
2015 Iowa Farm Costs and Returns

Ag Decision Maker

File C1-10

The farm record data utilized in this report were obtained from the Iowa Farm Business Association. The average of all farms in each table represents a weighted average of the values for each size group listed. Weighting factors are based on the number of farms in each size group in the state, as computed from the most recent Census of Agriculture. Only farms with sales of \$100,000 or more were counted in making the weighting. Thus, overall averages should be representative of full-time Iowa farms.

All records were kept on the accrual, or inventory, basis. On rented farms, only operator income and expenses were recorded. Data for ending assets and liabilities represent those of the operator only, and do not include the value of rented land.

Definition of Terms Used

Net farm income, cash - total sales and other cash income minus cash expenses, including purchases of livestock and feed. Does not include principal borrowed or repaid, sales and purchases of capital assets, or nonfarm income and expenses.

Net farm income, accrual - cash net income adjusted for inventory changes and accrued expenses. Represents a return to unpaid labor, net worth (equity), management, and profit.

Value of farm production - value of crops produced (at market price), livestock production (net of feed and purchased livestock), inventory value gain or loss, and miscellaneous income. This measures the total production per farm.

Management return - accrual net farm income less 4 percent interest on value of equity (net worth) and wages for operator and family labor. The wage rate used for operator labor was \$2,500 per month.

Inventory value gain or loss - change in value of crops or livestock sold due to differences in opening inventory price and final sale price.

Livestock returns per \$100 feed fed - value of livestock production minus livestock purchases, divided by value of feed fed, multiplied by 100.

Machinery cost per crop acre - total of machinery repairs, fuel, custom machine hire, utilities, machinery depreciation, and auto expense, less 75 percent of all custom hire income received, divided by crop acres. Depreciation is estimated at 10 percent of current value of the machinery. Interest is not included.

Return on assets - net farm income, plus interest expense, minus value of operator and family labor, divided by total farm assets owned.

Return on equity - net farm income minus value of operator and family labor, divided by net worth.

Operating profit margin ratio - net farm income, plus interest expense, minus value of operator and family labor, divided by value of farm production.

Working capital - current assets minus current liabilities.



The data for this report were collected by Iowa Farm Business Association consultants and compiled by Iowa State University Extension and Outreach.

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Iowa Farm Costs and Returns 2011-2015

The following summary is intended to provide a general picture of costs and returns to well-managed, full-time Iowa farms. The values presented are averages; however, results vary widely from one farm to the next.

The average farm size increased by 15 acres in 2015, resulting in a \$163,472 increase in the average value of total farm assets and a \$74,693 increase in the average farm net worth. Investments in land and improvements, and machinery and equipment continued to increase for the fourth consecutive year. The average accrual net farm income declined by \$71,250 to \$27,927 in 2015, driven by lower livestock income and to a lesser extent lower crop income. Livestock returns per \$100 feed fed declined by 40 percent to \$90 in 2015; while crop value per acre declined by 12 percent to \$588 due to substantially lower crop prices. The debt-to-asset ratio increased for a third consecutive year in 2015 to 0.21. The current asset-to-debt ratio, a measure of liquidity, decreased slightly to 3.32 in 2015, its second lowest level since 2007.

Table 1. Comparison by Years

	2015 ^{2/}	2014	2013	2012 ^{1/}	2011
Financial Returns					
Net farm income-accrual	\$27,927	\$99,177	\$71,595	\$243,072	\$187,340
Return to management	-85,187	-8,922	-32,564	147,071	121,457
Net farm income-cash	94,990	143,158	184,949	214,411	127,737
Resources Used					
Acres in crops	707	692	662	631	530
Labor months	18	17	16	15	13
Livestock, feed, supplies	\$635,031	\$644,624	\$608,170	\$645,734	\$444,517
Machinery and equipment	517,123	452,453	409,991	343,356	242,080
Land and improvements	1,380,356	1,271,960	1,190,214	1,088,910	825,666
Total farm assets	\$2,532,510	\$2,369,037	\$2,208,375	\$2,078,000	\$1,512,264
Farm net worth	\$1,918,009	\$1,843,316	\$1,765,312	\$1,690,684	\$1,131,715
Value of Farm Production					
Livestock income less feed, purchases for resale	\$18,671	\$108,778	\$39,073	\$13,277	\$24,869
Crop production	431,461	486,806	562,763	577,676	370,467
Miscellaneous	118,214	60,255	43,046	39,626	29,606
Crop inventory gain or loss	5,295	-27,271	-92,610	42,487	66,217
Value of farm production	\$573,641	\$628,569	\$552,272	\$673,066	\$491,158
Expenses					
Operating	\$285,204	\$294,344	\$273,314	\$268,190	\$189,062
Fixed	260,510	232,310	210,532	186,105	129,392
Efficiency					
Corn yield (bu. per acre)	200	184	169	149	172
Average sale price for corn, per bushel	\$3.71	\$4.32	\$6.35	\$6.45	\$5.58
Crop value per acre	\$588	\$667	\$821	\$882	\$671
Machinery cost per crop acre	\$133	\$139	\$150	\$149	\$135
Livestock returns per \$100 feed fed	\$133	\$223	\$145	\$102	\$135
Gross revenue per person	\$452,035	\$466,608	\$453,197	\$588,093	\$447,424
Gross revenue per \$1 expense	\$1.09	\$1.20	\$1.19	\$1.68	\$1.71
Gross revenue per \$1 assets	\$0.27	\$0.24	\$0.23	\$0.31	\$0.30
Return on assets (ROA)	1.1%	2.5%	2.2%	10.6%	10.6%
Return on equity (ROE)	0.2%	2.4%	1.8%	11.8%	11.8%
Financial					
Debt-to-asset ratio	0.21	0.19	0.17	0.16	0.16
Current asset-to-debt ratio	3.32	3.52	4.92	7.08	5.51
Farm net worth per acre farmed	\$2,897	\$2,805	\$2,881	\$2,765	\$2,681

^{1/} Revised using weights from the 2012 Census of Agriculture.

^{2/} Revised with additional farm data in June 2017.

Assets and Liabilities

A breakdown of farm assets and liabilities by value of gross sales per farm is shown in Table 2. Both assets and liabilities increase with farm size. The total debt-to-asset ratio tends to increase with farm size, indicating that larger farms utilized relatively more credit and were more leveraged than smaller farms. All groups had higher total liabilities in 2015 than in 2014, but total assets increased even more for all groups except for the largest farms that experienced a slight decline in their total assets. Consequently, average farm net worth increased for all groups but the largest farms. Relative measures of liquidity suggest that smaller farms were better positioned to cover short term liabilities than larger farms. Average working capital declined by \$38,880 in 2015, driven by an average decline of \$182,163 among the largest farms.

Table 2. Assets and Liabilities by Size of Farm, End of Year Values

	Average	Total Value of Gross Sales			
		\$100,000 to \$199,999	\$200,000 to \$399,999	\$400,000 to \$799,999	\$800,000 and above
Farm Assets					
Feeding livestock	\$126,340	\$3,047	\$8,822	\$24,991	\$394,484
Crop inventory	359,470	117,529	214,927	371,847	622,107
Cash	56,190	26,220	33,543	93,609	60,501
Supplies, prepaid expenses, other ^{1/}	93,030	28,365	52,863	96,019	164,824
Total short-term assets	\$635,031	\$175,162	\$310,154	\$586,465	\$1,241,916
Breeding livestock	\$35,423	\$10,283	\$20,368	\$25,655	\$72,686
Machinery, equipment	450,012	113,148	256,463	455,848	819,355
Other intermediate assets ^{2/}	31,688	10,326	34,133	44,907	30,977
Total intermediate assets	\$517,123	\$133,758	\$310,965	\$526,409	\$923,018
Land and improvements	\$1,380,356	\$733,482	\$821,523	\$1,318,561	\$2,315,202
Total assets	\$2,532,510	\$1,042,787	\$1,442,641	\$2,432,214	\$4,485,791
Farm Liabilities					
Operating notes, accounts payable	\$228,159	\$38,885	\$97,215	\$136,101	\$540,395
Intermediate and long-term due	7,404	1,927	2,036	7,692	15,134
Other short term debt ^{3/}	1,074	34	956	441	2,389
Total short-term debt	\$236,637	\$40,847	\$100,206	\$144,233	\$557,918
Intermediate-term debt	\$198,756	\$26,708	\$95,626	\$161,792	\$426,975
Long-term debt	\$181,062	\$61,866	\$99,327	\$149,513	\$353,304
Total liabilities	\$616,455	\$129,421	\$295,160	\$455,539	\$1,338,197
Farm Net Worth					
Net worth change from last year	\$74,693	\$135,720	\$105,427	\$191,847	-\$94,837
Working capital	\$398,394	\$134,316	\$209,948	\$442,232	\$683,998
Current asset-to-debt ratio	3.32	4.29	3.10	4.07	2.23
Working capital per \$1 of gross revenue	\$0.63	\$0.83	\$0.67	\$0.75	\$0.36
Total debt-to-asset ratio	0.21	0.12	0.20	0.19	0.30
Total crop acres farmed	707	229	430	727	1,224
Months of labor used	18	8	12	15	33
Farm net worth per acre farmed	\$2,897	\$3,989	\$2,670	\$2,718	\$2,572

^{1/} Purchased feed, accounts receivable, hedging accounts, sealed grain, investment in growing crops, short term loans.

^{2/} Capital leases, investment in cooperatives.

^{3/} Labor related liabilities, accrued interest, taxes payable, and other current liabilities.

Income and Expenses

A summary of operating and fixed expenses by size of farm is shown in Table 3. All expenses increase with farm size. Crop expenses include seed, fertilizer, pesticides, and other expenses related to crop production. The average farm generated a net farm cash flow of about \$110,000 for replacement of capital assets, expansion, savings, living expenses, and income taxes. That is \$74,000 less than in 2014. The average net farm cash flow increased by \$38,440 for the smallest farms, driven by additional loans received; and decreased by \$18,100 for the second smallest farms; by \$36,500 for the second largest farms; and by \$225,200 for the largest farms, driven by lower cash net farm income.

Table 3. Summary of Cash Income and Expenses by Size of Farm

	Average	Total Value of Gross Sales			
		\$100,000 to \$199,999	\$200,000 to \$399,999	\$400,000 to \$799,999	\$800,000 and above
Income					
Livestock sales	\$310,454	\$7,967	\$15,197	\$51,689	\$983,342
Corn sales	231,555	67,448	138,420	259,357	388,051
Soybeans sales	153,384	49,628	93,496	156,063	266,586
Other crop sales	7,329	405	3,756	6,768	15,188
Other cash income	124,072	27,454	49,015	106,654	263,880
Total cash income	\$826,795	\$152,903	\$299,883	\$580,531	\$1,917,047
Expenses					
Machinery and equipment repairs	\$23,837	\$5,189	\$13,742	\$22,467	\$45,277
Fuel and oil	17,941	3,619	8,655	16,345	36,206
Machine hire	13,991	5,935	7,892	13,497	24,650
Auto and truck expense	5,385	1,975	3,774	5,149	9,093
Utilities	9,188	3,347	4,912	7,939	17,594
Labor hired	18,595	1,089	3,101	9,184	51,171
Livestock expense	22,987	659	1,748	4,979	71,197
Crop expense	169,422	53,352	101,030	174,799	295,112
Miscellaneous	3,858	834	1,685	3,765	7,676
Total cash operating expense	\$285,204	\$75,999	\$146,539	\$258,124	\$557,976
Cash rent	\$110,007	\$17,598	\$48,671	\$104,201	\$225,029
Property taxes	8,515	4,238	5,705	8,870	13,254
Insurance	23,933	7,349	13,849	23,646	43,106
Building repairs	7,876	3,059	4,658	6,148	15,172
Interest	25,773	4,194	12,811	19,379	56,003
Other overhead expenses	16,614	2,805	4,877	9,997	41,172
Total cash fixed expense	\$192,718	\$39,243	\$90,571	\$172,241	\$393,735
Feed purchased	\$115,475	\$3,779	\$8,996	\$28,811	\$353,774
Livestock purchased	138,407	1,835	5,359	13,962	448,840
Total cash expenses	\$731,804	\$120,856	\$251,466	\$473,137	\$1,754,325
Cash net farm income	\$94,990	\$32,047	\$48,418	\$107,394	\$162,722
Loans received minus loans repaid	\$15,888	\$34,564	\$9,890	\$12,572	\$12,396
Net farm cash flow	\$110,878	\$66,611	\$58,308	\$119,966	\$175,118

A more accurate measure of net farm income is achieved by netting out changes in the values of beginning and ending inventories, subtracting a depreciation charge for farm assets, and including accrued income and expenses. A summary of income and expenses using accrual accounting is shown in Table 4. The average accrual net farm income ranged from \$7,259 for the largest farms to \$53,621 for the second largest. Return to management, after subtracting a return to unpaid labor and equity capital invested, was negative for all farm sizes and averaged -\$85,187. Only eight percent of gross revenue was left as net farm income after all expenses were paid.

Table 4. Summary of Accrual Income and Expenses by Size of Farm^{1/}

	Average	Total Value of Gross Sales			
		\$100,000 to \$199,999	\$200,000 to \$399,999	\$400,000 to \$799,999	\$800,000 and above
Income					
Total cash income	\$826,795	\$152,903	\$299,883	\$580,531	\$1,917,047
Change in crop inventory	5,295	8,419	9,625	8,383	-3,124
Change in livestock inventory	-43,705	-2,296	-853	-12,483	-134,120
Feed credits, change in other inventories	39,138	2,841	4,945	13,590	113,878
Total accrual income (gross revenue)	\$827,523	\$161,866	\$313,601	\$590,021	\$1,893,681
Total cash expenses	\$731,804	\$120,856	\$251,466	\$473,137	\$1,754,325
Depreciation	67,791	16,099	34,872	63,262	132,097
Total accrual expenses	\$799,596	\$136,955	\$286,338	\$536,400	\$1,886,422
Accrual net farm income	\$27,927	\$24,911	\$27,263	\$53,621	\$7,259
Charge for unpaid labor	28,998	18,726	26,986	29,958	36,232
Charge for equity capital (4%)	84,117	40,668	51,856	85,548	137,380
Return to management	-\$85,187	-\$34,483	-\$51,579	-\$61,884	-\$166,353
Allocation of gross revenue					
Operating expense	80%	72%	76%	77%	90%
Interest expense	3%	3%	4%	3%	3%
Depreciation expense	10%	10%	11%	11%	7%
Net farm income	8%	15%	9%	9%	0%
	100%	100%	100%	100%	100%

The value of all crops and livestock produced on the farm is shown in Table 5. The value of farm production declined by \$54,928 and averaged \$573,641 in 2015.

Table 5. Value of Farm Production by Size of Farm^{2/}

	Average	Total Value of Gross Sales			
		\$100,000 to \$199,999	\$200,000 to \$399,999	\$400,000 to \$799,999	\$800,000 and above
Value of livestock production	\$272,552	\$6,346	\$16,324	\$43,026	\$863,262
Less purchase for resale	138,407	1,835	5,359	13,962	448,840
Less purchased feed fed	115,475	3,779	8,996	28,811	353,774
Net value of livestock production	18,671	732	1,969	254	60,648
Value of crop production (incl feed credits)	431,461	120,377	240,484	436,018	783,750
Miscellaneous income	118,214	26,723	47,168	102,593	249,793
Crop inventory change	5,295	8,419	9,625	8,383	-3,124
Value of farm production	\$573,641	\$156,252	\$299,246	\$547,248	\$1,091,067

^{1/} Accrual net farm income = value of farm production - total cash fixed expense - total cash operating expense - depreciation

^{2/} Value of farm production = gross revenue - livestock purchase for resale - purchased feed fed

Efficiency Factors

Efficiency can be measured in many ways. Several efficiency factors are shown in Table 6 for the four farm size groups. The gross revenue per person increases with farm size, but gross revenue per dollar of expense was similar for all size groups except the largest farms (which was lower). Return on equity averaged 0.2 percent, and return on investment averaged 1.1 percent.

Table 6. Overall Efficiency Factors by Size of Farm

	Average	Total Value of Gross Sales			
		\$100,000 to \$199,999	\$200,000 to \$399,999	\$400,000 to \$799,999	\$800,000 and above
Crops					
Acres in crops	707	229	430	727	1,224
Crop value per acre	\$588	\$526	\$560	\$600	\$640
Crop acres per person	458	343	430	581	441
Machinery cost per crop acre	\$133	\$134	\$133	\$141	\$127
Machinery investment per crop acre	\$502	\$467	\$504	\$539	\$491
Livestock					
Livestock returns per \$100 feed fed	\$133	\$141	\$129	\$137	\$129
Financial					
Gross revenue per person	\$452,035	\$242,799	\$313,601	\$471,239	\$683,001
Gross revenue per \$1 expense	\$1.09	\$1.18	\$1.10	\$1.10	\$1.00
Gross revenue per \$1 assets	\$0.27	\$0.16	\$0.22	\$0.24	\$0.42
Value of farm production per \$1 assets	\$0.21	\$0.15	\$0.21	\$0.22	\$0.24
Return on assets (ROA)	1.1%	1.0%	0.9%	1.8%	0.6%
Return on equity (ROE)	0.2%	0.7%	0.0%	1.2%	-0.9%
Operating profit margin ratio (as % of gross revenue) ^{1/}	4.6%	6.4%	4.2%	7.3%	1.4%
Operating profit margin ratio (as % of value of farm production)	5.2%	6.6%	4.4%	7.9%	2.5%
Average interest rate on debt	4.1%	3.2%	4.3%	4.3%	4.2%

^{1/} (Accrual Net Farm Income + Interest - Unpaid labor) / Gross revenue

High-, Middle-, and Low-profit Farms

Profits vary greatly among farms. In Table 7, farms were ranked by return to management and sorted into three groups. The high third group is the one with the lowest machinery costs per acre and the highest livestock returns per \$100 feed fed, and its average return to management was \$44,598 in 2015. This group also had the lowest net worth per acre farmed across the three groups. The middle third group had the lowest number of acres in crops, and the smallest livestock sales and expenses, and its return to management averaged -\$59,722. The low third group averaged a negative return to management of \$246,076, and farms in that group had the highest number of acres in crops, the highest machinery cost per crop acre, and the highest livestock sales and expenses. However, their net worth per acre is the highest among the three groups.

High-, Middle-, and Low-profit Farms

Table 7. Comparison of High- and Low-profit Farms, Ranked by Return to Management ^{1/}

	High Third	Middle Third	Low Third	Your Farm
Farm Income				
Crop sales	\$402,453	\$360,543	\$506,307	_____
Livestock sales	170,464	91,423	705,216	_____
Other income and inventory	174,826	95,843	-8,925	_____
Accrued income	22,185	14,274	84,811	_____
Gross revenue	\$769,928	\$562,083	\$1,287,408	_____
Operating expenses	\$267,801	\$229,767	\$413,979	_____
Fixed expenses (incl. depreciation)	238,403	221,786	377,125	_____
Feed purchased	67,270	35,729	252,365	_____
Livestock purchased	57,911	36,691	325,912	_____
Total expenses	\$631,385	\$523,973	\$1,369,380	_____
Accrual Net Farm Income	\$138,543	\$38,110	-\$81,972	_____
Operator and family labor charge	\$28,765	\$28,487	\$32,885	_____
Charge for equity capital	65,180	69,345	131,219	_____
Return to Management	\$44,598	-\$59,722	-\$246,076	_____
Crops				
Acres in crops	703	620	949	_____
Crop value per acre	\$604	\$604	\$623	_____
Crop acres per person	469	501	466	_____
Machinery cost per crop acre	\$121	\$138	\$143	_____
Machinery investment per crop acre	\$415	\$539	\$572	_____
Livestock				
Livestock returns per \$100 feed fed	\$162	\$148	\$109	_____
Value of Farm Production	\$644,747	\$489,663	\$709,132	_____
Financial				
Gross revenue per person	\$513,910	\$453,892	\$632,431	_____
Gross revenue per \$1 expense	\$1.22	\$1.07	\$0.94	_____
Gross revenue per \$1 assets	0.36	0.27	0.34	_____
Value of farm production per \$1 assets	0.30	0.24	0.19	_____
Return on assets (ROA)	6.2%	1.5%	-2.1%	_____
Return on equity (ROE)	7.1%	0.6%	-3.9%	_____
Operating profit margin ratio (as % of gross revenue) ^{1/}	0.17	0.05	-0.06	_____
Operating profit margin ratio (as % of value of farm production)	0.21	0.06	-0.11	_____
Debt-to-asset ratio	0.28	0.23	0.23	_____
Net worth per acre farmed	\$2,213	\$2,566	\$3,085	_____
Allocation of Value of Gross Revenue				
Operating expense	71%	80%	96%	_____
Interest expense	3%	4%	3%	_____
Depreciation expense	8%	10%	8%	_____
Net farm income	18%	7%	-6%	_____

^{1/} Values have not been adjusted for size of business.

Crop Production

Details of crop production income and expenses per acre are summarized in Table 8. Some expenses, such as cash rent, did not occur on all farms or on all acres, but are shown as the average cost over all acres. Total economic costs include a four percent opportunity cost charge for the farm net worth capital, a depreciation charge, and a charge for operator and family labor. The numbers presented in Table 8 refer to simple, unweighted averages across all farms included in the Iowa Farm Business Association Summary Report.

Table 8. Crop Production

	All Corn	Soybeans
Total operator acres per crop*	430	356
Yield, bushels per acre	200	61
Selling price per bushel	\$3.71	\$9.53
Crop value per acre	\$743	\$584
Crop Expenses		
Seed per acre	\$114.01	\$58.12
Fertilizer and lime	149.42	29.09
Herbicide	41.88	42.60
Insecticide	6.70	8.32
Drying and storage	11.19	2.45
Machinery, fuel, repairs, machine hire	76.52	69.88
Utilities	10.15	9.15
Insurance	31.17	28.35
Hired labor	11.68	9.58
Interest	27.69	26.37
Cash rent	135.89	131.44
Property taxes and building repairs	20.14	19.09
Other crop expenses	17.26	15.23
Total cash crop expenses	\$653.71	\$449.66
Machinery depreciation	\$61.14	\$58.09
Building depreciation	14.57	13.80
Charge for equity capital	111.81	108.57
Unpaid labor value	45.85	44.27
Total economic cost per acre	\$887.08	\$674.40
Total economic cost per bushel	\$4.43	\$11.00
Total cash flow needed per acre	\$653.71	\$449.66
Total cash flow needed per bushel	\$3.26	\$7.33

*Operator's share is not available for 2015 data.

Trends

Table 9 illustrates trends in production and financial efficiency over the past 10 years. Livestock income per \$100 feed fed shows a cyclical pattern, but in 2015 it was 8 percent lower than the 10-year average. The average corn yield of 200 was the highest ever, and 15 percent higher than the 10-year average.

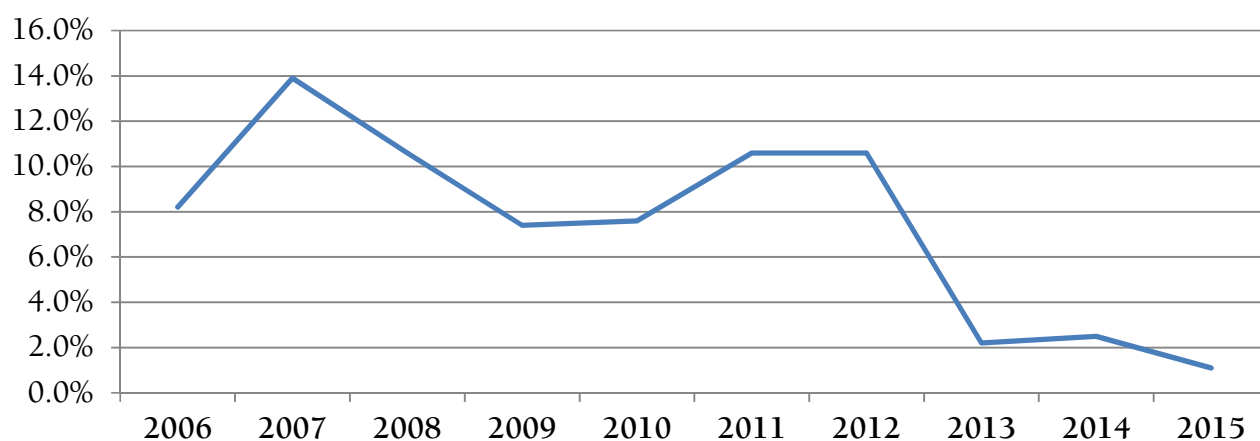
The value of farm production per dollar of expense, \$1.09 was the lowest in the 10-year period, as was the percent return to owned assets at 1.1 percent.

Table 9. Trends in Production and Financial Efficiency on Iowa Farms

Year	Livestock Income per \$100 Feed Fed	Corn Yield Bushels per Acre	Value of Farm Production per \$1 Expense	Crop Value per Acre	Percent Return to Owned Assets
2006	\$178	166	\$1.47	\$454	8.2%
2007	147	171	1.57	576	13.9%
2008	124	179	1.39	541	10.6%
2009	118	183	1.43	562	7.4%
2010	149	174	1.52	584	7.6%
2011	135	172	1.71	671	10.6%
2012 ^v	102	149	1.68	882	10.6%
2013	145	169	1.19	821	2.2%
2014	223	184	1.20	667	2.5%
2015	133	200	1.09	588	1.1%
10-year average	\$145	175	\$1.42	\$634	7.5%

^v Revised using weights from the 2012 Census of Agriculture.

Percent Return to Owned Assets



... and justice for all

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