.35	4.39	4.37	4.41	4.49
1998/99	4.23	4.18	3.84	3.92	4.32	4.42	4.18	4.24	4.07	4.05	3.99	3.90	4.11
1999/00	4.03	4.02	4.10	4.07	4.17	4.22	3.89	3.99	3.94	3.95	4.06	4.15	4.05
2000/01	4.08	3.91	3.73	3.37	4.10	4.03	3.97	4.12	3.97	3.98	4.02	4.12	3.95
2001/02	4.07	4.01	3.92	3.61	3.77	3.75	3.72	3.63	3.62				
							MINNEAPOLIS: NO. 1 DARK NORTHERN SPRING (14% PROTEIN) 2/						
1972/73	1.70	1.74	1.96	2.09	2.14	2.22	2.42	2.42	2.29	2.33	2.39	2.57	2.19
1973/74	2.80	3.07	4.50	4.80	4.50	4.48	4.98	5.52	5.83	5.33	4.41	4.23	4.54
1974/75	4.86	4.96	4.96	5.03	5.57	5.58	5.25	4.65	4.37	4.32	4.35	4.29	4.85
1975/76	4.19	4.48	4.75	4.82	4.71	4.38	4.17	4.23	4.44	4.38	4.24	4.26	4.42
1976/77	4.43	4.25	3.65	3.41	3.26	3.16	3.05	3.05	3.08	3.05	3.02	2.83	3.35
1977/78	2.65	2.54	2.48	2.75	2.87	2.96	2.92	2.94	2.90	3.03	3.23	3.27	2.88
1978/79	3.21	3.11	3.13	3.26	3.41	3.47	3.32	3.30	3.36	3.42	3.45	3.73	3.35
1979/80	4.32	4.42	4.19	4.29	4.45	4.29	4.17	4.07	4.08	4.02	3.96	4.31	4.21
1980/81	4.33	4.69	4.55	4.56	4.82	4.95	4.77	4.81	4.78	4.67	4.80	4.77	4.71
1981/82	4.56	4.50	4.25	4.23	4.29	4.38	4.22	4.28	4.21	4.16	4.25	4.20	4.29

See footnotes at end of table.

Continued--

Appendix table 21--Wheat cash prices for leading classes at major markets, 1970/71-2001/02--Continued

Year	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
							$/bushel						
							MINNEAPOLIS: NO. 1 DARK NORTHERN SPRING (14% PROTEIN) 2/						
1982/83	4.13	4.16	3.96	4.02	4.00	4.08	3.96	3.93	3.92	4.08	4.40	4.40	4.09
1983/84	4.39	4.38	4.34	4.33	4.33	4.25	4.21	4.17	4.08	4.24	4.37	4.45	4.30
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	4.14	4.12	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	2.80	2.82	2.83	2.85	3.00	3.07	3.10	3.06
1991/92	3.04	2.94	3.10	3.21	3.68	3.78	4.11	4.36	4.56	4.36	4.28	4.44	3.82
1992/93	4.42	4.04	3.65	3.79	3.85	3.94	3.88	4.05	3.87	3.87	3.80	3.71	3.91
1993/94	3.96	4.80	4.88	4.90	5.17	5.50	5.45	5.32	5.29	4.94	4.99	5.05	5.02
1994/95	4.20	4.14	4.00	4.27	4.40	4.41	4.37	4.21	4.09	4.11	4.30	4.61	4.26
1995/96	4.89	5.52	5.06	5.27	5.52	5.63	5.80	5.62	5.82	5.81	6.53	7.14	5.72
1996/97	6.73	6.04	5.29	4.63	4.69	4.64	4.51	4.62	4.45	4.62	4.78	4.58	4.97
1997/98	4.44	4.36	4.49	4.36	4.35	4.42	4.27	4.12	4.15	4.26	4.29	4.24	4.31
1998/99	4.01	3.89	3.58	3.53	4.03	4.15	3.97	3.92	3.78	3.79	3.65	3.61	3.83
1999/00	3.73	3.68	3.58	3.55	3.70	3.78	3.64	3.37	3.59	3.65	3.69	3.80	3.65
2000/01	3.78	3.50	3.29	3.17	3.69	3.77	3.52	3.79	3.68	3.63	3.73	3.88	3.62
2001/02	3.81	3.72	3.54	3.52	3.71	3.69	3.59	3.55	3.51				
							MINNEAPOLIS, NO. 1 HARD AMBER DURUM 2/						
1972/73	1.73	1.76	1.89	2.05	2.14	2.16	2.39	2.51	2.45	2.52	2.52	2.62	2.23
1973/74	2.89	4.04	7.52	7.08	5.90	6.26	7.57	8.11	8.32	7.43	5.97	6.51	6.47
1974/75	6.37	7.17	6.66	6.70	7.17	7.16	6.16	5.98	6.08	5.87	6.33	6.23	6.49
1975/76	5.37	5.58	6.22	6.25	5.89	5.26	4.67	4.61	4.69	4.68	4.43	4.25	5.16
1976/77	4.23	4.05	3.51	3.33	3.16	3.14	2.96	2.97	3.05	3.10	3.09	3.03	3.30
1977/78	2.84	2.84	2.80	3.12	3.42	3.54	3.51	3.62	3.61	3.60	3.72	3.79	3.37
1978/79	3.72	3.56	3.55	3.52	3.69	3.70	3.53	3.60	3.64	3.72	3.71	3.98	3.66
1979/80	4.75	4.99	4.88	5.27	5.80	5.38	4.99	4.93	5.05	4.98	4.89	5.21	5.09
1980/81	5.79	7.12	7.19	7.26	7.34	7.22	6.90	7.07	7.02	6.66	6.10	6.04	6.81
1981/82	4.86	4.91	4.75	4.56	4.60	4.58	4.51	4.59	4.57	4.45	4.45	4.49	4.61
1982/83	4.38	4.26	4.07	4.02	4.11	4.17	4.07	4.06	4.12	4.28	4.54	4.90	4.25
1983/84	4.76	4.74	5.04	5.10	4.99	4.91	4.82	4.81	4.69	4.70	4.74	4.71	4.83
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	3.24	3.37	3.49	3.55	3.44	3.51	3.37	3.48
1991/92	3.19	3.02	3.08	2.96	3.55	3.46	3.66	3.93	4.21	3.99	4.14	4.08	3.61
1992/93	3.96	3.71	3.52	3.86	3.81	3.92	3.91	3.93	4.06	3.99	4.01	3.90	3.88
1993/94	3.84	4.05	4.41	5.06	5.73	6.38	6.57	6.56	6.78	7.06	6.45	6.17	5.76
1994/95	5.76	5.19	5.30	6.16	6.64	6.61	5.99	6.23	5.91	5.87	5.64	6.47	5.98
1995/96	7.16	7.49	6.35	7.26	6.76	7.23	7.11	6.95	6.86	6.97	7.01	7.22	7.03
1996/97	6.57	6.18	5.77	5.47	5.41	5.56	5.57	5.42	5.25	5.18	5.35	5.38	5.59
1997/98	5.38	5.93	6.39	6.69	6.52	6.38	6.55	5.60	5.64	5.75	5.63	5.15	5.97
1998/99	5.00	4.59	4.20	3.78	4.04	4.15	4.05	3.91	3.67	3.65	3.61	NQ	4.06
1999/00	NQ	3.92	3.73	4.14	4.46	4.80	NQ	NQ	4.40	N/Q	4.11	4.25	4.23
2000/01	4.07	3.85	3.62	4.70	5.12	5.51	N/Q	N/Q	4.50	4.98	5.00	NQ	4.59
2001/02	4.80	4.75	5.02	5.03	5.10	5.13	5.04	5.05	NQ				

NA = Not available. NQ = No quote.

1/ Chicago (Mills) price June 1955 to May 1972, starting June 1972 to the present the price is Chicago terminal. 2/ Data from 1955/56 to 1971/72 are not available.
Source: Grain and Feed Market News, Agricultural Marketing Service, USDA.

Appendix table 22--Domestic and foreign wheat prices, 1980-2002

Year and month	United States					Foreign		
	Farm 1/	Kansas City 2/	Gulf ports 3/	Gulf ports 4/	Rotterdam 5/	Argentina 6/	Canada 7/	Australia 8/
	$/metric ton							
Calendar year:								
1980	143	159	176	NA	NA	203	192	176
1981	142	160	176	NA	NA	190	194	175
1982	129	147	161	NA	NA	166	165	160
1983	132	145	158	NA	NA	138	169	161
1984	127	140	153	NA	NA	135	166	153
1985	117	125	137	NA	NA	106	173	141
1986	100	107	117	NA	NA	88	161	120
1987	94	104	114	NA	139	90	134	115
1988	122	134	146	NA	174	127	177	150
1989	142	160	171	163	188	155	202	176
1990	110	126	137	120	159	129	158	144
1991	101	117	129	127	0	99	141	137
1992	125	144	152	146	46	125	177	165
1993	118	132	141	138	200	131	192	154
1994	129	142	150	142	194	131	199	162
1995	150	170	177	169	221	178	204	198
1996	175	201	207	188	239	218	230	229
1997	136	150	160	146	209	157	181	192
1998	107	116	126	113	181	120	163	154
1999	94	107	112	98	NA	114	152	143
2000	94	113	114	99	163	118	149	145
1990:								
January	136	158	169	164	192	145	193	174
February	131	152	162	157	184	151	189	165
March	128	148	157	150	175	151	191	161
April	128	152	162	141	172	145	179	165
May	125	144	151	133	174	148	171	159
June	113	132	136	131	173	148	165	149
July	103	114	125	120	150	141	148	134
August	95	106	118	116	141	140	139	127
September	90	104	115	109	133	140	130	125
October	89	103	116	105	136	83	128	125
November	88	102	114	109	134	82	126	124
December	88	102	114	109	144	75	132	124
1991:								
January	89	100	112	107	NA	75	132	120
February	89	102	115	107	NA	74	134	121
March	93	108	121	115	NA	84	136	127
April	96	109	122	118	NA	95	137	130
May	97	112	123	118	NA	108	136	133
June	94	110	121	119	NA	107	135	132
July	92	107	118	116	NA	107	130	127
August	97	114	126	128	NA	106	137	133
September	103	122	133	137	NA	107	146	141
October	113	134	147	146	NA	106	156	153
November	119	138	150	150	NA	107	160	158
December	126	149	162	160	NA	108	157	168
1992:								
January	130	171	171	162	NA	115	183	176
February	139	166	177	172	NA	124	190	186
March	137	159	170	163	NA	128	184	178
April	134	148	160	150	NA	118	179	171
May	134	143	150	140	NA	117	184	165
June	126	144	148	141	NA	129	186	164
July	116	129	137	132	NA	129	167	155
August	111	120	129	121	NA	130	150	145
September	118	131	139	132	NA	129	165	157
October	118	132	141	138	181	131	174	160
November	121	139	148	150	187	127	179	164
December	122	140	148	149	188	119	181	162

See footnotes at end of table.

Continued--

Appendix table 22--Domestic and foreign wheat prices, 1980-2002--Continued

Year and month	United States					Foreign		
	Farm 1/	Kansas City 2/	Gulf ports 3/	Gulf ports 4/	Rotterdam 5/	Argentina 6/	Canada 7/	Australia 8/
	$/metric ton							
1993:								
January	124	146	156	159	191	125	187	168
February	122	138	149	156	185	128	183	162
March	121	137	149	158	183	124	182	157
April	120	132	142	158	182	127	173	157
May	114	129	136	139	185	132	166	146
June	104	122	122	114	184	137	170	140
July	105	124	129	118	195	137	180	145
August	109	123	131	124	213	136	194	147
September	114	124	132	120	207	139	201	151
October	119	129	137	128	215	135	210	153
November	128	125	147	139	235	129	226	156
December	133	152	159	142	225	124	236	166
1994:								
January	132	147	155	155	NA	119	224	165
February	132	140	147	149	NA	114	218	157
March	136	134	141	136	NA	115	210	148
April	131	133	141	134	NA	122	206	148
May	126	134	140	134	NA	129	216	152
June	118	132	139	127	NA	131	201	153
July	112	128	138	122	169	130	183	149
August	119	136	148	131	182	128	175	160
September	131	149	159	148	196	140	185	172
October	138	158	167	160	207	153	191	180
November	138	156	162	154	203	154	188	178
December	137	157	165	158	209	136	188	181
1995:								
January	136	149	156	156	200	132	183	177
February	133	146	154	151	191	131	184	176
March	129	142	150	145	191	124	178	174
April	128	142	149	143	198	121	182	173
May	135	155	159	148	209	140	193	182
June	141	173	170	153	225	171	171	196
July	151	183	190	175	242	212	229	210
August	157	175	185	169	239	225	214	199
September	166	184	194	183	234	225	220	212
October	173	194	204	195	240	222	228	222
November	177	196	203	198	240	220	232	221
December	179	202	209	206	242	213	235	229
1996:								
January	177	198	207	200	237	220	228	224
February	183	208	219	205	248	244	235	233
March	186	207	216	199	246	246	234	232
April	195	243	250	246	278	267	270	262
May	211	258	262	220	291	285	291	277
June	193	225	227	181	272	263	274	250
July	174	196	203	181	255	242	253	229
August	168	184	192	176	249	207	225	217
September	161	173	179	172	195	177	188	209
October	153	175	178	163	196	169	191	209
November	151	176	176	155	199	165	187	203
December	149	173	176	156	201	136	184	203
1997:								
January	148	166	176	157	224	140	188	201
February	143	164	172	146	219	148	183	202
March	144	166	177	155	221	167	189	203
April	151	174	183	164	227	182	195	213
May	150	166	173	150	227	184	187	210
June	129	147	148	133	215	167	180	184
July	119	129	140	129	NA	164	173	165
August	131	139	152	144	194	162	180	176
September	134	139	150	145	197	154	181	177
October	132	139	153	146	194	149	177	NA
November	130	138	150	140	193	138	172	NA
December	126	134	145	138	189	133	172	NA

See footnotes at end of table.

Continued--

Appendix table 22--Domestic and foreign wheat prices, 1980-2002--Continued

Year and month	United States					Foreign		
	Farm 1/	Kansas City 2/	Gulf ports 3/	Gulf ports 4/	Rotterdam 5/	Argentina 6/	Canada 7/	Australia 8/
	$/metric ton							
1998:								
January	122	129	139	132	184	125	164	164
February	120	130	140	129	186	124	169	168
March	122	128	139	128	183	122	173	170
April	117	120	130	119	183	123	168	159
May	112	118	129	114	184	126	167	155
June	102	112	121	108	176	119	162	151
July	94	105	118	100	170	116	159	142
August	88	97	109	95	165	108	151	135
September	89	99	108	100	169	110	149	139
October	103	116	126	112	185	131	159	154
November	109	121	131	114	191	126	165	157
December	105	117	126	106	190	115	168	157
1999:								
January	104	120	125	106	190	114	167	156
February	100	112	116	98	184	104	159	150
March	97	111	118	102	185	107	155	151
April	96	108	114	101	180	120	150	146
May	91	106	112	100	173	122	146	140
June	92	108	111	97	172	128	151	142
July	82	98	101	91	NA	126	147	136
August	93	105	110	96	NA	127	148	140
September	95	107	113	96	161	130	150	144
October	94	103	107	101	160	112	148	139
November	98	106	109	100	161	95	150	138
December	93	103	103	92	163	88	147	133
2000:								
January	92	107	106	98	164	100	153	136
February	93	108	108	100	163	102	151	138
March	95	107	106	97	161	106	148	135
April	94	104	105	96	163	112	149	133
May	95	108	112	103	166	125	152	139
June	92	113	115	99	165	129	149	145
July	85	109	110	91	159	130	141	139
August	89	106	108	90	154	128	137	139
September	90	114	118	98	157	121	143	147
October	98	125	128	104	164	131	149	159
November	104	127	128	103	165	112	151	163
December	105	128	128	105	171	115	159	162
2001:								
January	105	130	133	110	173	122	162	165
February	104	123	129	107	171	124	159	160
March	105	127	130	105	167	122	154	157
April	105	125	130	100	166	125	151	157
May	109	128	135	102	168	132	156	158
June	101	122	127	98	165	130	155	155
July	99	118	124	107	166	125	155	155
August	100	116	122	105	162	123	148	159
September	105	117	122	107	161	120	147	161
October	105	121	123	115	161	126	149	164
November	106	124	125	117	164	112	150	164
December	106	120	123	118	162	109	153	159
2002:								
January	105	121	125	122	161	113	151	161
February	104	119	123	114	159	116	150	157
March	105	119	123	116	NA	114	NA	NA
April	103	119	124	113	NA	124	NA	NA

NA = Not available. NQ = No quotes. 1/ All wheat, U.S. season aver age. 2/ No.1, hard red winter, ordinary protein. 3/ No. 2, hard red winter, ordinary protein, f.o.b. vessel. 4/ No. 2, soft red winter, f.o.b. vessel. 5/ U.S. No. 2, dark northern spring, 14 percent protein, c.i.f. 6/ Calendar year 1980-1986 f.o.b.Buenos Aires; Argentine 2, f.o.b. Ports data starting January 1987. 7/ No. 1, Canadian western red spring, 13.5 percent in-store, St. Lawrence. 8/ Australian standard wheat, f.o.b.

Source: Compiled by Economic Research Service, USDA from various sources.

Appendix table 23--Wheat flour: Supply and disappearance, United States, 1966-2001

Calendar year	Wheat ground	Millfeed production	Flour production 1/	Flour and product imports 2/	Total supply	Exports		Domestic disappearance	Total population July 1	Per capita disappearance
						Flour	Products 2/			
	1,000 bushels	1,000 tons	1,000 cwt						Million	Pounds
1966	568,673	4,619	253,176	179	253,355	33,091	178	220,086	196.5	112.0
1967	549,801	4,423	245,390	222	245,612	21,056	16	224,540	198.6	113.1
1968	569,649	4,511	254,310	233	254,543	28,068	133	226,342	200.6	112.8
1969	567,956	4,458	254,194	274	254,468	26,333	158	227,977	202.6	112.5
1970	563,714	4,409	253,094	325	253,419	26,054	14	227,351	205.1	110.8
1971	555,092	4,279	249,810	341	250,151	20,685	15	229,451	207.7	110.5
1972	557,801	4,303	250,441	477	250,918	20,335	19	230,564	209.9	109.8
1973	567,287	4,395	254,661	550	255,211	16,107	26	239,078	211.9	112.8
1974	562,962	4,483	251,097	665	251,762	14,453	33	237,276	213.9	110.9
1975	582,675	4,701	258,985	621	259,606	12,364	22	247,220	216.0	114.5
1976	618,284	4,920	275,077	604	275,681	16,064	44	259,573	218.0	119.1
1977	618,125	4,787	275,784	604	276,388	22,053	37	254,298	220.2	115.5
1978	621,321	4,860	277,950	773	278,723	22,170	43	256,510	222.6	115.2
1979	636,375	4,945	284,051	823	284,874	22,927	86	261,861	225.1	116.3
1980	628,559	4,866	282,655	904	283,559	17,378	54	266,127	227.7	116.9
1981	634,381	5,045	283,996	1,166	285,162	18,655	84	266,423	229.9	115.9
1982	653,206	5,228	290,907	1,496	292,403	20,926	154	271,323	232.2	116.9
1983	698,951	5,655	311,587	1,590	313,177	37,315	150	275,712	234.3	117.7
1984	675,274	5,426	299,832	2,028	301,860	20,179	162	281,519	236.3	119.1
1985	700,151	5,556	313,815	2,087	315,902	18,614	143	297,146	238.5	124.6
1986	737,537	5,799	326,316	2,252	328,568	26,160	124	302,283	240.7	125.6
1987	767,507	6,260	341,565	2,663	344,228	28,880	144	315,204	242.8	129.8
1988	769,699	6,163	344,154	2,727	346,881	24,097	185	322,599	245.0	131.7
1989	761,021	6,072	342,762	3,277	346,039	24,917	176	320,946	247.3	129.8
1990	788,186	6,109	354,348	3,392	357,740	17,582	305	339,853	250.0	136.0
1991	808,966	6,436	362,311	3,858	366,169	19,611	557	346,001	253.3	136.6
1992	833,339	6,707	370,829	4,749	375,578	20,194	787	354,597	256.7	138.1
1993	871,408	6,951	387,419	5,786	393,205	22,731	687	369,787	260.0	142.2
1994	884,707	7,186	392,519	8,425	400,944	23,801	811	376,332	263.2	143.0
1995	869,296	7,144	388,689	8,918	397,607	23,615	857	373,135	266.4	140.1
1996	878,070	7,042	397,776	8,574	406,350	10,651	881	394,818	269.5	146.5
1997	885,843	6,886	404,143	8,684	412,827	11,038	1,167	400,622	272.8	146.9
1998	902,532	6,955	398,914	9,830	408,744	12,574	1,353	394,817	276.0	145.9
1999	917,797	7,040	411,968	9,295	416,354	21,297	1,633	393,377	279.1	144.0
2000	944,868	7,374	421,270	9,666	430,936	16,005	1,693	413,238	282.5	146.3
2001	929,899	7,215	410,976	10,136	421,112	10,484	1,678	408,950	286.4	142.8

1/ Commercial production of wheat flour, whole wheat, industrial, and durum flour and farina reported by Bureau of Census. Production prior to 1970 includes estimate for noncommercial wheat milled.

2/ Imports and exports of macaroni and noodle products (flour equivalent), reporting methods changed in 1990. 3/ Preliminary.

Source: Bureau of the Census and Economic Research Service (estimates), USDA.

Appendix table 24--Wheat and flour price relationships at milling centers, annual and by periods, 1986/87-2001/02

Year and period	At Kansas City					At Minneapolis				
	Cost of wheat to produce 100 lb. of flour 1/	Wholesale price of				Cost of wheat to produce 100 lb. of flour 1/	Wholesale price of			
		Bakery flour per 100 lb.2/	Byproducts obtained 100 lb. flour 3/	Total products			Bakery flour per 100 lb. 2/	Byproducts obtained 100 lb. flour 3/	Total products	
				Actual	Over cost of wheat				Actual	Over cost of wheat
	Dollars									
1986/87:										
June-Aug.	6.19	7.90	0.79	8.69	2.50	6.86	9.70	0.62	10.32	3.46
Sep.-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
Sep.-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:										
Jun.-Aug.	8.83	9.57	1.57	11.13	2.30	9.72	11.00	1.48	12.48	2.76
Sep.-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	2.07
1989/90:										
June-Aug.	9.86	11.07	1.14	12.21	2.35	9.84	10.63	1.15	11.78	1.94
Sep.-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	9.17	10.10	1.32	11.42	2.25	9.03	9.60	1.26	10.86	1.83
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
Sep.-Nov.	6.53	7.25	1.42	8.67	2.14	6.45	7.18	1.35	8.54	2.08
Dec.-Feb.	6.54	7.32	1.34	8.66	2.12	6.46	7.17	1.26	8.42	1.96
Mar.-May	6.93	7.95	1.10	9.05	2.11	6.97	7.72	1.03	8.75	1.78
Mkt. year	6.86	7.78	1.29	9.07	2.21	6.98	7.73	1.21	8.94	1.96
1991/92:										
June-Aug.	6.86	8.02	1.05	9.07	2.21	6.90	7.72	1.00	8.71	1.81
Sep.-Nov.	8.21	9.07	1.34	10.41	2.20	8.11	8.75	1.23	9.98	1.87
Dec.-Feb.	9.85	10.65	1.45	12.10	2.25	9.90	10.48	1.24	11.72	1.82
Mar.-May	9.42	10.37	1.21	11.57	2.16	9.94	10.62	1.16	11.78	1.84
Mkt. year	8.58	9.53	1.26	10.79	2.21	8.71	9.39	1.16	10.55	1.84
1992/93:										
June-Aug.	8.45	9.48	1.10	10.58	2.13	9.20	10.00	1.06	11.06	1.85
Sep.-Nov.	8.25	9.47	1.44	10.90	2.66	8.80	9.98	1.41	11.39	2.59
Dec.-Feb.	8.98	9.87	1.46	11.32	2.35	8.97	10.18	1.23	11.41	2.44
Mar.-May	8.43	9.78	1.13	10.91	2.48	8.65	10.32	0.91	11.23	2.58
Mkt. year	8.53	9.65	1.28	10.93	2.40	8.91	10.12	1.15	11.27	2.37
1993/94:										
June-Aug.	8.64	9.80	1.09	10.89	2.25	10.37	11.73	1.01	12.75	2.38
Sep.-Nov.	10.48	10.47	1.56	12.02	1.54	11.83	12.53	1.41	13.94	2.11
Dec.-Feb.	10.90	10.83	1.79	12.62	1.72	12.21	13.17	1.46	14.63	2.42
Mar.-May	10.09	10.25	1.39	11.64	1.55	11.38	12.55	1.23	13.78	2.39
Mkt. year	10.03	10.34	1.46	11.79	1.77	11.45	12.50	1.28	13.77	2.33

See footnotes at end of table.

Continued--

Appendix table 24--Wheat and flour price relationships at milling centers, annual and by periods, 1986/87-2001/02--Continued

Year and period	At Kansas City					At Minneapolis				
	Cost of wheat to produce 100 lb. of flour 1/	Wholesale price of				Cost of wheat to produce 100 lb. of flour 1/	Wholesale price of			
		Bakery flour per 100 lb.2/	Byproducts obtained 100 lb. flour 3/	Total products			Bakery flour per 100 lb. 2/	Byproducts obtained 100 lb. flour 3/	Total products	
				Actual	Over cost of wheat				Actual	Over cost of wheat
	Dollars									
1994/95:										
June-Aug.	8.56	9.72	1.27	10.99	2.43	9.38	10.82	1.14	11.95	2.57
Sep.-Nov.	9.73	10.80	1.29	12.09	2.36	9.94	11.13	1.11	12.24	2.30
Dec.-Feb.	9.42	10.63	1.19	11.82	2.40	9.63	10.85	0.94	11.79	2.16
Mar.-May	9.28	10.83	1.10	11.93	2.65	9.90	11.23	0.99	12.23	2.33
Mkt. year	9.25	10.50	1.21	11.71	2.46	9.71	11.01	1.04	12.05	2.34
1995/96:										
June-Aug.	11.51	12.45	1.21	13.66	2.15	11.76	12.70	1.06	13.76	2.00
Sep.-Nov.	12.50	12.88	1.79	14.68	2.18	12.48	13.07	1.57	14.63	2.15
Dec.-Feb.	13.03	13.07	2.31	15.38	2.35	13.10	13.17	1.97	15.14	2.04
Mar.-May	14.85	15.00	2.40	17.40	2.55	14.80	13.17	2.13	15.29	0.49
Mkt. year	12.97	13.35	1.93	15.28	2.31	13.04	13.03	1.68	14.71	1.67
1996/97:										
June-Aug.	12.61	13.35	2.19	15.54	2.93	13.73	13.98	2.23	16.21	2.49
Sep.-Nov.	10.82	11.30	1.96	13.26	2.44	10.61	10.88	1.91	12.79	2.19
Dec.-Feb.	10.58	11.08	1.92	13.00	2.42	10.32	10.52	1.75	12.26	1.94
Mar.-May	10.85	11.82	1.63	13.45	2.60	10.62	11.32	1.58	12.90	2.27
Mkt. year	11.22	11.89	1.92	13.81	2.60	11.32	11.68	1.87	13.54	2.22
1997/98:										
June-Aug.	9.20	10.42	1.20	11.62	2.42	10.10	10.98	1.28	12.27	2.17
Sep.-Nov.	9.31	10.00	1.66	11.66	2.35	9.98	10.50	1.50	12.00	2.02
Dec.-Feb.	8.87	9.65	1.65	11.30	2.43	9.53	10.27	1.44	11.71	2.18
Mar.-May	8.75	9.87	1.20	11.07	2.32	9.72	10.72	1.13	11.84	2.12
Mkt. year	9.03	9.98	1.43	11.41	2.38	9.83	10.62	1.34	11.96	2.12
1998/99:										
June-Aug.	7.80	8.93	1.10	10.03	2.23	8.72	9.97	1.00	10.97	2.24
Sep.-Nov.	8.15	9.43	0.94	10.37	2.22	9.05	10.03	0.92	10.95	1.90
Dec.-Feb.	8.13	9.10	1.29	10.39	2.26	8.87	9.72	1.17	10.88	2.02
Mar.-May	7.57	8.78	1.01	9.79	2.22	8.40	9.47	1.00	10.46	2.06
Mkt. Year	7.91	9.06	1.08	10.15	2.23	8.76	9.80	1.02	10.82	2.06
1999/00:										
June-Aug.	7.62	8.88	0.80	9.68	2.06	8.35	9.20	0.86	10.06	1.71
Sep.-Nov.	7.84	8.85	1.01	9.86	2.02	8.30	9.37	0.92	10.29	1.99
Dec.-Feb.	7.81	8.60	1.16	9.76	1.95	8.06	9.13	1.04	10.17	2.11
Mar.-May	7.68	9.10	0.95	10.05	2.37	8.47	9.48	0.96	10.44	1.98
Mkt. Yr.	7.74	8.86	0.98	9.84	2.10	8.29	9.30	0.95	10.24	1.95
2000/01										
June-Aug.	7.58	9.13	0.79	9.93	2.35	8.03	9.10	0.84	9.94	1.90
Sep.-Nov.	7.99	9.35	1.04	10.39	2.40	8.03	9.14	0.95	10.09	2.07
Dec. Feb.	8.13	9.15	1.49	10.64	2.51	8.35	9.20	1.21	10.41	2.06
Mar.-May	8.08	9.82	0.92	10.73	2.66	8.54	9.67	0.86	10.53	1.99
Mrt. Yr.	7.95	9.36	1.06	10.42	2.48	8.24	9.28	0.97	10.24	2.01
2001/02										
June-Aug.	7.67	9.13	1.14	10.27	2.61	8.41	9.40	0.95	10.35	1.94
Sep.-Nov.	7.63	8.90	1.23	10.13	2.50	8.19	9.07	1.21	10.28	2.09
Dec. Feb.	7.71	8.95	1.19	10.14	2.43	8.09	9.00	1.13	10.13	2.03
Mar.-May										
Mrt. Yr. 4/	7.67	8.99	1.19	10.18	2.51	8.23	9.16	1.10	10.25	2.02

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. 4/ Preliminary.

Source: Compiled by Economic Research Service from reports of Agricultural Marketing Service, USDA and Milling and Baking News

Appendix table 25--U.S. wheat production: Costs and returns, 1998-2002

Item	1998	1999	2000	2001F	2002F
			Dollars per planted acre		
Gross value of production					
Primary product: Wheat grain	110.95	95.80	92.57	na	na
Secondary product: Straw/grazing	3.32	3.05	3.20	na	na
Total, gross value of production	114.27	98.85	95.77	na	na
Operating costs:					
Seed	7.61	6.38	6.14	6.48	6.45
Fertilizer	18.61	16.95	17.28	18.93	18.31
Chemicals	7.36	7.22	7.13	7.23	7.33
Custom operations	6.77	6.47	6.50	6.52	6.65
Fuel, lube, and electricity	6.14	6.53	9.13	8.63	8.55
Repairs	9.00	9.44	9.97	10.21	10.37
Purchased irrigation water and baling	0.58	0.57	0.59	0.59	0.60
Interest on operating inputs	1.34	1.26	1.64	1.00	0.73
Total, operating costs	57.41	54.82	58.38	59.59	58.99
Allocated overhead:					
Hired labor	2.12	2.17	2.30	2.29	2.33
Opportunity cost of unpaid labor	14.85	15.32	15.74	15.70	15.94
Capital recovery of machinery and equipment	43.00	45.52	48.25	49.47	50.23
Opportunity cost of land (rental rate)	37.52	37.89	38.53	38.68	39.43
Taxes and insurance	3.70	3.74	3.82	3.82	3.89
General farm overhead	6.59	6.69	6.84	6.98	7.05
Total, allocated overhead	107.78	111.33	115.48	116.94	118.87
Total, costs listed	165.19	166.15	173.86	176.53	177.86
Value of production less total costs listed	-50.92	-67.30	-78.09	na	na
Value of production less operating costs	56.86	44.03	37.39	na	na
Yield (bushels per planted acre)	41.40	38.60	37.60	na	na
Price (dollars per bushel at harvest)	2.68	2.48	2.46	na	na

F=Forecasts are based on USDA long-term agricultural baseline projections.

na = Not availlable.

Costs are projected primarily by applying changes for 2001 and 2002 in the index of prices paid for farm inputs to the 2000 production costs per planted acre.

Note: Time-series production costs and returns data before 1998 do not appear in this report because ERS is now publishing estimates using the new methodology and new reporting formats that are different than in the past. Visit the ERS website for the time-series data and new methodology at www.ers.usda.gov/Data/CostsAndReturns/.

Source:Economic Research Service, USDA. Contact: Mir Ali (mirali@ers.usda.gov)

Appendix table 26--On-farm receipts of major crops, United States, 1988-2002 1/

Receipts 2/	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 P	2002 F
								Billion dollars							
Food grains	7.47	8.25	7.48	7.33	8.47	8.31	9.55	10.36	10.80	10.41	8.82	6.97	6.64	7.41	6.65
Rice	1.09	0.94	1.05	1.03	1.26	0.82	1.67	1.28	1.57	1.68	1.72	1.50	1.15	1.34	0.91
Rye	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	NA	NA
Wheat	6.36	7.29	6.41	6.28	7.19	7.46	7.86	9.05	9.21	8.71	7.08	5.44	5.47	6.05	5.72
Feed crops	14.28	17.05	18.67	19.33	20.10	20.20	20.31	24.52	27.25	27.10	22.66	19.62	19.96	23.35	21.95
Barley 3/	0.86	0.76	0.82	0.81	0.81	0.66	0.70	0.82	0.97	0.80	0.59	0.56	0.55	0.59	1.56
Corn	8.92	11.39	13.35	14.44	14.67	14.61	14.64	18.89	20.73	20.03	17.23	14.82	15.09	17.38	16.33
Hay	3.12	3.38	3.27	2.77	3.12	3.56	3.70	3.29	3.89	4.59	3.78	3.33	3.41	4.43	4.05
Oats	0.30	0.27	0.22	0.14	0.18	0.14	0.13	0.12	0.14	0.11	0.08	0.07	0.07	NA	NA
Sorghum grain	1.07	1.24	1.00	1.16	1.31	1.23	1.13	1.38	1.51	1.55	0.95	0.83	0.82	NA	NA
Silage	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.02	NA	NA
Cotton (incl. seed)	4.53	5.03	5.49	5.24	5.23	5.28	6.74	6.85	6.98	6.35	6.07	4.70	4.55	6.17	3.74
Tobacco	2.07	2.41	2.73	2.88	2.96	2.95	2.66	2.55	2.79	2.87	2.80	2.27	2.31	1.36	2.12
Oil crops 4/	13.50	11.87	12.26	12.70	13.29	13.22	14.65	15.49	16.34	19.74	17.38	13.61	13.86	13.76	14.73
Flaxseed	0.02	0.01	0.02	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.03	0.03	0.03	NA	NA
Peanuts	1.12	1.12	1.26	1.39	1.29	1.03	1.23	1.01	1.03	1.00	1.13	0.97	0.84	0.74	0.93
Soybeans	12.14	10.52	10.76	10.97	11.62	11.78	12.82	13.87	14.80	18.06	15.57	12.02	12.54	12.57	13.28
Sunflowerseed	0.22	0.21	0.22	0.27	0.30	0.30	0.46	0.47	0.38	0.50	0.46	0.40	0.29	NA	NA
Vegetables	9.79	11.56	11.46	11.62	11.77	13.68	14.06	14.98	14.46	14.67	15.16	15.24	15.89	17.03	16.43
Fruits/nuts	9.03	9.15	9.42	9.92	10.15	10.31	10.33	11.08	11.90	13.14	11.65	12.29	12.69	11.99	13.26
All other crops 5/	10.93	11.58	12.80	13.06	13.70	13.73	14.69	15.01	15.82	16.87	17.16	17.89	18.21	18.22	18.99
Total c rops	71.60	76.89	80.31	82.08	85.66	87.67	92.98	100.83	106.35	111.16	101.70	92.58	94.11	99.29	97.87

NA = Not available. P = Preliminary. F = Forecast.

1/ Includes proceeds from placement of commodities under Commodity Credit Corporation loans. 2/ Calendar year. 3/ 1999-2001 includes barley, oats and sorghum.

4/ Excludes cotton seeds. 5/ Includes sugar, seed, green house, nursery, and other miscellaneous crops.

Source: Economic Research Service, USDA. Contact: Larry Traub, (202-694-5593) or email: ltraub@econ.ag.gov

Appendix table 27--Wheat: Supply and disappearance, United States, 1910/11-2001/02

Marketing year 1/	Acreage harvested	Yield per harvested acre	Production	Domestic use 2/	Exports	Ending stocks	Season-average farm price	Stocks-to-use ratio
	Million acres	Bushels		---Million bu.---			$/bu.	Percent
1910/11	45.8	13.7	625.5	540.0	71.3	125.0	0.91	20.4
1911/12	49.9	12.4	618.2	554.0	81.9	110.0	0.87	17.3
1912/13	48.4	15.1	730.0	570.0	145.2	125.0	0.81	17.5
1913/14	52.0	14.4	751.1	616.0	148.0	115.0	0.79	15.1
1914/15	55.6	16.1	897.5	609.0	335.7	67.0	0.98	7.1
1915/16	60.3	16.7	1,008.6	609.0	246.2	225.0	0.96	26.3
1916/17	53.5	11.9	634.6	596.0	206.0	80.0	1.43	10.0
1917/18	46.8	13.2	619.8	556.0	132.6	40.0	2.05	5.8
1918/19	61.1	14.8	904.1	580.0	287.4	85.0	2.05	9.8
1919/20	73.7	12.9	952.1	647.0	222.0	170.0	2.16	19.6
1920/21	62.4	13.5	843.3	575.0	369.3	124.0	1.83	13.1
1921/22	64.6	12.7	819.0	579.0	282.6	96.0	1.03	11.1
1922/23	61.4	13.8	846.6	602.0	224.9	132.0	0.97	16.0
1923/24	56.9	13.3	759.5	619.0	159.9	137.0	0.93	17.6
1924/25	52.5	16.0	841.6	613.0	260.8	108.0	1.25	12.4
1925/26	52.4	12.8	668.7	585.0	108.0	97.0	1.44	14.0
1926/27	56.6	14.7	832.2	610.0	219.2	109.0	1.22	13.1
1927/28	59.6	14.7	875.1	678.0	206.3	113.0	1.19	12.8
1928/29	59.2	15.4	914.4	653.0	163.7	227.0	1.00	27.8
1929/30	63.4	13.0	824.2	616.0	153.2	291.0	1.04	37.8
1930/31	62.6	14.2	886.5	751.0	131.5	313.0	0.67	35.5
1931/32	57.7	16.3	941.5	753.0	135.8	375.0	0.39	42.2
1932/33	57.9	13.1	756.3	719.0	41.2	378.0	0.38	49.7
1933/34	49.4	11.2	552.2	628.0	37.0	273.0	0.74	41.1
1934/35	43.3	12.2	526.1	654.0	21.5	146.0	0.85	21.6
1935/36	51.3	12.2	628.2	661.0	15.9	140.0	0.83	20.7
1936/37	49.1	12.8	629.9	689.0	21.6	83.0	1.02	11.7
1937/38	64.2	13.6	873.9	697.0	107.2	153.0	0.96	19.0
1938/39	69.2	13.3	919.9	712.0	115.8	250.0	0.56	30.2
1939/40	52.7	14.1	741.2	663.0	54.3	280.0	0.69	39.0
1940/41	53.3	15.3	814.6	676.0	40.6	385.0	0.68	53.7
1941/42	55.9	16.9	942.0	667.0	35.8	631.0	0.94	89.8
1942/43	49.8	19.5	969.4	946.0	33.4	619.0	1.10	63.2
1943/44	51.4	16.4	843.8	1,237.0	51.1	317.0	1.36	24.6
1944/45	59.7	17.8	1,060.1	1,086.0	56.7	279.0	1.41	24.4
1945/46	65.2	17.0	1,107.6	965.0	318.7	100.0	1.49	7.8
1946/47	67.1	17.2	1,152.1	836.0	367.4	84.0	1.90	7.0
1947/48	74.5	18.2	1,358.9	903.0	479.8	196.0	2.29	14.2
1948/49	72.4	17.9	1,294.9	854.0	505.3	307.0	1.98	22.6
1949/50	75.9	14.5	1,098.4	800.0	308.2	425.0	1.88	38.4
1950/51	61.6	16.5	1,019.3	689.6	344.7	491.7	2.00	47.5
1951/52	61.9	16.0	988.2	694.6	485.5	329.7	2.11	27.9
1952/53	71.1	18.4	1,306.4	655.6	332.0	672.2	2.09	68.1
1953/54	67.8	17.3	1,173.1	643.7	213.6	993.6	2.04	115.9
1954/55	54.4	18.1	983.9	604.7	267.2	1,109.4	2.12	127.2
1955/56	47.3	19.8	937.1	603.9	322.2	1,130.2	1.98	122.0
1956/57	49.8	20.2	1,005.4	598.6	541.0	1,004.0	1.97	88.1
1957/58	43.8	21.8	955.7	589.7	418.5	962.2	1.93	95.4
1958/59	53.0	27.5	1,457.4	610.3	449.6	1,368.1	1.75	129.1
1959/60	51.7	21.6	1,117.7	606.9	501.8	1,384.2	1.76	124.8

See footnotes at end of table.

Continued--

Appendix table 27--Wheat: Supply and disappearance, United States, 1910/11-2001/02--Continued

Marketing year 1/	Acreage harvested	Yield per harvested acre	Production	Domestic use 2/	Exports	Ending stocks	Season-average farm price	Stocks-to-use ratio
	Million acres	Bushels		---Million bu.---			$/bu.	Percent
1960/61	51.9	26.1	1,354.7	591.0	653.5	1,502.4	1.74	120.7
1961/62	51.6	23.9	1,232.4	604.4	715.7	1,420.6	1.83	107.6
1962/63	43.7	25.0	1,092.0	598.8	649.4	1,269.7	2.04	101.7
1963/64	45.5	25.2	1,146.8	581.5	845.6	993.5	1.85	69.6
1964/65	49.8	25.8	1,283.4	634.9	722.7	921.1	1.37	67.8
1965/66	49.6	26.5	1,315.6	725.3	851.8	660.5	1.35	41.9
1966/67	49.6	26.3	1,304.9	683.1	771.3	512.8	1.63	35.3
1967/68	58.4	25.8	1,507.6	625.8	765.3	630.2	1.39	45.3
1968/69	54.8	28.4	1,556.6	739.7	544.2	904.0	1.24	70.4
1969/70	47.1	30.6	1,442.7	764.0	603.0	982.6	1.25	71.9
1970/71	43.6	31.0	1,351.6	772.1	740.8	822.8	1.33	54.4
1971/72	47.7	33.9	1,618.6	849.3	609.8	983.4	1.34	67.4
1972/73	47.3	32.7	1,546.2	798.7	1,135.1	597.1	1.76	30.9
1973/74	54.1	31.6	1,710.8	753.4	1,217.0	340.1	3.95	17.3
1974/75	65.4	27.2	1,781.9	671.9	1,018.5	435.0	4.09	25.7
1975/76	69.5	30.6	2,126.9	725.8	1,172.9	665.6	3.56	35.1
1976/77	70.9	30.3	2,148.8	754.4	949.5	1,113.2	2.73	65.3
1977/78	66.7	30.7	2,045.5	859.0	1,123.8	1,177.8	2.33	59.4
1978/79	56.5	31.4	1,775.5	836.9	1,194.2	924.1	2.97	45.5
1979/80	62.5	34.2	2,134.1	783.0	1,375.3	902.0	3.80	41.8
1980/81	71.1	33.5	2,380.9	782.5	1,513.8	989.1	3.99	43.1
1981/82	80.6	34.5	2,785.4	847.2	1,770.7	1,159.4	3.69	44.3
1982/83	77.9	35.5	2,765.0	908.2	1,508.7	1,515.1	3.45	62.7
1983/84	61.4	39.4	2,419.8	1,113.8	1,426.4	1,398.6	3.51	55.1
1984/85	66.9	38.8	2,594.8	1,156.1	1,421.4	1,425.2	3.39	55.3
1985/86	64.7	37.5	2,424.1	1,051.5	909.1	1,905.0	3.08	97.2
1986/87	60.7	34.4	2,090.6	1,197.4	998.5	1,820.9	2.42	82.9
1987/88	55.9	37.7	2,107.7	1,096.0	1,587.9	1,260.8	2.57	47.0
1988/89	53.2	34.1	1,812.2	979.2	1,414.9	701.6	3.72	29.3
1989/90	62.2	32.7	2,036.6	992.3	1,232.0	536.5	3.72	24.1
1990/91	69.1	39.5	2,729.8	1,365.1	1,069.5	868.1	2.61	35.7
1991/92	57.8	34.3	1,980.1	1,131.6	1,282.3	475.0	3.00	19.7
1992/93	62.8	39.3	2,466.8	1,127.6	1,353.6	530.7	3.24	21.4
1993/94	62.7	38.2	2,396.4	1,239.7	1,227.8	568.5	3.26	23.0
1994/95	61.8	37.6	2,321.0	1,286.6	1,188.3	506.6	3.45	20.5
1995/96	61.0	35.8	2,182.7	1,140.1	1,241.1	376.0	4.55	15.8
1996/97	62.8	36.3	2,277.4	1,300.6	1,001.5	443.6	4.30	19.3
1997/98	62.8	39.5	2,481.5	1,257.1	1,040.4	722.5	3.38	31.4
1998/99	59.0	43.2	2,547.3	1,384.5	1,042.4	945.9	2.65	39.0
1999/00	53.8	42.7	2,299.0	1,300.1	1,089.5	949.7	2.48	39.7
2000/01 3/	53.1	42.0	2,232.5	1,335.2	1,060.6	876.2	2.62	36.6
2001/02 4/	49.0	40.2	1,957.6	1,253.0	975.0	700.8	2.75-2.85	31.5

1/ 1910/1911-1949/50-July-June marketing year; starting 1950/51, June-May marketing year. 2/ 1941/42-1949/50 includes procurement for both civilian relief feeding and military food use. 3/ Estimate. 4/ Projected.

Source: Economic Research Sevice, USDA.

Appendix table 28--Quarterly government stock activity for wheat, 1996/97-2001/02

	1996/97				1997/98				1998/99			
	June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May	June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May	June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May
	Million bushels											
9-month loans:												
Carryin outstanding	13.0	42.0	131.2	130.3	72.2	101.0	169.1	191.3	133.9	236.4	246.1	242.2
Loans made	40.8	101.5	45.8	6.2	82.8	96.9	65.5	17.5	200.3	89.9	43.3	26.9
Certificate exchange	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash redemption	11.8	12.3	46.7	64.3	54.0	28.8	43.3	73.4	92.4	72.6	44.3	114.8
CCC collateral acquired	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	5.4	7.6	2.9	14.3
Reserve conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carryout outstanding	42.0	131.2	130.3	72.2	101.0	169.1	191.3	133.9	236.4	246.1	242.2	140.0
FOR loans:												
Carryin FOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reserve conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash redemption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CCC collateral acquired	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Certificate exchange	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carryout FOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CCC owned:												
Carryin CCC	118.2	109.5	96.1	95.3	93.0	93.2	93.1	93.0	94.2	99.8	126.6	124.2
CCC collateral acquired	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	5.4	7.6	2.9	14.3
Certificate exchange	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other 1/	8.7	13.4	0.8	2.3	-0.2	0.1	0.1	0.3	-0.2	-19.2	5.3	10.6
Carryout CCC	109.5	96.1	95.3	93.0	93.2	93.1	93.0	94.2	99.8	126.6	124.2	127.9
Unencumbered carryin	244.8	1,572.7	991.5	596.2	278.4	1,882.1	1,357.0	882.3	494.4	2,049.3	1,523.1	1,084.0
Total carryin stocks	376.0	1,724.2	1,218.8	821.8	443.6	2,076.3	1,619.2	1,166.6	722.5	2,385.5	1,895.8	1,450.4

See footnotes at end of table.

Continued--

Appendix table 28--Quarterly government stock activity for wheat, 1996/97-2001/02--Continued

	1999/2000				2000/2001				2001/2002			
	June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May	June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May	June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May
	Million bushels											
9-month loans:												
Carryin outstanding	140.0	101.4	117.4	105.0	62.0	117.6	97.4	77.9	42.2	109.8	128.6	NA
Loans made	65.4	57.3	25.1	10.2	111.6	47.7	15.1	7.0	100.8	49.8	31.1	NA
Certificate exchange	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
Cash redemption	87.5	35.7	34.1	47.3	44.7	60.5	29.0	40.3	27.0	28.0	32.6	NA
CCC collateral acquired	16.5	5.6	3.4	5.9	11.3	7.4	5.6	2.4	6.2	3.0	1.8	NA
Reserve conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
Carryout outstanding	101.4	117.4	105.0	62.0	117.6	97.4	77.9	42.2	109.8	128.6	125.3	NA
FOR loans:												
Carryin FOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
Reserve conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
Cash redemption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
CCC collateral acquired	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
Certificate exchange	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
Carryout FOR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
CCC owned:												
Carryin CCC	127.9	132.2	115.0	108.7	103.9	101.6	102.9	104.4	96.9	97.7	96.9	NA
CCC collateral acquired	16.5	5.6	3.4	5.9	11.3	7.4	5.6	2.4	6.2	3.0	1.8	NA
Certificate exchange	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
Other 1/	12.2	22.8	9.7	10.7	13.6	6.1	4.1	9.9	5.4	3.8	2.2	NA
Carryout CCC	132.2	115.0	108.7	103.9	101.6	102.9	104.4	96.9	97.7	96.9	96.5	NA
Unencumbered carryin	678.0	2,211.4	1,651.3	1,202.8	783.8	2,126.2	1,605.8	1,156.1	737.1	1,948.3	1,398.0	NA
Total carryin stocks	945.9	2,445.0	1,883.7	1,416.5	949.7	2,352.7	1,806.1	1,338.4	876.2	2,155.8	1,623.5	NA

1/ Includes P.L. 480 exchanges for Title II, off-grade sales, domestic programs, Section 416 export program, and residual errors.

Source: Farm Service Agency, USDA.

Appendix table 29--U.S. wheat exports: By selected program, 1978/79-2000/01

Fiscal year	P.L. 480	Section 416	Food for Progress	AID 1/	Total concessional	CCC export credit	Export Enhancement Program	Total U.S. wheat exports 2/	Total concessional, CCC export credit, and EEP exports divided by total exports 3/
					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	4,916	24,626	59
1986/87	3,927	406	--	1	4,334	8,125	12,214	28,204	67
1987/88	3,321	1,186	--	292	4,799	9,273	26,679	40,523	80
1988/89	3,020	137	--	806	3,963	8,897	17,906	37,660	68
1989/90	2,985	0	52	28	3,065	7,759	12,806	28,064	70
1990/91	3,067	0	92	0	3,159	8,339	15,150	26,792	78
1991/92	2,286	0	130	0	2,416	13,334	21,111	34,322	76
1992/93	2,043	891	1,067	NA	4,001	8,538	21,806	36,081	79
1993/94	2,801	0	726	NA	3,527	5,874	18,157	31,145	75
1994/95	1,491	0	457	NA	1,948	4,202	18,073	32,088	68
1995/96	1,530	0	0	NA	1,530	5,662	570	33,707	23
1996/97	1,009	0	146	NA	1,155	4,844	0	24,525	24
1997/98	1,453	0	274	NA	1,727	5,460	0	25,791	28
1998/99	556	4,682	95	NA	5,334	3,664	0	28,806	31
1999/2000 4/	674	2,635	126	NA	3,436	3,697	0	27,838	26
2000/2001 4/	1,294	1,637	53	NA	2,984	4,037	0	25,186	28

1/ U.S. Agency for International Development Commodity Import Program. 2/ Excludes exports of seed wheat for sowing. 3/ Shares of wheat exports take into consideration the overlap between sales under the EEP and export credit guarantee programs. 4/ 1997-2001 P.L. 480 data are planned shipments of bulk wheat. -- = Not applicable. NA = Not available.

Sources: P.L. 480 shipment data for 1979-96 are from USDA, ERS as of 2/19/97; FY 1996/97-1999/00 planned food aid shipments are from USDA, FAS, annual reports of planned shipments; export credit guarantee and EEP data are from USDA, FAS, Export Credits Division; export data are from USDA, ERS, Foreign Agricultural Trade of the United States.

Appendix table 30--Rye: Supply, disappearance, area, and price, 1990/91-2001/02

Item	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01 1/	2001/02 2/
						1,000 acres						
Area												
Planted	1,625	1,671	1,542	1,493	1,613	1,602	1,457	1,400	1,566	1,582	1,329	1,328
Harvested	375	395	391	381	407	385	345	316	418	383	296	255
						Bushels per acre						
Yield	27.1	24.6	29.3	27.1	27.9	26.1	25.9	25.7	29.1	28.8	28.3	27.3
						Million bushels						
Supply:												
Beginning stocks	5.6	3.3	1.5	1.6	1.0	1.5	0.9	0.8	0.8	2.4	1.6	1.2
Production 3/	10.2	9.7	11.4	10.3	11.3	10.1	8.9	8.1	12.2	11.0	8.4	7.0
Imports	3.9	4.5	3.1	4.6	4.4	3.8	4.3	5.6	3.3	3.4	3.2	6.0
Total supply	19.7	17.6	16.1	16.5	16.7	15.3	14.2	14.4	16.2	16.9	13.2	14.2
Disappearance:												
Food	3.5	3.5	3.4	3.5	3.3	3.3	3.5	3.3	3.6	3.3	3.3	3.3
Feed and residual	7.7	7.5	6.1	7.0	6.9	6.0	4.9	5.3	4.1	5.7	2.3	3.4
Seed	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0
Industry	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0
Total domestic	16.2	16.0	14.5	15.5	15.2	14.3	13.4	13.6	13.8	15.0	11.6	12.7
Exports	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.4	0.3
Total disappearance	16.4	16.1	14.5	15.5	15.2	14.4	13.4	13.7	13.8	15.4	12.0	13.0
Ending stocks	3.3	1.5	1.6	1.0	1.5	0.9	0.8	0.8	2.4	1.6	1.2	1.2
						$/bushel						
Prices:												
Loan rate	1.38	1.33	1.46	1.46	1.61	1.61	0.00	0.00	0.00	0.00	0.00	0.00
Season-average price	2.09	2.20	2.38	2.55	2.70	2.90	3.70	3.75	2.49	2.27	2.57	2.80
Value of production (000 $)	21,298	21,448	27,227	26,367	30,621	28,948	33,118	30,120	30,404	25,084	21,830	19,519

1/ Preliminary. 2/ Projected. 3/ Beginning in 2000 sampling ended for the following States:CO, IN, MD, NJ, AND VA. The production in these States is no longer part of the national total, thus, reducing the national estimate of rye production.

Source: Economic Research Service, USDA.

Appendix table 31--NIS and the Baltics (former Soviet Union) wheat: Supply and disappearance, 1970/71-2001/02 1/

Year	Supply						Disappearance					
Beginning	Area			Beginning			Domestic use				Total	Ending
July 1	harvested	Yield	Production	stocks	Imports	Total	Feed	Nonfeed	Total	Exports	disappearance	stocks
	1,000 ha	Mt/ha	---------- 1,000 metric tons ----------									
1970/71	65,230	1.42	92,601	NA	484	93,085	43,478	50,404	93,882	7,203	101,085	6,000
1971/72	64,035	1.44	91,933	6,000	3,525	101,458	41,394	45,236	86,630	5,828	92,458	9,000
1972/73	58,492	1.36	79,571	9,000	15,590	104,161	45,241	46,620	91,861	1,300	93,161	11,000
1973/74	63,155	1.62	102,051	11,000	4,508	117,559	35,927	52,632	88,559	5,000	93,559	24,000
1974/75	59,676	1.31	78,272	24,000	2,500	104,772	38,111	49,661	87,772	4,000	91,772	13,000
1975/76	61,985	1.00	61,826	13,000	10,100	84,926	33,478	47,948	81,426	500	81,926	3,000
1976/77	59,467	1.51	90,097	3,000	4,600	97,697	33,078	52,619	85,697	1,000	86,697	11,000
1977/78	62,030	1.39	86,078	11,000	6,649	103,727	47,899	53,828	101,727	1,000	102,727	1,000
1978/79	62,898	1.80	112,948	1,000	5,142	119,090	49,626	48,964	98,590	1,500	100,090	19,000
1979/80	57,682	1.45	83,760	19,000	12,125	114,885	57,384	50,001	107,385	500	107,885	7,000
1980/81	61,475	1.49	91,485	7,000	16,000	114,485	53,085	52,900	105,985	500	106,485	8,000
1981/82	59,232	1.28	75,816	8,000	20,300	104,116	51,248	48,368	99,616	500	100,116	4,000
1982/83	57,278	1.38	78,886	4,000	20,800	103,686	47,702	47,484	95,186	500	95,686	8,000
1983/84	50,800	1.42	72,241	8,000	20,500	100,741	39,041	48,700	87,741	500	88,241	12,500
1984/85	51,061	1.26	64,175	12,500	28,100	104,775	38,507	48,268	86,775	500	87,275	17,500
1985/86	50,265	1.44	72,575	17,500	15,700	105,775	39,447	46,628	86,075	500	86,575	19,200
1986/87	48,728	1.76	85,998	19,200	16,000	121,198	49,575	46,923	96,498	500	96,998	24,200
1987/88	46,683	1.66	77,321	24,200	31,025	132,546	48,196	50,320	98,516	9,425	107,941	24,605
1988/89	48,056	1.64	78,817	24,605	23,275	126,697	45,301	49,540	94,841	7,925	102,766	23,931
1989/90	47,678	1.83	87,151	23,931	21,540	132,622	50,793	49,905	100,698	7,140	107,838	24,784
1990/91	48,180	2.12	101,919	24,784	22,924	149,627	60,454	50,626	111,080	8,275	119,355	30,272
1991/92	45,919	1.57	72,014	30,272	24,175	126,461	49,052	49,554	98,606	2,180	100,786	25,675
1992/93	47,205	1.90	89,831	25,675	24,507	140,013	52,573	49,667	102,240	6,800	109,040	30,973
1993/94	46,401	1.80	83,518	30,973	13,350	127,841	40,952	48,361	89,313	6,620	95,933	31,908
1994/95	42,510	1.42	60,452	31,908	8,291	100,651	30,298	46,019	76,317	4,323	80,640	20,011
1995/96	45,806	1.32	60,445	20,011	9,694	90,150	26,690	44,942	71,632	6,028	77,660	12,490
1996/97	48,158	1.34	64,462	12,490	6,813	83,765	23,057	47,303	70,360	4,584	74,944	8,821
1997/98	48,821	1.68	82,250	8,821	6,838	97,909	25,142	48,451	73,593	6,430	80,023	17,886
1998/99	45,520	1.26	57,561	17,886	5,625	81,072	17,275	48,674	65,949	8,923	74,872	6,200
1999/00	42,355	1.56	66,060	6,200	9,824	82,084	18,010	49,229	67,239	9,245	76,484	5,600
2000/01	43,528	1.49	64,929	5,600	5,286	75,815	16,310	48,705	65,015	4,700	69,715	6,100
2001/02 2/	46,294	2.01	92,867	6,100	4,070	103,037	22,060	50,352	72,412	11,250	83,662	19,375

NA = Not available.

1/ New Independent States (NIS) refers to the 12 countries, excluding the three Baltic nations of Estonia, Latvia, and Lithuania, that comprised the former Soviet Union. 2/ Projected.

Source: Foreign Agricultural Service, USDA.

Appendix table 32--China's wheat: Supply and disappearance, 1970/71-2001/02

Year	Supply						Disappearance					
Beginning	Area			Beginning			Domestic use				Total	Ending
July 1	harvested	Yield	Production	stocks	Imports	Total	Feed	Nonfeed	Total	Exports	disappearance	stocks
	1,000 ha	Mt/ha	1,000 metric tons									
1970/71	25,458	1.15	29,185	6,700	3,661	39,546	700	31,643	32,343	3	32,346	7,200
1971/72	25,639	1.27	32,575	7,200	2,968	42,743	700	32,838	33,538	5	33,543	9,200
1972/73	26,302	1.37	35,985	9,200	5,290	50,475	800	36,470	37,270	5	37,275	13,200
1973/74	26,439	1.33	35,225	13,200	5,645	54,070	900	40,465	41,365	5	41,370	12,700
1974/75	27,061	1.51	40,865	12,700	5,746	59,311	900	40,706	41,606	5	41,611	17,700
1975/76	27,661	1.64	45,310	17,700	2,200	65,210	950	42,560	43,510	0	43,510	21,700
1976/77	28,417	1.77	50,385	21,700	3,158	75,243	1,100	47,443	48,543	0	48,543	26,700
1977/78	28,065	1.46	41,075	26,700	8,600	76,375	1,000	50,675	51,675	0	51,675	24,700
1978/79	29,183	1.85	53,840	24,700	8,047	86,587	1,200	51,687	52,887	0	52,887	33,700
1979/80	29,357	2.14	62,730	33,700	8,865	105,295	1,500	65,095	66,595	0	66,595	38,700
1980/81	29,228	1.89	55,210	38,700	13,789	107,699	1,600	74,399	75,999	0	75,999	31,700
1981/82	28,307	2.11	59,640	31,700	13,200	104,540	1,700	77,140	78,840	0	78,840	25,700
1982/83	27,955	2.45	68,470	25,700	13,000	107,170	1,700	77,770	79,470	0	79,470	27,700
1983/84	29,050	2.80	81,390	27,700	9,600	118,690	1,800	81,190	82,990	0	82,990	35,700
1984/85	29,576	2.97	87,815	35,700	7,400	130,915	2,100	87,005	89,105	0	89,105	41,810
1985/86	29,218	2.94	85,810	41,810	6,600	134,220	2,300	92,855	95,155	0	95,155	39,065
1986/87	29,616	3.04	90,040	39,065	8,817	137,922	2,400	94,865	97,265	7	97,272	40,650
1987/88	28,798	2.98	85,840	40,650	15,327	141,817	2,500	96,540	99,040	7	99,047	42,770
1988/89	28,785	2.97	85,432	42,770	15,384	143,586	2,600	98,226	100,826	8	100,834	42,752
1989/90	29,841	3.04	90,807	42,752	12,800	146,359	2,600	99,767	102,367	8	102,375	43,984
1990/91	30,753	3.19	98,229	43,984	9,409	151,622	2,700	101,281	103,981	8	103,989	47,633
1991/92	30,948	3.10	96,000	47,633	15,863	159,496	5,000	102,763	107,763	10	107,773	51,723
1992/93	30,500	3.33	101,590	51,723	6,728	160,041	2,750	103,891	106,641	184	106,825	53,216
1993/94	30,240	3.52	106,390	53,216	4,320	163,926	2,700	105,028	107,728	631	108,359	55,567
1994/95	28,981	3.43	99,300	55,567	10,256	165,123	3,000	105,969	108,969	411	109,380	55,743
1995/96	28,860	3.54	102,215	55,743	12,531	170,489	3,200	106,948	110,148	496	110,644	59,845
1996/97	29,610	3.73	110,570	59,845	2,705	173,120	3,400	107,898	111,298	969	112,267	60,853
1997/98	30,057	4.10	123,289	60,853	1,916	186,058	4,900	108,873	113,773	1,162	114,935	71,123
1998/99	29,774	3.68	109,726	71,123	829	181,678	5,000	109,701	114,701	542	115,243	66,435
1999/00	28,855	3.95	113,880	66,435	1,010	181,325	5,000	110,625	115,625	542	116,167	65,158
2000/01	26,650	3.74	99,640	65,158	195	164,993	3,500	110,395	113,895	623	114,518	50,475
2001/02 1/	25,200	3.73	94,000	50,475	1,500	145,975	3,500	110,000	113,500	1,500	115,000	30,975

1/ Projected.

Source: Foreign Agricultural Service, USDA.

Appendix table 33--European Union wheat: Supply and disappearance, 1970/71-2001/02 1/

Year	Supply						Disappearance					
Beginning	Area			Beginning			Domestic use				Total	Ending
August 1	harvested	Yield	Production	stocks	Imports 2/	Total	Feed	Nonfeed	Total	Exports 2/	disappearance	stocks
	1,000 ha	Mt/ha	1,000 metric tons									
1970/71	17,581	2.59	45,598	7,477	14,882	67,957	16,872	37,659	54,531	6,249	60,780	7,177
1971/72	17,667	3.01	53,231	7,177	13,353	73,761	16,337	38,579	54,916	9,362	64,278	9,483
1972/73	17,439	3.07	53,608	9,483	14,385	77,476	18,478	38,216	56,694	12,806	69,500	7,976
1973/74	16,757	3.18	53,278	7,976	14,048	75,302	15,243	37,540	52,783	12,329	65,112	10,190
1974/75	17,337	3.43	59,407	10,190	11,675	81,272	15,927	38,997	54,924	13,594	68,518	12,754
1975/76	15,982	3.18	50,844	12,754	13,438	77,036	12,567	38,320	50,887	15,470	66,357	10,679
1976/77	17,091	3.10	52,938	10,679	11,900	75,517	13,436	39,020	52,456	12,075	64,531	10,986
1977/78	15,472	3.25	50,296	10,986	14,491	75,773	13,400	40,355	53,755	13,710	67,465	8,308
1978/79	16,438	3.72	61,190	8,308	12,725	82,223	14,670	39,243	53,913	16,057	69,970	12,253
1979/80	16,131	3.62	58,376	12,253	13,159	83,788	15,201	39,592	54,793	18,384	73,177	10,611
1980/81	16,995	3.96	67,390	10,611	12,172	90,173	15,740	39,368	55,108	22,485	77,593	12,580
1981/82	16,932	3.74	63,372	12,580	13,383	89,335	16,560	38,865	55,425	23,116	78,541	10,794
1982/83	17,330	4.07	70,561	10,794	10,988	92,343	17,995	37,928	55,923	23,111	79,034	13,309
1983/84	17,621	4.03	71,028	13,309	11,755	96,092	24,025	38,328	62,353	23,907	86,260	9,832
1984/85	17,748	5.12	90,792	9,832	13,512	114,136	26,360	39,920	66,280	29,981	96,261	17,875
1985/86	16,783	4.70	78,959	17,875	15,931	112,765	26,939	38,693	65,632	29,082	94,714	18,051
1986/87	17,274	4.63	79,902	18,051	14,467	112,420	25,085	38,946	64,031	29,409	93,440	18,980
1987/88	17,414	4.52	78,776	18,980	15,552	113,308	25,579	39,830	65,409	30,448	95,857	17,451
1988/89	16,915	4.82	81,516	17,451	14,228	113,195	25,829	40,866	66,695	33,217	99,912	13,283
1989/90	17,682	4.84	85,667	13,283	14,382	113,332	24,774	39,521	64,295	34,931	99,226	14,106
1990/91	17,310	5.15	89,095	14,106	15,508	118,709	26,668	38,432	65,100	35,673	100,773	17,936
1991/92	17,519	5.35	93,709	17,936	16,228	127,873	25,583	41,524	67,107	36,731	103,838	24,035
1992/93	17,431	5.03	87,719	24,035	15,856	127,610	24,937	42,195	67,132	38,209	105,341	22,269
1993/94	15,742	5.27	82,930	22,269	17,412	122,611	29,437	42,537	71,974	36,084	108,058	14,553
1994/95	15,786	5.36	84,541	14,553	17,342	116,436	31,985	42,645	74,630	32,615	107,245	9,191
1995/96	16,161	5.33	86,161	9,191	21,505	116,857	34,745	42,695	77,440	32,003	109,443	7,414
1996/97	16,737	5.89	98,506	7,414	22,904	128,824	38,493	44,321	82,814	33,196	116,010	12,814
1997/98	17,133	5.50	94,181	12,814	25,781	132,776	39,601	43,192	82,793	36,033	118,826	13,950
1998/99	17,091	6.03	103,085	13,950	25,174	142,209	44,125	44,085	88,210	35,927	124,137	18,072
1999/00	16,952	5.69	96,433	18,072	25,091	139,596	42,381	44,440	86,821	38,343	125,164	14,432
2000/01	17,795	5.89	104,884	14,432	26,716	146,032	46,282	45,236	91,518	38,808	130,326	15,706
2001/02 3/	16,526	5.55	91,773	15,706	29,825	137,304	45,225	44,858	90,083	31,800	121,883	15,421

1/ Formerly European Community. Data include all 15 members of the European Union including East Germany and the new members; Austria, Finland, and Sweden for all years regardless of membership in a given year. 2/ Includes intra-EU trade. 3/ Projected.

Source: Foreign Agricultural Service, USDA.

Appendix table 34--Canada's wheat: Supply and disappearance, 1970/71-2001/02

Year	Supply						Disappearance					
Beginning	Area			Beginning			Domestic use				Total	Ending
August 1	harvested	Yield	Production	stocks	Imports	Total	Feed	Nonfeed	Total	Exports	disappearance	stocks
	1,000 ha	Mt/ha	1,000 metric tons									
1970/71	5,052	1.79	9,024	27,452	0	36,476	2,156	2,494	4,650	11,846	16,496	19,980
1971/72	7,854	1.84	14,412	19,980	0	34,392	2,209	2,586	4,795	13,710	18,505	15,887
1972/73	8,640	1.68	14,514	15,887	0	30,401	2,061	2,703	4,764	15,692	20,456	9,945
1973/74	9,575	1.69	16,159	9,945	0	26,104	1,918	2,683	4,601	11,414	16,015	10,089
1974/75	8,935	1.49	13,295	10,089	0	23,384	1,699	2,908	4,607	10,739	15,346	8,038
1975/76	9,479	1.80	17,078	8,038	0	25,116	1,815	2,826	4,641	12,253	16,894	8,222
1976/77	11,252	2.10	23,587	8,222	0	31,809	1,750	3,295	5,045	13,446	18,491	13,318
1977/78	10,118	1.96	19,862	13,318	0	33,180	1,487	3,581	5,068	15,997	21,065	12,115
1978/79	10,584	2.00	21,145	12,115	0	33,260	2,439	2,851	5,290	13,061	18,351	14,909
1979/80	10,489	1.64	17,185	14,909	0	32,094	2,537	2,953	5,490	15,883	21,373	10,721
1980/81	11,098	1.74	19,291	10,721	0	30,012	2,175	3,065	5,240	16,262	21,502	8,510
1981/82	12,427	2.00	24,802	8,510	0	33,312	2,002	3,150	5,152	18,447	23,599	9,713
1982/83	12,554	2.13	26,715	9,713	0	36,428	1,815	3,272	5,087	21,368	26,455	9,973
1983/84	13,697	1.93	26,465	9,973	0	36,438	2,246	3,237	5,483	21,765	27,248	9,190
1984/85	13,158	1.61	21,188	9,190	2	30,380	1,982	3,257	5,239	17,543	22,782	7,598
1985/86	13,729	1.77	24,252	7,598	14	31,864	2,060	3,538	5,598	17,697	23,295	8,569
1986/87	14,229	2.20	31,359	8,569	38	39,966	2,838	3,614	6,452	20,783	27,235	12,731
1987/88	13,458	1.93	25,945	12,731	34	38,710	4,438	3,449	7,887	23,518	31,405	7,305
1988/89	12,944	1.23	15,913	7,305	46	23,264	2,260	3,543	5,803	12,429	18,232	5,032
1989/90	13,718	1.81	24,796	5,032	36	29,864	2,164	4,373	6,537	16,885	23,422	6,442
1990/91	14,098	2.28	32,098	6,442	52	38,592	2,919	3,657	6,576	21,731	28,307	10,285
1991/92	14,160	2.26	31,946	10,285	95	42,326	4,170	3,609	7,779	24,481	32,260	10,066
1992/93	13,830	2.16	29,871	10,066	113	40,050	4,435	3,713	8,148	19,709	27,857	12,193
1993/94	12,377	2.20	27,232	12,193	151	39,576	5,732	3,627	9,359	19,100	28,459	11,117
1994/95	10,838	2.13	23,122	11,117	136	34,375	4,035	3,810	7,845	20,851	28,696	5,679
1995/96	11,141	2.25	25,037	5,679	158	30,874	3,900	3,904	7,804	16,342	24,146	6,728
1996/97	12,262	2.43	29,801	6,728	241	36,770	4,389	3,833	8,222	19,501	27,723	9,047
1997/98	11,410	2.13	24,280	9,047	132	33,459	3,350	3,986	7,336	20,134	27,470	5,989
1998/99	10,769	2.24	24,076	5,989	152	30,217	4,100	3,977	8,077	14,705	22,782	7,435
1999/00	10,367	2.60	26,900	7,435	190	34,525	3,600	4,021	7,621	19,165	26,786	7,739
2000/01	10,962	2.44	26,804	7,739	196	34,739	4,150	4,065	8,215	17,316	25,531	9,208
2001/02 1/	11,000	1.94	21,300	9,208	150	30,658	4,100	4,100	8,200	16,000	24,200	6,458

1/ Projected.

Source: Foreign Agricultural Service, USDA.

Appendix table 35--Australia's wheat: Supply and disappearance, 1970/71-2001/02

Year Beginning October 1	Supply						Disappearance					
	Area harvested	Yield	Production	Beginning stocks	Imports	Total	Domestic use Feed	Domestic use Nonfeed	Domestic use Total	Exports	Total disappearance	Ending stocks
	1,000 ha	Mt/ha	1,000 metric tons									
1970/71	6,479	1.22	7,890	7,545	0	15,435	653	1,972	2,625	9,145	11,770	3,665
1971/72	7,138	1.21	8,606	3,665	0	12,271	822	2,077	2,899	7,788	10,687	1,584
1972/73	7,604	0.87	6,590	1,584	0	8,174	1,239	2,089	3,328	4,281	7,609	565
1973/74	8,948	1.34	11,987	565	0	12,552	1,226	2,313	3,539	7,031	10,570	1,982
1974/75	8,308	1.37	11,357	1,982	0	13,339	1,000	2,119	3,119	8,562	11,681	1,658
1975/76	8,555	1.40	11,982	1,658	0	13,640	1,350	962	2,312	8,663	10,975	2,665
1976/77	8,956	1.32	11,800	2,665	0	14,465	1,250	1,593	2,843	9,485	12,328	2,137
1977/78	9,955	0.94	9,370	2,137	0	11,507	1,280	1,349	2,629	8,098	10,727	780
1978/79	10,249	1.76	18,090	780	0	18,870	1,250	1,281	2,531	11,693	14,224	4,646
1979/80	11,153	1.45	16,188	4,646	0	20,834	1,928	1,441	3,369	13,197	16,566	4,268
1980/81	11,283	0.96	10,856	4,268	0	15,124	2,014	1,489	3,503	9,577	13,080	2,044
1981/82	11,885	1.38	16,360	2,044	0	18,404	1,419	1,201	2,620	11,008	13,628	4,776
1982/83	11,520	0.77	8,876	4,776	0	13,652	2,441	885	3,326	8,041	11,367	2,285
1983/84	12,931	1.70	22,016	2,285	0	24,301	1,258	1,885	3,143	13,640	16,783	7,518
1984/85	12,078	1.54	18,666	7,518	0	26,184	1,400	2,168	3,568	14,032	17,600	8,584
1985/86	11,736	1.38	16,167	8,584	0	24,751	1,350	1,514	2,864	16,022	18,886	5,865
1986/87	11,135	1.45	16,119	5,865	7	21,991	1,500	1,157	2,657	15,562	18,219	3,772
1987/88	9,063	1.37	12,369	3,772	11	16,152	1,865	1,687	3,552	9,850	13,402	2,750
1988/89	8,903	1.58	14,060	2,750	14	16,824	950	1,979	2,929	11,295	14,224	2,600
1989/90	9,004	1.58	14,214	2,600	11	16,825	1,000	2,023	3,023	10,767	13,790	3,035
1990/91	9,218	1.63	15,066	3,035	18	18,119	1,500	2,036	3,536	11,760	15,296	2,823
1991/92	7,183	1.47	10,557	2,823	22	13,402	1,366	2,063	3,429	7,103	10,532	2,870
1992/93	9,101	1.78	16,184	2,870	28	19,082	1,894	2,318	4,212	9,853	14,065	5,017
1993/94	8,383	1.97	16,479	5,017	29	21,525	1,760	2,348	4,108	13,707	17,815	3,710
1994/95	8,003	1.11	8,903	3,710	53	12,666	1,633	2,274	3,907	6,354	10,261	2,405
1995/96	9,221	1.79	16,504	2,405	46	18,955	1,078	2,591	3,669	13,311	16,980	1,975
1996/97	10,936	2.10	22,925	1,975	52	24,952	717	2,615	3,332	19,225	22,557	2,395
1997/98	10,439	1.84	19,224	2,395	45	21,664	2,323	2,650	4,973	15,343	20,316	1,348
1998/99	11,543	1.86	21,465	1,348	58	22,871	1,831	2,699	4,530	16,473	21,003	1,868
1999/00	12,168	2.04	24,757	1,868	59	26,684	2,478	2,749	5,227	17,844	23,071	3,613
2000/01	13,002	1.83	23,766	3,613	50	27,429	4,000	2,870	6,870	15,930	22,800	4,629
2001/02 1/	12,500	1.92	24,000	4,629	50	28,679	2,800	2,900	5,700	18,500	24,200	4,479

1/ Projected.

Source: Foreign Agricultural Service, USDA.

Appendix table 36--Argentina's wheat: Supply and disappearance, 1970/71-2001/02

Year	Supply						Disappearance					
Beginning	Area			Beginning			Domestic use				Total	Ending
December 1	harvested	Yield	Production	stocks	Imports	Total	Feed	Nonfeed	Total	Exports	disappearance	stocks
	1,000 ha	Mt/ha	---------- 1,000 metric tons ----------									
1970/71	3,701	1.33	4,920	780	0	5,700	31	4,025	4,056	969	5,025	675
1971/72	4,315	1.32	5,680	675	0	6,355	29	4,327	4,356	1,629	5,985	370
1972/73	4,965	1.39	6,900	370	493	7,763	54	4,247	4,301	3,193	7,494	269
1973/74	3,958	1.66	6,560	269	0	6,829	50	4,171	4,221	1,582	5,803	1,026
1974/75	4,233	1.41	5,970	1,026	0	6,996	189	4,309	4,498	1,784	6,282	714
1975/76	5,270	1.63	8,570	714	0	9,284	982	4,398	5,380	3,162	8,542	742
1976/77	6,428	1.71	11,000	742	0	11,742	542	3,700	4,242	5,900	10,142	1,600
1977/78	3,910	1.46	5,700	1,600	0	7,300	200	4,149	4,349	1,775	6,124	1,176
1978/79	4,685	1.73	8,100	1,176	0	9,276	100	3,993	4,093	4,080	8,173	1,103
1979/80	4,787	1.69	8,100	1,103	0	9,203	200	3,820	4,020	4,755	8,775	428
1980/81	5,023	1.55	7,780	428	0	8,208	150	3,800	3,950	3,845	7,795	413
1981/82	5,926	1.40	8,300	413	0	8,713	150	4,150	4,300	3,638	7,938	775
1982/83	7,320	2.05	15,000	775	0	15,775	200	4,649	4,849	9,870	14,719	1,056
1983/84	6,880	1.85	12,750	1,056	0	13,806	150	4,550	4,700	7,847	12,547	1,259
1984/85	5,950	2.22	13,200	1,259	0	14,459	75	4,525	4,600	9,408	14,008	451
1985/86	5,270	1.61	8,500	451	0	8,951	75	4,325	4,400	4,300	8,700	251
1986/87	4,982	1.79	8,930	251	13	9,194	0	4,539	4,539	4,435	8,974	220
1987/88	4,789	1.84	8,800	220	0	9,020	100	4,400	4,500	3,705	8,205	815
1988/89	4,700	1.79	8,400	815	0	9,215	100	4,600	4,700	4,034	8,734	481
1989/90	5,450	1.86	10,150	481	0	10,631	100	4,440	4,540	6,060	10,600	31
1990/91	5,700	1.91	10,900	31	13	10,944	200	4,330	4,530	5,592	10,122	822
1991/92	4,550	2.17	9,880	822	1	10,703	50	4,528	4,578	5,780	10,358	345
1992/93	4,200	2.33	9,800	345	15	10,160	50	4,215	4,265	5,850	10,115	45
1993/94	4,800	2.02	9,700	45	11	9,756	150	4,148	4,298	5,009	9,307	449
1994/95	5,100	2.22	11,300	449	33	11,782	150	4,164	4,314	7,318	11,632	150
1995/96	4,500	1.91	8,600	150	48	8,798	150	4,015	4,165	4,483	8,648	150
1996/97	7,100	2.24	15,900	150	43	16,093	8	4,887	4,895	10,198	15,093	1,000
1997/98	5,702	2.76	15,740	1,000	27	16,767	14	4,782	4,796	11,151	15,947	820
1998/99	5,399	2.46	13,300	820	25	14,145	23	4,842	4,865	8,560	13,425	720
1999/00	6,153	2.67	16,400	720	12	17,132	82	4,846	4,928	11,589	16,517	615
2000/01	6,408	2.53	16,230	615	7	16,852	82	4,909	4,991	11,272	16,263	589
2001/02 1/	6,800	2.28	15,500	589	10	16,099	49	4,700	4,749	10,800	15,549	550

1/ Projected.

Source: Foreign Agricultural Service, USDA.