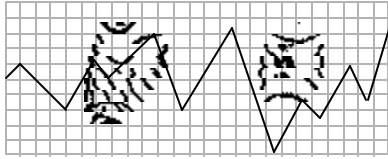




UNIVERSITY OF ILLINOIS
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Grain Price OUTLOOK

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CORN: PRICE VOLATILITY AHEAD?

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Summary

The USDA's March *Grain Stocks* and *Prospective Plantings* reports contained information generally supportive for the corn market. At 5.132 billion bushels, March 1, 2003 stocks of U.S. corn were 663 million bushels smaller than on the same date last year and nearly 70 million bushels less than generally anticipated. Producers reported intentions to plant 79.022 million acres of corn in 2003, 32,000 less than planted in 2002. The market had anticipated an increase of nearly 1.5 million acres.

Stocks of corn at the end of the 2002-03 marketing year will be at the lowest level in six years, but will be 500 million bushels above minimum pipeline supplies. A "normal" growing season in 2003 would produce a crop of about 10 billion bushels, 300 to 400 million above the current rate of consumption.

The 2002-03 season's average farm price of corn is expected to be near \$2.35. After declining steadily since September 2002, however, prices are likely to be more volatile over the next few months. The price pattern will obviously be dominated by weather and crop conditions. The window from April through July has traditionally provided good pricing opportunities and that appears likely to be the case again this year.

Stocks At Five Year Low

The USDA's March *Grain Stocks* report revealed March 1 corn inventories of 5.132 billion bushels (Table 1). Stocks were nearly 70 million bushels below the average pre-report trade guess, 663 million bushels below the inventory of a year ago, and at the lowest level for that date since 1998. The stocks figure implies that 2.509 billion bushels of U.S. corn were used during the second quarter of the marketing year (allowing for three million bushels of imports during the quarter). Based on the USDA's projection for the year, domestic processing use of corn during the quarter is estimated at 532 million bushels, nearly 11 percent more than use during the same quarter last year. All of that increase was in corn used for ethanol production. The estimate of exports during the quarter is confused by the inconsistency in export estimates between USDA sources and the Census Bureau. We estimate that 409 million bushels of U.S. corn were exported during the quarter.

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The remaining use of 1.568 billion bushels is allocated to the feed and residual category. That estimate is 28 million bushels above feed and residual use of a year ago. Apparent use during the first quarter of the year was 171 million bushels below the use during the same quarter in 2001-02. As we have pointed out before, there can be a fair amount of "noise" in the quarterly estimates of feed and residual use of corn and it can be more useful to analyze cumulative use for the first two quarters. Use during the first half of the 2002-03 marketing year is estimated at 3.607 billion bushels, 3.7 percent less than during the first half of the 2001-02 marketing year. Over the past five years, feed and residual use during the first half of the year has ranged from 63.75 to 65.61 percent of total use for the year. The average was 64.64 percent. The average of the past two years was 63.87 percent. Based on historical use patterns, and accounting for prospects for declining cattle and hog numbers for the remainder of the year, feed and residual use for the 2002-03 marketing year is projected at 5.64 billion bushels. That is 4 percent less than use of a year ago and would mean that 64 percent of total use occurred during the first half of the marketing year.

Corn exports during the first half of the 2002-03 marketing year were down sharply from exports during the first half of the 2001-02 marketing year. The extent of the decline varies according to the source of the export estimates. Through January 2003, for example, the USDA's export inspection report showed cumulative marketing year shipments of 636 million bushels (down 9 percent from a year ago) the weekly *Export Sales* report showed cumulative exports of 672 million bushels (down 4 percent from a year ago) and the Census Bureau showed exports of 690 million bushels (down 7 percent from a year ago). Based on USDA figures for the month of February, we estimate exports during the first half of the year at 805 million bushels, 10.5 percent less than during the same period last year.

Since March 1, cumulative U.S. exports have fallen further behind the level of a year ago. The largest decline in year-over-year U.S. corn exports has been to South Korea. Shipments through March 27 were reported at 5.6 million bushels, down from 38.9 million by that same time last year. Shipments to Egypt are off 47 percent, and shipments to Taiwan are down about 7 percent. Cumulative shipments are larger for Japan (11.3 percent), Canada (87.2 percent), and Mexico (12.2 percent).

As of March 27, the USDA reported unshipped export sales at 219 million bushels, 17.9 percent smaller than outstanding sales of a year ago. The decline in U.S. exports and export sales can be partially explained by the large increase in Chinese corn exports. For the 2002-03 marketing year, the USDA projects Chinese net corn exports at 468 million bushels, compared to 337 million bushels last year, and 283 million bushels two years ago. Combined with lack of growth in world corn consumption, the larger Chinese sales have kept U.S. exports under pressure. With only 22 weeks left in the marketing year, exports are in danger of falling short of the USDA projection of 1.75 billion bushels. We project exports at 1.725 billion bushels. That projection is 164 million bushels below last year's exports, 275 million below the projection of last fall, and would be the smallest shipments in five years. There continues to be some talk of a slow down in Chinese corn exports over the next few months and the likelihood that China will dramatically reduce corn exports in the near future. The reduction would come as a result of eliminating surplus stocks and reducing corn production in favor of soybeans.

The USDA projects domestic processing use of corn during the 2002-03 marketing year at 2.265 billion bushels as ethanol production expands rapidly. High fuel prices and additional processing capacity may result in somewhat larger use, but the USDA projection is used here.

Consumption of U.S. corn for all purposes during the 2002-03 marketing year is now projected at 9.63 billion bushels (Table 2). Use at that level would result in year-ending stocks of 989 million bushels, the smallest inventory in six years. The relatively small 2002 U.S. corn harvest and resulting draw down of inventories has resulted in higher corn prices. Through the first seven months of the 2002-03 marketing year, the estimated weighted average U.S. farm price of corn was near \$2.34. That estimate is based on the average prices reported by USDA through February, the mid-month price in March, and the average monthly marketing weights of the past five years. On average over the previous five years, producers have delivered 68 percent of the crop to market during the September through March period.

Smaller inventories of corn in the rest of the world are also expected. The USDA projects that inventories of corn outside of the U.S. will decline from about 3.6 billion bushels at the beginning of the 2002-03 marketing year to about 3.2 billion by the end of the year. Most of the decline is expected to occur in China, the only other country that holds large corn inventories. The dwindling level of stocks puts additional importance on the magnitude of U.S. and world production in 2003.

U.S. Crop Prospects

The USDA's March *Prospective Plantings* report indicated that U.S. producers intend to plant 79.022 million acres to corn in 2003 (Table 3). Intentions are very near actual plantings of a year ago and well below the average pre-report trade guess of about 80.5 million acres. Some regional shift in corn acreage was revealed in the report, however. More corn acreage is expected in the eastern corn belt states of Illinois, Indiana, Kentucky, and Ohio, while fewer acres are planned for the western states of Kansas and Nebraska (Table 4). A large reduction is expected in Texas, while northern states show a more mixed picture. Additional acreage is planned in Minnesota, but fewer acres are expected in South Dakota and Wisconsin.

The trade seemed to be almost unanimous in the expectation of more corn acreage in 2003 due to the advantage offered by 2003 corn prices over 2003 soybean prices. Some even argued that the higher loan rate for corn and the lower loan rate for soybeans put in place for the 2002 and 2003 crops gave an economic advantage to corn, when in fact the change merely removed the advantage for soybeans. The reduction in soybean acres planned for 2003 (576,000) is much less than generally expected by the trade. In addition, the publicized pre-report average trade guesses reflected an expected increase of 2.275 million acres planted to major crops (corn, soybeans, wheat, cotton, and sorghum). Intentions show an increase of 892,000 acres for these five crops, while intended acreage for all crops in the March report is only 266,000 larger than acreage of a year ago.

There is some potential that actual planted acreage of corn will differ from intentions, depending on price changes and planting season weather. Since the change in farm policy beginning with the 1996 crop, actual plantings exceeded intentions only in 2000. The range in the difference between March intentions and actual plantings was from a decline of 1.879 million in 1997 to an increase of 1.67 million in 2000. Last year, actual planted acreage was almost identical to March intentions (Table 3).

The difference between acreage of corn planted for all purposes and acreage harvested for grain has varied substantially in recent years. For the seven year period from 1996 through 2002, the differences ranged from 6.585 million (1996) to 9.741 million (2002). The variation tends to be related to crop conditions. More acres are harvested for silage and more acres are abandoned under drought conditions. In 2000 and 2001, for example, acreage harvested for silage was near 6.1 million and unharvested acreage varied from 800,000 to one million acres. In 2002, 7.5 million acres were harvested for silage and 2.25 million acres were not harvested. The "typical" difference between acreage planted and acreage harvested for grain is about seven million acres.

If 79 million acres of corn are planted in 2003, about 72 million should be harvested for grain with a favorable growing season. That figure is 2.687 million larger than harvested acreage of 2002 and would be slightly above the average of the past seven years and only slightly below the typical acreage of the past seven years. The larger issue for the potential size of the 2003 U.S. corn crop is average yield. The U.S. average yield was in a remarkably narrow range, and at or above trend value, from 1998 through 2001 (Table 5). During that period, the U.S. average yield varied from 133.8 to 138.7 bushels. The four year average was about 136 bushels. The U.S. average yield in 2002 declined to 130 bushels per acre, reflecting adverse growing conditions in a number of areas, but particularly in the far eastern corn belt. Of the major corn producing states only Iowa, Michigan, Minnesota, and Wisconsin experienced higher average yields in 2002 than in 2001. The contrast is illustrated by the 165 bushel average in Iowa (record) and the 88 bushel average in Ohio.

What can be said about yield prospects for 2003? First, precipitation has been below normal in some areas for quite some time and in many areas since last fall. The U.S. Palmer Drought Index shows dry conditions persisting in a large part of the corn belt through the end of March. Included is much of Nebraska, parts of North and South Dakota, southern Iowa, northern Missouri, and northern Illinois and Indiana. Those conditions imply little subsoil moisture reserves for the 2003 growing season. Ample spring rains and/or timely growing season rainfall may be required to generate trend line yields in 2003. Second, the National Weather Service forecast for April, May and June reflect expectations of normal precipitation amounts and generally normal temperatures over most of the U.S. corn growing areas. The exception is the outlook for above normal temperatures in parts of Iowa, Missouri, Kansas, and Nebraska.

The trend line yield for 2003 is near 140 bushels per acre. At that level, the 2003 U.S. crop might be near 10.00 billion bushels, about 450 million more than expected use during the current year. A repeat of the 2002 yield of 130 bushels might result in a crop of about 9.36 billion bushels, 270 million bushels less than the projected use during the current marketing year. At this juncture, a 2003 crop near 9.9 billion bushels might be expected, reflecting a national average yield of about 138 bushels per acre. The confidence in any yield projection at this juncture is fairly low, however. A crop of 9.9 billion bushels would be about 900 million larger than the 2002 crop and near the size of the 2000 crop.

A crop of 9.9 billion bushels would allow for a significant increase in use during the 2003-04 marketing year. An increase in each of the three major categories of use of U.S. corn is expected in 2003-04 if supplies are ample and prices at or below current levels (Table 2). The largest increase might be in exports if Chinese competition is reduced as expected. Stocks of U.S. corn will likely remain at relatively low levels through the 2003-04 marketing year.

Price Prospects

The monthly average price of corn in the U.S. and in Illinois for 2002-03 marketing year are as follows

Month	U.S. Average	Illinois Average
	\$/bu	
Sept. 2002	\$2.47	\$2.50
Oct.	2.34	2.36
Nov.	2.27	2.33
Dec.	2.32	2.37
Jan. 2003	2.33	2.37
Feb.	2.34	2.35
March ¹	2.3	2.35
¹ mid-month		

The weighted average price through the first seven months of the marketing year was near \$2.34 in the U.S. and near \$2.38 in Illinois. Prior to the March reports, the midpoint of the USDA forecast of the average U.S. farm price for the 2002-03 marketing year was \$2.30.

The highest average daily cash price in central Illinois since September 1, 2002 was \$2.785, occurring on September 11, 2002, just before the 2002 harvest got underway. The lowest cash price of \$2.22 occurred on January 14, 2003. The current price is near \$2.37. Two observations can be made about the price pattern to date. First, the range from high to low is relatively narrow. The range during the 12 month post harvest period over the past 30 years has been \$.60 or less seven times. The range to date is within historical experience, but at the low end. Some expansion of the range between now and August would not be surprising. Second, the lowest post-harvest spot cash price so far this year has occurred in January. The post-harvest low has occurred in January only once in the past 30 years (1979-80). History, then, suggests that a new low cash price between now and August would also not be surprising. The possibility of a new low does not, however, rule out the possibility of prices moving above current levels at some point. Nor does it rule out the possibility of a new high, although that seems to have a low probability without significant crop problems.

December 2003 corn futures has a contract high of \$2.69 and traded to near \$2.60 in September 2002. The contract low of \$2.35 was established on March 2, 2003. Again, two observations can be made about the price pattern to date. First, the range from high to low (\$.34) is extremely narrow. The smallest range for the 1973 through 2002 contracts was \$.54 (1987). It would not be surprising to see the trading range of the 2003 contract expand prior to expiration in mid-December. Second, the contract high of \$2.69 is relatively low. Since 1973, December futures have failed to trade to at least \$2.75 only twice (1986 and 1987). It would not be surprising to see a new contract high for the December 2003 contract.

The conclusion is that large swings in prices over the next five months might be expected. This is often the period of time that offers good opportunities for pricing the remaining old crop inventories and to price a portion of expected production. Now is the time to identify price targets and/or strategies for pricing remaining inventory and a significant portion of the new crop. These strategies might involve a portfolio approach of averaging sales over the April-July period for a percentage of the crop, following a scale-up strategy for a percentage of the crop, and timing sales based on price targets for another portion of the crop.

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Table 1. Corn Quarterly Balance Sheet

	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
	million bushels																					
September 1 stocks	1,392	2,537	3,523	1,006	1,648	4,040	4,882	4,259	1,930	1,344	1,521	1,100	2,113	850	1,558	426	883	1,308	1,787	1,718	1,899	1,596
Production	8,119	8,235	4,174	7,672	8,875	8,226	7,131	4,929	7,532	7,934	7,475	9,477	6,338	10,051	7,400	9,233	9,207	9,759	9,431	9,915	9,507	9,008
TOTAL ^a	9,511	10,772	7,699	8,680	10,534	12,267	12,016	9,191	9,464	9,282	9,016	10,584	8,472	10,910	8,974	9,672	10,099	11,085	11,232	11,639	11,416	10,619
September-November																						
Seed, food, ind.	173	208	227	244	276	295	296	302	312	338	361	370	383	410	417	388	435	450	459	466	489	534
Export	519	443	493	503	415	318	396	471	582	383	421	488	435	449	660	487	380	450	535	507	448	396
Feed, residual	1,218	1,215	1,326	1,301	1,219	1,348	1,551	1,344	1,487	1,619	1,673	1,814	1,701	1,963	1,778	1,885	2,030	2,118	2,188	2,131	2,207	2,039
TOTAL	1,910	1,866	2,046	2,048	1,910	1,961	2,243	2,117	2,381	2,339	2,455	2,672	2,519	2,822	2,856	2,759	2,845	3,018	3,182	3,104	3,144	2,969
December 1 stocks	7,601	8,906	5,652	6,631	8,615	10,305	9,771	7,072	7,082	6,940	6,547	7,906	5,937	8,080	6,106	6,903	7,247	8,052	8,039	8,530	8,265	7,638
Seed, food, ind.	166	192	212	236	262	281	288	301	313	330	362	365	379	410	405	400	425	434	447	465	480	532
Export	470	510	506	580	460	313	405	502	682	471	362	463	330	590	562	525	380	465	465	415	451	409
Feed, residual	1,199	1,305	1,069	1,192	1,306	1,463	1,444	1,065	1,276	1,351	1,267	1,401	1,240	1,492	1,344	1,486	1,503	1,460	1,529	1,607	1,540	1,568
TOTAL	1,835	2,007	1,787	2,008	2,028	2,057	2,137	1,868	2,271	2,152	1,991	2,229	1,949	2,493	2,311	2,411	2,308	2,359	2,441	2,488	2,471	2,509
March 1 stocks	5,766	6,899	3,865	4,623	6,587	8,248	7,636	5,204	4,812	4,789	4,561	5,678	3,996	5,592	3,800	4,494	4,940	5,698	5,602	6,043	5,795	5,132
Seed, food, ind.	201	228	253	294	307	333	337	353	376	384	414	414	423	452	433	471	470	495	512	514	545	
Export	596	475	513	475	201	496	510	592	601	454	371	411	270	568	610	433	350	497	451	455	496	
Feed, residual	1,089	1,272	954	1,019	1,091	1,088	951	841	993	960	1,042	1,146	950	1,159	1,044	1,097	1,084	1,097	1,058	1,153	1,162	
TOTAL	1,886	1,975	1,720	1,788	1,599	1,917	1,798	1,786	1,970	1,798	1,828	1,971	1,642	2,180	2,087	2,001	1,904	2,089	2,022	2,122	2,203	
June 1 stocks	3,880	4,924	2,145	2,836	4,990	6,332	5,839	3,419	2,843	2,992	2,739	3,709	2,360	3,415	1,718	2,497	3,040	3,616	3,586	3,924	3,597	
Seed, food, ind.	193	227	238	293	307	324	331	341	369	374	396	407	429	442	373	460	475	467	496	511	540	
Export	412	393	374	292	151	365	406	463	503	419	430	301	293	570	396	353	394	569	485	564	494	
Feed, residual	739	781	527	603	499	761	843	685	627	679	816	891	789	846	527	809	865	795	890	951	968	
TOTAL	1,344	1,401	1,139	1,188	957	1,450	1,580	1,489	1,499	1,472	1,642	1,599	1,511	1,858	1,295	1,617	1,734	1,831	1,869	2,026	2,002	
September 1 stocks	2,537	3,523	1,006	1,648	4,040	4,882	4,259	1,930	1,344	1,521	1,100	2,113	850	1,558	426	883	1,308	1,787	1,718	1,899	1,596	
Annual																						
Seed, food, ind.	733	855	930	1,067	1,152	1,233	1,251	1,298	1,370	1,425	1,533	1,556	1,613	1,715	1,628	1,714	1,805	1,846	1,913	1,957	2,054	
Export	1,997	1,821	1,887	1,850	1,227	1,492	1,716	2,029	2,367	1,727	1,584	1,663	1,328	2,177	2,228	1,797	1,504	1,981	1,937	1,941	1,889	
Feed, residual	4,245	4,573	3,876	4,115	4,114	4,660	4,789	3,934	4,382	4,609	4,798	5,252	4,680	5,460	4,693	5,277	5,482	5,471	5,665	5,842	5,877	
TOTAL	6,975	7,249	6,693	7,032	6,494	7,385	7,757	7,260	8,120	7,761	7,916	8,471	7,622	9,352	8,548	8,789	8,791	9,298	9,524	9,740	9,820	

^a Includes imports for the entire year.

Table 2. Corn Annual Balance Sheet

	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04 ^a
	million bushels														
Carryin	1,930	1,344	1,521	1,100	2,113	850	1,558	426	883	1,308	1,787	1,718	1,899	1,596	989
Production	<u>7,532</u>	<u>7,934</u>	<u>7,475</u>	<u>9,477</u>	<u>6,338</u>	<u>10,051</u>	<u>7,400</u>	<u>9,233</u>	<u>9,207</u>	<u>9,759</u>	<u>9,431</u>	<u>9,915</u>	<u>9,507</u>	<u>9,008</u>	<u>9,900</u>
TOTAL ^b	9,464	9,282	9,016	10,584	8,472	10,910	8,974	9,672	10,099	11,085	11,232	11,659	11,416	10,619	10,899
Seed, food, industrial	1,370	1,425	1,533	1,556	1,613	1,715	1,628	1,714	1,805	1,846	1,913	1,957	2,054	2,265	2,350
Export	2,367	1,727	1,584	1,663	1,328	2,177	2,228	1,797	1,504	1,981	1,937	1,935	1,889	1,725	1,900
Feed and residual	<u>4,382</u>	<u>4,609</u>	<u>4,798</u>	<u>5,252</u>	<u>4,680</u>	<u>5,460</u>	<u>4,693</u>	<u>5,277</u>	<u>5,482</u>	<u>5,471</u>	<u>5,664</u>	<u>5,848</u>	<u>5,877</u>	<u>5,640</u>	<u>5,700</u>
TOTAL	8,120	7,761	7,915	8,471	7,621	9,352	8,548	8,789	8,791	9,298	9,515	9,741	9,820	9,630	9,950
Carryout	1,344	1,521	1,100	2,113	850	1,558	426	883	1,308	1,787	1,718	1,899	1,596	989	949
U.S. average price	\$2.36	\$2.28	\$2.37	\$2.07	\$2.50	\$2.26	\$3.24	\$2.71	\$2.45	\$1.94	\$1.82	\$1.85	\$1.97	\$2.35	\$2.25

^a Projected

^b Includes imports

Table 3. United States Corn Planting Intentions, Actual Plantings, and Acres Harvested

Year	Planted Acreage			Actual	Harvested Acreage
	February/January Intentions	March Intentions	June Intentions		
			thousand acres		
1976	80,822	82,727	84,092	84,588	71,506
1977	84,526	83,923	82,735	84,328	71,614
1978	80,944	80,237	78,717	81,675	71,930
1979	80,676	79,209	79,751	81,394	72,400
1980	83,131	82,022	83,478	84,043	72,961
1981	...	83,977	84,677	84,097	74,524
1982	...	84,735	82,129	81,857	72,719
1983	69,569 ^a	58,812	60,129	60,217	51,479
1984	...	81,766	79,940	80,617	71,897
1985	...	82,021	83,217	83,398	75,209
1986	...	78,066	76,646	76,580	68,907
1987	...	67,556	66,024	66,200	59,505
1988	...	66,926	67,519	67,717	58,250
1989	...	73,253	72,790	72,322	64,783
1990	...	74,804	74,574	74,166	66,952
1991	77,500	76,124	75,909	75,957	68,822
1992		79,007	79,335	79,311	72,077
1993		76,486	74,259	73,239	62,933
1994		78,625	78,767	78,921	72,514
1995		75,323	72,800	71,479	65,210
1996		79,920	80,355	79,229	72,644
1997		81,416	80,227	79,537	72,671
1998		80,781	80,798	80,165	72,589
1999		78,219	77,611	77,386	70,487
2000		77,881	79,579	79,551	72,440
2001		76,693	76,109	75,752	68,808
2002		79,047	78,847	79,054	69,313
2003		79,022			

^a February

Table 4. Planted Acreage of Corn by State

State	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003 ^a
	thousand acres													
Georgia	660	600	750	650	600	400	580	550	500	350	360	265	340	370
Illinois	10,600	11,200	11,200	10,590	11,600	10,200	11,000	11,200	10,600	10,800	11,200	11,000	11,200	11,300
Indiana	5,600	5,700	6,100	5,550	6,100	5,400	5,600	5,900	5,800	5,800	5,700	5,800	5,400	5,700
Iowa	12,800	12,500	13,200	12,000	13,000	11,700	12,700	12,200	12,500	12,100	12,300	11,700	12,300	12,300
Kansas	1,600	1,800	1,850	2,000	2,280	2,150	2,500	2,750	3,000	3,150	3,450	3,450	3,250	3,000
Kentucky	1,350	1,400	1,420	1,370	1,350	1,280	1,300	1,270	1,300	1,320	1,330	1,200	1,130	1,250
Michigan	2,400	2,600	2,700	2,500	2,550	2,450	2,650	2,500	2,300	2,200	2,200	2,200	2,250	2,200
Minnesota	6,700	6,600	7,200	6,300	7,000	6,700	7,500	7,000	7,300	7,100	7,200	6,800	7,200	7,400
Missouri	2,100	2,300	2,500	2,200	2,400	1,650	2,750	2,700	2,650	2,650	2,850	2,700	2,800	2,900
Nebraska	7,700	8,200	8,300	8,000	8,600	8,000	8,500	8,900	8,800	8,600	8,500	8,100	8,400	8,200
North Carolina	1,200	1,050	1,150	1,000	1,000	800	1,000	960	860	750	730	700	790	810
Ohio	3,700	3,700	3,800	3,500	3,700	3,300	2,900	3,800	3,550	3,450	3,550	3,400	3,200	3,300
Pennsylvania	1,380	1,400	1,380	1,370	1,400	1,380	1,450	1,550	1,550	1,500	1,550	1,500	1,450	1,450
South Dakota	3,400	3,750	3,800	3,350	3,800	2,800	4,000	3,800	3,900	3,600	4,300	3,800	4,400	4,300
Tennessee	620	620	740	660	670	640	770	700	700	630	650	630	690	740
Texas	1,650	1,700	1,750	2,000	2,150	2,100	2,100	2,000	2,400	1,950	2,100	1,600	2,050	1,750
Wisconsin	3,700	3,800	3,900	3,400	3,750	3,650	3,900	3,850	3,700	3,600	3,500	3,400	3,650	3,600
United States	74,171	75,951	79,325	73,323	79,158	71,245	79,487	79,537	80,165	77,386	79,551	75,752	79,054	79,022

^a Intentions

Table 5. United States Corn Yield Estimates

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
	bushels per acre																												
July 1	93.0	90.5	89.4	90.1	95.8	99.3	95.9	87.0															
August 1	87.4	86.7	87.3	96.1	102.1	93.0	104.3	113.9	99.9	107.9	110.6	120.4	121.4	78.5	112.8	117.7	107.8	121.3	116.0	128.4	125.6	118.7	125.3	130.0	134.7	141.9	133.9	125.2	
September 1	85.1	82.8	89.7	100.3	104.6	91.8	107.1	113.9	85.1	106.3	113.3	119.7	119.9	78.5	112.4	121.7	106.1	121.4	113.1	129.0	121.1	120.2	125.2	132.0	132.2	141.8	133.5	125.4	
October 1	86.2	82.7	90.8	100.7	106.4	90.8	109.0	114.2	82.9	105.5	115.1	119.2	119.9	80.2	114.4	120.3	108.8	123.8	110.3	133.8	116.6	123.0	125.8	132.0	133.5	139.6	136.3	127.2	
November 1	87.2	85.5	91.5	101.2	109.2	90.8	109.2	114.2	80.5	105.9	116.6	119.3	120.3	82.3	116.6	119.0	108.6	129.3	103.1	138.4	113.7	126.5	126.4	133.3	134.5	137.7	138.0	127.6	
January 1	86.2	87.4	90.8	101.2	109.4	91.0	109.9	114.8	81.6	106.6	118.0	119.3	119.4	84.6	116.2	118.5	108.6	131.4	100.7	138.6	113.5	127.1	127.0	134.4	133.8	137.1	138.2	130.0	
FINAL	86.4	88.0	90.8	101.0	109.5	91.0	108.9	113.2	81.1	106.7	118.0	119.3	119.8	84.6	116.3	118.5	108.6	131.5	100.7	138.6	113.5	127.1	126.7	134.4	133.8	136.9	138.2		

Table 6. United States Corn Production Estimates

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	million bushels																					
July	7,116	5,200														
August	7,735	8,315	5,237	7,668	8,266	8,316	7,231	4,479	7,348	7,850	7,418	8,762	7,423	9,214	8,122	8,695	9,276	9,592	9,561	10,369	9,266	8,886
September	7,940	8,319	4,390	7,552	8,469	8,268	7,141	4,462	7,321	8,118	7,295	8,770	7,229	9,257	7,832	8,804	9,268	9,738	9,381	10,362	9,238	8,849
October	8,081	8,315	4,259	7,498	8,603	8,220	7,139	4,553	7,449	8,022	7,479	8,938	6,962	9,602	7,541	9,012	9,312	9,743	9,467	10,192	9,430	8,970
November	8,097	8,330	4,121	7,527	8,717	8,223	7,166	4,671	7,590	7,935	7,479	9,329	6,503	10,010	7,374	9,265	9,359	9,836	9,537	10,054	9,546	9,003
January	8,201	8,397	4,204	7,656	8,865	8,253	7,064	4,921	7,527	7,933	7,474	9,479	6,344	10,103	7,374	9,293	9,366	9,761	9,437	9,968	9,507	9,008
FINAL	8,119	8,235	4,174	7,672	8,875	8,226	7,131	4,929	7,532	7,934	7,475	9,477	6,338	10,051	7,400	9,233	9,207	9,759	9,431	9,915		

Table 7. World Coarse Grain Production

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	million metric tons																			
United States	137.1	237.7	274.9	252.8	215.9	149.7	221.4	230.7	218.6	277.4	186.5	284.9	210.0	265.7	260.4	271.5	263.2	273.1	261.9	245.0
Former USSR	99.0	90.5	100.0	105.9	113.7	97.5	104.8	99.4	80.4	95.3	95.6	79.2	57.4	52.0	67.9	38.0	40.5	49.5	62.3	60.5
Western Europe	86.2	103.6	101.4	94.0	93.3	99.5	102.2	97.6	104.3	93.8	96.1	86.6	88.5	103.8	109.4	105.6	102.6	107.1	106.7	106.1
China	92.7	96.2	82.3	87.0	95.8	94.2	93.5	111.7	112.3	108.4	117.8	114.3	124.5	141.3	114.7	144.2	137.2	114.0	122.3	133.0
Eastern Europe	67.1	72.8	65.5	73.9	63.9	61.3	60.2	51.4	64.7	43.2	44.5	46.9	51.4	50.0	59.0	51.0	54.7	37.0	52.1	49.5
Canada	21.0	22.0	23.9	25.5	25.5	19.7	23.5	24.8	21.8	19.6	24.0	23.4	24.1	28.2	25.1	26.6	26.8	24.0	22.6	19.6
India	34.1	31.4	25.8	26.6	23.5	31.3	34.6	32.6	25.9	36.8	31.0	30.1	29.8	34.3	30.9	31.7	30.5	31.6	34.7	25.1
Brazil	21.5	22.5	21.7	27.3	25.4	26.7	22.5	24.4	31.4	29.9	33.8	38.2	33.2	36.6	31.3	33.5	32.6	42.7	36.7	38.2
Argentina	17.4	18.9	17.4	13.0	13.1	7.3	8.3	10.8	14.5	14.1	13.3	13.9	14.1	18.9	24.7	17.8	21.5	19.6	18.5	18.5
South Africa	5.1	9.0	8.9	7.9	7.9	13.0	9.5	8.9	3.6	10.7	14.0	5.4	11.0	10.7	8.2	8.1	11.1	8.4	10.1	9.4
World	685.4	814.1	843.3	835.2	791.5	731.2	802.6	819.5	804.2	869.1	799.9	873.6	802.9	908.3	883.2	890.1	876.4	859.7	891.2	861.6
Excluding the U.S.	548.3	576.4	568.4	582.4	575.7	581.5	581.2	588.8	585.6	591.7	613.4	588.7	592.9	642.6	622.8	618.4	613.2	586.5	629.3	616.5

Source: USDA, FAS, World Crop Production, March 2003 and earlier issues.