

Food and Agricultural
Policy Research Institute



University of Missouri

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US Baseline Briefing Book:

Missouri Insert

FAPRI-MU Report #03-11

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Foreword

The Food and Agricultural Policy Research Institute (FAPRI) provides analysis of agricultural and biofuel markets and policies for Congress and other decision makers. This report is to be used in conjunction with the 2011 US Baseline Briefing Book (FAPRI-MU report #02-11), which presents a summary of ten-year baseline projections for US agricultural and biofuel markets. This report provides a more detailed analysis of projections for Missouri agriculture. The projections provided for Missouri used conditioning assumptions consistent to those contained in the 2011 US Baseline Briefing Book, and readers are encouraged to refer to that publication for more detail on those assumptions, the FAPRI process and acknowledgments. Some of the major assumptions are included below.

Assumptions

These projections are not a forecast of what will happen, but rather a projection of what could happen if current policies remain in place and the macroeconomic projections underlying the agricultural projections come to fruition. Major assumptions include:

- Provisions of the Food, Conservation and Energy Act (FCEA, the 2008 farm bill) are incorporated.
- Provisions of the Energy Independence and Security Act (EISA, the 2007 energy bill) are incorporated.
- In contrast to past baselines, we assume that biofuel tax and tariff provisions expire on schedule and are not extended.
- Macroeconomic projections rely primarily on January 2011 forecasts by IHS Global Insight.

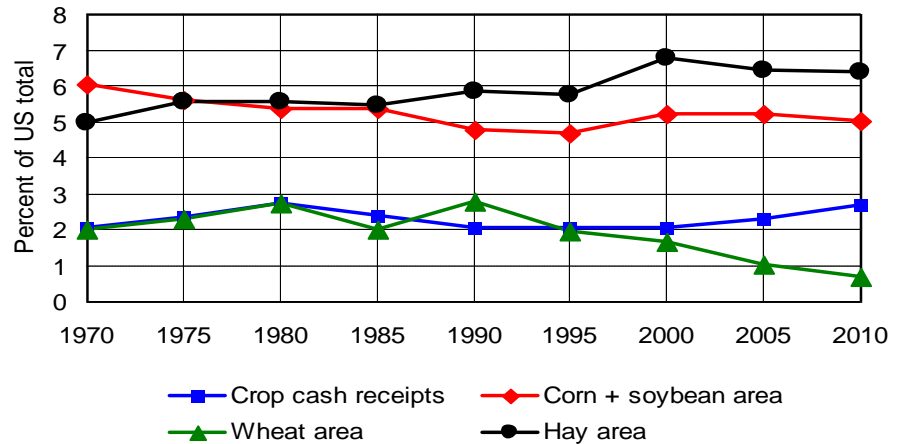
Things to look for this year

Missouri net farm income is expected to increase sharply in 2011, as higher commodity prices outweigh increased costs of production. While virtually all cash receipt categories are expected to increase, the growth in crop cash receipts will dominate relative to gains in the livestock industry. Though data for state farm income in 2010 will not be available until later this summer, it is expected to show that last year's farm income was similar to 2009. While farm income levels are expected to moderate from the 2011 level in subsequent years, they are still expected to be near the current record level of \$3.05 billion in 2008.

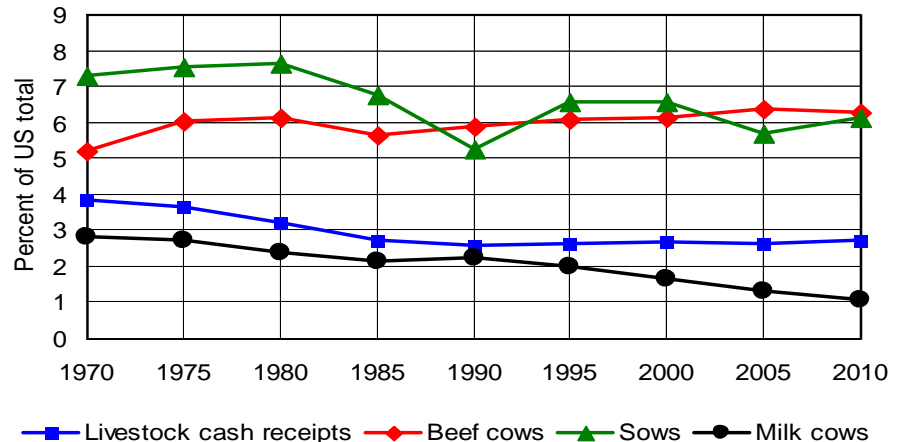
- Corn area is expected to increase by more than five percent to the second highest level on record. Wheat acreage will recover from the weather-depressed level of last year, and cotton plantings will grow. Other crop area will decrease.
- Producers of meat and dairy products will enjoy higher output prices as tightening supplies combine with improved domestic and international demand. However, high feed and other input costs will continue to discourage expansion.
- International developments in food and energy markets will continue to affect the livelihood of Missouri farmers. These factors plus uncertain weather will lead to continuing price volatility. This baseline assumes average weather conditions.

Missouri's role in US agriculture has changed over time

More hay and less wheat raised over the last 20 years



The share of US livestock totals is flat to declining



- Missouri accounts for an important percentage of national corn, soybean and hay area.

- Wheat area in Missouri totaled nearly three percent of the US total in 1990, but that share has steadily declined over the past two decades.

- Typically about two to three percent of national crop cash receipts accrue to Missouri.

- Recent inventory counts show Missouri with the third most beef cows in the nation and the seventh most sows.

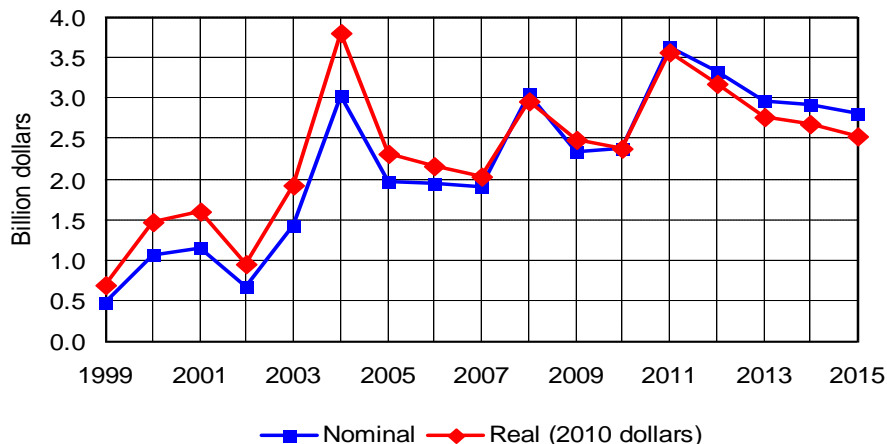
- The importance of beef cows in Missouri has helped grow our state's share of hay area relative to other states.

- The state dairy sector now has less than half as many cows as in 1993.

- Though its portion has declined over time, Missouri still contains a higher percentage of national livestock receipts than land area or population.

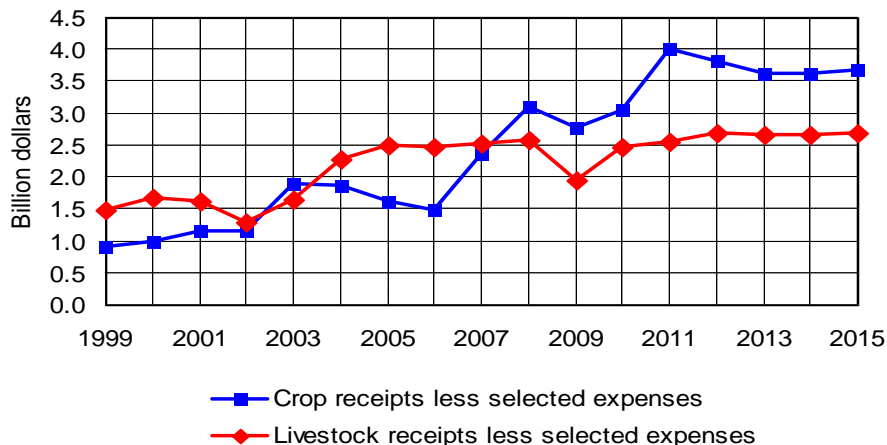
Farm income

Farm income levels remain strong



- Farm income is expected to post its highest level ever in 2011, and will approach the 2004 number even after adjusting for inflation.
- Production expenses are expected to grow nearly 6 percent in 2011, but this increase is overwhelmed by a 14 percent jump in receipts.
- As commodity prices have increased and the budget outlook remains uncertain, government payments are expected to continue to become a smaller factor for net farm income.

The crops sector leads profitability growth



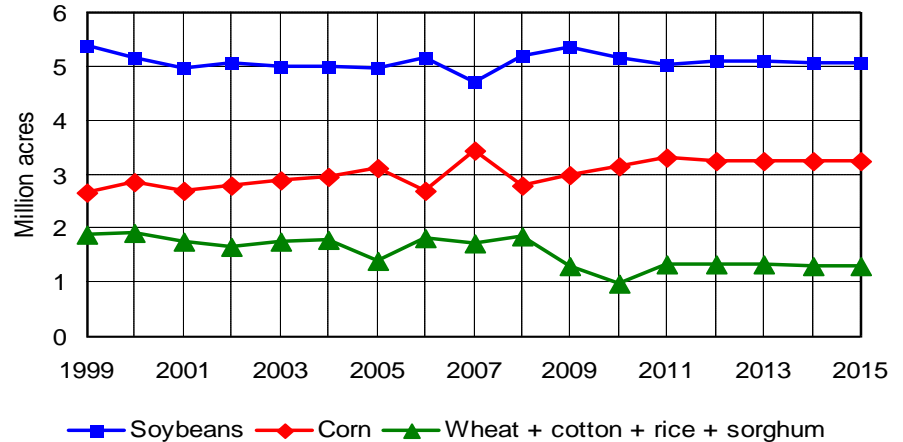
- Subtracting expenses for seed, fertilizer and lime, and pesticides from crop cash receipts shows marked growth in crop profitability beginning in 2007.
- Livestock cash receipts less purchased feed and livestock expenses show a different story of relatively flat returns with the exception of 2009.
- Both crop and livestock producers face more expenses than those already mentioned, including energy, repairs and maintenance, and overhead costs. These expense categories will continue to grow, pinching profitability.

Farm income statistics

Calendar year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	(Million dollars)										
Cash receipts	5,951	5,892	7,416	8,346	7,696	8,500	9,709	9,722	9,513	9,563	9,710
Crops	2,656	2,601	3,711	4,671	4,382	4,617	5,694	5,577	5,418	5,455	5,545
Livestock	3,295	3,291	3,706	3,675	3,314	3,883	4,016	4,146	4,096	4,108	4,165
Home consumption	17	19	18	16	15	17	18	18	18	18	18
Crops	1	2	2	2	1	1	1	1	1	1	1
Livestock	16	17	15	14	13	16	17	17	17	17	17
Inventory adjustment	-320	135	-183	243	220	-215	189	21	53	81	88
Crops	-393	171	-36	243	303	-113	189	-4	-14	0	-2
Livestock	73	-36	-147	0	-83	-103	0	25	67	81	90
Services and forestry	1,115	1,242	1,258	1,388	1,438	1,462	1,570	1,655	1,700	1,728	1,765
Mach. hire, custom work	49	81	55	79	67	66	75	78	79	81	83
Forest products sold	18	20	21	23	24	24	24	24	25	25	25
Other farm income	243	275	300	429	437	440	485	513	509	505	510
Imputed rental value	806	866	883	857	910	932	985	1,040	1,087	1,117	1,147
Ag sector output	6,764	7,288	8,509	9,993	9,368	9,763	11,486	11,417	11,284	11,390	11,581
Direct gov. payments	712	510	382	537	479	430	426	438	446	450	356
Production expenses	5,503	5,860	6,994	7,481	7,511	7,822	8,273	8,534	8,770	8,919	9,124
Net farm income	1,973	1,938	1,897	3,050	2,336	2,372	3,639	3,321	2,959	2,922	2,813

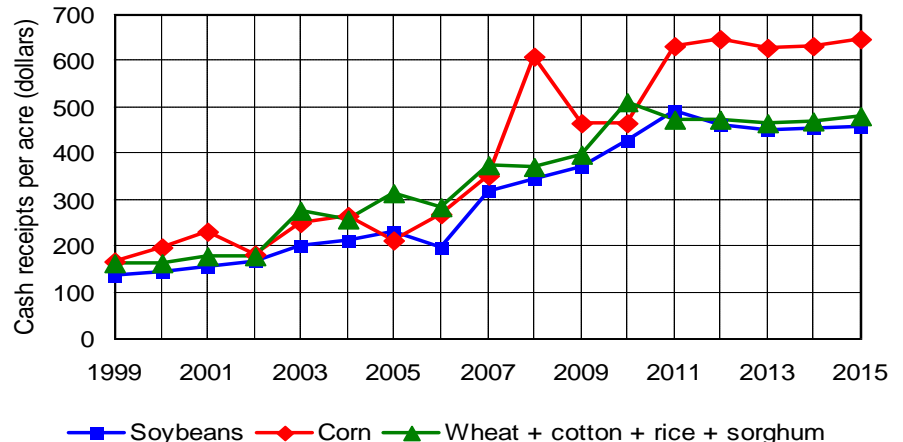
Crops

Acreage shifts slightly to more corn



- Soybeans will continue to lead other Missouri crops in terms of acreage, with roughly 5 million acres.
- Corn acreage is expected to grow for the third consecutive year in 2011, surpassing 3.3 million acres and posting the second highest level in recent decades.
- Winter wheat seedings bounced back near their 2009 amount this year. Cotton area is expected to grow for the second straight year.

Corn jumps ahead in terms of revenue per acre



- The amount of cash receipts generated per planted acre has trended steadily upward.
- While corn has separated itself from other Missouri crop commodities on the receipts side, it not surprisingly has higher input costs associated with planting it.
- According to the FAPRI model of US agriculture, national average variable expenses for the 2010/11 crop were as follows: corn \$283 per acre; soybeans \$135 per acre; wheat \$113 per acre.

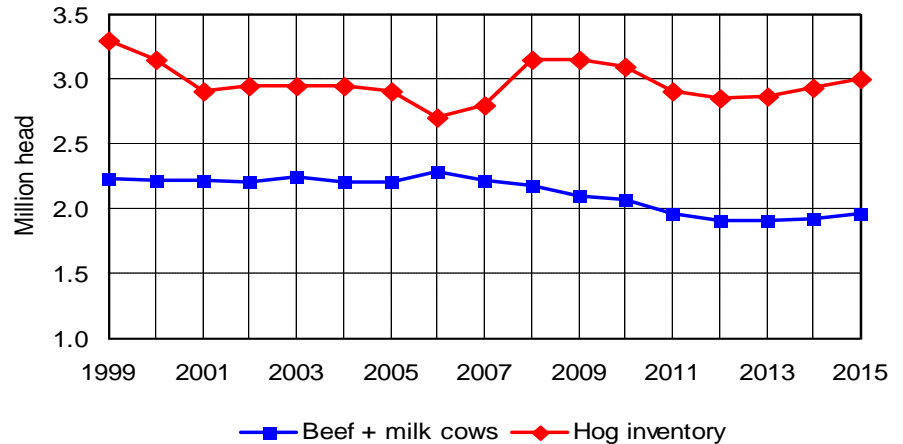
Crop production and prices

Crop year	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Area											
	(Million acres planted unless noted)										
Corn	3.10	2.70	3.45	2.80	3.00	3.15	3.32	3.25	3.23	3.25	3.26
Soybeans	4.95	5.15	4.70	5.20	5.35	5.15	5.01	5.09	5.09	5.07	5.06
Wheat	0.59	1.00	1.05	1.25	0.78	0.37	0.75	0.73	0.73	0.72	0.72
Sorghum	0.14	0.10	0.11	0.09	0.05	0.04	0.04	0.03	0.03	0.03	0.03
Cotton	0.44	0.50	0.38	0.31	0.27	0.31	0.35	0.35	0.33	0.33	0.33
Rice	0.22	0.22	0.18	0.20	0.20	0.25	0.21	0.21	0.22	0.22	0.23
Hay (harvested)	3.97	4.14	4.05	4.20	3.88	3.84	3.83	3.84	3.84	3.83	3.83
Production											
	(Million bushels unless noted)										
Corn	330	363	458	382	447	369	466	463	466	476	483
Soybeans	182	194	175	191	231	210	200	206	208	209	211
Wheat	29	49	38	56	34	13	36	35	35	35	35
Sorghum	10	8	10	8	4	3	3	3	3	3	3
Cotton (thousand bales)	864	985	764	698	502	685	722	735	715	716	723
Rice (million cwt.)	14.1	13.7	12.3	13.2	13.4	16.3	14.3	14.9	15.2	15.8	16.4
Hay (million tons)	6.6	6.9	7.5	8.8	8.0	7.5	7.7	7.7	7.7	7.8	7.8
Farm prices											
	(Dollars per bushel unless noted)										
Corn	2.03	3.06	4.17	4.11	3.58	5.54	5.21	4.89	4.88	4.92	4.93
Soybeans	5.67	6.47	10.10	9.74	9.61	11.80	12.44	11.58	11.43	11.41	11.45
Wheat	3.35	3.52	5.17	5.35	4.29	4.84	4.96	4.76	4.62	4.61	4.63
Sorghum	1.92	3.18	3.74	3.57	3.28	5.18	4.27	4.18	4.17	4.19	4.22
Cotton (lb.)	0.47	0.45	0.57	0.47	0.59	0.83	0.80	0.76	0.74	0.74	0.74
Rice (cwt.)	6.87	9.38	11.90	13.80	12.90	11.05	11.22	10.51	10.94	11.15	11.68
Hay (ton)	65.00	75.00	110.00	103.00	63.00	79.19	82.02	80.57	79.57	79.54	80.29

Livestock

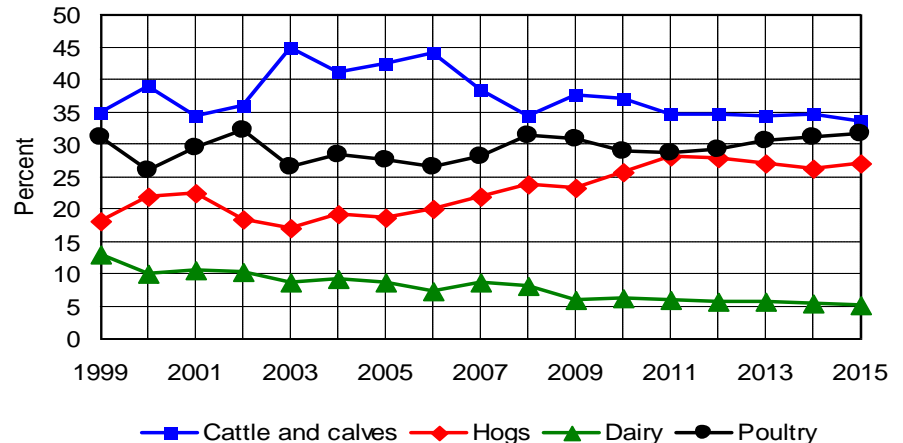
- Cost increases in the production of meat and milk have forced many producers to exit the business.
- Even though the prices received for animal products have increased over the past few months, most producers are still not finding the situation profitable enough to begin expanding.
- If returns continue to improve in the next couple of years as projected, the poultry and hog industries will be able to increase output more quickly than the beef industry.

Animal numbers decline due to higher input costs



- Many different livestock industries play an important role in state livestock cash receipts.
- The proportion of receipts generated from beef and dairy cattle have generally declined over the past decade. While these sectors are expected to stabilize as stronger demand for beef and dairy products increase output prices, it will be difficult to regain historical levels.
- While the share of cash receipts for hogs and poultry have not suffered a similar downturn to cattle enterprises, higher corn and protein meal prices have a more direct adverse effect on these animals versus cattle that are grazing.

Hogs comprise a larger share of livestock receipts



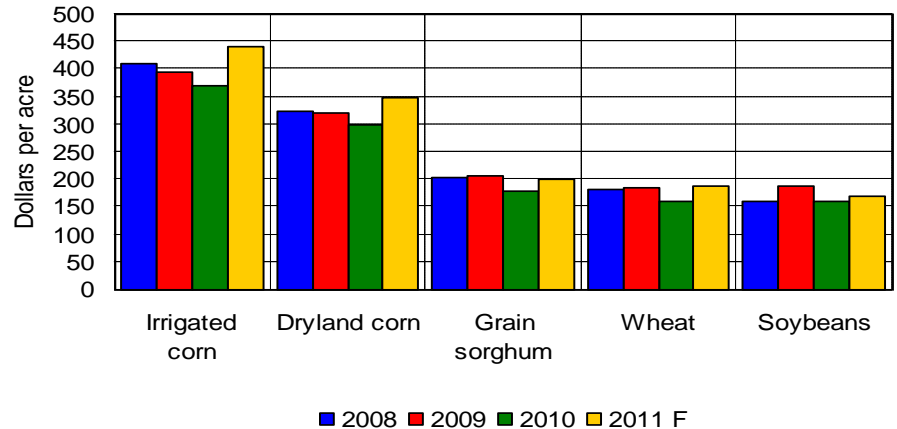
Livestock sector

Calendar year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Inventories	(Thousand head)										
Cattle & calves	4,350	4,450	4,400	4,250	4,250	4,150	3,950	3,871	3,818	3,809	3,815
Beef cows	2,081	2,166	2,106	2,070	1,992	1,968	1,865	1,814	1,817	1,845	1,889
Sows	340	345	360	375	370	360	355	354	359	363	363
Market hogs	2,560	2,355	2,440	2,775	2,780	2,740	2,545	2,491	2,504	2,568	2,641
Milk cows	117	115	112	110	107	99	93	89	84	80	77
Production	(Million pounds unless noted)										
Beef	1,408	1,368	1,333	1,394	1,348	1,299	1,252	1,241	1,240	1,252	1,271
Pork	1,120	1,464	1,806	1,747	1,697	1,689	1,692	1,714	1,767	1,829	1,876
Broiler *											
Turkey	619	618	646	651	611	579	567	571	585	599	614
Egg (million dozens)	159	163	157	157	164	162	162	163	165	166	168
Milk	1,875	1,840	1,678	1,615	1,568	1,445	1,368	1,308	1,251	1,199	1,150
Prices	(Dollars per pound unless noted)										
Cattle	0.98	0.94	0.92	0.86	0.81	0.92	1.03	1.08	1.09	1.09	1.07
Calf	1.33	1.29	1.19	1.08	1.05	1.19	1.23	1.36	1.39	1.41	1.37
Hog	0.46	0.40	0.41	0.42	0.37	0.49	0.56	0.57	0.53	0.50	0.51
Broiler *											
Turkey	0.45	0.50	0.56	0.57	0.50	0.60	0.62	0.64	0.65	0.66	0.66
Egg (dozen)	0.47	0.50	0.82	1.05	0.76	0.81	0.89	0.92	0.92	0.93	0.94
Milk (cwt.)	15.50	13.30	19.40	18.90	13.00	16.65	17.90	18.38	18.51	18.62	18.81

* Broiler data discontinued to avoid disclosing individual operations. Broiler receipts are included in livestock receipts.

Crop budgets

Missouri row crop operating cost estimates

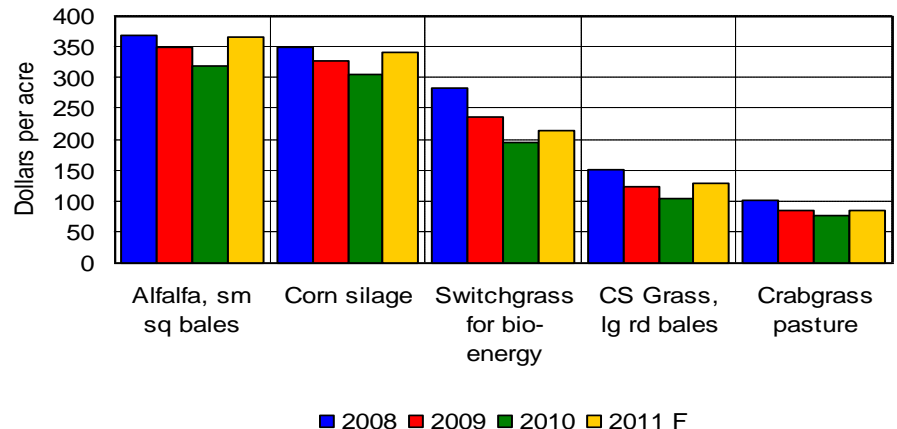


After two year of primarily declining production costs, grain and soybean producers will face higher expenses putting the 2011 crop in the ground.

Corn is expected to show the largest increase, with costs per acre up 15 to 20 percent relative to last year before accounting for machinery and land costs.

Soybean operating costs are projected to see a smaller jump of 6 percent, while raising sorghum (12 percent) and wheat (15 percent) also becomes more expensive.

Missouri forage operating cost estimates



Forage operating costs will also sharply increase after two years of decline.

The costs to produce alfalfa and corn silage are projected to be very near the inflated levels of 2008.


While the other types of forage shown do not return to 2008 levels, they still increase by double-digit percentages.

Alfalfa operating costs are projected at \$73.54 on a per ton basis.

COSTS AND RETURN ESTIMATES FOR 2011 CROPS.

Updated March 2011

Reflects Missouri farms in the 2000 acre range outside of the bootheel. Yields are better than state average with costs estimated accordingly.

Food and Agricultural Policy Research Institute	Dryland	Irrigated	Grain	Soybeans	Soybeans	Soft Red
 FAPRI	Corn	Corn	Sorghum	After Corn	After Wheat	Wheat
<i>Yield, bushels</i>	155	200	110	50	25	60
<i>Price per bushel</i>	4.60	4.60	4.20	11.50	11.50	5.60
Crop sales	713.00	920.00	462.00	575.00	287.50	336.00
Direct payments	14.15	14.15	14.15	14.15	0.00	14.15
Income per acre	\$ 727.15	\$ 934.15	\$ 476.15	\$ 589.15	\$ 287.50	\$ 350.15
Seed	87.00	92.80	27.36	49.87	57.33	36.00
Fertilizer, lime	137.75	174.70	107.60	61.10	27.55	87.10
Crop protection chemicals	30.50	30.50	20.70	6.40	6.40	8.20
Crop insurance	25.00	15.00	0.00	18.00	0.00	12.00
Custom application	4.75	4.75	9.50	0.00	0.00	9.50
All fuel for machinery, irrigation, drying	34.27	63.52	12.36	13.18	8.43	11.79
Machinery repairs and maintenance	14.53	37.05	11.75	10.88	8.52	11.07
Operator and hired labor	12.69	18.75	10.19	10.50	8.73	10.47
Operating interest	11.29	14.24	6.51	5.56	3.80	6.08
Operating costs per acre	\$ 358.79	\$ 452.30	\$ 206.97	\$ 176.49	\$ 120.76	\$ 193.22
Overhead and depreciation	54.97	99.31	39.59	42.79	27.57	33.36
Real estate charge	133.50	160.00	104.50	133.50	0.00	133.50
Ownership costs per acre	\$ 188.47	\$ 259.31	\$ 144.09	\$ 176.29	\$ 27.57	\$166.86
Total costs per acre	\$ 547.26	\$ 711.61	\$ 351.06	\$ 352.77	\$ 148.33	\$ 360.08
Income over operating costs per acre	368.36	481.85	269.18	412.66	166.74	156.93
Income over total costs per acre	179.89	222.54	125.09	236.38	139.17	-9.93
Operating costs per unit	2.31	2.26	1.88	3.53	4.83	3.22
Total costs per unit	3.53	3.56	3.19	7.06	5.93	6.00