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# Managing low to negative crop margins

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## Managing low to negative crop margins

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### Profitability of crop production in Iowa

Profitability, measured as net farm income per acre, peaked in 2011 and has declined every year since. Substantial crop insurance indemnity payments kept profitability above zero for the typical Iowa farm up until 2013. Despite record high yields in 2014 and 2015, lower crop prices and sticky costs of production resulted in negative margins for some producers in 2014, and are likely to result in negative margins for many producers in 2015. Farming on rented land and not fully owned land is the most likely to suffer from negative margins.

#### *Corn margins*

Crop revenue from corn peaked at \$1,066 per acre in 2011, and due to low yields in 2012 and low prices afterwards, it declined every year to about \$659 in 2014 (Table 1). Record high yields and stable prices in 2015 are expected to move revenue slightly higher to \$695.

Total cost of production (land and non-land costs), peaked in 2013 at \$786 per acre, two years after the peak in crop revenue, and declined slightly afterwards to levels still above its level in 2011. As a result, net farm income from corn on rented land declined continuously, becoming negative in 2014 even after the crop insurance indemnity payments. Without the indemnity payments, net farm income from corn on rented land would have been negative since 2013.

Although net farm income remains positive for the average corn farmer who fully owns the land, the return to owned land, own labor and management per acre in 2015 is projected at \$196, or about one-third of its level in 2011. If all the net farm income from corn were used to pay for family living expenses, it would take 204 acres of corn production to afford \$40,000 in living expenses.

An intermediate case between the fully owned land and the rented is also relevant for Iowa farmers. Suppose that the operator has already paid 50% of the farmland, and his/her annual loan interest payment amounts to \$150 per acre. In that case, the net farm income from corn production is projected at \$46 per acre in 2015. It would take 862 half-owned acres to pay for \$40,000 in living expenses.

**Table 1.** Profitability of corn production under alternative land tenures (Iowa state average)

Variable	2010	2011	2012	2013	2014	2015f
a. State yield, bu/acre	165	172	137	164	178	183
b. Iowa farm price, \$/bu	5.23	6.2	6.92	4.49	3.7	3.8
c. Crop revenue per acre (a x b)	863	1066	948	736	659	695
d. Average crop insurance indemnity, \$/acre	21	12	123	132	83	n/a
e. Income from corn (c+d)	884	1078	1071	868	742	695
f. Average state cash rent, \$/acre	184	214	252	270	260	246
g. Average non-land cost of production, \$/acre	422	491	517	513	495	499
h. Total cost of production, \$/acre (f+g)	606	705	769	783	755	745
i. Net farm income on rented land, \$/acre (e-h)	278	373	302	85	-13	-50
j. Net farm income on rented land without crop insurance payments (i-d)	257	361	179	-47	-96	-50
1.a. Return to fully owned land, own labor and management, \$/acre (e-g)	462	587	554	355	247	196
1.b. Return to fully owned land, own labor and management without crop insurance payments, \$/acre (1.a.-d)	441	575	431	223	164	196
2.a. Annual interests on real estate loan, \$/acre	150	150	150	150	150	150
2.b. Return to own labor and management on half-owned land, \$/acre (1.a.-2.a.)	312	437	404	205	97	46
2.c. Return to own labor and management on half-owned land without Crop Insurance Payment (2.b.-d)	291	425	281	73	14	46

## Soybean margins

Net farm income from soybeans on rented land also peaked in 2011 at \$188 per acre, and it is projected to turn negative in 2015 (Table 2). However, without crop insurance indemnities, losses would have already been incurred in 2014.

The profitability of soybean production in fully owned land followed the same overall pattern as the net farm income on rented land, but it remains positive, with a projected \$210 per acre in 2015. A producer would need to own and have in soybean production 191 acres to afford \$40,000 in living expenses in 2015 if all the net farm income were used to pay only for the living expenses. That acreage would increase to 667 acres if the farmer had debt on the farmland and made annual interest payments for \$150 per acre.

**Table 2.** Profitability of soybean production under alternative land tenures (Iowa state average)

Variable	2010	2011	2012	2013	2014	2015f
a. State yield, bu/acre	51	51.5	45	45.5	51.5	53
b. Iowa farm price, \$/bu	11.2	12.6	14.4	13.1	9.96	9.15
c. Crop revenue per acre (a x b)	571	649	648	596	513	485
d. Average crop insurance indemnity, \$/acre	7	11	27	25	26	n/a
e. Income from soybeans (c+d)	578	660	675	621	539	485
f. Average state cash rent, \$/acre	184	214	252	270	260	246
g. Average non-land cost of production, \$/acre	239	258	288	272	270	275
h. Total cost of production, \$/acre (f+g)	423	472	540	542	530	521
i. Net farm income on rented land, \$/acre (e-h)	155	188	135	79	9	-36
j. Net farm income on rented land without crop insurance payments (i-d)	148	177	108	54	-17	-36
1.a. Return to fully owned land, own labor and management, \$/acre (e-g)	339	402	387	349	269	210
1.b. Return to fully owned land, own labor and management without crop insurance payments, \$/acre (1.a.-d)	332	391	360	324	243	210
2.a. Annual interests on real estate loan, \$/acre	150	150	150	150	150	150
2.b. Return to own labor and management on half-owned land, \$/acre (1.a.-2.a.)	189	252	237	199	119	60
2.c. Return to own labor and management on half-owned land without Crop Insurance Payment (2.b.-d)	182	241	210	174	93	60

## Strategies to cope with low margins

The major concern facing next year and the following couple of years is cash flowing the operation. Liquidity must be made a top priority for the next 2 to three years. Solvency might suffer due to declining land and machinery values, but most operations are solvent going into 2016. The following list of strategies is designed to help the reader think about what can be done in his/her operation to improve working capital without pushing margins even lower.

- Protect your working capital: Revise recent asset purchases; take advantage of low interest rates refinancing with long term loans; analyze the profitability of all your land, but specially your rented land. The goal should be to reach a ratio of working capital (current assets – current liabilities) to gross revenue of at least 40%.
- Manage your cash: Plan for operating losses; plan for higher tax burden; secure operating loan/emergency loan terms; be very careful with new capital expenditures; maintain cash reserves and operating credit lines.
- Secure your repayment capacity: Short repayment schedules reduce cash flow vs. long repayment schedules. Try to extend repayment schedules on equipment & land loans (low interest rates). Work a plan with your lender(s) for 2015-2017.
- Control costs: Revise production costs, and evaluate whether land rents should be renegotiated. Consult Agronomist to evaluate cutting cost without cutting yields (use soil tests, skip fall tillage,

other measures?). Seek volume discounts in seeds, chemicals, etc. Revise family living expenditures (vacation plans, house remodeling plans, truck purchase, etc.) Based on the calculations above, it takes about 200 fully-owned acres to pay for \$40,000 in living expenses.

- Enhance productivity: Improve timeliness and careful use of inputs; revise production plans, especially in rented land. Visit with an Agronomist to update your production skills.
- Actively Manage Risks: Know your break-even prices; design a marketing plan with price and date targets and stick to it; lock-in margins whenever possible; revise crop insurance contracts (yield exclusion with lower coverage might provide the same liability coverage per acre for a lower producer premium); revise the use of forward contracting plus crop insurance to finance inputs.
- Know your ARC/PLC Payments: Farm Bill payments are issued in October, following the end of the marketing year: 2014 payments were issued in October 2015, and 2015 payments will be issued in October 2016. 2014 ARC-CO payments vary widely across counties and programs (Table 3). If you receive ARC-CO payments use them to cash flow your operations in 2015. Expect lower ARC-CO payments for 2016. PLC payments are null in 2014 and are projected null in 2015.
- Diversify your income: Add or don't lose non-farm income; consider alternative sources of revenue with your assets, such as custom work, snow removal, truck driving in fall & winter.
- Revise your growth strategy: Depending on your growth stage: try to offload unproductive assets, and slow down growth if you are on the expansionary path. Beginning farmers: wait to buy land. Exiting farmers: downsize and plan for transition.

**Table 3.** 2014 ARC-CO payments

County Name	ARC-CO Payments in 2014/15		ARC-CO Payments as % of crop revenue	
	corn	soybeans	corn	soybeans
Adair	\$ 46.01	\$ -	8%	0%
Adams	\$ 41.57	\$ -	7%	0%
Allamakee	\$ 75.09	\$ 22.18	14%	4%
Appanoose	\$ -	\$ -	0%	0%
Audubon	\$ 62.11	\$ -	9%	0%
Benton	\$ 64.18	\$ 1.57	9%	0%
Black Hawk	\$ 75.99	\$ 8.15	13%	2%
Boone	\$ 74.64	\$ -	11%	0%
Bremer	\$ 80.49	\$ 32.95	14%	7%
Buchanan	\$ 75.99	\$ 4.71	12%	1%
Buena Vista	\$ 77.34	\$ 8.15	12%	2%
Butler	\$ 81.39	\$ 48.41	13%	10%
Calhoun	\$ 20.67	\$ -	3%	0%
Carroll	\$ 50.79	\$ -	7%	0%
Cass	\$ 72.84	\$ -	11%	0%
Cedar	\$ 79.14	\$ 2.73	12%	0%
Cerro Gordo	\$ 75.09	\$ -	12%	0%
Cherokee	\$ 81.39	\$ 0.63	12%	0%
Chickasaw	\$ 76.89	\$ 28.75	14%	6%
Clarke	\$ -	\$ -	0%	0%
Clay	\$ 79.59	\$ 38.11	13%	8%
Clayton	\$ 78.24	\$ 51.19	12%	10%
Clinton	\$ 79.59	\$ -	11%	0%
Crawford	\$ 78.24	\$ -	12%	0%
Dallas	\$ -	\$ -	0%	0%
Davis	\$ -	\$ -	0%	0%
Decatur	\$ -	\$ 7.26	0%	2%
Delaware	\$ 78.69	\$ 46.99	13%	9%
Des Moines	\$ -	\$ -	0%	0%
Dickinson	\$ 75.99	\$ 50.06	13%	11%
Dubuque	\$ 80.04	\$ 7.88	13%	1%
Emmet	\$ 77.34	\$ 50.06	13%	12%
Fayette	\$ 74.19	\$ 21.79	12%	4%
Floyd	\$ 77.79	\$ 28.28	13%	6%
Franklin	\$ 77.34	\$ 22.74	13%	5%
Fremont	\$ -	\$ -	0%	0%
Greene	\$ 69.16	\$ -	11%	0%
Grundy	\$ 79.59	\$ 28.48	12%	5%
Guthrie	\$ 33.30	\$ -	5%	0%

County Name	ARC-CO Payments in 2014/15		ARC-CO Payments as % of crop revenue	
	corn	soybeans	corn	soybeans
Hamilton	\$ 71.49	\$ 15.11	11%	3%
Hancock	\$ 78.69	\$ 19.31	13%	4%
Hardin	\$ 75.99	\$ 44.97	13%	9%
Harrison	\$ 75.54	\$ -	13%	0%
Henry	\$ -	\$ -	0%	0%
Howard	\$ 75.99	\$ 0.90	13%	0%
Humboldt	\$ 74.19	\$ 11.67	12%	2%
Ida	\$ 81.84	\$ -	12%	0%
Iowa	\$ 47.33	\$ 7.97	7%	1%
Jackson	\$ 61.92	\$ -	9%	0%
Jasper	\$ 20.76	\$ -	3%	0%
Jefferson	\$ -	\$ -	0%	0%
Johnson	\$ 73.40	\$ 8.53	11%	2%
Jones	\$ 76.89	\$ 13.12	12%	2%
Keokuk	\$ -	\$ -	0%	0%
Kossuth	\$ 79.59	\$ 40.30	12%	9%
Lee	\$ -	\$ -	0%	0%
Linn	\$ 77.34	\$ 8.06	12%	2%
Louisa	\$ 14.10	\$ -	2%	0%
Lucas	\$ -	\$ -	0%	0%
Lyon	\$ 83.63	\$ 20.76	15%	4%
Madison	\$ -	\$ 0.60	0%	0%
Mahaska	\$ -	\$ 19.69	0%	4%
Marion	\$ 24.34	\$ 16.82	4%	4%
Marshall	\$ 70.12	\$ 18.56	10%	3%
Mills	\$ 42.15	\$ -	6%	0%
Mitchell	\$ 77.34	\$ -	12%	0%
Monona	\$ 74.64	\$ 35.15	13%	7%
Monroe	\$ -	\$ -	0%	0%
Montgomery	\$ 69.25	\$ -	12%	0%
Muscatine	\$ 36.30	\$ -	5%	0%
O'Brien	\$ 84.53	\$ 3.59	13%	1%
Osceola	\$ 82.74	\$ -	14%	0%
Page	\$ -	\$ -	0%	0%
Palo Alto	\$ 77.79	\$ 50.60	13%	11%
Plymouth	\$ 79.59	\$ -	12%	0%
Pocahontas	\$ 77.79	\$ 9.48	12%	2%
Polk	\$ 19.29	\$ 11.58	3%	2%
East Pottawattamie	\$ 75.99	\$ 17.03	13%	3%
West Pottawattamie	\$ 75.99	\$ 17.03	13%	3%

County Name	ARC-CO Payments in 2014/15		ARC-CO Payments as % of crop revenue	
	corn	soybeans	corn	soybeans
Poweshiek	\$ 41.80	\$ 37.54	6%	7%
Ringgold	\$ -	\$ -	0%	0%
Sac	\$ 75.54	\$ -	12%	0%
Scott	\$ 35.38	\$ -	5%	0%
Shelby	\$ 78.69	\$ -	12%	0%
Sioux	\$ 81.84	\$ -	14%	0%
Story	\$ 72.39	\$ 35.15	12%	7%
Tama	\$ 74.64	\$ 25.91	11%	5%
Taylor	\$ -	\$ -	0%	0%
Union	\$ -	\$ -	0%	0%
Van Buren	\$ -	\$ -	0%	0%
Wapello	\$ -	\$ -	0%	0%
Warren	\$ -	\$ 7.85	0%	2%
Washington	\$ -	\$ -	0%	0%
Wayne	\$ -	\$ -	0%	0%
Webster	\$ 43.56	\$ -	6%	0%
Winnebago	\$ 77.79	\$ 20.17	12%	4%
Winneshiek	\$ 77.79	\$ -	13%	0%
Woodbury	\$ 73.74	\$ -	12%	0%
Worth	\$ 75.54	\$ -	12%	0%
Wright	\$ 75.09	\$ 45.15	12%	10%