FAPRI 2002 U.S. Baseline Briefing Book

FAPRI-UMC Technical Data Report 02-02

July 2002

FAPRI
At the University of Missouri
Food and Agricultural Policy Research Institute

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Foreword

In January 2002, the Food and Agricultural Policy Research Institute (FAPRI), a joint Institute of the University of Missouri-Columbia and Iowa State University, followed its usual practice and prepared a set of ten-year baseline projections for agricultural markets. Because FAPRI baselines assume a simple continuation of existing farm policies, and because the final outcome of the farm bill debate was unclear at the time, the January baseline assumed that provisions of the 1996 farm bill would remain in place. The international results of that baseline (the FAPRI 2002 World Agricultural Outlook) are posted on FAPRI-Iowa State's web site, www.fapri.iastate.edu.

At the same time FAPRI was developing the January baseline, the Institute was continuing to field a number of Congressional requests to analyze farm bill options. On the instruction of Congressional staff, these analyses compared likely outcomes under farm bill proposals to a baseline prepared in early 2001. Likewise, the Congressional Budget Office also continued to score farm bill options against its 2001 baseline.

When the Farm Security and Rural Investment Act (FSRIA) of 2002 was completed, FAPRI produced a quick, preliminary analysis of the bill's impact compared to the 2001 baseline (for a short summary of results, see www.fapri.missouri.edu). At the time, FAPRI indicated it would prepare a more complete analysis incorporating provisions of the new farm bill and the most current market developments. This report represents the result of that analysis.

The U.S. baseline presented here attempts to incorporate FSRIA provisions and market information that was available in early June 2002. Although the new farm bill only covers the 2002-2007 crops, this baseline assumes that its 2007 provisions remain in place in subsequent years. Only projections for the United States are included in this report. The long-term U.S. export paths generally reflect those developed for the January baseline, although some adjustments were made in light of later market intelligence.

For each commodity, the supply-and-use tables presented in this report were prepared under a very particular set of assumptions. In addition to assuming that current policies remain in place, the numbers in the tables are based on the assumption that:
- average weather conditions prevail in the United States and around the world,
- the U.S. and world economies grow in line with projections developed by DRI-WEFA, and
- productivity generally increases in line with past trends.

In reality, these assumptions are certain to be violated and actual market outcomes will deviate from the "deterministic" baseline projections presented in the supply-and-use tables. Recognizing this fact, FAPRI also conducts "stochastic" analysis that considers at least some of the underlying variability and unpredictability of agricultural markets. In essence, FAPRI looks at 500 different possible futures, which differ from each other in terms of assumptions. Full results of this stochastic analysis for commodity supply and use are not reported here, but some flavor of the results is provided with graphs showing the distribution of commodity price outcomes associated with the 500 draws.

Given FAPRI's approach to the analysis, the average results using the stochastic approach are generally similar to the deterministic results reported in the supply-and-use tables. Important exceptions are often related to the effects of farm programs. Under several programs, government spending is near zero when prices are above a certain level, but can escalate quickly when prices fall below the trigger. With some exceptions, the analysis indicates that estimated government program costs and farm income tend to be greater when one considers the inherent variability of agricultural markets than would be implied by the deterministic analysis.

To better reflect the variable nature of agricultural markets, the projections of government farm program costs and net farm income reported here represent the averages of the results of the stochastic analysis, and not deterministic point estimates. This choice is consistent with FAPRI's general use of a stochastic approach when examining the impacts of farm policy alternatives.

Major Issues and Results

Government Outlays
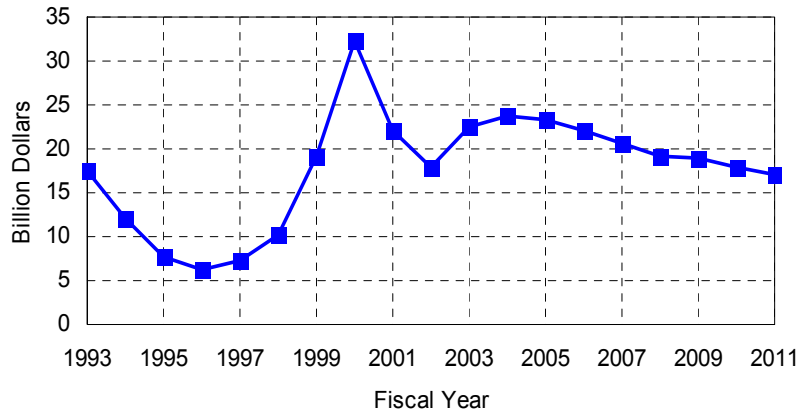
■Over the six-year life of the new **farm bill**, projected annual government spending on farm programs is comparable to annual spending from 1998-2001.

■Government spending declines slightly after 2004 as **market prices** increase.

■**Net government outlays** by the Commodity Credit Corporation total $203.5 billion over the next ten years (FY 2002-FY 2011).

[Line chart titled "Government Outlays" — Y-axis: Billion Dollars (0–35), X-axis: Fiscal Year (1993–2011). Values rise to a peak of ~32 around 2000, dip to ~18 in 2002, rise to ~24 in 2004, then gradually decline to ~17 by 2011.]

9-Crop Planted Area
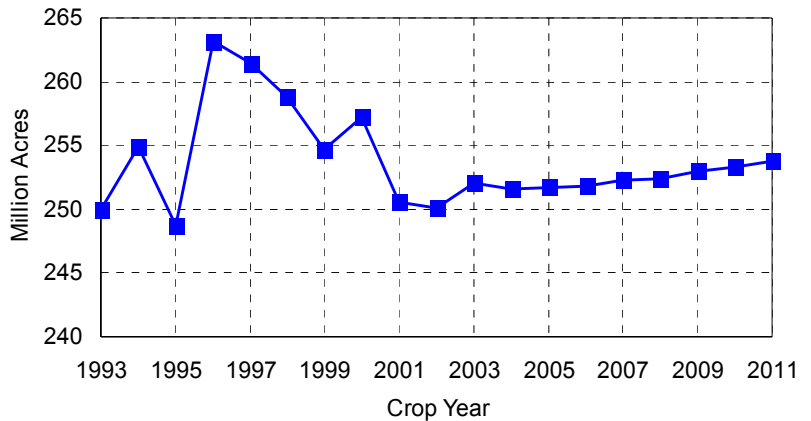
■**Area planted** to nine major crops declined by more than 12 million acres between 1996 and 2001.

■**Income protection** provided under the new farm bill contributes to a modest increase in planted acreage in 2003.

■In later years, the impact of **increasing prices** more than offsets an expansion of the **conservation reserve**, resulting in a small increase in planted area.

[Line chart titled "9-Crop Planted Area" — Y-axis: Million Acres (240–265), X-axis: Crop Year (1993–2011). Peaks at ~263 in 1996, declines to ~250 around 2001-2002, then gradually rises to ~254 by 2011.]

U.S. Crop Prices
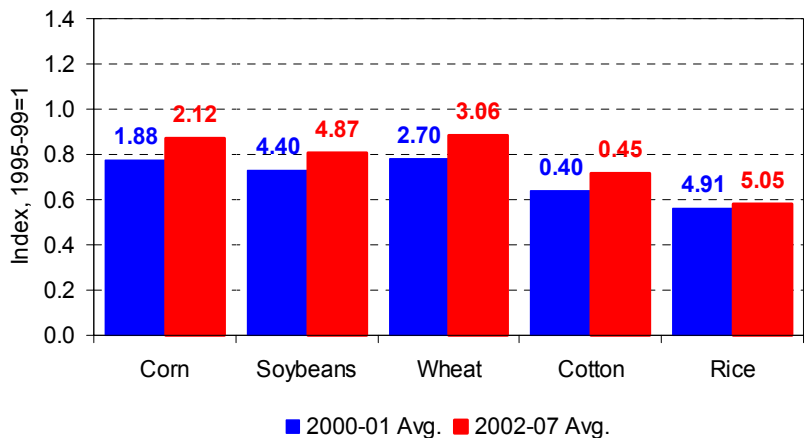
■Relative to recent low prices, grain, oilseed, and cotton prices are projected to **increase** modestly over time.

■Over the life of the farm bill, average market prices are above **loan rates** for corn and wheat, but below loan rates for soybeans, cotton, and rice.

[Bar chart titled "U.S. Crop Prices" — Y-axis: Index, 1995-99=1 (0.0–1.4). Crops: Corn, Soybeans, Wheat, Cotton, Rice. Blue bars = 2000-01 Avg., Red bars = 2002-07 Avg. Labeled values: Corn 1.88 / 2.12; Soybeans 4.40 / 4.87; Wheat 2.70 / 3.06; Cotton 0.40 / 0.45; Rice 4.91 / 5.05.]

Legend: ■ 2000-01 Avg. ■ 2002-07 Avg.

Major Issues and Results

Livestock and Dairy Price Indices
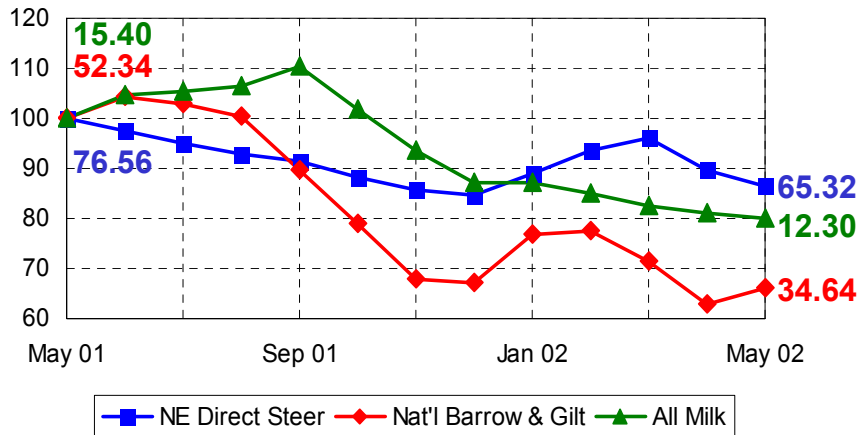
- All **livestock prices** have weakened considerably over the past few months.

- In May 2002, **hog prices** fell to $34.64 per cwt compared to $52.34 per cwt in May 2001.

- The **all milk price** has tumbled from the $17 per cwt level of September 2001 to $12.30 per cwt in May 2002.

- The f**ed cattle price** has fallen over $10 per cwt over the past year.

Livestock and Dairy Price Indices chart. Legend: NE Direct Steer, Nat'l Barrow & Gilt, All Milk. Values shown: 15.40, 52.34, 76.56, 65.32, 12.30, 34.64.

Annual Change in Beef and Pork Production
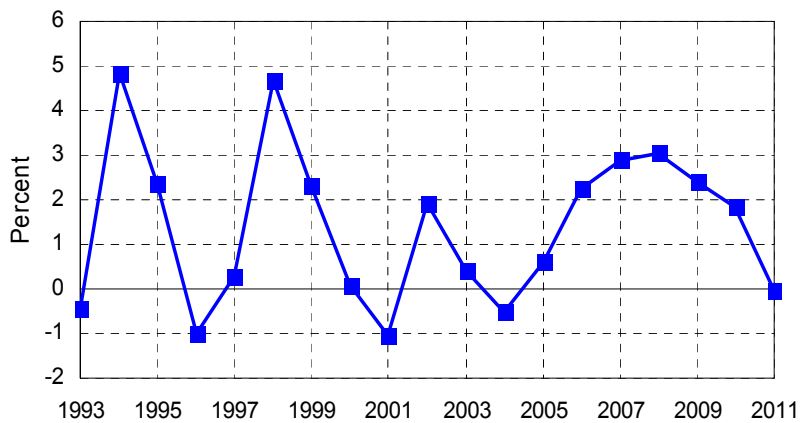
- **Supplies of beef and pork** should moderate after 2002, resulting in higher cattle and hog prices in the 2003 to 2005 period.

- A building cattle cycle during the latter half of this decade results in **beef and pork production** growth above 2 percent per year.

Annual Change in Beef and Pork Production chart, Percent vs year 1993–2011.
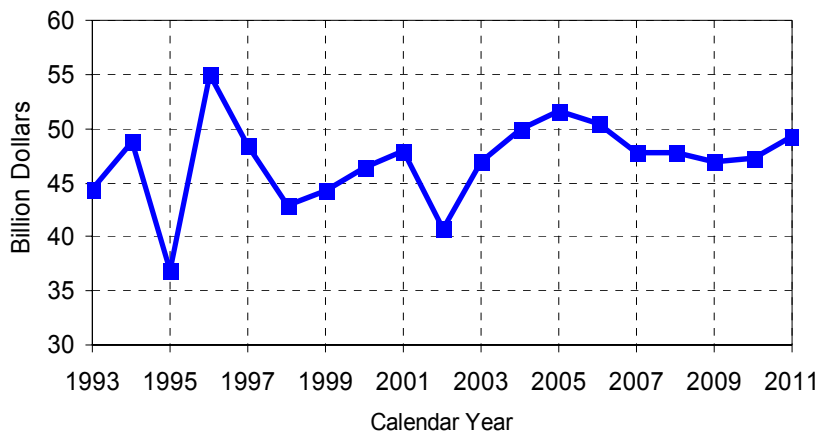
Net Farm Income

- **Net farm income** declines in calendar year 2002 because of lower livestock receipts and the timing of payments under the new farm bill.

- Market **price recovery** and government **payments** support farm income in 2003 and later years.

Net Farm Income chart, Billion Dollars vs Calendar Year 1993–2011.

Policy Assumptions

U.S. Corn Program Provisions
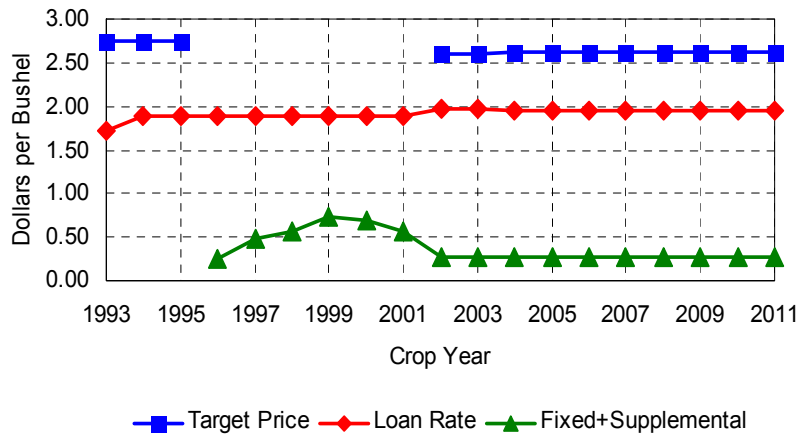
- The baseline incorporates provisions of the new farm bill, the **Farm Security and Rural Investment Act of 2002**.

- Feed grain and wheat **loan rates** are increased, and a fixed payment program is extended to include oilseeds.

- The new **counter-cyclical payment (CCP)** program makes payments when market prices fall below the target price minus the fixed payment rate.

Y-axis: Dollars per Bushel (0.00 to 3.00)
X-axis: Crop Year (1993 to 2011)

Legend: Target Price, Loan Rate, Fixed+Supplemental

Contract or Base Area for Payments
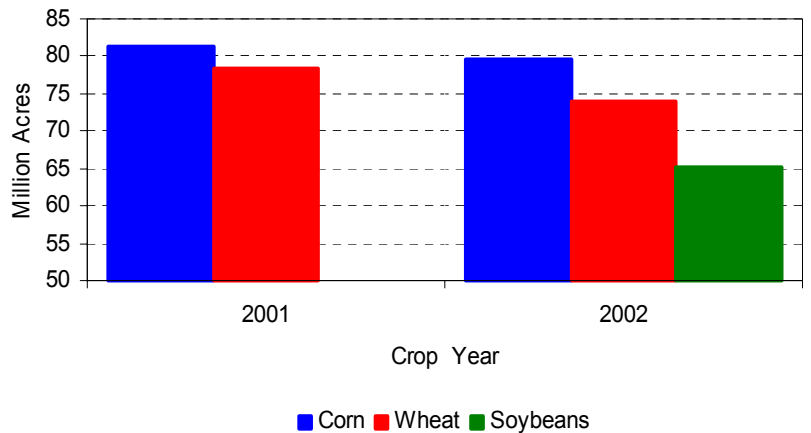
- The new farm bill allows farmers to update their **payment bases** depending in part on their 1998-2001 production history.

- FAPRI's preliminary estimates based on **county data** suggest a slight reduction in wheat and feed grain base area to accommodate the new soybean base.

Y-axis: Million Acres (50 to 85)
X-axis: Crop Year (2001, 2002)

Legend: Corn, Wheat, Soybeans
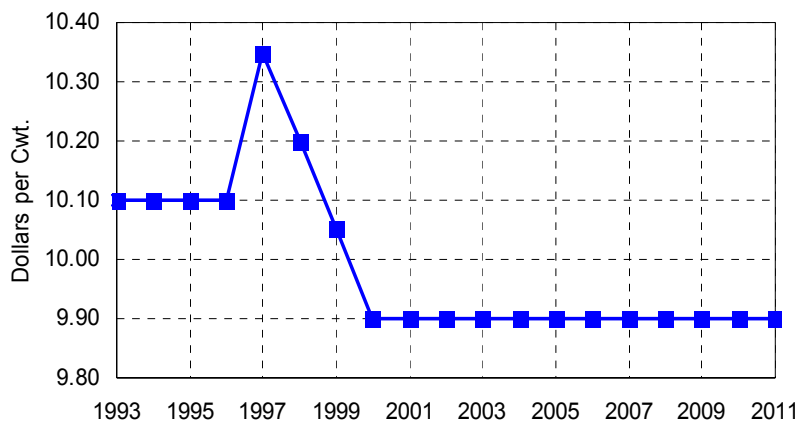
Milk Support Price

- The new farm bill extends the **milk price support program** at $9.90 per cwt for the life of the bill.

- The price support program has the largest effect on the **nonfat dry milk** market.

- For 2002-2005, a new **dairy market loss** program makes payments to dairy producers when the Boston Class I price falls below $16.94 per cwt.

Y-axis: Dollars per Cwt. (9.80 to 10.40)
X-axis: 1993 to 2011

U.S. Program Provisions

|	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Fixed Payments*					(U.S. Dollars per Bushel)						
Corn	0.57	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Sorghum	0.68	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Barley	0.43	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Oats	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Wheat	1.00	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Soybeans	n.a.	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
					(U.S. Dollars per Hundredweight)						
Rice	4.43	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Sunflowers	n.a.	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
					(U.S. Dollars per Pound)						
Cotton	0.121	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067
Loan Rates					(U.S. Dollars per Bushel)						
Corn	1.89	1.98	1.98	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Sorghum	1.71	1.98	1.98	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Barley	1.65	1.88	1.88	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85
Oats	1.21	1.35	1.35	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Wheat	2.58	2.80	2.80	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
Soybeans	5.26	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
					(U.S. Dollars per Hundredweight)						
Rice	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Sunflowers	9.30	9.60	9.60	9.30	9.30	9.30	9.30	9.30	9.30	9.30	9.30
					(U.S. Dollars per Pound)						
Cotton	0.519	0.520	0.520	0.520	0.520	0.520	0.520	0.520	0.520	0.520	0.520
Sugarcane	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
Target Prices					(U.S. Dollars per Bushel)						
Corn	n.a.	2.60	2.60	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Sorghum	n.a.	2.54	2.54	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57
Barley	n.a.	2.21	2.21	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Oats	n.a.	1.40	1.40	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
Wheat	n.a.	3.86	3.86	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
Soybeans	n.a.	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80
					(U.S. Dollars per Hundredweight)						
Rice	n.a.	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50
Sunflowers	n.a.	9.80	9.80	10.10	10.10	10.10	10.10	10.10	10.10	10.10	10.10
					(U.S. Dollars per Pound)						
Cotton	n.a.	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724
					(Million Acres)						
Conservation Reserve	31.4	33.6	34.5	35.0	36.5	37.5	38.0	38.5	39.0	39.0	39.0

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
					(U.S. Dollars per Hundredweight)						
Milk Support Price	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90
Nat'l Dairy Market Loss Pmt.	n.a.	0.99	1.02	1.03	1.04	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

* For 2001/02, production flexibility contract payments plus market loss assistance payments; for 2002/03 and later, direct payments.

Macroeconomic Assumptions

Real GDP Growth
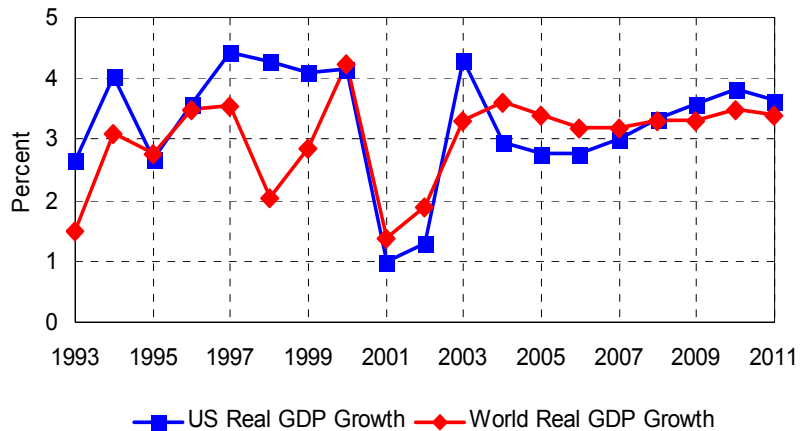
■The **U.S. economy** is expected to grow by slightly more than 1 percent in 2002 according to DRI-WEFA. The economy is projected to rebound robustly in 2003 with growth exceeding 4 percent.

■**World real GDP growth** is projected to remain below 2 percent in 2002 due in part to the sluggish U.S. economy. Longer term, world GDP growth remains in the 3 to 3.5 percent range.

U.S. vs. 18 Countries Real Exchange Rate
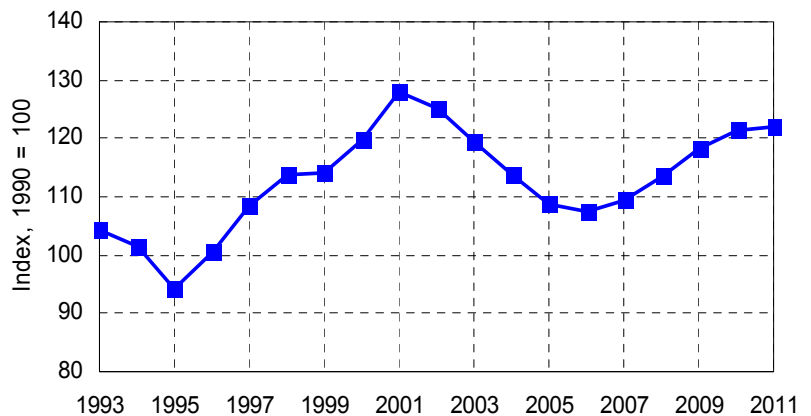
■**The U.S. dollar** has declined against most industrial country currencies in recent months. The softness in the recovery of the U.S. economy is often cited as the cause.

■After 2002, DRI-WEFA shows a continued depreciation of the dollar for the next four years. That should help exports of U.S. agricultural products.

Interest Rate, 6-Month Commercial Paper
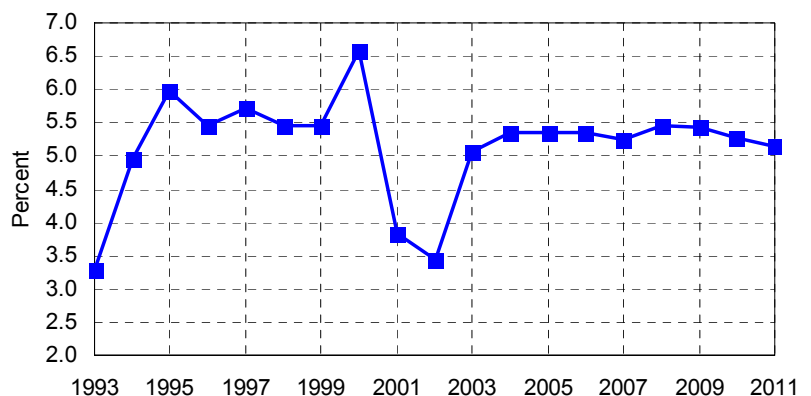
■**Interest rates** have remained at low levels for much of the past 18 months as the Federal Reserve cut rates hoping to stimulate the U.S. economy.

■Interest rates are projected to rise in 2003 as the U.S. economy recovers. Interest rates are expected to remain at levels witnessed during much of the late 1990s.

Macroeconomic Assumptions

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
United States											
					(Percentage Change)						
Real GDP	1.0	1.3	4.3	2.9	2.8	2.8	3.0	3.3	3.6	3.8	3.7
CPI, All Urban Consumers	3.1	2.0	2.4	2.7	2.7	2.8	3.1	3.1	3.0	3.0	2.7
PPI, All Commodities	1.1	-0.8	1.6	1.7	1.7	1.6	1.9	2.1	2.2	2.3	2.0
Wage Rate, Whsle & Retail	3.7	2.2	3.0	4.5	3.9	3.3	3.9	2.3	1.2	3.4	2.9
					(Percent)						
Unemployment Rate	5.1	5.0	5.0	4.9	4.8	4.8	4.8	4.8	4.9	4.9	4.9
3-Month Treasury Bill Rate	3.5	3.1	4.5	4.7	4.7	4.7	4.6	4.8	4.8	4.7	4.6
Prime Rate at Com. Banks	7.0	6.0	7.6	8.0	8.0	8.0	7.9	8.3	8.3	8.1	8.0
					(U.S. Dollars per Barrel)						
Refiners' Cost of Oil	24.36	21.97	22.20	22.55	22.86	23.27	23.74	24.24	24.77	25.34	25.95
U.S. vs 18 Countries Real Exchange Rate	128.0	125.2	119.5	113.7	(Index, 1990=100) 108.8	107.5	109.2	113.3	118.1	121.3	121.9
					(Percentage Change)						
World Real GDP	1.4	1.9	3.3	3.6	3.4	3.2	3.2	3.3	3.3	3.5	3.4

Source: DRI-WEFA

U.S. Wheat

U.S. Wheat Planted Area
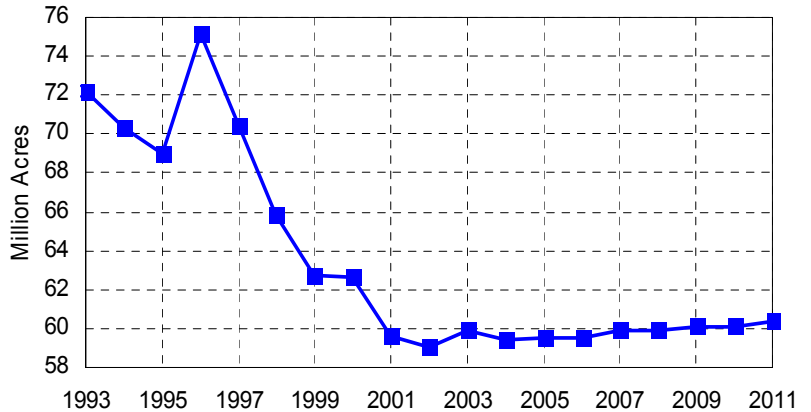
▪**Wheat planted area** fell 15.5 million acres from 1996 to 2001 as many of those acres moved into oilseeds.

▪A further decline is projected for 2002 with total plantings of **59 million acres**. Planted area remains below 60 million acres until 2009.

U.S. Wheat Use
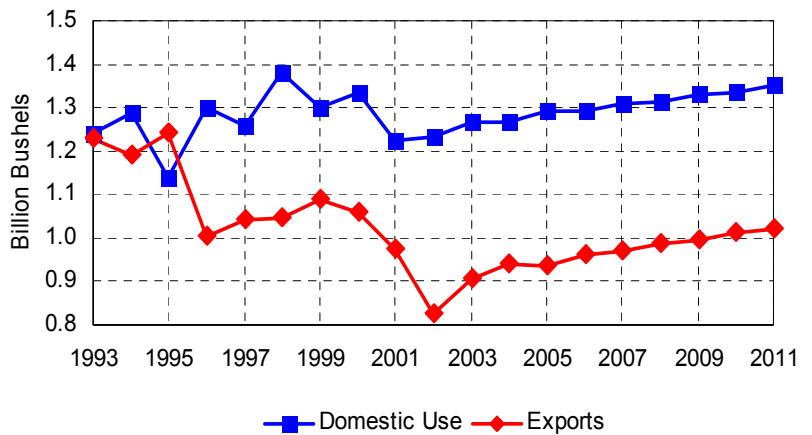
▪Per-capita domestic use is projected to show modest growth over the baseline. Total **domestic use** expands by 119 million bushels between 2002 and 2011.

▪Reduced supplies and strong foreign competition result in a large reduction in 2002/03 **U.S. wheat exports**. U.S. exports remain below 2000/01 levels for the entire baseline.

U.S. Wheat Stocks and Price
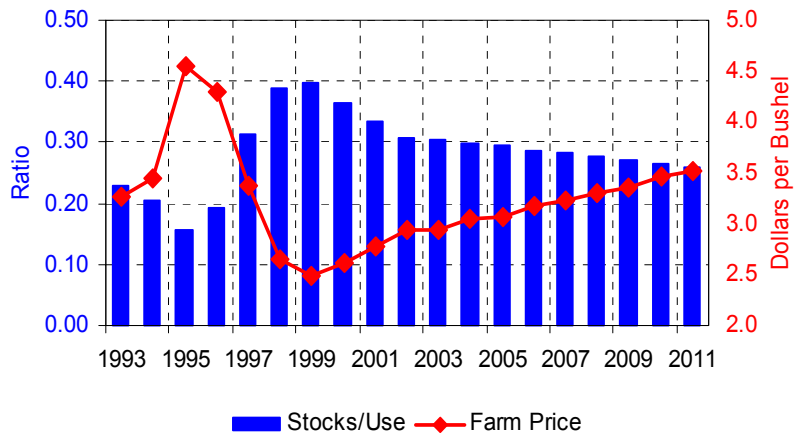
▪The wheat **stocks-to-use** ratio continues to decline from its 1999/2000 peak allowing a modest recovery in wheat prices.

▪By 2011/12, **wheat prices** rise to $3.51 per bushel with stocks continuing to tighten.

U.S. Wheat Supply and Utilization

|	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Area						(Million Acres)					
Contract/Base Area	78.4	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1	74.1
Planted Area	59.6	59.0	59.9	59.4	59.5	59.5	59.9	59.9	60.1	60.1	60.4
Harvested Area	48.7	47.0	50.5	50.2	50.2	50.2	50.5	50.6	50.7	50.7	51.0
Yield						(Bushels per Acre)					
Actual	40.2	39.3	41.5	41.9	42.2	42.6	42.9	43.3	43.7	44.1	44.4
Program, Fixed	34.5	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7	34.7
Program, CCP		36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9
						(Million Bushels)					
Supply	2,939	2,691	2,833	2,865	2,886	2,900	2,920	2,937	2,955	2,968	2,989
Beginning Stocks	876	738	632	659	658	657	646	642	634	629	620
Production	1,958	1,848	2,096	2,101	2,122	2,138	2,169	2,190	2,215	2,233	2,264
Imports	105	105	105	105	105	105	105	105	105	105	105
Domestic Use	1,226	1,233	1,268	1,268	1,294	1,294	1,308	1,315	1,332	1,335	1,352
Feed, Residual	200	200	223	214	227	218	222	220	226	219	224
Seed	81	80	80	80	81	82	83	83	84	85	85
Food, Other	945	953	965	974	985	994	1,003	1,012	1,022	1,032	1,043
Exports	975	825	906	938	935	959	971	987	994	1,013	1,021
Total Use	2,201	2,058	2,174	2,206	2,229	2,253	2,278	2,302	2,325	2,348	2,373
Ending Stocks	738	632	659	658	657	646	642	634	629	620	616
FOR, Special Program	0	0	0	0	0	0	0	0	0	0	0
CCC Inventory	95	93	93	93	93	93	93	93	93	93	93
9-Month Loan	87	63	70	90	93	84	82	77	74	69	68
"Free" Stocks	556	477	497	476	471	469	467	465	462	458	455
Prices and Returns						(Dollars)					
Farm Price/bu.	2.78	2.95	2.93	3.04	3.07	3.17	3.23	3.31	3.36	3.47	3.51
FOB Gulf Price/mt	125.48	133.12	132.50	137.06	138.20	142.89	145.11	148.63	151.03	155.53	157.48
Loan Rate/bu.	2.58	2.80	2.80	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
Average LDP Rate/bu.	0.08	0.17	0.18	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Target Price/bu.		3.86	3.86	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
CCP Rate/bu.		0.39	0.41	0.36	0.33	0.23	0.17	0.09	0.04	0.00	0.00
Fixed Payment/bu.	1.00	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Gross Market Revenue/a.	111.86	116.00	121.73	127.31	129.51	135.23	138.50	143.24	146.87	152.73	156.06
LDP Revenue/a.	3.40	6.55	7.50	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variable Expenses/a.	62.98	61.06	62.06	63.23	64.51	65.86	67.37	69.00	70.50	71.98	73.61
Mkt+LDP Net Returns/a.	52.28	61.48	67.17	65.13	65.00	69.36	71.13	74.24	76.38	80.75	82.45
CCP Revenue/a.		12.30	12.75	11.32	10.49	7.08	5.47	2.91	1.17	0.00	0.00
Fixed Payment/a.	29.18	15.32	15.32	15.32	15.32	15.32	15.32	15.32	15.32	15.32	15.32

U.S. Corn

U.S. Corn Planted Area
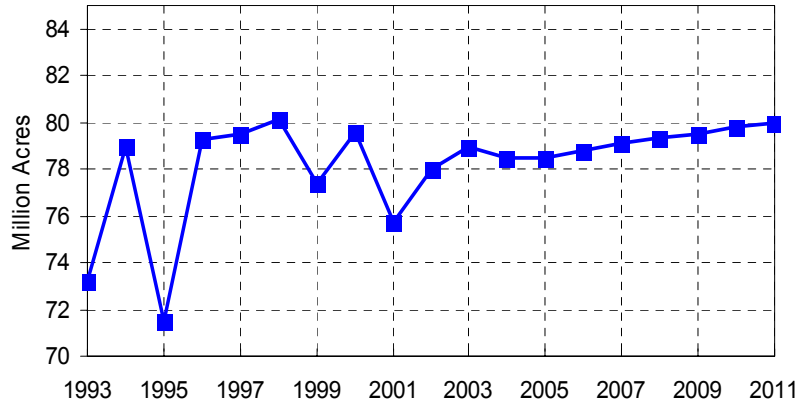
▪**Corn planted area** increased in 2002, as estimated production costs declined, and as the new farm bill increased the corn loan rate relative to that for soybeans.

▪The June acreage report, issued after these projections were prepared, indicated an even larger increase in 2002 corn area.

Change in U.S. Corn Demand
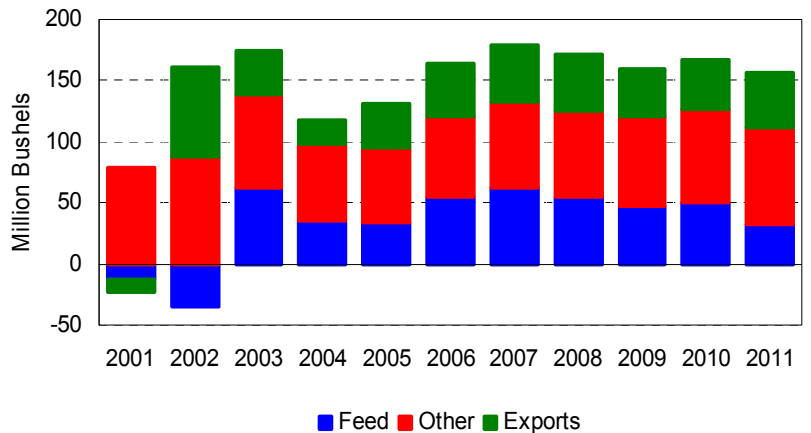
▪Growth in world demand leads to expansion in **U.S. corn exports**. Over the baseline, exports increase by an average of 42 million bushels per year.

▪**Domestic use** grows by 1 billion bushels over the 2002 to 2011 period. Food and industrial use, primarily for ethanol, is expected to grow faster than feed use.

U.S. Corn Prices
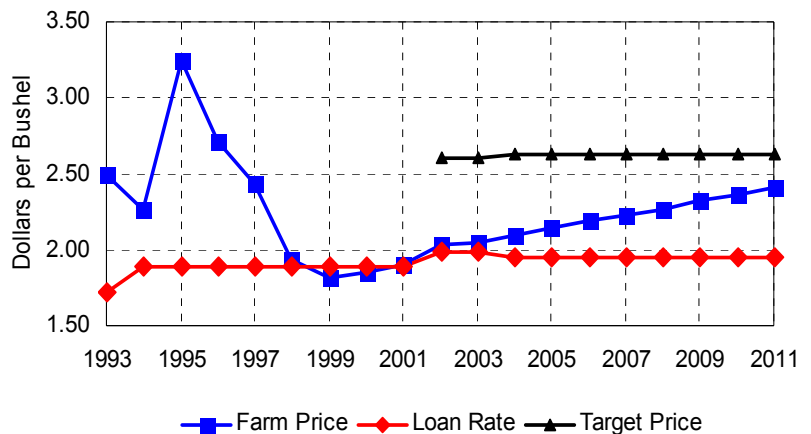
▪The **season average corn price** climbed above the loan rate for the 2001 crop, but not enough to prevent incurring LDPs. Assuming trend yields, prices for 2002 are expected to recover to $2.03 per bushel.

▪While prices are projected to average above the loan rate, there may be times during the year that cash prices fall below loan levels. Also, counter-cyclical payments are expected to occur in all but the final two years.

U.S. Corn Supply and Utilization

|	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Area						(Million Acres)					
Contract/Base Area	81.4	79.7	79.7	79.7	79.7	79.7	79.7	79.7	79.7	79.7	79.7
Planted Area	75.8	78.0	79.0	78.5	78.5	78.8	79.1	79.4	79.5	79.8	80.0
Harvested Area	68.8	71.1	72.0	71.6	71.6	71.9	72.3	72.6	72.8	73.1	73.3
Yield						(Bushels per Acre)					
Actual	138.2	138.5	140.2	142.1	143.9	145.7	147.4	149.2	150.9	152.6	154.3
Program, Fixed	102.6	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9	102.9
Program, CCP		121.0	121.0	121.0	121.0	121.0	121.0	121.0	121.0	121.0	121.0
						(Million Bushels)					
Supply	11,416	11,480	11,665	11,757	11,871	12,025	12,197	12,355	12,495	12,649	12,791
Beginning Stocks	1,899	1,621	1,559	1,569	1,544	1,527	1,518	1,510	1,497	1,477	1,464
Production	9,507	9,844	10,091	10,172	10,312	10,483	10,665	10,830	10,983	11,157	11,313
Imports	10	15	15	15	15	15	15	15	15	15	15
Domestic Use	7,870	7,923	8,062	8,160	8,255	8,376	8,508	8,633	8,753	8,880	8,992
Feed, Residual	5,825	5,790	5,852	5,886	5,920	5,976	6,038	6,092	6,140	6,191	6,223
Fuel Alcohol	690	768	821	862	902	946	993	1,040	1,088	1,141	1,199
HFCS	548	554	565	576	586	597	607	617	628	638	648
Seed	20	20	20	20	20	20	21	21	21	21	21
Food, Other	787	791	803	815	826	837	850	863	877	890	902
Exports	1,925	1,998	2,034	2,053	2,088	2,132	2,179	2,225	2,264	2,304	2,349
Total Use	9,795	9,921	10,095	10,213	10,343	10,507	10,687	10,858	11,018	11,185	11,341
Ending Stocks	1,621	1,559	1,569	1,544	1,527	1,518	1,510	1,497	1,477	1,464	1,450
FOR, Special Program	0	0	0	0	0	0	0	0	0	0	0
CCC Inventory	5	3	1	0	0	0	0	0	0	0	0
9-Month Loan	225	222	228	243	255	256	247	237	224	216	209
"Free" Stocks	1,391	1,334	1,340	1,300	1,273	1,262	1,263	1,260	1,252	1,248	1,242
Prices and Returns						(Dollars)					
Farm Price/bu.	1.90	2.03	2.04	2.10	2.15	2.19	2.23	2.27	2.32	2.37	2.41
FOB Gulf Price/mt	90.15	95.74	96.16	98.67	100.70	102.46	104.08	105.97	108.20	110.09	111.87
Loan Rate/bu.	1.89	1.98	1.98	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Average LDP Rate/bu.	0.12	0.13	0.12	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Target Price/bu.		2.60	2.60	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63
CCP Rate/bu.		0.29	0.28	0.25	0.20	0.16	0.12	0.08	0.03	0.00	0.00
Fixed Payment/bu.	0.57	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Gross Market Revenue/a.	262.51	281.14	286.07	298.32	308.95	318.72	328.05	338.51	350.30	360.96	371.43
LDP Revenue/a.	16.48	18.17	17.04	4.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variable Expenses/a.	171.53	166.26	169.24	172.52	176.03	179.67	183.84	188.48	192.95	197.40	201.83
Mkt+LDP Net Returns/a.	107.47	133.05	133.86	130.47	132.91	139.05	144.21	150.03	157.35	163.57	169.60
CCP Revenue/a.		29.78	28.78	25.83	20.96	16.73	12.84	8.31	2.95	0.00	0.00
Fixed Payment/a.	49.45	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50

U.S. Sorghum, Barley, and Oats

U.S. Area

Planted area for sorghum, barley, and harvested area for oats totaled 17.1 million acres in 2001. The long-term acreage trend has been down for these crops. By 2011, total area for the three is projected to fall to 15.9 million acres

The **declining area** is a result of returns that lag behind wheat and oilseeds.
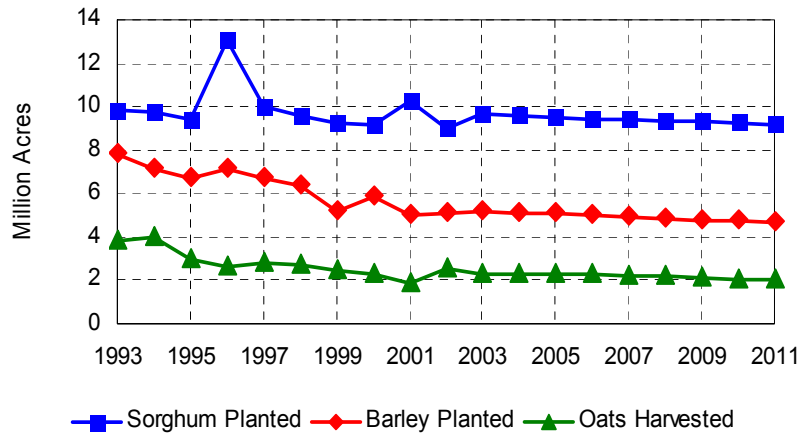
U.S. Feed Use

Exports of **sorghum** exceeded feed use in 2000 and 2001. This is expected to continue.

Increasing cattle numbers may boost feed use in the near term. After 2004, assuming normal weather, ample supplies of other feedstuffs cause **feed use** of sorghum, barley, and oats to continue its long-term decline.
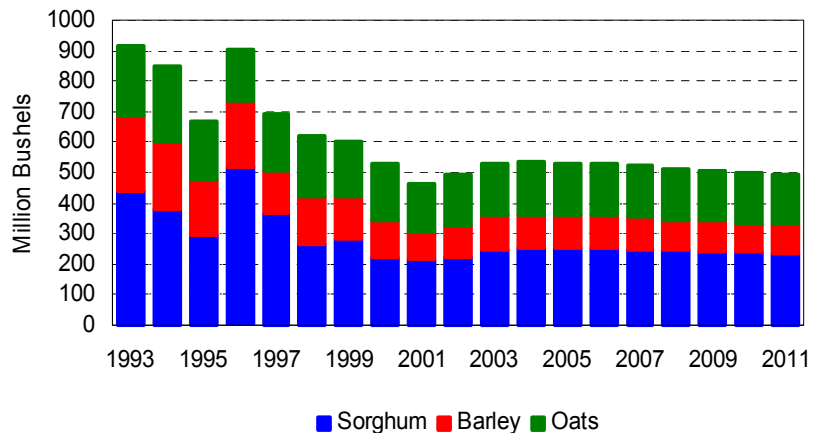
U.S. Farm Prices

Farm prices for barley and oats are projected to fall in 2002 because of higher production. Sorghum prices are expected to rise in 2002 due primarily to stronger corn prices.

During the baseline, **barley prices** maintain a premium to corn prices, while sorghum prices continue in line with their historic relationship to corn prices.

U.S. Sorghum, Barley, & Oats Supply and Utilization

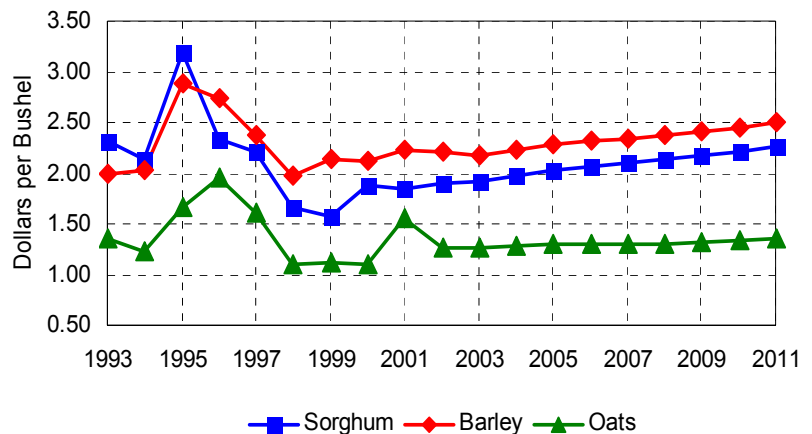|	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Planted Area					(Million Acres)						
Sorghum	10.3	9.0	9.7	9.6	9.5	9.5	9.4	9.3	9.3	9.3	9.2
Barley	5.0	5.1	5.2	5.1	5.1	5.0	4.9	4.8	4.8	4.7	4.7
Oats	4.4	5.1	4.8	4.8	4.8	4.8	4.7	4.7	4.6	4.5	4.4
Harvested Area											
Sorghum	8.6	7.8	8.4	8.4	8.3	8.3	8.2	8.2	8.1	8.1	8.0
Barley	4.3	4.6	4.6	4.6	4.5	4.5	4.4	4.3	4.3	4.2	4.2
Oats	1.9	2.5	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.0
Yield					(Bushels per Acre)						
Sorghum	59.9	66.4	66.7	67.2	67.7	68.2	68.8	69.3	69.8	70.4	70.9
Barley	58.2	61.2	62.1	62.8	63.5	64.2	64.9	65.6	66.2	66.9	67.6
Oats	61.3	60.0	60.7	61.0	61.3	61.6	61.9	62.1	62.4	62.7	62.9
Production					(Million Bushels)						
Sorghum	515	519	563	563	563	564	565	566	567	570	570
Barley	250	280	288	288	288	288	286	285	284	283	282
Oats	117	152	140	140	140	139	137	136	133	129	126
Imports											
Sorghum	0	0	0	0	0	0	0	0	0	0	0
Barley	23	30	31	31	32	32	33	34	34	35	35
Oats	95	102	104	104	104	105	105	105	106	106	107
Domestic Use											
Sorghum	260	275	297	300	300	300	298	294	292	289	288
Barley	267	270	286	287	286	284	281	278	276	274	273
Oats	227	243	242	243	243	242	241	240	238	235	233
Exports											
Sorghum	250	244	261	265	264	264	268	273	276	281	284
Barley	28	28	32	34	35	37	39	41	43	45	45
Oats	3	2	2	2	2	2	2	2	2	2	2
Ending Stocks											
Sorghum	46	46	50	49	47	46	45	44	43	42	41
Barley	84	96	96	95	94	93	92	91	90	90	88
Oats	55	63	63	63	62	62	61	61	59	58	56
Farm Price					(Dollars per Bushel)						
Sorghum	1.85	1.91	1.91	1.97	2.02	2.06	2.09	2.13	2.18	2.21	2.26
Barley	2.23	2.21	2.17	2.23	2.28	2.31	2.34	2.37	2.41	2.44	2.50
Oats	1.55	1.27	1.27	1.28	1.29	1.29	1.30	1.30	1.32	1.34	1.36

U.S. Soybeans

U.S. Soybean Area
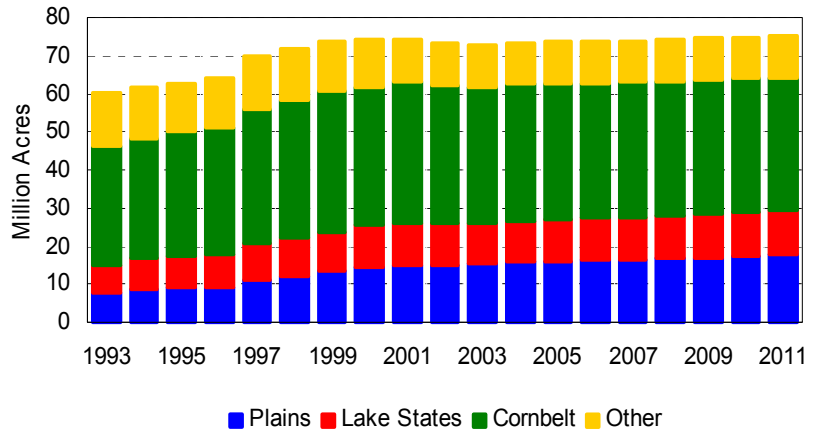
▪Since the inception of the FAIR Act, **soybean area** has surged. Soybean area outside the cornbelt expanded faster than the national average.

▪In part because of loan rate adjustments in the new farm bill, soybean area is projected to decline slightly in 2002 and 2003.

Legend: ■ Plains ■ Lake States ■ Cornbelt ■ Other

U.S. Soybean Utilization
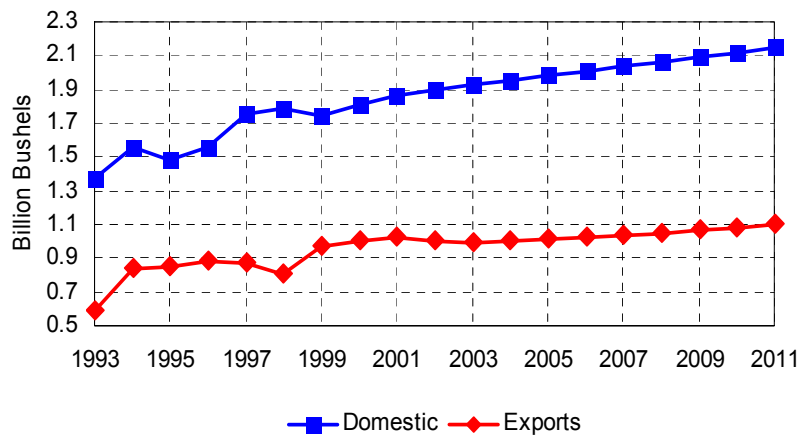
▪Total use for soybeans in 2002/03 is projected to total 2.9 billion bushels. Future growth in demand comes primarily from **domestic crush**.

▪Little growth is projected in **U.S. soybean exports**. Brazil and Argentina are projected to remain strong competitors in world markets.

Legend: ■ Domestic ◆ Exports

U.S. Soybean Stocks and Price
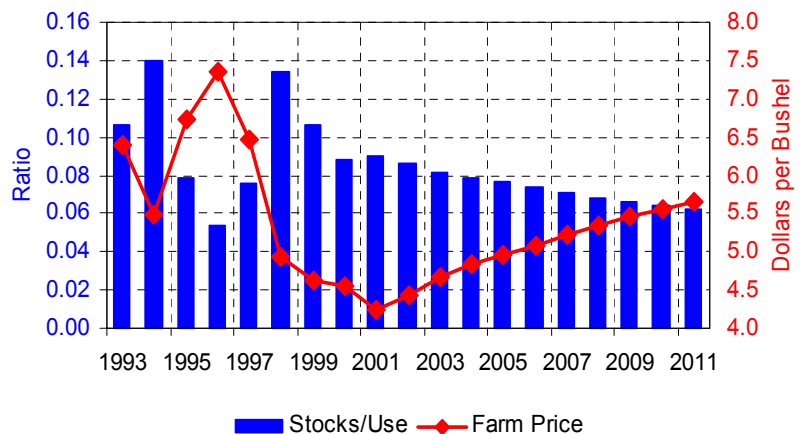
▪**Soybean prices** in 2002/03 and 2003/04 are projected to increase due to lower production and firm demand.

▪Assuming trend yields, prices recover throughout the baseline. However, **loan outlays** continue until 2006 and counter-cyclical payments occur until 2008.

Legend: ■ Stocks/Use ◆ Farm Price

U.S. Soybean Supply and Utilization

|	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Area						(Million Acres)					
Contract/Base Area		65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2	65.2
Planted Area	74.1	73.5	72.9	73.4	73.6	73.7	73.8	74.0	74.5	74.8	75.2
Harvested Area	73.0	72.2	71.7	72.1	72.3	72.4	72.6	72.8	73.2	73.6	74.0
Yield						(Bushels per Acre)					
Actual	39.6	39.9	40.5	40.9	41.3	41.8	42.2	42.6	43.0	43.4	43.7
Program, Fixed		32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4
Program, CCP		37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3	37.3
						(Million Bushels)					
Supply	3,141	3,147	3,154	3,190	3,226	3,259	3,291	3,323	3,364	3,404	3,445
Beginning Stocks	248	260	250	237	233	230	225	219	213	209	205
Production	2,891	2,883	2,900	2,949	2,989	3,025	3,062	3,100	3,147	3,191	3,236
Imports	3	4	4	4	4	4	4	4	4	4	4
Domestic Use	1,861	1,898	1,925	1,956	1,984	2,010	2,036	2,062	2,090	2,117	2,144
Crush	1,690	1,722	1,749	1,779	1,807	1,832	1,858	1,884	1,911	1,937	1,964
Seed, Residual	171	176	176	177	177	178	178	179	179	180	181
Exports	1,020	1,000	991	1,001	1,012	1,024	1,037	1,048	1,065	1,082	1,099
Total Use	2,881	2,898	2,917	2,957	2,996	3,034	3,072	3,110	3,155	3,199	3,244
Ending Stocks	260	250	237	233	230	225	219	213	209	205	201
CCC Inventory	5	5	5	3	1	0	0	0	0	0	0
9-Month Loan	30	38	42	44	47	50	54	58	57	50	45
"Free" Stocks	225	206	190	186	182	176	165	154	152	154	156
Prices and Returns						(Dollars)					
Farm Price/bu.	4.25	4.44	4.68	4.83	4.96	5.07	5.21	5.35	5.46	5.55	5.65
Ill. Proc. Price/mt	161.61	167.44	175.49	180.65	185.00	189.09	193.89	198.51	202.15	205.45	208.73
Loan Rate/bu.	5.26	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Average LDP Rate/bu.	1.17	0.74	0.50	0.35	0.23	0.11	0.00	0.00	0.00	0.00	0.00
Target Price/bu.		5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80
CCP Rate/bu.		0.36	0.36	0.36	0.36	0.29	0.15	0.01	0.00	0.00	0.00
Fixed Payment/bu.		0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Gross Market Revenue/a.	168.29	177.40	189.30	197.38	204.74	211.94	219.99	227.89	234.49	240.77	247.04
LDP Revenue/a.	46.32	29.52	20.39	14.43	9.32	4.43	0.00	0.00	0.00	0.00	0.00
Variable Expenses/a.	82.03	80.52	82.22	83.91	85.66	87.48	89.74	92.36	94.86	97.28	99.52
Mkt+LDP Net Returns/a.	132.58	126.39	127.47	127.90	128.41	128.88	130.25	135.53	139.63	143.50	147.52
CCP Revenue/a.		11.40	11.40	11.40	11.40	9.04	4.60	0.31	0.00	0.00	0.00
Fixed Payment/a.	0.00	12.13	12.13	12.13	12.13	12.13	12.13	12.13	12.13	12.13	12.13
48% Meal Price/ton	159.00	156.55	163.48	168.87	173.59	177.71	182.48	186.87	190.37	193.39	196.45
Oil Price/cwt	15.10	15.52	16.22	16.65	17.00	17.32	17.68	18.07	18.44	18.79	19.14
Crushing Margin/bu.	1.06	0.91	0.95	0.98	1.02	1.04	1.07	1.09	1.12	1.14	1.16

U.S. Soybean Products

U.S. Soybean Oil Utilization
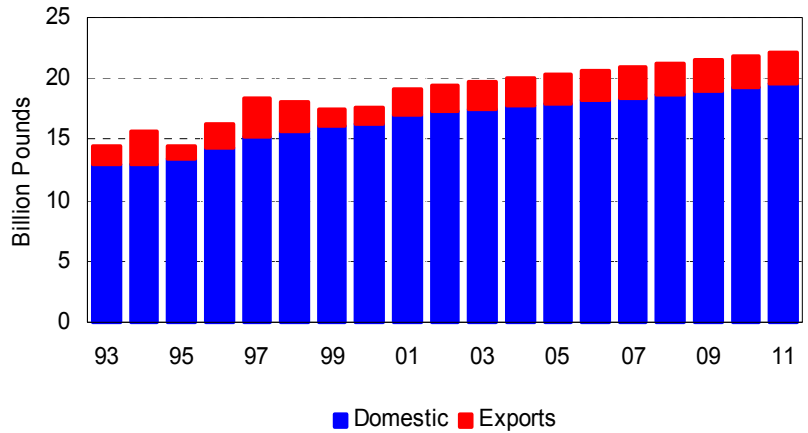
- **Domestic consumption** accounts for most of the growth in demand for U.S. soybean oil.

- As global demand increases, **U.S. exports** recover from the low levels of 1999 and 2000, remaining above 2 billion pounds every year and reaching 2.6 billion pounds by the end of the baseline.

U.S. Soybean Oil Utilization

(bar chart, Billion Pounds, 1993–2011; legend: ■ Domestic ■ Exports)

U.S. Soybean Meal Demand
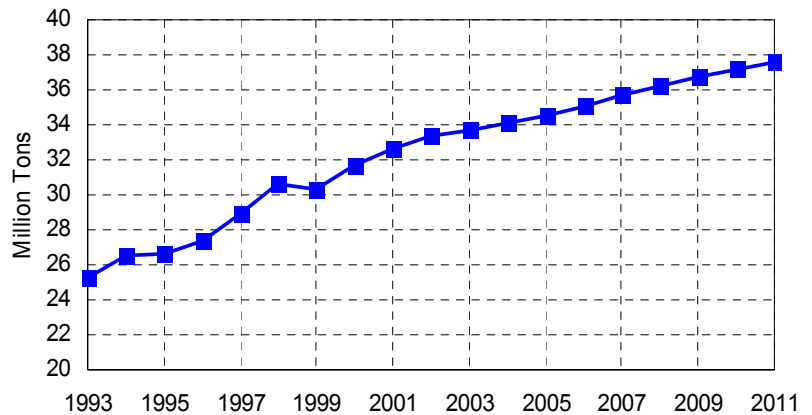
- Growth in **soybean meal demand** is driven by continued growth in poultry production. Domestic use increases by a total of 4.2 million tons.

- As with soybean oil, the international market is expected to grow faster than the domestic market. **Exports** of soybean meal are projected to grow at over 2 percent per year.

U.S. Soybean Meal Demand

(line chart, Million Tons, 1993–2011)

Soybean and Soy Product Prices
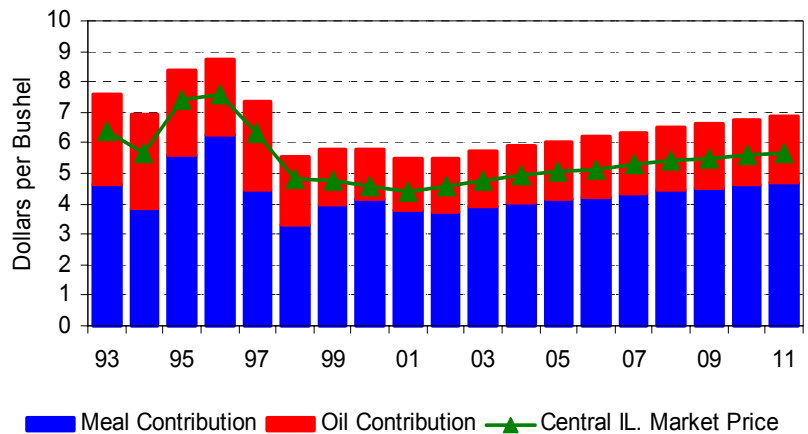
- Weak prices have led to a decline in soybean oil's contribution to the total value of soybeans.

- Crush margins fell in 2001 due to **weak meal prices**. Longer term, crush margins increase as product prices move up more than the price of soybeans.

Soybean and Soy Product Prices

(bar/line chart, Dollars per Bushel, 1993–2011; legend: ■ Meal Contribution ■ Oil Contribution ▲ Central IL. Market Price)

U.S. Soybean Oil Supply and Utilization

|	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
						(Million Pounds)					
Supply	21,690	21,931	22,222	22,572	22,910	23,224	23,544	23,865	24,201	24,529	24,858
Beginning Stocks	2,877	2,565	2,518	2,521	2,539	2,561	2,585	2,608	2,629	2,650	2,671
Production	18,755	19,301	19,619	19,966	20,287	20,578	20,874	21,172	21,487	21,794	22,102
Imports	58	65	85	85	85	85	85	85	85	85	85
Domestic Use	16,975	17,347	17,502	17,713	17,935	18,181	18,447	18,725	19,030	19,304	19,571
Exports	2,150	2,066	2,199	2,320	2,415	2,458	2,489	2,511	2,521	2,554	2,593
Total Use	19,125	19,413	19,701	20,033	20,349	20,639	20,936	21,237	21,551	21,858	22,165
Ending Stocks	2,565	2,518	2,521	2,539	2,561	2,585	2,608	2,629	2,650	2,671	2,693
Prices						(Dollars)					
Decatur/cwt	15.10	15.52	16.22	16.65	17.00	17.32	17.68	18.07	18.44	18.79	19.14
Decatur/mt	332.89	342.15	357.48	367.16	374.88	381.82	389.72	398.27	406.43	414.29	421.96

U.S. Soybean Meal Supply and Utilization

	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
						(Thousand Tons)					
Supply	40,605	41,278	42,094	42,809	43,467	44,063	44,669	45,279	45,925	46,553	47,184
Beginning Stocks	383	275	280	276	270	266	263	259	256	254	253
Production	40,162	40,938	41,764	42,483	43,147	43,747	44,356	44,970	45,619	46,250	46,881
Imports	60	65	50	50	50	50	50	50	50	50	50
Domestic Use	32,580	33,386	33,674	34,066	34,506	35,053	35,651	36,197	36,733	37,168	37,604
Exports	7,750	7,612	8,144	8,472	8,696	8,747	8,759	8,826	8,938	9,133	9,329
Total Use	40,330	40,998	41,818	42,539	43,201	43,800	44,410	45,024	45,671	46,301	46,933
Ending Stocks	275	280	276	270	266	263	259	256	254	253	251
Prices, 48% Protein						(Dollars)					
Decatur/ton	159.00	156.55	163.48	168.87	173.59	177.71	182.48	186.87	190.37	193.39	196.45
Decatur/mt	175.27	172.57	180.20	186.14	191.35	195.89	201.14	205.99	209.85	213.18	216.54

U.S. Upland Cotton

U.S. Upland Cotton Area
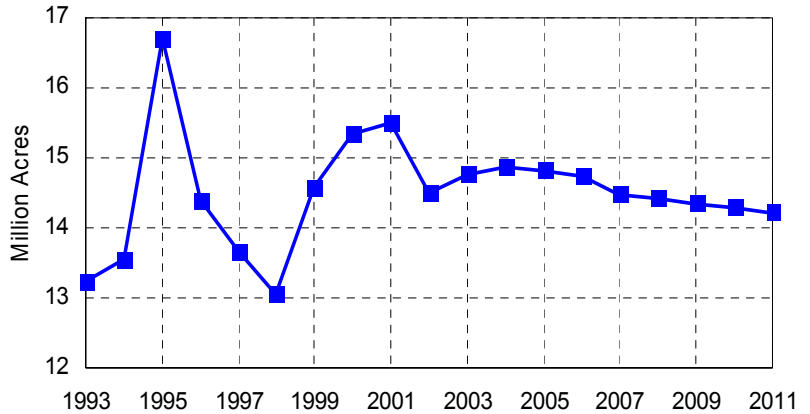
- **Cotton area** grew to 15.5 million acres in 2001. For 2002, planted area is expected to fall 1 million acres. Low prices in 2001 are largely responsible for the decline.

- Longer term, **upland area** declines to 14.2 million acres.

U.S. Upland Cotton Utilization
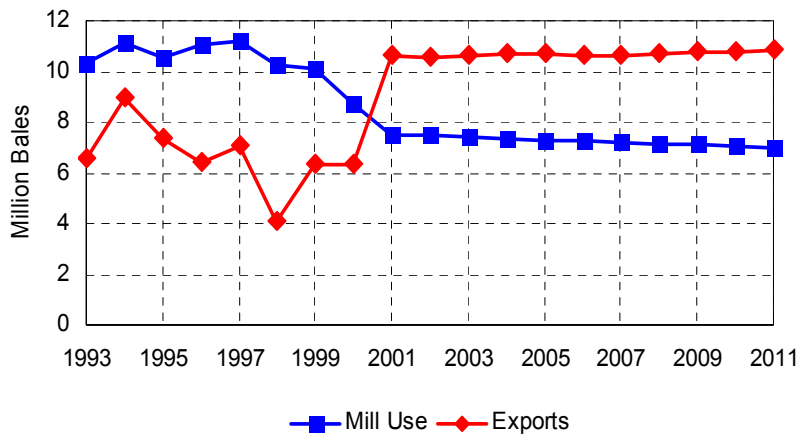
- **Domestic mill use** has declined in recent years and remains under pressure due to competition from imported textiles.

- **Cotton exports** jumped in 2001/02, and remain above 10 million bales throughout the projection period.

U.S. Upland Cotton Prices
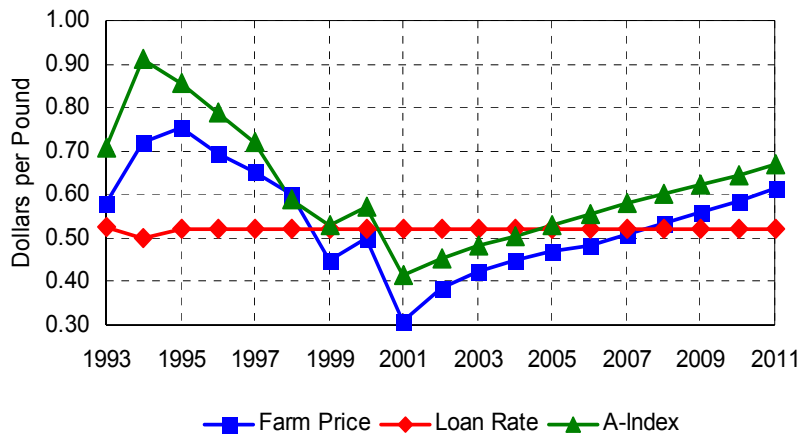
- Increased production pushed the **A-Index** lower in 2001, substantially increasing LDP gains for cotton. The A-Index is projected to average $0.45 per pound in 2002.

- In spite of decreased production, the **U.S. farm price** is expected to remain below $0.40 until 2003. For 2002, the farm price is projected to average $0.385. Recovery is expected throughout the projection period as world prices increase.

U.S. Upland Cotton Supply and Utilization

|	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Area						(Million Acres)					
Contract/Base Area	16.44	17.07	17.07	17.07	17.07	17.07	17.07	17.07	17.07	17.07	17.07
Planted Area	15.50	14.50	14.77	14.87	14.81	14.75	14.48	14.41	14.35	14.29	14.22
Harvested Area	13.56	12.76	12.95	13.05	13.01	12.96	12.72	12.67	12.61	12.57	12.52
Yield						(Pounds per Acre)					
Actual	694	640	647	651	654	657	660	663	666	670	673
Program, Fixed	600	616	616	616	616	616	616	616	616	616	616
Program, CCP		639	639	639	639	639	639	639	639	639	639
						(Million Bales)					
Supply	25.49	24.38	23.82	23.51	23.26	23.01	22.67	22.37	22.07	21.78	21.48
Beginning Stocks	5.88	7.36	6.34	5.82	5.52	5.26	5.17	4.86	4.56	4.25	3.94
Production	19.60	17.02	17.47	17.69	17.73	17.75	17.50	17.51	17.51	17.53	17.54
Imports	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Domestic Use											
Mill Use	7.49	7.51	7.39	7.33	7.29	7.24	7.19	7.14	7.09	7.06	7.02
Exports	10.60	10.52	10.61	10.66	10.71	10.61	10.62	10.67	10.73	10.79	10.85
Total Use	18.09	18.04	18.00	17.99	18.00	17.84	17.81	17.81	17.82	17.84	17.86
Unaccounted	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Stocks	7.36	6.34	5.82	5.52	5.26	5.17	4.86	4.56	4.25	3.94	3.62
CCC Inventory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
"Free" Stocks	7.36	6.34	5.82	5.52	5.26	5.17	4.86	4.56	4.25	3.94	3.62
Prices and Returns						(Dollars)					
Farm Price/lb.	0.310	0.385	0.423	0.448	0.471	0.482	0.508	0.534	0.560	0.586	0.613
Cotlook A Index/lb.	0.413	0.451	0.482	0.505	0.527	0.556	0.578	0.600	0.623	0.645	0.667
Adjusted World Price/lb.	0.274	0.317	0.347	0.369	0.390	0.418	0.439	0.461	0.482	0.503	0.525
Loan Rate/lb.	0.519	0.520	0.520	0.520	0.520	0.520	0.520	0.520	0.520	0.520	0.520
Average LDP Rate/lb.	0.243	0.219	0.190	0.168	0.146	0.119	0.098	0.076	0.055	0.033	0.012
Target Price/lb.		0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724	0.724
CCP Rate/lb.		0.137	0.137	0.137	0.137	0.137	0.137	0.124	0.098	0.071	0.044
Fixed Payment/lb.	0.121	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067	0.067
Gross Market Revenue/a.	263.36	299.13	325.89	344.91	363.49	373.77	394.17	414.56	434.94	455.55	476.63
LDP Revenue/a.	168.95	140.36	122.98	109.11	95.67	78.23	64.39	50.50	36.44	22.27	7.94
Variable Expenses/a.	311.44	302.31	306.79	311.97	317.81	323.82	331.07	338.93	346.19	353.18	360.87
Mkt+LDP Net Returns/a.	120.88	137.18	142.08	142.05	141.35	128.19	127.49	126.14	125.19	124.65	123.70
CCP Revenue/a.		74.53	74.53	74.53	74.53	74.53	74.53	67.11	52.99	38.66	24.03
Fixed Payment/a.	61.66	34.92	34.92	34.92	34.92	34.92	34.92	34.92	34.92	34.92	34.92

U.S. Rice

U.S. Rice Area
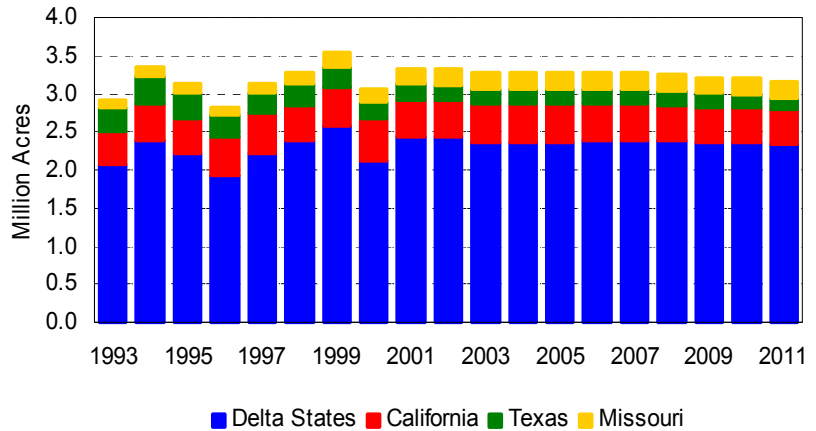
Planted area is projected to be flat at 3.3 million acres in 2002.

Texas rice area is projected to fall the most with Missouri and Arkansas falling the least over the projection period.

Rice area is projected to fall to **3.16 million acres** by 2011.

Legend: Delta States, California, Texas, Missouri

U.S. Rice Utilization
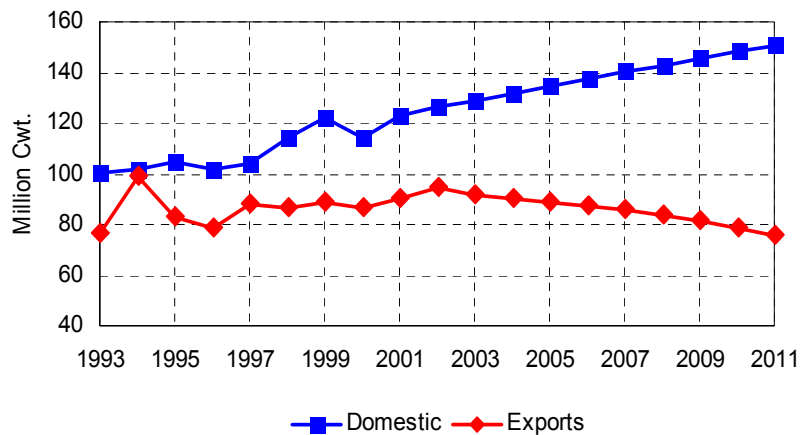
Domestic use continues to expand at an annual rate of 1.9 percent, driven by modest increases in per-capita food use.

Compared to domestic uses, **rice exports** remain more sensitive to relative price levels. US exports are projected to increase to 94 million cwt in 2002. Thereafter, U.S. prices increase and exports shrink to 76 million cwt by 2011/12.

Legend: Domestic, Exports

U.S. Rice Prices
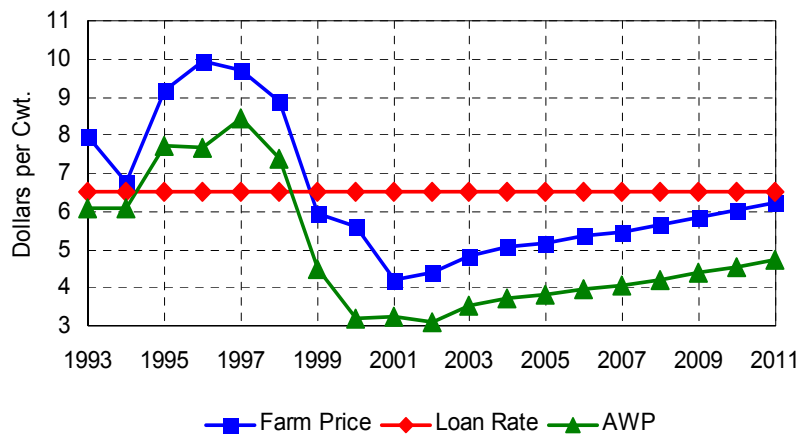
The **adjusted world price (AWP)** is projected to remain below the loan rate for the entire baseline, leading to significant LDPs.

The **U.S. average farm price** is expected to remain below $6.00 per cwt until 2010. Counter-cyclical payments are projected to be at the maximum level during the entire baseline.

Legend: Farm Price, Loan Rate, AWP

U.S. Rice Supply and Utilization

|	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Area						(Million Acres)					
Contract/Base Area	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
Planted Area	3.34	3.32	3.27	3.28	3.28	3.27	3.27	3.24	3.22	3.19	3.16
Harvested Area	3.31	3.30	3.23	3.24	3.24	3.23	3.23	3.21	3.18	3.16	3.13
Yield						(Pounds per Acre)					
Actual	6,429	6,282	6,369	6,408	6,450	6,493	6,532	6,577	6,623	6,668	6,715
Program, Fixed	4,817	4,861	4,861	4,861	4,861	4,861	4,861	4,861	4,861	4,861	4,861
Program, CCP		5,313	5,313	5,313	5,313	5,313	5,313	5,313	5,313	5,313	5,313
						(Million Cwt.)					
Supply	254.5	262.0	260.7	261.6	262.9	264.5	266.2	266.9	267.0	267.1	266.6
Beginning Stocks	28.5	41.4	41.1	39.7	39.6	39.9	40.2	40.5	40.5	40.4	40.2
Production	213.0	207.3	205.8	207.8	208.9	209.8	210.8	210.9	210.6	210.5	209.9
Imports	13.0	13.3	13.7	14.1	14.4	14.8	15.1	15.5	15.8	16.2	16.6
Domestic Use	123.1	126.5	129.0	131.8	134.6	137.3	140.0	142.7	145.5	148.1	150.9
Exports	90.0	94.4	92.0	90.2	88.4	87.0	85.6	83.6	81.2	78.8	75.9
Total Use	213.1	220.9	221.0	222.0	223.0	224.3	225.6	226.4	226.6	226.9	226.8
Ending Stocks	41.4	41.1	39.7	39.6	39.9	40.2	40.5	40.5	40.4	40.2	39.8
CCC Inventory	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
"Free" Stocks	41.4	41.1	39.7	39.6	39.9	40.2	40.5	40.5	40.4	40.2	39.8
Prices and Returns						(Dollars)					
Farm Price/cwt	4.20	4.39	4.84	5.05	5.18	5.34	5.48	5.67	5.86	6.06	6.25
FOB Houston/cwt	10.53	10.77	11.76	12.26	12.60	13.00	13.36	13.81	14.26	14.72	15.17
Adjusted World Price/cwt	3.26	3.11	3.52	3.71	3.82	3.95	4.07	4.23	4.39	4.56	4.72
Loan Rate/cwt	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Average LDP Rate/cwt.	3.06	3.53	3.11	2.93	2.82	2.68	2.57	2.41	2.24	2.08	1.91
Target Price/cwt.		10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50
CCP Rate/lb.		1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Fixed Payment/cwt.	4.43	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Gross Market Revenue/a.	270.00	275.65	308.17	323.59	334.35	346.81	358.04	372.64	388.08	403.80	419.81
LDP Revenue/a.	196.63	221.63	198.27	187.61	181.83	174.27	167.57	158.29	148.58	138.40	128.36
Variable Expenses/a	400.30	393.64	399.79	405.96	413.28	420.74	429.79	439.93	449.44	458.73	469.46
Mkt + LDP Net Returns/a.	66.33	103.64	106.65	105.24	102.90	100.34	95.81	91.00	87.22	83.47	78.70
CCP Revenue/a.		74.52	74.52	74.52	74.52	74.52	74.52	74.52	74.52	74.52	74.52
Fixed Payment/a.	181.48	97.09	97.09	97.09	97.09	97.09	97.09	97.09	97.09	97.09	97.09

U.S. Sugar

U.S. Sugar Area Harvested
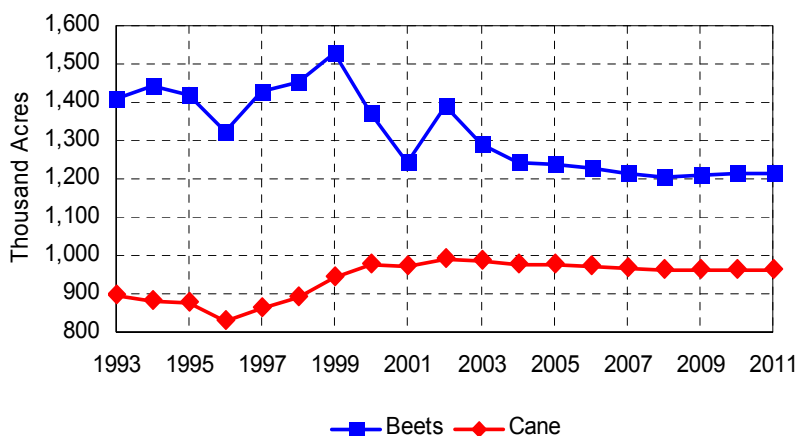
▪Due to the PIK program, **beet harvested area** fell sharply in 2000 and 2001. Area rebounds in 2002 before declining again in the face of weak returns and renewed use of the PIK program.

▪Continued pressure on returns of competing crops leads to a modest increase in cane area in CY2002. Longer term, area declines, always remaining below 1 million acres.

U.S. Sugar Area Harvested (Thousand Acres) — Beets, Cane, 1993–2011

U.S. Sugar Supply & Use, FY
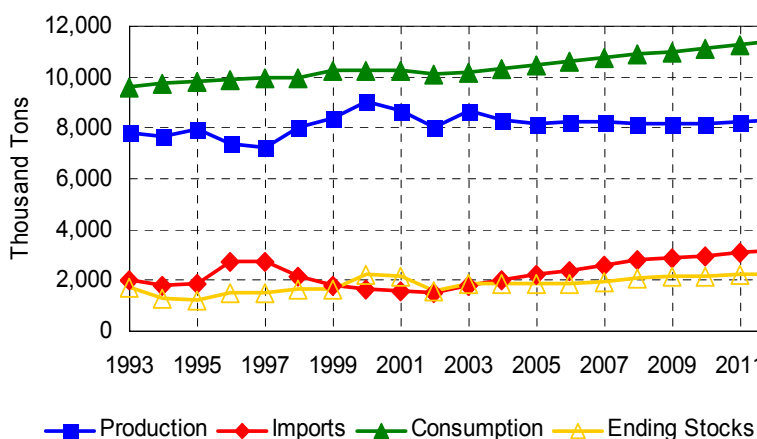
▪Consumption is projected to grow faster than production so more sugar for **domestic use** will be imported.

▪Tariff-rate reductions will allow Mexico greater access to the U.S. market. By 2011, **imports** from Mexico are projected at 1.5 million STRV.

U.S. Sugar Supply & Use, FY (Thousand Tons) — Production, Imports, Consumption, Ending Stocks, 1993–2011

U.S. Sugar Price, FY
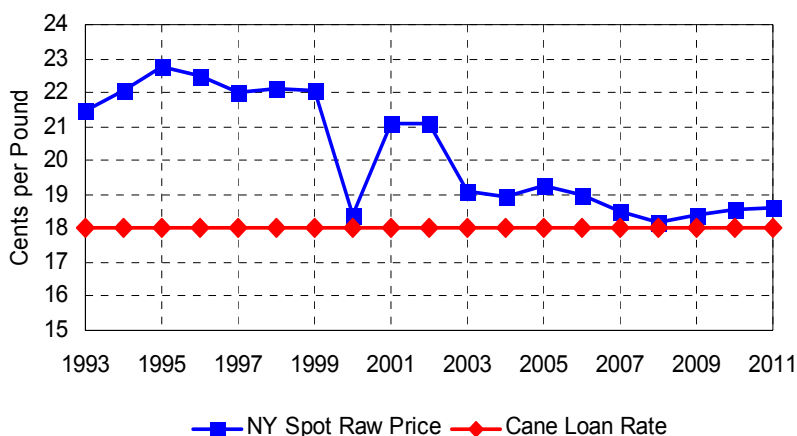
▪The reduction of **sugar stocks** allowed prices to move higher in 2001. The NY spot raw price is projected to remain above the cane loan rate through the baseline period.

▪By FY2008, **prices** bottom at 18.4 cents per pound.

U.S. Sugar Price, FY (Cents per Pound) — NY Spot Raw Price, Cane Loan Rate, 1993–2011

U.S. Sugar Crop Production

| Crop Year	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
Sugar Beets											
Harv. Area (1,000 a.)	1,244	1,389	1,292	1,244	1,238	1,231	1,216	1,207	1,209	1,214	1,216
Yield (tons/a.)	20.71	21.88	22.03	22.18	22.33	22.49	22.64	22.79	22.95	23.10	23.25
Prod. (1,000 tons)	25,754	30,376	28,472	27,599	27,640	27,674	27,531	27,504	27,738	28,034	28,286
Sugarcane											
Harv. Area (1,000 a.)	972	992	983	977	976	973	967	961	960	960	961
Yield (tons/a.)	33.79	35.14	35.22	35.30	35.38	35.47	35.55	35.63	35.71	35.80	35.88
Prod. (1,000 tons)	32,839	34,839	34,636	34,506	34,544	34,502	34,368	34,245	34,272	34,362	34,477

U.S. Sugar Supply and Utilization

| Fiscal Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
					(1000 Short Tons, Raw Value)						
Supply	12,467	11,727	12,090	12,249	12,315	12,487	12,732	12,980	13,149	13,319	13,500
Beginning Stocks	2,219	2,194	1,617	1,877	1,901	1,858	1,887	1,979	2,083	2,133	2,176
Production	8,674	8,004	8,641	8,340	8,197	8,208	8,209	8,172	8,154	8,192	8,247
Total Imports	1,574	1,529	1,832	2,033	2,217	2,421	2,636	2,829	2,911	2,994	3,077
Non-Mexico TRQ	1,147	1,112	1,256	1,256	1,256	1,256	1,256	1,256	1,256	1,256	1,256
Duty-Free NAFTA	128	163	214	276	276	276	276	1,323	1,405	1,488	1,571
High-Tier NAFTA Tariff	0	0	112	251	436	639	854	0	0	0	0
Other	299	254	250	250	250	250	250	250	250	250	250
Utilization	10,271	10,110	10,213	10,348	10,458	10,600	10,753	10,897	11,016	11,142	11,280
Disappearance	10,130	9,985	10,088	10,223	10,333	10,475	10,628	10,772	10,891	11,017	11,155
Exports	141	125	125	125	125	125	125	125	125	125	125
Error Adjustment	1	0	0	0	0	0	0	0	0	0	0
Ending Stocks	2,194	1,617	1,877	1,901	1,858	1,887	1,979	2,083	2,133	2,176	2,220
Prices						(Cents per Pound)					
N.Y. Spot Raw Sugar	21.07	21.10	19.08	18.94	19.26	19.01	18.51	18.20	18.40	18.53	18.61
Cane Loan Rate	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00

U.S. Beef

U.S. Beef Production
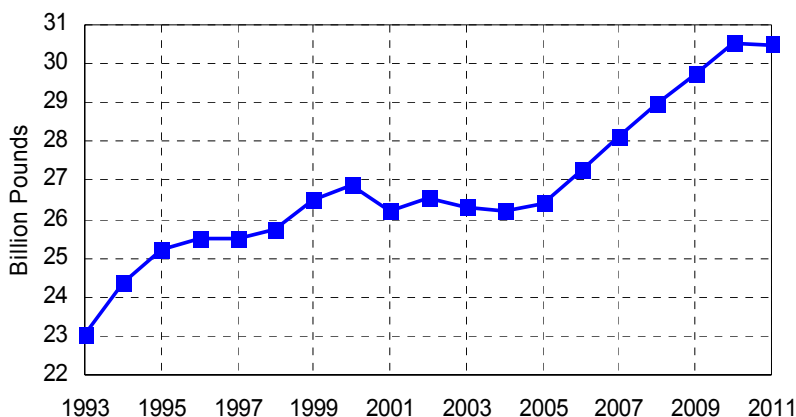
Beef cow numbers are expected to continue to decline in 2003 and 2004, reaching their lowest level since 1991 before starting to grow in the later years. The next cyclical inventory peak is not expected until 2010.

Beef production stays relatively flat from 2002 to 2005. Although total slaughter declines, increasing slaughter weights keeps beef production near 26.3 billion pounds.

Chart: U.S. Beef Production, Billion Pounds, 1993-2011
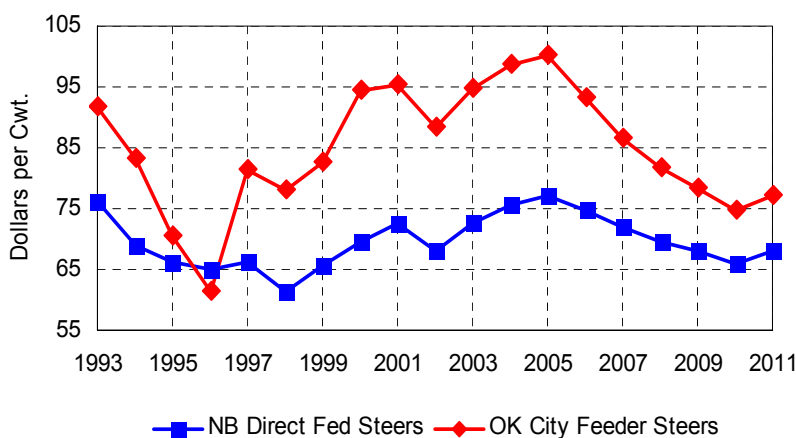
Cattle Prices

Cattle prices are lower than expected in 2002 due in part to increased slaughter weights. As supplies tighten in 2003, cattle prices should move higher.

The **Nebraska direct fed steer price** is expected to peak at over $77 per cwt. in 2005. Cyclical supply increases are expected to cause prices to fall to just above $66 per cwt. in 2010.

Chart: Cattle Prices, Dollars per Cwt., 1993-2011 — NB Direct Fed Steers, OK City Feeder Steers

Beef Consumption per Person
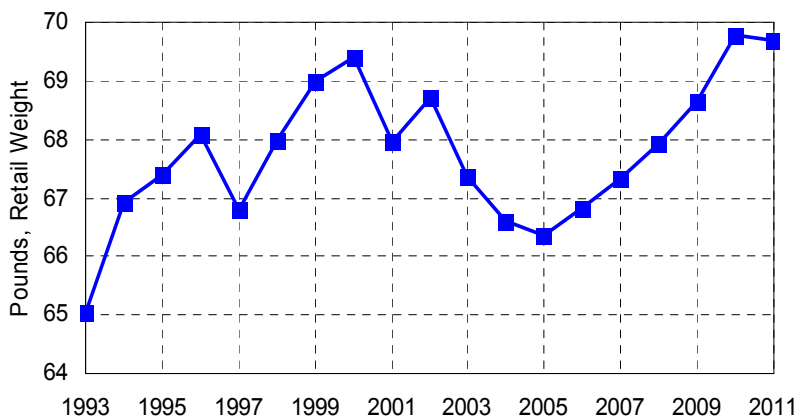
The **demand side** of the beef picture remains relatively steady, with per capita consumption on a retail weight basis expected to stay between 66 and 69 pounds until 2010.

Export demand is projected to show noticeable improvement once prices moderate after 2005. Retail beef prices will grow with cattle prices from 2003-2005, then hold between $3.50 and $3.60 per pound for the latter half of the projection.

Chart: Beef Consumption per Person, Pounds, Retail Weight, 1993-2011

U.S. Cattle Sector

|	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						(Million Head)					
Beef Cows (Jan. 1)	33.4	33.1	32.8	32.5	32.9	33.8	34.8	35.3	35.7	36.0	35.8
Dairy Cows (Jan. 1)	9.2	9.1	9.1	9.1	9.1	9.0	9.0	9.0	8.9	8.9	8.9
Cattle and Calves (Jan. 1)	97.3	96.7	96.1	95.6	96.0	97.2	98.3	99.5	100.3	100.6	100.1
Calf Crop	38.3	38.0	37.6	37.8	38.6	39.5	40.4	41.0	41.2	41.0	40.4
Calf Death Loss	2.5	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.2
Calf Slaughter	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Beef Cow Slaughter	3.1	3.2	3.0	2.9	3.0	3.4	3.7	4.0	4.2	4.3	4.2
Dairy Cow Slaughter	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Bull Slaughter	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Steer and Heifer Slaughter	29.1	28.9	28.6	28.2	28.0	28.6	29.1	29.8	30.3	31.0	30.8
Total Slaughter	36.6	36.5	36.0	35.5	35.4	36.3	37.2	38.1	38.8	39.6	39.4
Cattle Imports	2.4	2.5	2.5	2.6	2.5	2.6	2.6	2.6	2.6	2.6	2.7
Cattle Exports	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Cattle Death Loss	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4
Residual	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Cattle and Calves (Dec. 31)	96.7	96.1	95.6	96.0	97.2	98.4	99.5	100.3	100.7	100.1	99.3
Cattle on Feed (Jan. 1)	14.2	13.9	13.8	13.5	13.4	13.4	13.5	13.7	14.0	14.2	14.3
Supply						(Million Pounds)					
Beginning Stocks	525	606	558	554	553	554	557	561	565	569	573
Imports	3,161	3,242	3,296	3,366	3,377	3,269	3,175	3,127	3,064	3,066	3,151
Production	26,212	26,551	26,333	26,198	26,389	27,260	28,131	28,970	29,712	30,523	30,476
Total	29,898	30,399	30,187	30,119	30,319	31,082	31,863	32,658	33,341	34,158	34,200
Disappearance											
Domestic Use	27,021	27,565	27,279	27,217	27,356	27,790	28,236	28,736	29,281	30,022	30,232
Exports	2,271	2,276	2,354	2,349	2,409	2,735	3,066	3,357	3,491	3,563	3,394
Total	29,292	29,841	29,633	29,566	29,766	30,525	31,303	32,093	32,773	33,585	33,626
Ending Stocks	606	558	554	553	554	557	561	565	569	573	574
Per Capita Consumption						(Pounds)					
Carcass Weight	97.1	98.1	96.2	95.2	94.8	95.5	96.2	97.0	98.1	99.7	99.6
Retail Weight	68.0	68.7	67.4	66.6	66.4	66.8	67.3	67.9	68.6	69.8	69.7
Change	-2.1%	1.1%	-1.9%	-1.1%	-0.4%	0.7%	0.7%	0.9%	1.0%	1.7%	-0.1%
Prices											
1100 - 1300 #,					(Dollars Per Hundredweight)						
Nebraska Direct Steers	72.71	67.98	72.58	75.58	77.22	74.61	71.92	69.53	67.91	66.04	67.99
Change	4.4%	-6.5%	6.8%	4.1%	2.2%	-3.4%	-3.6%	-3.3%	-2.3%	-2.7%	2.9%
600 - 650 #, Oklahoma											
City Feeder Steers	95.29	88.25	94.84	98.49	100.18	93.04	86.42	81.74	78.26	74.58	77.22
Change	1.0%	-7.4%	7.5%	3.8%	1.7%	-7.1%	-7.1%	-5.4%	-4.3%	-4.7%	3.5%
Utility Cows, Sioux Falls	44.39	41.95	45.29	46.57	46.73	43.25	41.32	40.23	38.59	36.92	38.83
Change	6.4%	-5.5%	8.0%	2.8%	0.3%	-7.5%	-4.5%	-2.6%	-4.1%	-4.3%	5.2%
						(Dollars Per Pound)					
Beef Retail	3.38	3.31	3.44	3.52	3.57	3.57	3.56	3.55	3.54	3.53	3.58
Change	10.2%	-1.9%	3.7%	2.5%	1.4%	-0.1%	-0.3%	-0.2%	-0.3%	-0.3%	1.5%
Net Returns						(Dollars Per Cow)					
Cow - Calf	31.04	12.45	35.44	46.28	48.13	12.19	-20.12	-44.68	-63.52	-82.62	-72.61

U.S. Pork

Barrow and Gilt Price, Nat'l Base, 51-52% Lean
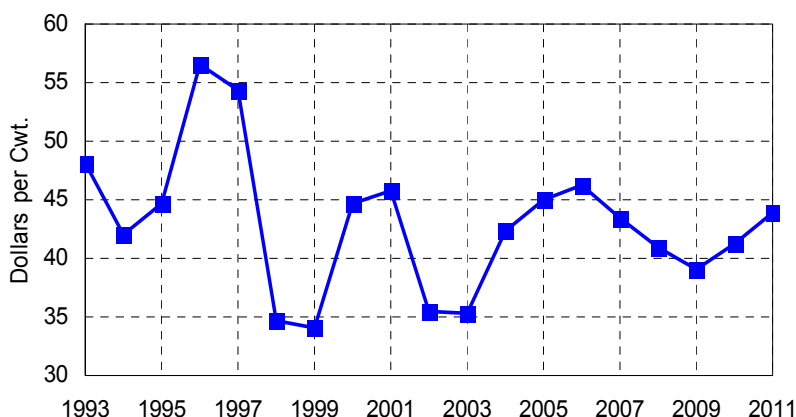
▪**Barrow and gilt prices** are very low in 2002 as large meat supplies work through the system. 2003 prices also look to remain very soft as barrow and gilt slaughter reaches 1999 levels.

▪The cyclical behavior of prices is expected to continue, with a peak over $46 per cwt. in 2006 and the following cyclical low near $39 per cwt. in 2009.
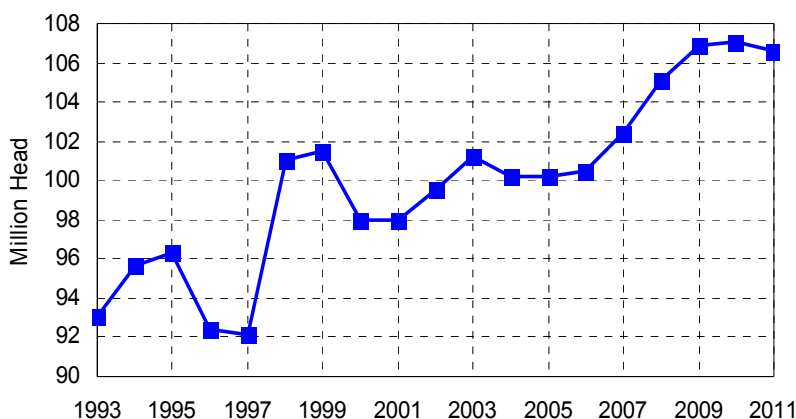
Swine Breeding Inventory, Dec. 1
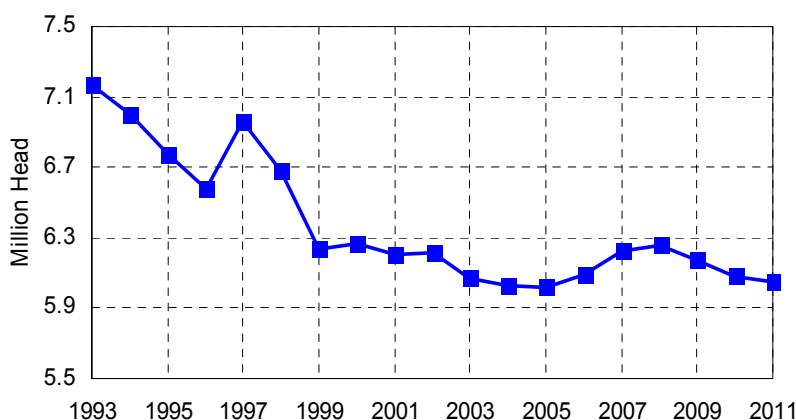
▪The **swine breeding herd** is projected to cycle through a very narrow range over the projection period, moving between 6.0 and 6.3 million head.

▪Combining relatively stable sow numbers with continuing efficiency gains in farrowings per sow, pigs per litter, and slaughter weights allows total pork supplies to increase.

Hog Slaughter

▪After nearly setting a new record high in 2003, **hog slaughter** will hover near 100 million head per year through 2006. Projected slaughter increases beginning in 2007 will require additional processing capacity.

▪As average slaughter weights are expected to rise by 5 percent over the next 10 years, **pork production** will grow to 22 billion pounds by 2011.

U.S. Swine Sector

|	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						(Million Head)					
Breeding Herd (Dec. 1*)	6.27	6.21	6.21	6.07	6.03	6.02	6.09	6.23	6.26	6.17	6.08
Gilts Added	3.06	3.27	3.14	3.04	3.02	3.09	3.27	3.28	3.24	3.17	3.16
Sow Slaughter	3.06	3.20	3.22	3.03	2.97	2.96	3.07	3.20	3.26	3.20	3.13
Sows Farrowed	11.34	11.47	11.51	11.24	11.27	11.27	11.54	11.72	11.80	11.64	11.55
Pigs per Litter (Head)	8.82	8.89	8.94	8.99	9.04	9.09	9.15	9.21	9.27	9.33	9.39
Market Hogs (Dec. 1*)	52.9	52.9	53.6	53.6	52.6	52.5	52.5	53.6	54.3	54.5	53.7
Pig Crop	100.0	101.9	102.9	101.0	101.9	102.4	105.5	107.9	109.3	108.6	108.4
Barrow and Gilt Slaughter	94.6	96.0	97.7	96.9	96.9	97.2	99.1	101.6	103.3	103.5	103.2
Hog Imports	5.3	5.6	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.5
Hog Exports	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Death Loss/Residual	10.7	10.7	10.8	10.7	10.7	10.7	10.9	11.2	11.3	11.3	11.2
Market Hogs (Nov.30)	52.9	53.6	53.6	52.6	52.5	52.5	53.6	54.3	54.5	53.7	53.3
Supply						(Million Pounds)					
Beginning Stocks	478	536	532	541	537	538	541	551	565	575	578
Imports	950	963	995	1,044	1,088	1,142	1,183	1,212	1,235	1,262	1,298
Production	19,160	19,694	20,096	19,985	20,078	20,241	20,732	21,376	21,838	21,982	22,006
Total	20,588	21,193	21,623	21,569	21,703	21,921	22,455	23,139	23,638	23,819	23,882
Disappearance											
Domestic Use	18,489	19,177	19,514	19,399	19,470	19,626	20,070	20,641	21,053	21,151	21,177
Exports	1,563	1,484	1,568	1,634	1,695	1,754	1,834	1,933	2,010	2,091	2,127
Total	20,052	20,661	21,082	21,033	21,165	21,380	21,904	22,574	23,063	23,241	23,304
Ending Stocks	536	532	541	537	538	541	551	565	575	578	578
Per Capita Consumption						(Pounds)					
Carcass Weight	66.4	68.3	68.9	67.8	67.5	67.4	68.4	69.7	70.5	70.2	69.7
Retail Weight	51.6	53.0	53.4	52.6	52.4	52.3	53.0	54.1	54.7	54.5	54.1
Change	-1.7%	2.8%	0.8%	-1.5%	-0.5%	-0.1%	1.4%	2.0%	1.1%	-0.4%	-0.7%
Prices											
Barrows & Gilts, Natl. Base						(Dollars Per Hundredweight)					
51-52% lean equiv.	45.81	35.43	35.35	42.29	45.02	46.21	43.37	40.93	39.14	41.31	43.97
Change	2.5%	-22.7%	-0.2%	19.6%	6.4%	2.7%	-6.2%	-5.6%	-4.4%	5.6%	6.4%
Sows, IA-S. Minn. #1-2,											
300-400 Lb.	33.98	26.79	26.36	31.72	33.66	35.82	33.90	32.61	30.27	32.19	34.62
Change	14.0%	-21.2%	-1.6%	20.3%	6.1%	6.4%	-5.4%	-3.8%	-7.2%	6.4%	7.5%
						(Dollars Per Pound)					
Pork Retail	2.69	2.64	2.63	2.77	2.86	2.93	2.92	2.92	2.91	2.99	3.07
Change	4.3%	-2.1%	-0.1%	5.2%	3.1%	2.4%	-0.2%	-0.1%	-0.3%	2.7%	2.9%
Net Returns						(Dollars Per Hundredweight)					
Farrow - Finish	15.23	5.48	4.28	10.29	12.20	12.83	9.49	6.44	3.89	5.29	7.31

* Preceding year

U.S. Poultry

U.S. Broiler Production
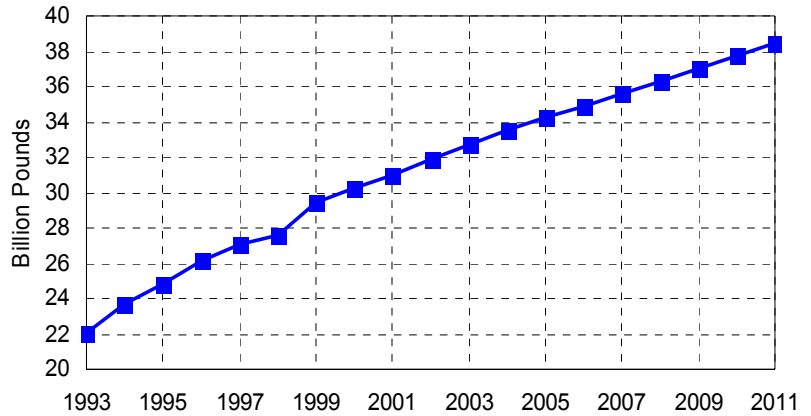
▪**Broiler production** is expected to increase at a slower rate over the baseline than observed during the 1990s. After growing markedly over the last 10 years, production should rise by a further 7.5 billion pounds by 2011.

▪**Turkey production** is expected to grow by 14 percent and egg production by 11 percent over the same time period.

U.S. Poultry Prices
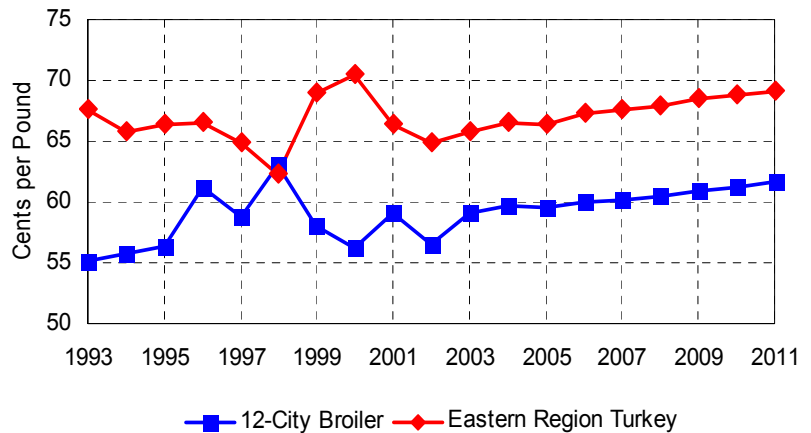
▪**12-city broiler prices** are more dependent on the export market than are beef or pork prices. Increasing exports beginning in 2003 allow broiler prices to reach almost $0.62 per pound by 2011.

▪A small growth in turkey consumption over the projection period will help **wholesale turkey prices** recover from below $0.65 per pound in 2002 to over $0.69 in 2011.

U.S. Poultry Net Returns
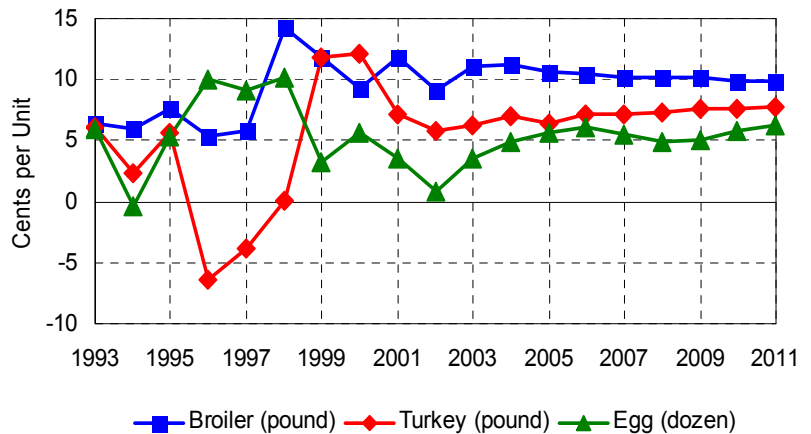
▪**Returns for broilers, turkeys, and eggs** will be lower in 2002. All will rebound somewhat over the projection period to levels above those expected this year.

▪Relatively inexpensive projected feed costs allow producers to realize positive net returns at the wholesale prices expected in the baseline.

U.S. Poultry Supply and Use

|	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Broiler						(Million Pounds)					
Production	30,938	31,878	32,674	33,512	34,223	34,882	35,573	36,288	37,014	37,740	38,483
Domestic Use	25,476	26,871	27,169	27,702	28,309	28,732	29,232	29,751	30,292	30,866	31,408
Exports	5,562	4,941	5,512	5,802	5,904	6,146	6,335	6,530	6,715	6,867	7,069
Ending Stocks	712	786	787	803	820	832	846	860	876	891	905
Turkey											
Production	5,489	5,563	5,624	5,706	5,774	5,851	5,934	6,014	6,097	6,178	6,261
Domestic Use	5,003	5,043	5,132	5,184	5,237	5,288	5,347	5,404	5,465	5,527	5,586
Exports	487	489	490	521	535	562	584	607	629	649	673
Ending Stocks	241	274	276	279	282	285	288	292	295	299	302
Eggs						(Million Dozens)					
Production	7,152	7,171	7,214	7,299	7,382	7,470	7,561	7,659	7,752	7,843	7,937
Domestic Use	6,019	6,047	6,077	6,151	6,225	6,307	6,391	6,480	6,565	6,649	6,734
Hatching Egg	953	967	977	987	995	1,001	1,007	1,014	1,021	1,028	1,036
Exports	190	164	168	169	170	171	171	172	173	174	175
Ending Stocks	10	12	12	12	12	12	12	12	12	12	12
Prices						(Cents Per Pound)					
12 City Wholesale Broiler	59.11	56.58	59.05	59.70	59.58	59.97	60.09	60.48	60.98	61.18	61.68
Broiler Retail	157.69	156.46	160.27	163.24	163.05	164.45	165.98	167.75	169.44	171.65	174.28
East. Region Whlsle Turkey	66.30	64.90	65.73	66.58	66.34	67.29	67.56	67.91	68.47	68.72	69.13
Turkey Retail	109.73	108.69	110.05	111.49	111.09	112.27	112.77	113.33	113.99	114.73	115.72
						(Cents Per Dozen)					
NY Grade A Lg Egg	67.20	64.39	67.48	69.07	70.17	70.91	70.59	70.29	70.71	71.69	72.36
Shell Egg Retail	92.93	95.70	99.53	102.01	103.92	105.13	104.91	104.82	105.54	106.89	107.86
Per Capita Consumption						(Pounds)					
Broiler	91.6	95.7	95.9	96.9	98.1	98.7	99.6	100.5	101.4	102.5	103.4
Turkey	18.0	18.0	18.1	18.1	18.1	18.2	18.2	18.3	18.3	18.4	18.4
						(Eggs)					
Eggs	259.5	258.4	257.3	258.1	258.9	260.0	261.2	262.6	263.8	265.0	266.1
Net Returns						(Cents Per Pound)					
Broiler	11.78	9.18	11.12	11.30	10.64	10.54	10.21	10.13	10.15	9.88	9.95
Turkey	7.19	5.82	6.33	6.95	6.41	7.10	7.14	7.25	7.56	7.56	7.76
						(Cents Per Dozen)					
Eggs	3.58	0.79	3.52	4.87	5.64	6.10	5.54	4.97	5.13	5.84	6.28

U.S. Dairy

U.S. Milk Production
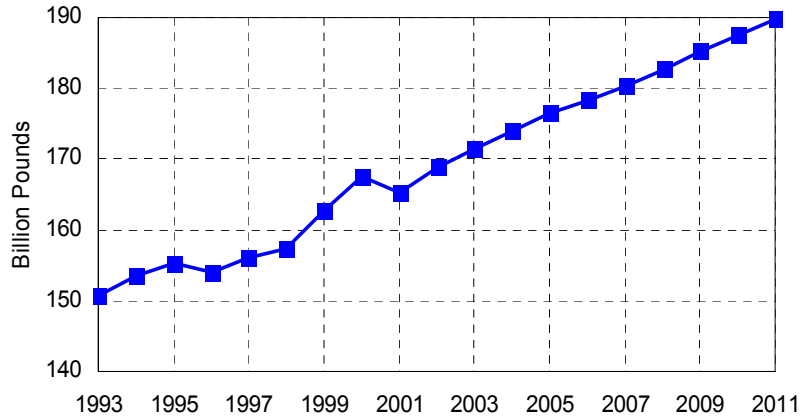
Milk production is expected to expand to 168.9 billion pounds in 2002, coming on the heels of a decline in 2001 of 2.2 billion pounds.

Over the projection period, milk production expands at an annual rate of 1.4 percent, near the growth rate in milk production seen in the 1990s.

Dairy Market Loss Payment Rate
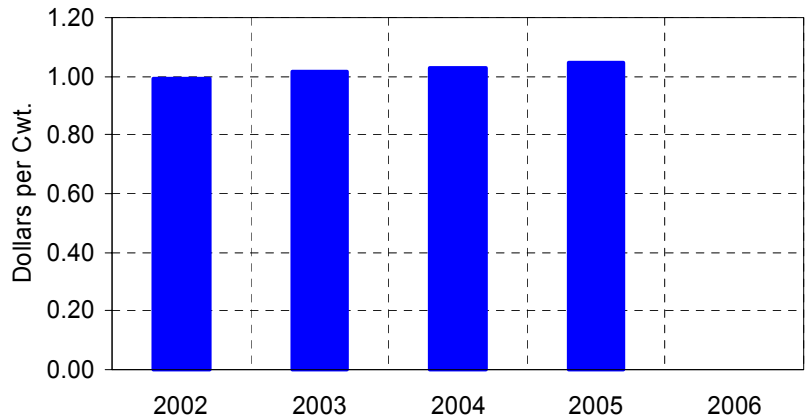
The **national dairy market loss program** included in the 2002 farm bill results in annual payments between 2002 and 2005 of approximately $1 per cwt on a producer's eligible milk marketings.

Given no restructuring of **dairy operations**, 58.5 percent of milk marketed in the U.S. would be eligible for the direct payment. Pressure will exist for restructuring as producers attempt to cover more milk under the program. Until USDA issues regulations, the ability to restructure will remain unclear.

U.S. Milk Prices
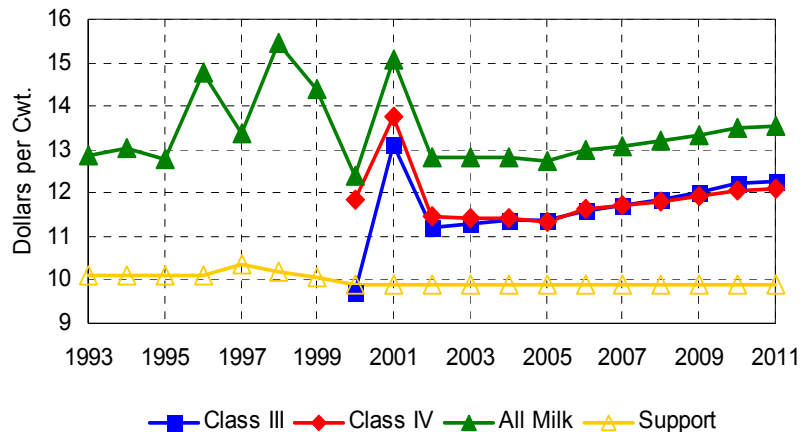
The **all milk price** is projected to decline by $2.24 in 2002 from the 2001 level of $15.05. The all milk price remains below $13 on an annual basis during the life of the national dairy market loss program

The **price support program** remains in place for the life of the baseline at $9.90 per cwt. The baseline assumes no butter/powder tilt even in the face of large powder removals.

U.S. Milk Component Supply and Use

|	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
					(Million Pounds, Milk-Fat Basis)						
Fluid Use	1,579	1,593	1,587	1,585	1,584	1,577	1,571	1,567	1,564	1,562	1,558
Whole Milk	631	623	614	606	599	591	583	576	570	564	558
2% Milk	358	358	356	355	353	350	347	344	341	338	334
1% and Skim Milk	81	84	87	90	93	96	99	102	106	109	112
Other	509	528	530	534	539	540	542	545	547	550	553
Product Use	4,128	4,211	4,300	4,388	4,474	4,542	4,620	4,700	4,784	4,871	4,956
American Cheese	1,126	1,178	1,211	1,239	1,263	1,279	1,300	1,322	1,347	1,373	1,397
Other Cheese	1,127	1,170	1,212	1,254	1,296	1,338	1,380	1,422	1,466	1,509	1,552
Butter	1,017	984	989	1,000	1,011	1,013	1,021	1,028	1,036	1,044	1,054
Nonfat Dry	7	7	7	7	7	6	6	6	6	6	6
Evap and Condensed	61	62	62	61	61	61	60	60	60	60	59
Frozen Products	707	727	734	743	752	759	767	776	784	793	801
Whey Products	11	11	11	11	11	11	11	11	11	11	11
Other	71	73	73	73	74	74	74	74	75	75	75
Farm Use	43	43	42	41	40	38	37	36	34	33	32
Milk Production	165,336	168,854	171,390	174,026	176,553	178,285	180,431	182,675	185,034	187,494	189,854
% Fat	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%	3.66%
Total Fat Supply	6,051	6,180	6,273	6,369	6,462	6,525	6,604	6,686	6,772	6,862	6,949
Residual Fat	325	332	344	355	364	368	376	383	389	396	404
					(Million Pounds, Solids-Not-Fat Basis)						
Fluid Use	5,066	5,117	5,136	5,166	5,200	5,219	5,240	5,267	5,298	5,333	5,358
Whole Milk	1,673	1,652	1,627	1,606	1,588	1,566	1,545	1,527	1,511	1,496	1,480
2% Milk	1,637	1,637	1,629	1,622	1,615	1,602	1,588	1,575	1,561	1,547	1,529
1% and Skim Milk	1,479	1,541	1,591	1,647	1,704	1,757	1,811	1,869	1,928	1,990	2,048
Other	277	287	289	291	293	294	295	297	298	300	301
Product Use	6,088	6,272	6,378	6,488	6,587	6,653	6,741	6,831	6,925	7,022	7,120
American Cheese	1,047	1,097	1,128	1,154	1,176	1,191	1,211	1,231	1,254	1,279	1,301
Other Cheese	1,188	1,207	1,251	1,294	1,337	1,380	1,424	1,468	1,512	1,558	1,602
Butter	37	37	37	37	38	38	38	38	39	39	39
Nonfat Dry	670	670	651	640	622	581	556	530	507	481	464
Total Nonfat Dry	1,347	1,421	1,397	1,379	1,352	1,302	1,268	1,234	1,203	1,171	1,145
Nonfat Dry in Other	-677	-751	-745	-739	-730	-721	-712	-704	-696	-690	-681
Evap and Condensed	454	477	474	471	469	467	464	462	461	459	458
Frozen Products	997	1,024	1,035	1,048	1,061	1,071	1,082	1,093	1,105	1,118	1,130
Whey Products	1,327	1,386	1,426	1,466	1,505	1,545	1,585	1,625	1,664	1,703	1,741
Other	369	374	376	377	379	380	381	383	384	385	386
Farm Use	101	103	100	97	94	91	88	85	82	79	76
Milk Production	165,336	168,854	171,390	174,026	176,553	178,285	180,431	182,675	185,034	187,494	189,854
% SNF	8.70%	8.70%	8.70%	8.70%	8.70%	8.70%	8.70%	8.70%	8.70%	8.70%	8.70%
Total SNF Supply	14,384	14,690	14,911	15,140	15,360	15,511	15,697	15,893	16,098	16,312	16,517
Residual Whey	2,148	2,254	2,341	2,422	2,500	2,569	2,644	2,721	2,800	2,883	2,962
Residual SNF	975	945	956	967	979	979	984	988	992	996	1,002
Min. FMMO Class Prices					(Dollars per Cwt.)						
Class I Mover	14.20	11.48	11.43	11.40	11.37	11.61	11.71	11.85	12.01	12.21	12.28
Class II	14.90	12.18	12.13	12.10	12.05	12.31	12.41	12.52	12.63	12.77	12.78
Class III	13.10	11.21	11.30	11.37	11.37	11.59	11.70	11.85	12.01	12.21	12.28
Class IV	13.76	11.48	11.43	11.40	11.35	11.61	11.71	11.82	11.93	12.07	12.08
All Milk Price	15.05	12.81	12.80	12.80	12.75	12.99	13.08	13.20	13.33	13.49	13.53
National Dairy Payment		0.99	1.02	1.03	1.04	0.00	0.00	0.00	0.00	0.00	0.00

State-Level Dairy

U.S. Milk Cows
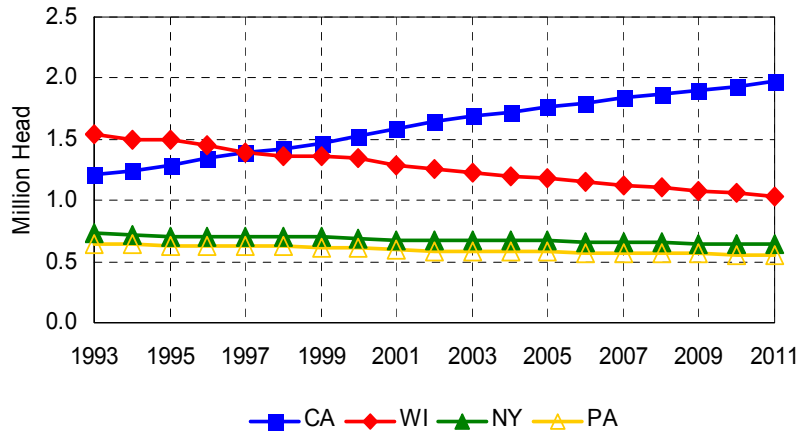
Dairy cows are projected to continue to increase in California over the baseline period. The rate of growth is slower than seen during the 1990s.

U.S. dairy cows decline over the baseline as declines in many states are not offset by growth in areas like the southwest.

## Milk Production per Cow
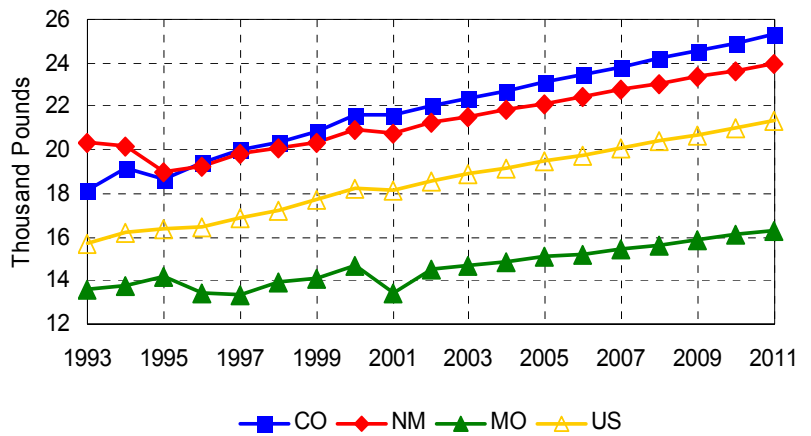
Milk production per cow is expected to increase at historical rates over the baseline. Milk production per cow increases by nearly four thousand pounds over the 2001 to 2011 period.

The distribution of state-level milk production per cow around the U.S. average shows which areas of the country are likely to expand over the next ten years.

Milk Prices
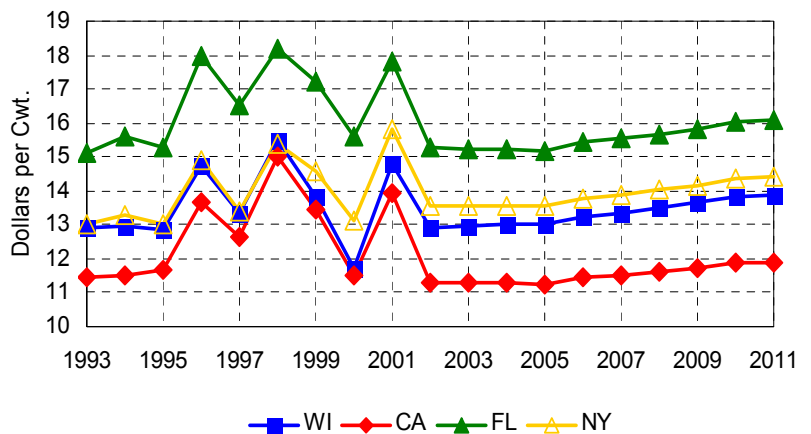
Although at different levels, **state-level milk prices** tend to move in the same direction. With Class III and Class IV prices at nearly the same level during the baseline, the differences between states' prices remain relatively constant.

State Level Dairy Cows

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						(Thousand Head)					
Alabama	21	19	18	17	17	16	15	15	14	14	14
Alaska	1	1	1	1	1	1	1	1	1	1	1
Arizona	140	144	147	149	152	154	156	158	159	161	162
Arkansas	35	31	27	23	23	23	22	22	22	22	21
California	1,590	1,654	1,692	1,729	1,762	1,794	1,827	1,859	1,891	1,922	1,954
Colorado	91	92	93	93	94	95	95	96	97	97	98
Connecticut	25	23	22	21	20	19	18	17	16	15	14
Delaware	9	8	8	8	8	8	8	8	8	8	8
Florida	153	149	145	142	139	136	134	131	129	128	126
Georgia	86	84	82	81	79	77	76	74	73	71	70
Hawaii	8	7	7	6	6	6	6	6	5	5	5
Idaho	366	384	400	416	431	445	459	473	486	499	512
Illinois	116	113	112	111	109	107	104	102	100	97	95
Indiana	153	158	161	163	163	163	162	162	162	162	162
Iowa	210	208	205	202	199	195	190	186	182	178	174
Kansas	93	93	94	95	95	95	96	96	97	98	98
Kentucky	128	124	119	115	112	107	103	99	96	93	90
Louisiana	54	50	46	43	40	37	35	33	31	29	28
Maine	38	38	38	38	37	37	37	37	37	36	36
Maryland	82	80	78	76	74	73	72	70	70	69	68
Massachusetts	21	20	20	20	20	20	19	19	19	19	19
Michigan	303	303	302	301	300	297	295	293	291	290	289
Minnesota	510	503	501	499	495	488	482	475	468	462	456
Mississippi	35	34	32	31	30	28	27	26	25	23	22
Missouri	145	138	134	129	125	120	115	110	106	102	98
Montana	19	19	19	18	18	18	18	18	17	17	17
Nebraska	72	72	72	71	71	70	70	69	69	68	68
Nevada	25	25	25	25	25	24	24	24	24	24	24
New Hampshire	18	18	18	18	17	17	17	17	17	17	16
New Jersey	14	12	12	11	11	10	10	9	9	8	8
New Mexico	268	285	300	316	330	345	358	371	384	396	408
New York	672	671	669	668	667	661	657	652	649	647	645
North Carolina	67	62	59	57	54	52	49	46	44	42	39
North Dakota	46	43	42	41	40	39	39	38	37	37	36
Ohio	260	258	255	252	249	244	240	235	231	228	225
Oklahoma	89	87	85	84	83	82	80	80	79	78	78
Oregon	95	98	100	101	102	103	103	103	104	104	104
Pennsylvania	599	590	587	584	581	576	572	568	564	560	557
Rhode Island	1	1	1	1	1	1	1	1	1	1	1
South Carolina	21	19	19	18	18	17	17	17	16	16	16
South Dakota	99	95	95	94	93	92	91	90	89	88	87
Tennessee	92	87	83	80	76	72	68	64	61	58	55
Texas	325	313	305	299	293	287	281	275	270	265	260
Utah	93	93	93	93	93	92	92	91	91	91	91
Vermont	153	153	153	153	153	153	152	152	151	151	150
Virginia	118	116	114	112	111	109	108	106	105	104	104
Washington	247	247	246	246	245	243	242	241	240	240	239
West Virginia	16	15	14	14	13	13	12	11	11	10	9
Wisconsin	1,292	1,256	1,227	1,201	1,177	1,150	1,125	1,102	1,079	1,057	1,035
Wyoming	5	3	3	3	3	3	3	3	3	3	3
United States	**9,115**	**9,093**	**9,079**	**9,069**	**9,057**	**9,016**	**8,981**	**8,951**	**8,928**	**8,912**	**8,896**

U.S. Dairy Products

Wholesale Dairy Product Prices
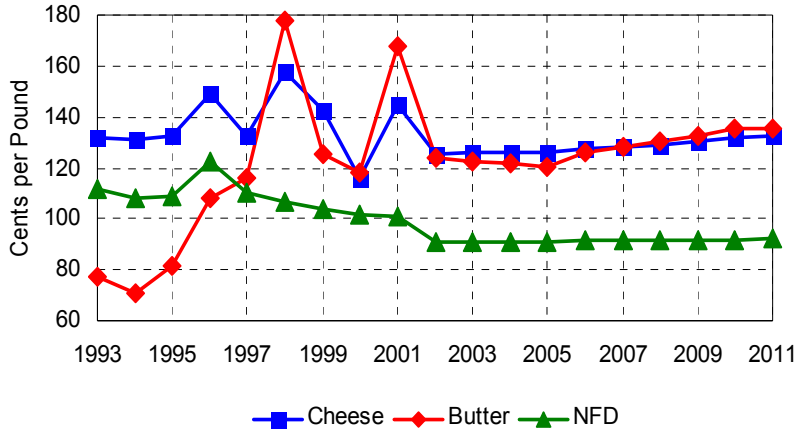
Wholesale cheese prices are expected to average $1.25 for 2002, down $0.20 from the 2001 level.

Butter prices are projected to remain near $1.20 for the next four years. If milk supplies were to tighten, butter prices could move up quickly.

Nonfat dry milk prices remain near the $0.90 support level for most of the baseline as government activity dominates the domestic powder market.

Chart: Wholesale Dairy Product Prices — Cents per Pound (y-axis 60–180), years 1993–2011. Legend: Cheese, Butter, NFD.

Cheese Consumption per Person
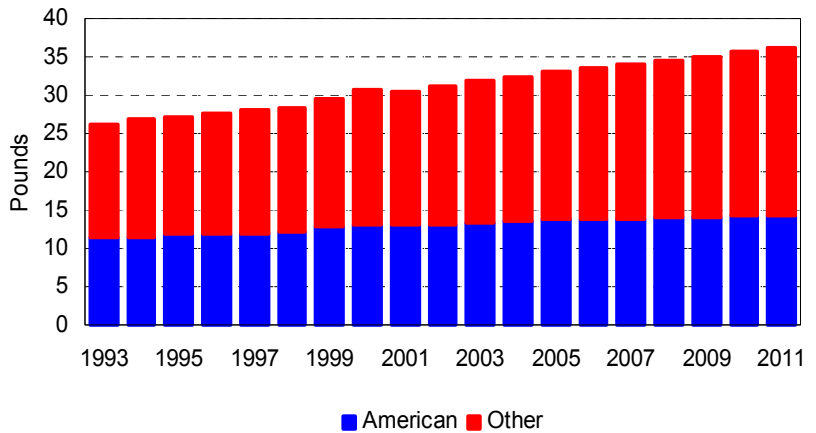
Per capita cheese consumption declined in 2001 for the first time in several years. Cheese consumption is expected to increase in 2002 to 31 pounds per person.

Cheese demand remains critical to the longer term outlook for the dairy industry. If per capita cheese consumption does not grow over the baseline period, the dairy sector would be significantly smaller than this baseline suggests.

Chart: Cheese Consumption per Person — Pounds (y-axis 0–40), years 1993–2011. Legend: American, Other.

Fluid Milk Consumption
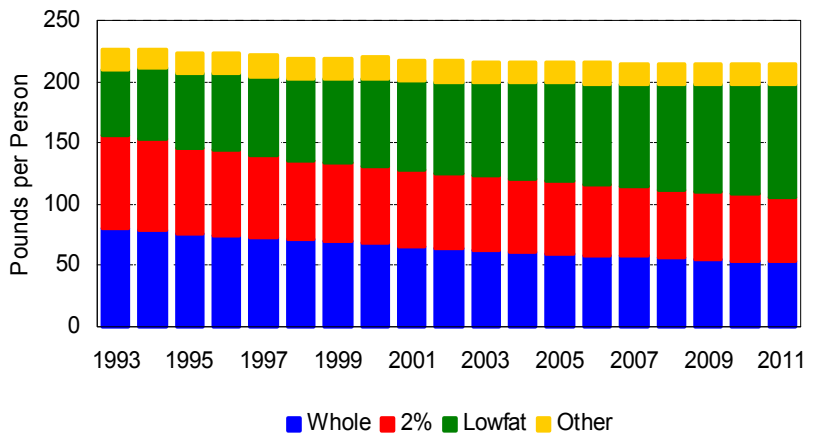
Fluid milk consumption is projected to decline slightly over the base period. The switch from whole milk products to low fat products is expected to continue, leaving fat available for use in other dairy products.

A stronger/weaker trend in fluid milk consumption can result in a larger/smaller domestic dairy sector than is shown in this baseline.

Chart: Fluid Milk Consumption — Pounds per Person (y-axis 0–250), years 1993–2011. Legend: Whole, 2%, Lowfat, Other.

U.S. Dairy Product Supply and Use

|	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Butter						(Million Pounds)					
Production	1,237	1,197	1,203	1,215	1,229	1,232	1,241	1,250	1,260	1,270	1,281
Imports	76	76	76	76	76	76	76	76	76	76	76
Domestic Use	1,267	1,254	1,265	1,278	1,291	1,295	1,303	1,312	1,322	1,332	1,343
Total Foreign Use	13	13	13	13	13	13	13	13	13	13	13
Ending Stocks	56	61	61	62	62	61	61	61	61	61	61
CCC Net Rem. inc DEIP	0	0	0	0	0	0	0	0	0	0	0
American Cheese											
Production	3,519	3,681	3,784	3,873	3,946	3,997	4,062	4,132	4,208	4,291	4,365
Imports	69	69	69	69	69	69	69	69	69	69	69
Domestic Use	3,618	3,707	3,794	3,877	3,955	4,012	4,073	4,144	4,220	4,303	4,377
Total Foreign Use	41	42	43	44	44	44	44	44	44	44	44
Ending Stocks	452	452	468	488	503	513	526	539	552	564	577
CCC Net Rem. inc DEIP	5	5	5	5	5	5	5	5	5	5	5
Other Cheese											
Production	4,610	4,784	4,958	5,127	5,301	5,471	5,643	5,817	5,994	6,173	6,349
Imports	368	368	368	368	368	368	368	368	368	368	368
Domestic Use	4,841	5,039	5,215	5,384	5,557	5,728	5,899	6,074	6,251	6,430	6,606
Total Foreign Use	111	111	111	111	111	111	111	111	111	111	111
Ending Stocks	211	212	212	213	213	213	214	214	214	214	214
Nonfat Dry Milk											
Production	1,414	1,485	1,460	1,441	1,413	1,361	1,326	1,290	1,257	1,224	1,197
Imports	7	7	7	7	7	7	7	7	7	7	7
Domestic Use	841	866	879	888	871	878	885	892	900	907	912
Total Foreign Use	336	405	380	377	374	371	359	347	332	317	302
Ending Stocks	886	1,104	1,309	1,489	1,661	1,776	1,862	1,916	1,946	1,949	1,935
Gov't	776	991	1,195	1,375	1,546	1,661	1,746	1,800	1,829	1,832	1,818
Comm.	110	113	114	114	115	115	116	116	117	117	117
CCC Net Rem. inc DEIP	494	415	404	380	346	290	260	229	204	178	161
Evap. and Condensed Milk											
Production	593	604	600	597	594	591	588	585	583	582	579
Imports	15	15	15	15	15	15	15	15	15	15	15
Domestic Use	527	538	534	531	528	525	522	520	518	516	514
Total Foreign Use	80	80	80	80	80	80	80	80	80	80	80
Ending Stocks	43	44	45	46	47	47	48	49	49	50	51
Per Capita Cons.						(Pounds)					
Butter	4.6	4.5	4.5	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4
Nonfat Dry Milk	3.0	3.1	3.1	3.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Cheese	30.4	31.1	31.8	32.4	33.0	33.5	34.0	34.5	35.1	35.6	36.2
American	13.0	13.2	13.4	13.6	13.7	13.8	13.9	14.0	14.1	14.3	14.4
Other	17.4	17.9	18.4	18.8	19.3	19.7	20.1	20.5	20.9	21.4	21.8
Total Fluid Milk	216.9	217.1	216.4	216.2	216.1	215.5	215.0	214.7	214.6	214.7	214.4
Ice Cream	28.9	29.4	29.4	29.6	29.7	29.7	29.8	29.9	30.0	30.1	30.1
Wholesale Prices						(Cents per Pound)					
Butter, AA, Central States	168	124	123	122	121	126	128	131	133	136	135
Cheese, Am., 40#, WI A. Pts	145	125	126	126	126	128	128	129	130	132	132
Nonfat Dry Milk, AA, C. St	101	91	91	91	91	91	91	92	92	92	92
Evaporated	141	138	138	137	137	138	138	139	140	141	141
Retail Prices						(Dollars per Pound)					
Butter, salted, AA, stick	3.30	2.75	2.78	2.83	2.86	3.02	3.12	3.23	3.34	3.47	3.54
Cheese, Natural Cheddar	4.03	3.95	4.04	4.08	4.14	4.23	4.32	4.42	4.53	4.66	4.75
Milk, Frsh, Whole Fortified	2.88	2.51	2.50	2.50	2.49	2.53	2.54	2.56	2.58	2.61	2.62
Milk, Frsh, Lowfat Fortified	2.66	2.32	2.31	2.31	2.30	2.33	2.35	2.36	2.38	2.41	2.42

U.S. Food Prices and Expenditures

Consumer Price Index for Food
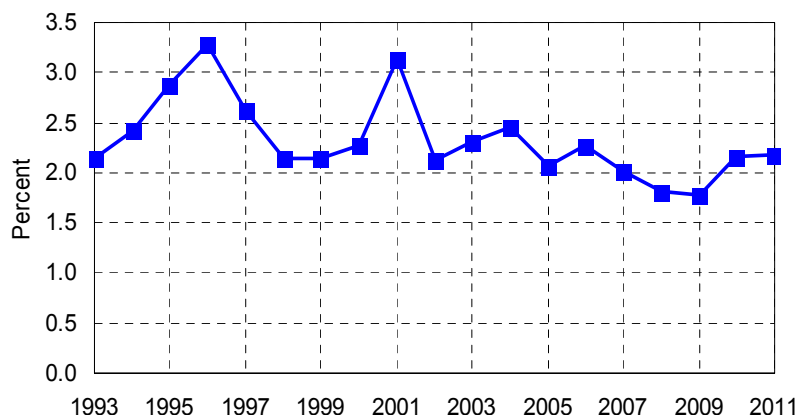
The **CPI for food** increased by over 3 percent in 2001, led by a 4.4 percent increase in the CPI for meat.

Increases in the food CPI should average just over 2 percent from 2002-2011, with the CPI for fruits and vegetables showing the largest percentage increase.
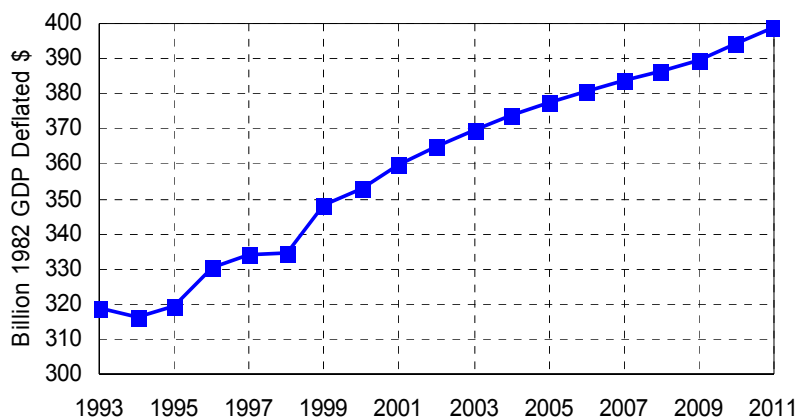
Consumer Expenditures for Food
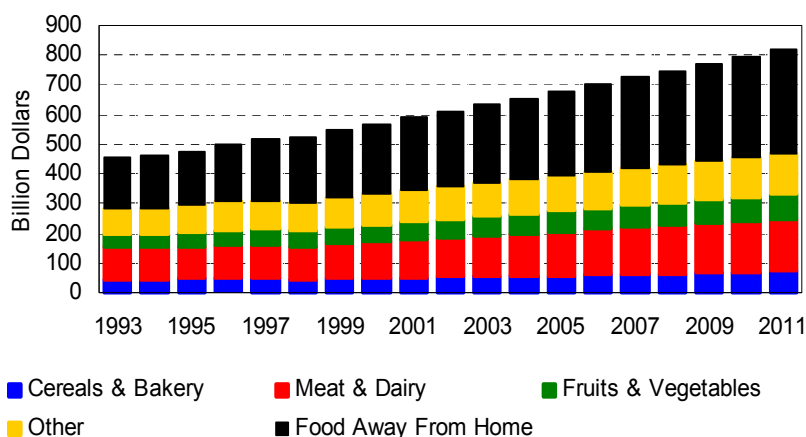
Consumer expenditures for food will top $600 billion in 2002, and continue to grow to just over $800 billion in 2011. The average annual projected increase of 3.3 percent is slightly below the average increase of the past 10 years.

Expenditures for meat constitute the largest share of food at home expenditures, while food away from home continues to account for over 40 percent of total food expenditures.

Legend: Cereals & Bakery, Meat & Dairy, Fruits & Vegetables, Other, Food Away From Home

Real Expenditures for Food

Real expenditures for food grow by an annual average of 1 percent over the projection period.

Based on the commodity prices projected through 2011, real food expenditures never increase by more than 1.5 percent in any given year.

Consumer Price Indices for Food

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						(1982-84=100)					
TOTAL	173.1	176.8	180.8	185.3	189.1	193.4	197.4	200.9	204.5	208.9	213.5
Food at Home	173.4	176.5	180.4	184.7	188.3	192.4	196.1	199.4	202.7	207.2	211.7
Cereal and Bakery	193.9	199.4	202.2	206.4	209.6	215.6	221.8	225.5	229.5	236.3	242.4
Meat	161.4	160.9	165.3	171.0	174.5	177.2	178.5	179.8	181.0	183.7	187.9
Dairy	167.1	169.2	172.7	175.6	178.9	183.4	187.0	191.0	195.0	199.3	202.6
Fruit and Vegetables	212.2	221.0	226.6	231.9	237.3	243.1	249.8	256.7	263.5	270.5	277.1
Other Food At Home	159.6	162.3	165.2	167.7	170.6	173.6	176.5	179.4	182.3	185.5	188.7
Sugar and Sweets	155.7	158.8	161.8	162.2	165.6	168.6	170.4	171.8	173.8	176.3	178.9
Fats and Oils	155.7	159.5	162.1	164.7	167.3	169.5	171.7	173.5	175.0	177.4	179.5
Other Prepared Items	176.0	179.6	183.0	186.9	190.5	194.4	198.7	203.2	207.6	212.1	216.8
Non-alc. Beverages	139.2	140.5	142.7	144.1	146.1	148.1	149.8	151.4	153.2	155.1	157.0
Food Away From Home	173.9	178.4	182.9	187.7	191.9	196.6	200.8	204.8	208.8	213.3	217.8

Total Consumer Expenditures for Food

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						(Billion Dollars)					
TOTAL	592.5	611.5	633.2	656.1	678.2	701.8	724.4	746.7	769.3	795.1	821.1
Food at Home	348.1	357.0	368.6	381.0	392.8	405.7	417.9	429.8	442.0	456.8	471.4
Cereal and Bakery	50.9	52.9	54.4	56.2	57.9	60.2	62.7	64.4	66.3	69.1	71.7
Meat	92.3	94.4	97.7	101.6	104.6	107.4	109.7	112.2	114.6	117.9	121.7
Dairy	38.6	39.3	40.8	42.2	43.7	45.5	47.1	48.8	50.6	52.5	54.1
Fruit and Vegetables	59.1	62.2	64.5	66.9	69.3	71.8	74.7	77.7	80.7	83.8	86.9
Other Food At Home	107.1	108.2	111.2	114.1	117.3	120.7	123.8	126.8	129.9	133.5	137.1
Sugar and Sweets	13.1	13.1	13.5	13.8	14.2	14.7	15.1	15.4	15.8	16.2	16.7
Fats and Oils	10.1	10.5	10.8	11.0	11.3	11.6	11.9	12.2	12.5	12.8	13.1
Other Prepared Items	50.0	51.2	52.6	54.1	55.5	57.0	58.4	59.8	61.2	62.8	64.5
Non-alc. Beverages	29.3	28.4	29.0	29.6	30.4	31.2	31.9	32.6	33.3	34.1	34.9
Food Away From Home	244.4	254.5	264.6	275.2	285.4	296.0	306.5	316.9	327.3	338.4	349.7

U.S. Government Costs

CCC Net Expenditures
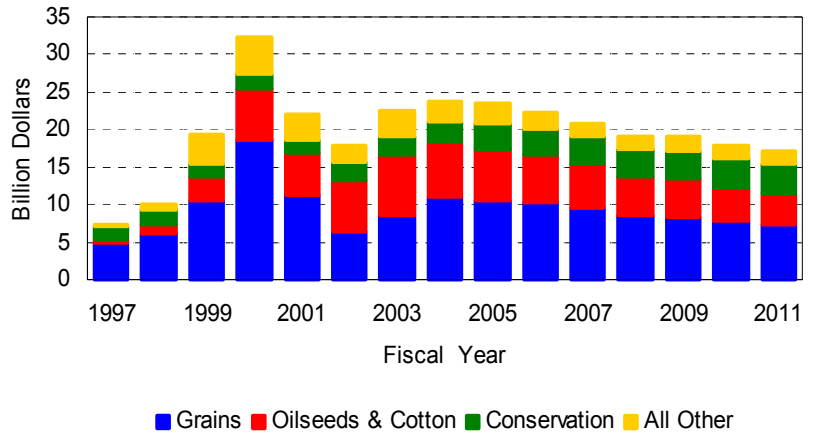
Government expenditures by the Commodity Credit Corporation total $203.5 billion over the fiscal years 2002-2011.

Grain program costs are lower in fiscal 2002 because of the timing of payments under the new farm bill.

Spending **peaks** in fiscal 2004, when final payments associated with the 2002 crop are made.


Legend: Grains ■ Oilseeds & Cotton ■ Conservation ■ All Other

Selected Direct Payments
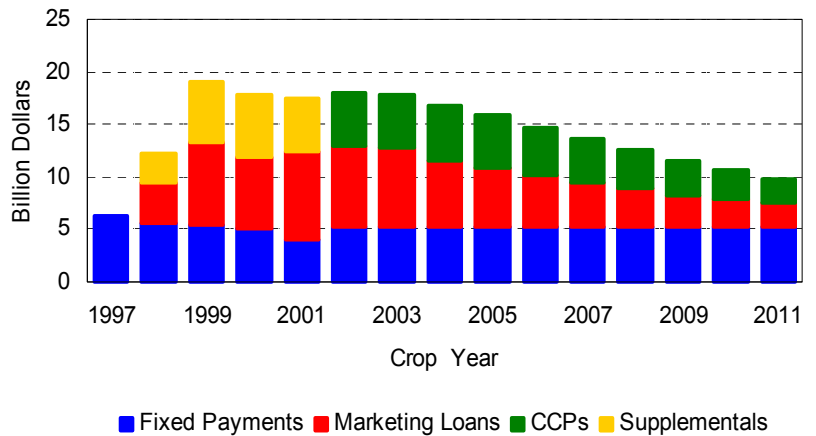
Total **direct payments** to grain, oilseed, and cotton producers are about the same in 2002 and 2003 as in recent years.

Over the life of the farm bill, spending under the new **counter-cyclical payment** (CCP) program is similar to that provided under supplemental spending bills for 1998-2001.

As projected market prices increase, **marketing loan** and CCP spending declines.

Legend: ■ Fixed Payments ■ Marketing Loans ■ CCPs ■ Supplementals

Conservation Program Expenditures
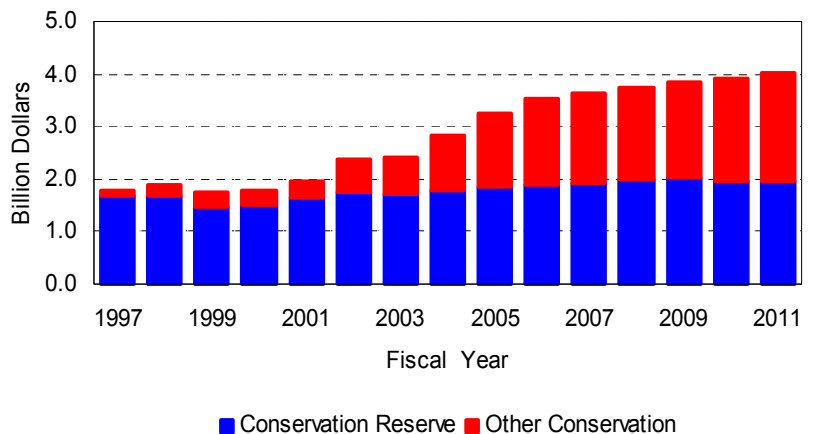
Conservation reserve spending increases slightly as the reserve expands towards its 39.2 million acre limit.

Spending on the **Environmental Quality Incentives Program** and other conservation programs is authorized to increase rapidly under the new farm bill.

Legend: ■ Conservation Reserve ■ Other Conservation

CCC Net Expenditures

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
					(Million Dollars, Fiscal Year)						
Feed Grains											
Corn	6,297	3,120	4,534	6,247	5,977	5,745	5,414	4,552	4,707	4,257	3,985
Sorghum	478	241	316	456	441	424	407	362	368	346	334
Barley	217	146	206	239	242	230	220	212	199	191	181
Oats	36	35	55	56	63	61	60	59	57	54	51
Food Grains											
Wheat	2,922	1,653	2,218	2,574	2,528	2,417	2,182	2,048	1,894	1,776	1,675
Rice	1,423	1,105	1,289	1,352	1,312	1,301	1,264	1,241	1,194	1,142	1,098
Oilseeds											
Soybeans	3,281	3,642	3,921	3,223	2,924	2,644	2,410	2,069	2,046	1,858	1,691
Other Oilseeds	248	96	176	160	134	125	118	111	103	96	90
Other Commodities											
Upland Cotton	1,868	3,258	3,956	3,963	3,813	3,658	3,252	3,037	2,818	2,559	2,329
Peanuts	136	(17)	1,207	364	380	371	234	186	220	211	205
Sugar	31	(360)	17	91	93	73	114	179	200	184	175
Dairy	1,140	1,124	1,372	1,391	1,411	650	386	330	321	303	294
Conservation											
Conservation Reserve	1,658	1,736	1,716	1,766	1,861	1,890	1,910	2,001	2,021	1,959	1,969
Other Conservation	288	630	710	1,060	1,400	1,657	1,741	1,729	1,825	1,953	2,069
Other											
Disaster Payments	2,387	278	200	200	200	200	200	200	200	200	200
Other Net Costs	(305)	1,184	640	615	626	719	799	810	809	776	752
Net CCC Outlays	22,105	17,872	22,533	23,756	23,405	22,165	20,710	19,124	18,983	17,864	17,099

Note: For grains, oilseeds, cotton, peanuts, and dairy, figures represent the means of the results of the stochastic analysis based on 500 random draws.

Selected Direct Government Payments

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
					(Million Dollars, Crop Year)						
Fixed Payments	4,105	5,208	5,208	5,208	5,208	5,208	5,208	5,208	5,208	5,208	5,208
Marketing Loans	8,267	7,798	7,525	6,348	5,684	4,923	4,309	3,715	3,072	2,667	2,287
Counter-cyclical Payments	0	5,035	5,014	5,195	4,972	4,557	4,189	3,691	3,191	2,747	2,334
Market Loss Assistance	5,068	0	0	0	0	0	0	0	0	0	0
Total	17,440	18,042	17,747	16,751	15,864	14,688	13,706	12,615	11,471	10,623	9,829

Note: Includes fixed (FAIR Act production flexibility contract and FSRIA direct) payments, marketing loans (loan deficiency payments and marketing loan gains), counter-cyclical payments, and market loss assistance payments related to feed grains, food grains, oilseeds, and upland cotton. Figures represent the means of the results of the stochastic analysis based on 500 random draws.

State-Level Payments

In response to Congressional requests, FAPRI estimated state-level payments under various farm bill options. The table on the next page updates a table included in FAPRI's preliminary analysis of the conference report on the Farm Security and Rural Investment Act of 2002.

A number of points should be made about the state-level payment estimates.

▪The estimates include only payments under programs for feed grains, wheat, rice, oilseeds, and upland cotton. They do not include payments to producers of peanuts, dry peas, chickpeas, or lentils, nor do they include payments under the dairy or conservation programs. This choice of payments to be considered was based largely on time constraints and, especially in the case of conservation programs, much uncertainty about how new programs would allocate payments.

▪For direct payments and counter-cyclical payments, the allocations are based on preliminary FAPRI estimates of how payment base area and program yields will be updated under the new farm bill. As there continues to be uncertainty over final program rules and over producer choices regarding whether and how to update bases, there is considerable uncertainty over these estimates.

▪For loan deficiency payments (LDPs) and marketing loan gains (MLGs), the approach used to allocate payments to particular states also carries considerable uncertainty. For each crop, it is assumed that producers in each state will get LDPs and MLGs consistent with that state's share of such payments between 1998 and 2001. Changes in production patterns, USDA loan rate revisions, and other factors will cause actual benefits to differ from those estimated using this simplified approach.

▪Payments are reported on a crop-year basis. Under the new farm bill, some payments associated with the 2002 crop will not be received until the fall of 2003. These crop-year estimates cannot be easily compared with estimates on a fiscal (budgetary) year or calendar (net farm income) year basis.

▪The 2002 estimates reported here are greater than those reported in FAPRI's preliminary analysis of the farm bill. The difference is greater in states that produce crops where market price projections have been reduced, such as cotton and rice. Market price projections differ from the earlier analysis primarily because of changes in the world market situation that are unrelated to the new farm bill.

State-Level Payments for Selected Crops

	98-00 avg.	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12
					(Million Dollars)						
Alabama	110.9	169.9	162.4	154.1	145.7	133.7	122.7	111.4	98.9	87.7	76.8
Alaska	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Arizona	122.6	226.3	218.1	209.8	200.6	186.9	173.3	158.7	141.4	125.7	110.1
Arkansas	814.5	1,096.2	1,026.1	976.9	943.2	890.8	848.7	798.3	742.3	693.8	648.2
California	538.8	796.9	763.8	734.5	709.4	669.8	633.6	591.4	542.7	499.7	457.4
Colorado	249.0	208.8	220.3	206.2	197.8	180.8	169.6	155.1	141.4	132.5	125.0
Connecticut	2.8	2.6	2.8	2.6	2.4	2.3	2.1	1.9	1.7	1.6	1.5
Delaware	19.0	25.4	25.1	23.4	22.0	20.2	18.7	17.1	15.5	14.4	13.4
Florida	22.5	35.4	33.9	32.5	31.0	28.9	26.8	24.7	22.2	20.1	17.9
Georgia	241.6	410.5	391.5	371.3	350.5	321.0	294.0	266.4	236.0	208.7	182.2
Idaho	181.2	149.7	159.7	147.1	142.0	127.3	120.1	110.3	101.9	95.0	90.1
Illinois	1,550.9	1,617.5	1,584.2	1,491.1	1,391.5	1,292.3	1,198.5	1,099.7	995.1	928.0	862.0
Indiana	749.5	806.1	784.9	741.2	692.3	643.0	596.8	548.5	497.5	463.9	431.4
Iowa	1,722.5	1,687.0	1,651.3	1,565.1	1,461.7	1,364.2	1,268.1	1,166.5	1,058.7	990.3	920.4
Kansas	1,052.5	899.3	934.8	870.1	829.5	755.9	708.9	648.4	592.0	554.8	522.9
Kentucky	175.7	175.5	175.6	163.7	153.9	141.6	131.3	120.1	108.4	101.0	94.2
Louisiana	367.4	489.8	467.1	448.5	432.8	410.9	389.9	365.5	336.9	311.7	286.9
Maine	3.9	4.3	4.5	4.1	3.9	3.6	3.4	3.1	2.8	2.7	2.4
Maryland	59.6	70.7	70.1	65.0	60.9	55.8	51.6	47.2	42.6	39.5	36.8
Massachusetts	1.8	1.6	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9
Michigan	296.7	276.6	272.7	257.6	242.8	224.9	209.7	193.2	176.2	164.8	154.5
Minnesota	1,139.3	1,107.8	1,095.1	1,022.5	955.8	881.4	816.2	746.4	673.4	626.1	581.5
Mississippi	399.1	604.0	573.0	543.5	516.3	479.2	444.6	408.7	367.7	331.2	295.9
Missouri	575.2	639.2	614.3	576.9	541.7	500.5	465.1	428.5	389.8	361.0	335.0
Montana	297.6	228.7	241.1	226.3	220.7	198.1	187.8	173.8	162.1	151.8	145.7
Nebraska	1,160.2	1,082.8	1,094.5	1,036.3	973.9	906.1	844.1	772.7	699.7	655.7	609.6
Nevada	2.0	2.0	2.0	2.0	2.0	1.8	1.8	1.6	1.6	1.5	1.4
New Hampshire	1.5	1.3	1.4	1.3	1.2	1.1	1.1	0.9	0.8	0.8	0.7
New Jersey	8.7	10.8	10.5	10.0	9.5	8.8	8.2	7.6	7.1	6.6	6.2
New Mexico	51.6	52.4	52.7	50.1	47.7	43.9	40.9	37.3	33.8	31.1	28.4
New York	73.4	68.8	70.5	68.7	65.7	61.8	58.3	54.0	49.8	47.1	44.3
North Carolina	217.9	348.3	332.8	311.9	292.6	266.3	243.4	220.5	195.8	174.9	155.3
North Dakota	731.6	613.4	625.0	569.9	547.0	492.9	462.8	426.0	393.0	365.1	346.7
Ohio	535.1	568.7	551.8	516.4	483.8	445.7	413.4	380.3	345.6	321.4	300.5
Oklahoma	333.5	287.0	293.8	278.9	272.2	246.8	232.7	215.2	198.4	183.5	174.1
Oregon	84.0	62.3	64.9	61.7	60.5	54.3	51.5	47.8	44.6	41.7	40.4
Pennsylvania	62.2	98.1	98.1	97.6	93.7	88.7	84.3	78.7	73.4	69.7	65.9
Rhode Island	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
South Carolina	81.4	109.8	105.7	100.5	95.2	87.7	81.0	74.0	66.3	59.7	53.5
South Dakota	583.2	582.2	574.3	534.1	501.4	459.8	426.5	390.3	353.5	327.8	305.4
Tennessee	187.3	246.0	237.2	222.3	209.1	191.4	175.8	159.8	142.3	127.9	114.4
Texas	1,269.6	1,544.6	1,513.6	1,445.2	1,378.9	1,283.5	1,198.6	1,102.2	997.2	909.1	820.8
Utah	18.4	15.0	15.7	14.9	14.4	13.1	12.4	11.5	10.6	10.0	9.5
Vermont	4.9	4.5	4.9	4.5	4.2	3.9	3.6	3.2	2.8	2.6	2.4
Virginia	70.9	90.1	88.1	82.5	77.6	70.9	65.4	59.5	53.5	48.8	44.5
Washington	222.7	169.0	179.0	165.2	161.9	143.8	135.6	124.8	115.6	107.7	103.9
West Virginia	5.3	4.4	4.5	4.4	4.2	3.9	3.7	3.4	3.1	3.0	2.8
Wisconsin	351.6	331.4	332.2	318.1	299.9	281.1	263.0	242.5	221.2	208.0	194.0
Wyoming	21.0	18.7	19.7	18.6	17.7	16.3	15.4	14.2	13.1	12.3	11.5
United States	16,772.8	18,042.0	17,747.2	16,751.0	15,864.3	14,688.3	13,706.4	12,614.5	11,471.3	10,623.0	9,829.5

Note: Includes payments to feed grains, oilseeds, wheat, rice and upland cotton. Does not include payments for other crops, dairy, conservation, etc.

U.S. Farm Income

Cash Receipts
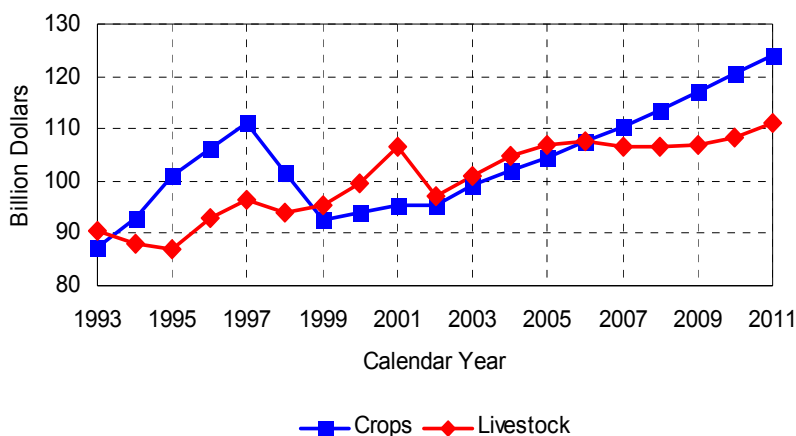
▪Lower prices for cattle, hogs, poultry, and milk contribute to a $9 billion reduction in **livestock receipts** in 2002.

▪**Crop receipts** increase steadily after 2002 because of rising production and prices.

▪Even in nominal terms, it takes ten years for crop cash receipts to fully **recover** from the steep declines experienced in 1998 and 1999.


Crops ▪ Livestock

Cash Expenses and Net Cash Income
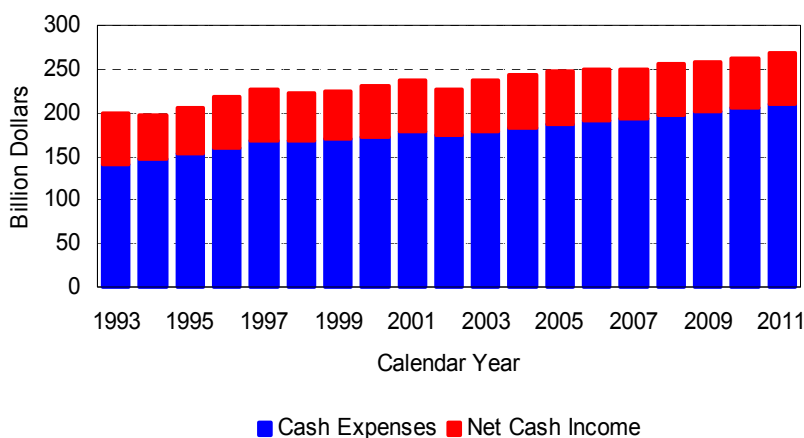
▪Lower interest rates and lower prices for fertilizer and feeder livestock contribute to a reduction in **cash production expenses** in 2002.

▪**Net cash income** declines by $7 billion in 2002, as the reduction in gross cash income more than offsets the decline in production expenses.

▪In **2003**, receipts and government payments grow more rapidly than production expenses and net cash income recovers.

■ Cash Expenses ■ Net Cash Income

Net Farm Income and Government Payments
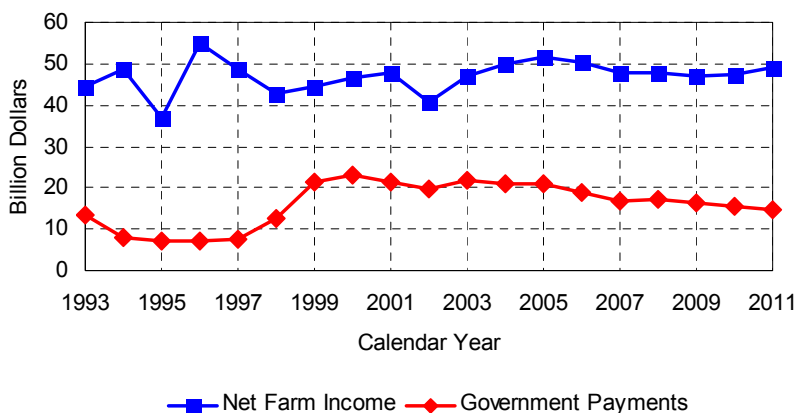
▪**Net farm income** also declines by $7 billion in 2002 before recovering in 2003.

▪**Government payments** decline in 2002, in part because of the timing of payments under the new farm bill.

▪Nominal net farm income averages about $49 billion after 2003, but inflation erodes **real net farm income** after 2005.

Net Farm Income ▪ Government Payments

Farm Income Statistics

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						(Billion Dollars)					
1. Farm Receipts	215.38	206.41	214.50	221.79	227.22	231.08	233.76	237.62	242.03	247.44	254.19
Crops	95.26	95.45	99.08	101.90	104.58	107.45	110.37	113.67	117.15	120.68	124.04
Livestock	106.43	97.08	100.99	104.91	107.09	107.53	106.72	106.70	107.08	108.41	111.23
Farm-Related	13.69	13.88	14.43	14.98	15.54	16.10	16.67	17.24	17.79	18.34	18.93
2. Government Payments	21.37	19.78	21.78	21.13	20.86	19.07	16.92	17.32	16.25	15.43	14.74
3. Gross Cash Income (1 + 2)	236.75	226.19	236.28	242.91	248.08	250.15	250.68	254.94	258.28	262.87	268.94
4. Nonmoney Income	11.30	11.00	11.55	11.90	12.15	12.33	12.47	12.62	12.79	12.97	13.20
5. Value of Inventory Change	0.10	0.16	0.96	0.68	1.10	1.12	1.14	1.00	0.78	0.35	0.32
6. Gross Farm Income (3 + 4 + 5)	248.15	237.35	248.79	255.50	261.33	263.60	264.30	268.56	271.84	276.19	282.47
7. Cash Expenses	177.75	174.19	179.21	182.84	186.86	189.97	193.22	197.21	201.04	204.88	208.94
8. Total Expenses	200.24	196.59	201.78	205.58	209.79	213.08	216.55	220.76	224.84	228.94	233.25
9. Net Cash Income (3 - 7)	59.00	52.00	57.07	60.07	61.22	60.18	57.46	57.73	57.24	57.99	60.00
10. Realized Net Farm Inc (3 + 4 - 8)	47.81	40.60	46.05	49.24	50.44	49.40	46.61	46.80	46.23	46.90	48.89
11. Net Farm Income (6 - 8)	47.91	40.76	47.01	49.92	51.55	50.52	47.75	47.80	47.00	47.25	49.22
Deflated (1997 $)	44.75	37.43	42.21	43.76	44.13	42.18	38.92	38.06	36.61	36.02	36.79

Note: Figures represent the means of the results of the stochastic analysis based on 500 random draws.

Stochastic Analysis: The Approach

U.S. Corn Yield
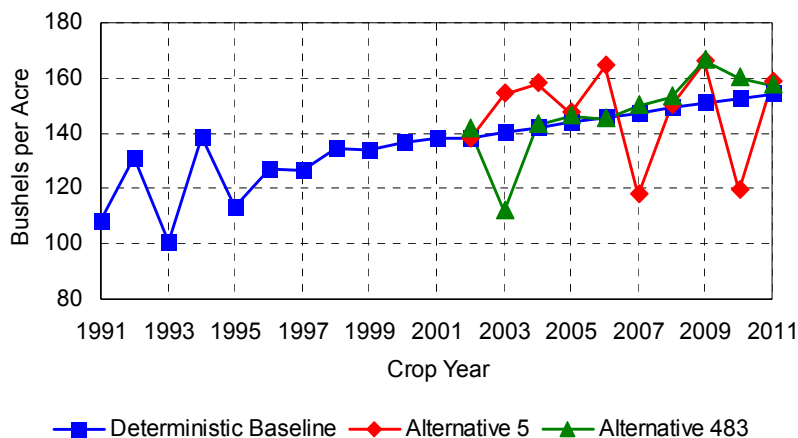
▪To reflect inherent uncertainty in commodity markets, FAPRI uses **stochastic analysis** to look at 500 alternative futures.

▪Assuming average weather, **yields** grow steadily in the deterministic baseline used to generate the supply and use tables earlier in this report.

▪The chart shows **two of the 500 draws** on corn yields used to drive the stochastic analysis.

U.S. Corn Exports
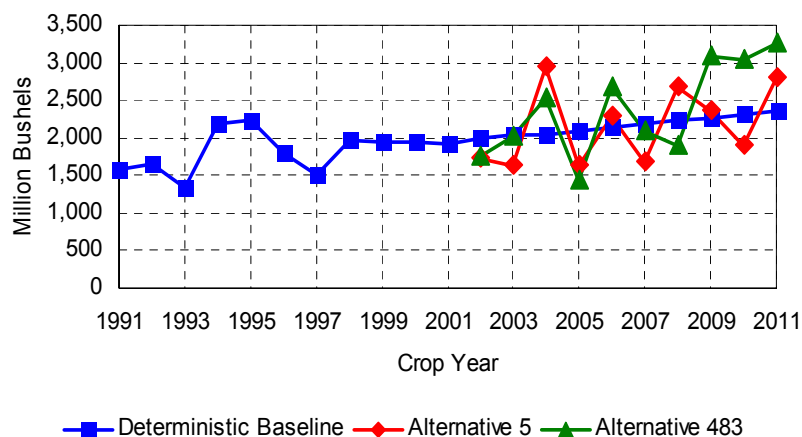
▪While weather and crop yields cause much of the variability in commodity markets, **demand** factors also contribute.

▪**Exports**, for example, are driven both by prices and by a wide variety of other factors, ranging from the weather to exchange rates.

▪The export paths for the two alternatives shown reflect both price movements (e.g., low exports in 2007 in Alternative 5 are caused in part by high prices, which are caused in turn by low yields) and a random draw on **non-price factors**.

U.S. Corn Prices
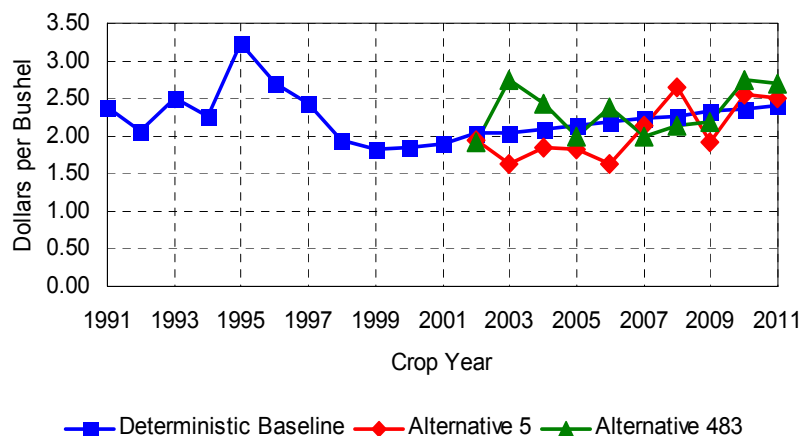
▪For each of the 500 alternative futures, **price** projections reflect the joint effects of all the random supply and demand factors.

▪Prices under the stochastic alternatives generally **exceed** the deterministic baseline when yields are below average and/or when demand is stronger than average.

▪The **reverse** also holds.

Stochastic Analysis: Crop Prices

U.S. Corn Prices
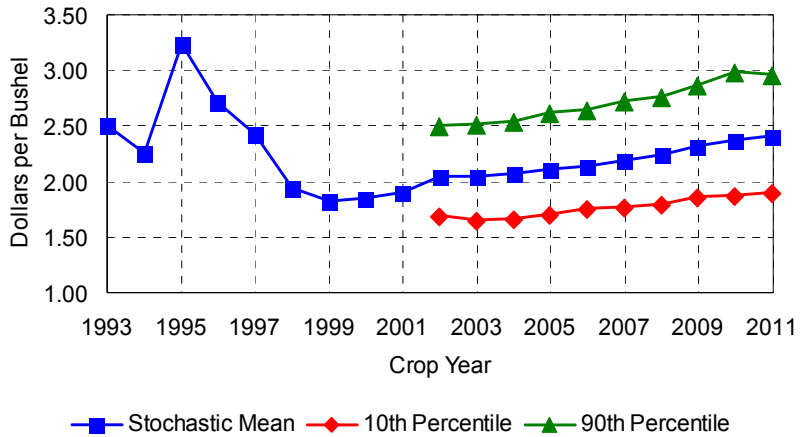
- The **mean** (average) value of the **corn price** from the stochastic analysis of 500 alternative futures is very similar to the deterministic baseline reported earlier.

- In **10 percent** (50) of the 500 alternative futures, the 2003/04 corn price falls **below $1.66** per bushel.

- In **10 percent** (50) of the 500 alternative futures, the 2003/04 corn price **exceeds $2.51** per bushel.
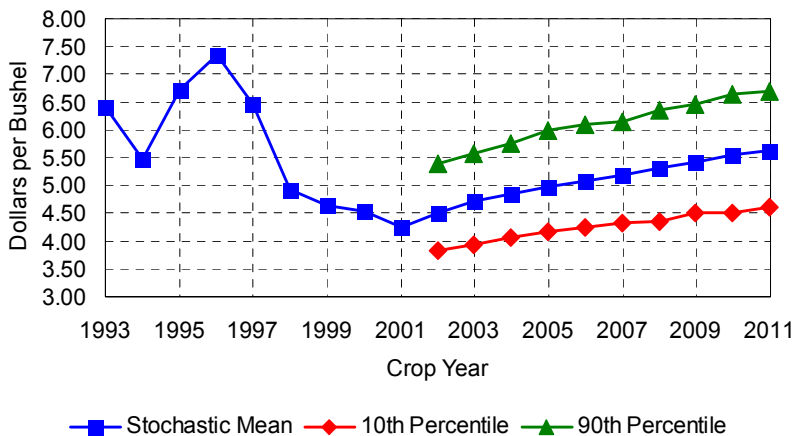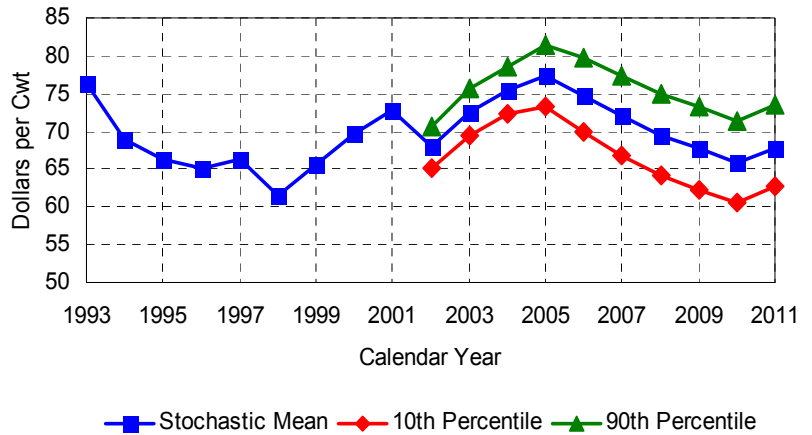

U.S. Wheat Prices
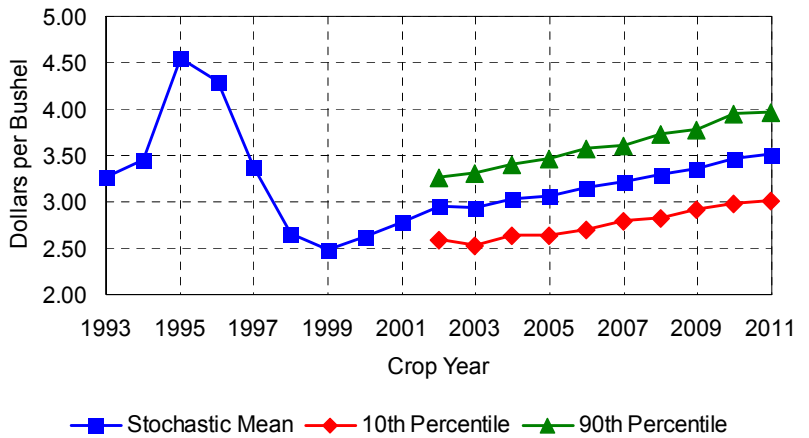
- As with corn, the stochastic mean of **wheat prices** is very close to the deterministic baseline.

- In **10 percent** (50) of the 500 alternative futures, the 2003/04 wheat price falls **below $2.53** per bushel.

- In **10 percent** (50) of the 500 alternative futures, the 2003/04 wheat price **exceeds $3.32** per bushel.

U.S. Soybean Prices

- The stochastic mean of **soybean prices** is also close to the deterministic baseline.

- In **10 percent** (50) of the 500 alternative futures, the 2003/04 soybean price falls **below $3.94** per bushel.

- In **10 percent** (50) of the 500 alternative futures, the 2003/04 soybean price **exceeds $5.59** per bushel.

Stochastic Analysis: Livestock Prices

Nebraska Direct Fed Steer Prices

▪The **mean** (average) value of the **Nebraska direct fed steer price** from the stochastic analysis of 500 alternative futures is very similar to the deterministic baseline reported earlier.

▪In **10 percent** (50) of the 500 alternative futures, the 2003 Nebraska direct fed steer price falls **below $69.48** per cwt.

▪In **10 percent** (50) of the 500 alternative futures, the 2003 Nebraska steer price **exceeds $75.66** per cwt.

Legend: Stochastic Mean — 10th Percentile — 90th Percentile

Barrow and Gilt Prices
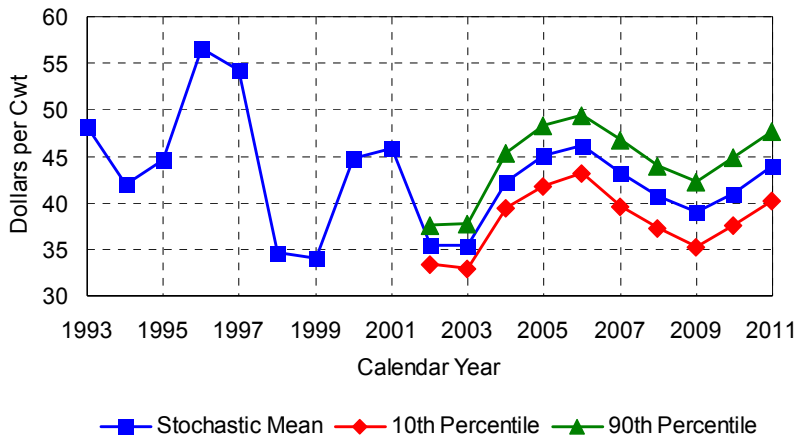
▪As with corn, the stochastic mean of **hog prices** is very close to the deterministic baseline.

▪In **10 percent** (50) of the 500 alternative futures, the 2003 barrow and gilt price falls **below $32.99** per cwt.

▪In **10 percent** (50) of the 500 alternative futures, the 2003 barrow and gilt price **exceeds $37.80** per cwt.

Legend: Stochastic Mean — 10th Percentile — 90th Percentile

Class IV Milk Prices
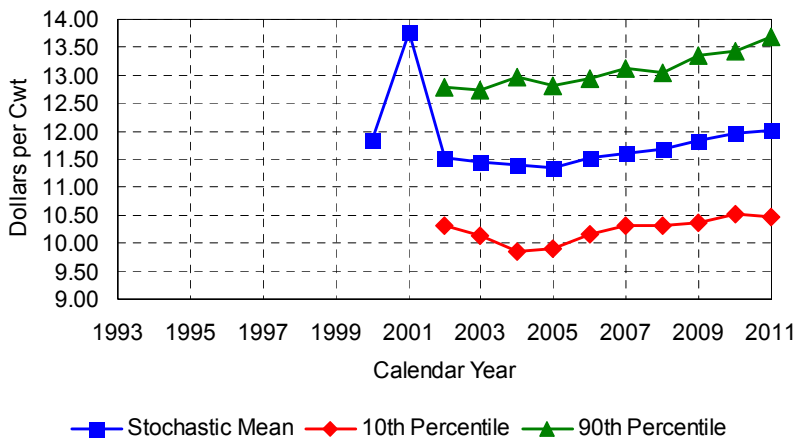
▪The stochastic mean of **milk prices** is also close to the deterministic baseline.

▪In **10 percent** (50) of the 500 alternative futures, the 2003 Class IV milk price falls **below $10.14** per cwt.

▪In **10 percent** (50) of the 500 alternative futures, the 2003/04 Class IV milk price **exceeds $12.75** per cwt.

Legend: Stochastic Mean — 10th Percentile — 90th Percentile

# Stochastic Analysis: Costs and Income

Corn Loan Deficiency Payments
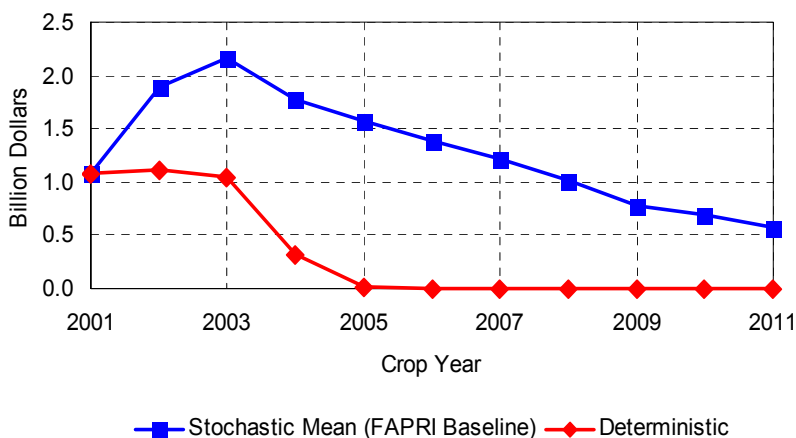
- In the deterministic baseline, corn prices are high enough by 2006 that farmers would not receive **loan deficiency payments (LDPs)**.

- In the **stochastic** analysis of 500 alternative futures, however, corn prices are sometimes low enough to trigger sizable LDPs, even after 2006.

- The **stochastic mean** of corn LDPs is therefore much **greater** than would be implied by deterministic analysis.

Corn Loan Deficiency Payments — Billion Dollars vs. Crop Year (2001–2011)

Stochastic Mean (FAPRI Baseline) · Deterministic

Net CCC Outlays
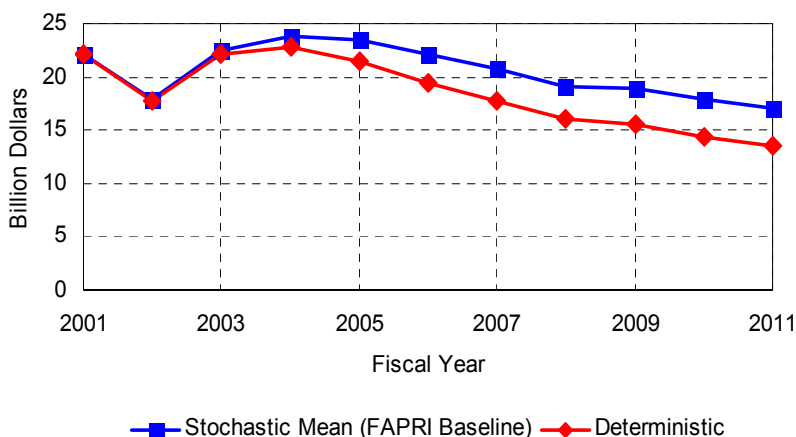
- In some cases, **government spending** is greater when examined using stochastic analysis than when using deterministic analysis, as in the case of corn loan deficiency payments.

- In some other cases, the reverse holds (e.g., when deterministic prices are significantly below loan rates).

- On balance, government spending tends to be **greater** when examined **stochastically**, especially after 2003.

Net CCC Outlays — Billion Dollars vs. Fiscal Year (2001–2011)

Stochastic Mean (FAPRI Baseline) · Deterministic
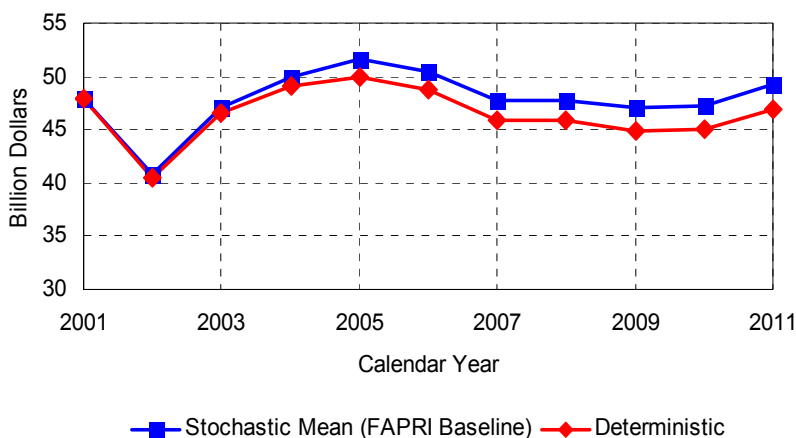
Net Farm Income

- Because the mean level of government payments is greater under the stochastic analysis, the mean level of **net farm income** is also higher than the deterministic result.

- For government costs and net farm income, means of the **stochastic** analysis are presented in the **tables in this report**.

Net Farm Income — Billion Dollars vs. Calendar Year (2001–2011)

Stochastic Mean (FAPRI Baseline) · Deterministic

WTO Issues

The WTO Perspective: Implications for AMS Expenditures

Determining the WTO implications of the additional spending under the 2002 farm bill is ultimately dependent on the classification of the payments. Programs that are considered trade distorting are placed in the amber box and have an aggregate spending limit attached to them. However, not all of the spending on amber box programs counts against the limit.

The *de minimis* rule exempts spending on amber box programs if that spending is below a set percentage of the value of production. For the United States the *de minimis* percentage is five percent. If spending is below five percent of the value of production, then none of the spending counts against the limit. If spending is above five percent of the value of production, then all of the spending counts against the limit. The *de minimis* rule is applied in two ways, depending on the type of program.

Amber box programs are divided into two types: product-specific and non-product-specific. For product-specific amber box programs, the total amount of spending on a product is compared to five percent of the value of production for that product. For non-product-specific amber box programs, the total amount of all non-product-specific amber box programs is compared to five percent of the value of all agricultural production in the United States.

The counter-cyclical payments for program crops under the new farm bill are assumed to be non-product-specific amber box spending because they are triggered by current prices but do not require producers to produce the payment crop. While other interpretations are certainly possible, this assumption follows the classification of the market loss assistance payments by the USDA. The fixed payments are classified as minimally trade distorting (green box) spending, following the classification of AMTA payments under the 1996 farm bill. Thus, the fixed payments do not enter into the analysis here.

The changes in the peanut program essentially make peanuts a program crop, thus the classification of peanuts follows the program crop classification. The peanut quota compensation program is classified as green box because the payment structure is the same as a fixed payment program. The dairy market loss assistance programs are classified as product-specific amber box because producers have to produce to receive payments and the payments are tied to current prices. Net crop insurance indemnities are also placed in the non-product-specific amber box, following the classification by USDA.

Aggregate measures of support (AMS) are assumed for other non-product-specific spending ($0.4 billion). For this analysis, we concentrate on the 2002 crop marketing year for barley, corn, upland cotton, oat, rice, sorghum, soybean, wheat, dairy, sugar, and peanuts. We do not account for provisions that allow the Secretary to limit payments if spending would exceed the WTO limits. However, the analysis provides some indication of the likelihood that the Secretary would need to use this authority.

Under the Uruguay Round Agreement on Agriculture, the United States agreed to limit spending on domestic support programs that are considered trade distorting (amber box spending) to $19.1 billion per year. Given the structure of the policy changes, we calculate the probability that the U.S. would exceed this limit in the 2002 marketing year at 28.8 percent.

Baseline Risks

As in any baseline, there are a number of risk factors associated with the numbers presented here. Most of these derive from potential changes the international market, but at least some come from potential shifts in domestic market forces. The baseline usually takes a conservative view on most of these issues, not projecting major shifts from past trends, but there are at least a few issues that could easily take the future well away from historical patterns.

Domestic projection concerns include:

• **Seasonal hog market fluctuations**. Hog slaughter numbers are again increasing, almost back to some of the levels seen in late 1998. While lower prices in the near term are included as part of this projection, the kind of crisis declines observed in the fourth quarter of 1998 is not reflected in this baseline. However, closure of a slaughter plant or some weather induced surge in hog slaughter could quickly lead to a major change in spot market hog prices.

• **Agriculture and energy markets**. One of the major demand growth areas for corn in particular has been and is expected to continue to be the ethanol market. Over the life of this baseline, ethanol demand for corn is expected to exceed a billion bushels. Government programs have played a vital role in supporting this emerging industry and will likely remain a key factor in the future. As policies change, demand for corn and other bio-based fuel inputs can also shift quickly.

Some international concerns include:

• **China's behavior under the WTO**. The underlying international baseline assumes a "middle of the road" approach by China, allowing import demand to grow, but at a modest pace through time. Some would suggest a much steeper path to their import demand, particularly for oilseeds, feed grains, and meat products, while others would suggest they will utilize a number of non-tariff barriers to limit imports and maintain domestic price levels. Given the potential size of the Chinese market, this is a key assumption.

• **The rate and extent of area expansion in South America**. The baseline includes a significant increase in the total area planted in Brazil and Argentina, with most of the emphasis being on oilseed area in Brazil. In many respects, the rate of this growth, while somewhat consistent with past trends, is assumption driven. The rapidly changing macroeconomic environment, and investment in infrastructure, are but two issues making the expansion path there difficult to project. Not only is this a challenge for the crops sector, it also represents some potential uncertainties for livestock as well. For example, the current baseline suggests some growth in Brazilian broiler trade, but much of the rise in domestic production goes to fill internal consumption. Expansion in production without the growth in domestic consumption could lead to a much more significant quantity of product available for world markets. This is a razor's edge problem.

• **Eastern European and Former Soviet Union countries.** This past year has seen Ukrainian grain move onto world markets at fairly low prices. It has entered the European markets in particular, displacing markets that had traditionally belonged to the United States and internal EU production. In many respects this is considered a "one-off" event, but a more rapid adoption of technology and investment into the region may also bring a significant increase in world supplies. Further, the baseline does not incorporate any expansion of the European Union, even though a number of countries are already well along in negotiations for entry. How their agriculture and their domestic demand will adjust warrants close observation.