Ag Decision Maker

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What's in your crop marketing plan?

By Steve Johnson, extension farm management specialist, 515-957-5790, sdjohns@iastate.edu

Each year since the 2014 growing season, both corn and soybean futures prices peaked somewhere between early April and mid-July. Farmers were able to pre-harvest market a portion of their new corn and soybean crops annually at prices that proved to be much higher than those received at harvest. Those farmers then delivered priced bushels at or shortly after harvest and avoided additional storage and interest charges and generated necessary cash flow.

Most years, corn futures prices tend to rally in the early spring months and peak by early summer. This reflects the period of the greatest uncertainty of production in the northern hemisphere. Soybean futures prices tend to move higher in both the late fall and winter months when southern hemisphere production is threatened. Then soybean prices typically rally again in the spring through the early summer months, similar to corn.

So come late July through harvest, the highest seasonal prices for both crops have occurred. Futures prices then tend to sell off as risk premium is removed with the confirmation of large northern hemisphere crops.

So why don't most farmers take advantage of these seasonal price trends? The causes can vary but tend to be a combination of procrastination, fear of being wrong and the lack of a crop marketing plan with the discipline to implement that plan.

Need for a written crop marketing plan

Farmers who have a written marketing plan develop a purpose and accountability to market that grain ahead and align their cash flow needs. Storage and interest charges are not free and many farms are challenged by their ability to find profitable margins. In addition, holding multiple years of corn or soybean crops in storage increase ownership costs and perhaps increases the risk of grain quality. These factors can lead to the erosion of valuable working capital.

The biggest challenge might be setting objectives and planning ahead. Start by considering your

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Handbook updates

For those of you subscribing to the handbook, the following updates are included.

Improving Your Farm Lease Contract – C2-01 (10 pages)

Computing a Cropland Cash Rental Rate – C2-20 (4 pages)

Flexible Farm Lease Agreements – C2-21 (4 pages)

Please add these files to your handbook and remove the out-of-date material.

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Inside . . .

IOWA STATE UNIVERSITY
Extension and Outreach

Ag Decision Maker is compiled by extension ag economists
Ann Johanns, aholste@iastate.edu
extension program specialist

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cash flow needs for the fall and winter months. A crop marketing plan should include these five items.

1. Your cost of production and breakeven prices
2. Both futures and cash price objectives, recognizing local basis patterns
3. Revenue protection crop insurance
4. Crop strategies and tools to be used
5. Percent of expected new crop production to be priced at various price and time objectives; whichever occurs first.

Put the plan in writing with objectives in place going into the spring months. Your price objectives should reflect the futures price when above the projected prices used for revenue protection crop insurance. Those prices were determined in the month of February 2018 and were $3.96 per bushel for corn and $10.16 per bushel for soybeans, respectively.

Utilize a variety of marketing tools

Farmers should use a variety of marketing tools to spread their risks and attempt to time sales in the spring months to capture futures when prices are high and/or basis when it narrows. These events tend not to occur at the same time. Consider the use of HTA (hedge-to-arrive) contracts using November soybeans and December corn futures contracts. Separate bushels that you are committing to delivery versus those that simply have the futures prices protected. The combination of low futures prices and wide basis, especially at harvest, has created the need for more aggressive pre-harvest marketing strategies.

Learn more about developing your crop marketing plan on the **Iowa Commodity Challenge** web page on Ag Decision Maker (www.extension.iastate.edu/agdm/info/icc.html). You'll find 15 short videos, a 65-page marketing tools workbook and a variety of weekly tracking tables and charts.



Returns to farmland ownership in Iowa

By William Edwards, retired economist; Don Hofstrand, retired extension value added agriculture specialist; Ann Johanns, extension program specialist, agdm@iastate.edu

Much discussion occurs around the purchase of farmland as an investment. To analyze returns to farmland, the annual returns can be considered in two forms: cash returns through rents and change in market value. Total return is the sum of these two. The analysis that follows does not take into consideration any land ownership costs or returns from farm production. The source of data for cash rents and land values is the **USDA National Agricultural Statistics Service (NASS)** data series for whole farm rents and value (www.nass.usda.gov/Statistics_by_State/Iowa/index.php), not data from ISU Extension and Outreach, which refers to rental rates for corn or soybean land only.

Cash returns

Cash rental rates are used as estimates of the cash returns to farmland. The rate of cash return (percent) each year is computed by dividing the cash rental rate by the market value of land in the same year.

Cash rental rates are a gross return, not a net return, because property taxes and other ownership expenses have not been deducted. These will probably reduce the total return by one to two percentage points. Also, cash returns have not been adjusted for inflation over this period.

Increase (decrease) in value

Another form of return is the annual increase or decrease in the market value of farmland. This increase or decrease is computed as a percentage change in value from one year to the next.

Both the estimated cash rental rate and the land value are based on USDA surveys. They differ slightly from Iowa State University surveys.

Results over the entire period

Cash returns - As shown in Table 1 and Figure 1, the rate of gross cash return has been up and down since 1970. The return was only 2.8 percent in 2017, with

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land values not declining in value at the same rate rental rates have in recent years. Current land values are 5.9 percent down from the peak seen in 2014, and rental values have declined slightly more at 9.1 percent. Conversely, the rate of cash rent as a percent of the land value was 9.6 percent in 1987 because land values declined faster than rental rates during the crisis of the 1980s. The average over the period from 1970 to 2017 was 6.3 percent.

Table 1. Returns to farmland ownership in Iowa per year (per acre)

	Year	Whole farm cash rent	Market land value	Cash rent as percent of land value	Percentage change in land value	Total percentage return
Current Period	2017	227	$8,000	2.8%	1.9%	4.8%
	2016	229	7,850	2.9%	-1.9%	1.0%
	2015	242	8,000	3.0%	-5.9%	-2.9%
	2014	250	8,500	2.9%	10.4%	13.3%
	2013	242	7,700	3.1%	17.9%	21.1%
	2012	222	6,530	3.4%	20.7%	24.1%
	2011	187	5,410	3.5%	24.4%	27.8%
Ethanol Boom	2010	170	4,350	3.9%	15.1%	19.0%
	2009	163	3,780	4.3%	-4.3%	0.0%
	2008	152	3,950	3.8%	17.2%	21.1%
	2007	136	3,370	4.0%	15.8%	19.8%
	2006	122	2,910	4.2%	10.2%	14.4%
	2005	124	2,640	4.7%	20.0%	24.7%
	2004	119	2,200	5.4%	9.5%	14.9%
Recovery	2003	114	2,010	5.7%	4.7%	10.4%
	2002	112	1,920	5.8%	3.8%	9.6%
	2001	108	1,850	5.8%	2.8%	8.6%
	2000	105	1,800	5.8%	2.3%	8.1%
	1999	103	1,760	5.8%	3.5%	9.4%
	1998	109	1,700	6.4%	6.3%	12.7%
	1997	106	1,600	6.6%	10.3%	17.0%
	1996	107	1,450	7.4%	7.4%	14.8%
	1995	102	1,350	7.6%	5.5%	13.0%
	1994	100	1,280	7.8%	5.6%	13.4%
	1993	102	1,212	8.4%	5.1%	13.5%
	1992	101	1,153	8.8%	1.2%	10.0%
	1991	97	1,139	8.5%	4.5%	13.0%
	1990	96	1,090	8.8%	-0.5%	8.4%
	1989	91	1,095	8.3%	15.6%	24.0%
	1988	82	947	8.7%	20.5%	29.2%
Farm Crisis	1987	76	786	9.6%	-10.0%	-0.3%
	1986	83	873	9.5%	-20.0%	-10.5%
	1985	98	1,091	9.0%	-28.1%	-19.1%
	1984	109	1,518	7.2%	-9.9%	-2.7%
	1983	106	1,684	6.3%	-10.9%	-4.6%
	1982	106	1,889	5.6%	-5.5%	0.1%
Farm Boom	1981	102	1,999	5.1%	8.6%	13.7%
	1980	96	1,840	5.2%	18.7%	23.9%
	1979	89	1,550	5.7%	16.5%	22.2%
	1978	82	1,331	6.2%	5.7%	11.9%
	1977	79	1,259	6.3%	36.8%	43.1%
	1976	69	920	7.5%	28.0%	35.5%
	1975	60	719	8.3%	20.4%	28.8%
	1974	53	597	8.9%	28.1%	37.0%
	1973	39	466	8.4%	12.6%	20.9%
	1972	35	414	8.5%	5.6%	14.1%
	1971	34	392	8.7%	0.0%	8.7%
	1970	33	392	8.4%	2.6%	11.0%

Source: USDA National Agricultural Statistics Service.
Beginning in 1995, cash rental rates are averages of cropland and pasture rents.

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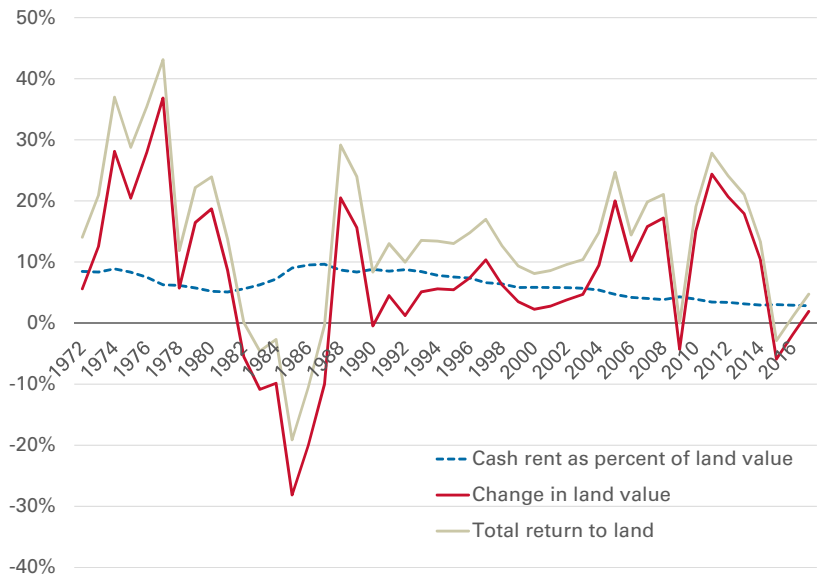
Returns to farmland ownership in Iowa, continued from page 3

Land value change - The return due to changes in land values was much more volatile, ranging from a high of 36.8 percent in 1977 to a low of negative 28.1 percent in 1985. Over the entire period, land values increased by an average of 7.3 percent per year.

Total returns - The total return (annual cash return plus change in land value) averaged 13.6 percent per year and ranged from a low of a negative 19.1 percent in 1985 to a high of 43.1 percent in 1977. Figure 1 shows the volatility of the average returns from owning Iowa farmland since 1970.

Figure 1. Returns to farmland ownership in Iowa



Source: Authors' calculations based on USDA NASS data

Results by financial period

Rates of return have varied greatly during specific time periods over the past forty-seven years. The rates of return for five specific time periods is shown in Table 2, this includes: the farm boom period, farm crisis period, recovery period, ethanol boom, and the current period are shown in Table 2.

Farm boom period - During the farmland boom period of 1970 through 1981, land values increased rapidly (15.3 percent on average) providing a total return of 22.6 percent. It should be noted that cash rental rates and land values for the decade before 1970 were very stable. Farmland values and rental rates started their rapid rise in 1973/74 when grain shortages pushed prices to extremely high levels.

Farm crisis period - During the farm financial crisis years of 1982 through 1987, land values declined rapidly – an average of 14 percent per year. Cash returns as a percent of land values actually increased during this period because land values dropped faster than rental rates. However, the land value declines more than offset cash returns and the average total return was a negative 6.2 percent.

Recovery period - From 1988 to 2003 land values and rental rates resumed their upward trend, although at a slower rate than during the boom period. The average rate of return during this period has been similar to the average rate of return over the entire period.

Ethanol boom period - From the beginning of the ethanol boom period of 2004 to 2010, farmland values and rental rates increased rapidly. Farmland

Table 2. Returns to farmland ownership in Iowa by time period

Time period	Cash rent as percent of value	Percentage change in land value	Total percentage return
Boom period -- 1970-1981	7.3%	15.3%	22.6%
Farm crisis -- 1982-1987	7.9%	-14.0%	-6.2%
Recovery period -- 1988-2003	7.3%	6.2%	13.4%
Ethanol boom -- 2004-2010	4.3%	11.9%	16.3%
Current period -- 2011-2017	3.1%	9.6%	12.7%
Entire period -- 1970-2017	6.3%	7.3%	13.6%

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Returns to farmland ownership in Iowa, continued from page 4

values increased an average of 11.9 per year over this period. Because land values increased faster than rental rates, cash rent as a percent of land value dropped to an average of 4.3 percent. Total return averaged 16.3 percent.

Current period - From 2011 to 2017, land values and rental rates have stabilized somewhat compared to previous periods. The current period includes a "mini boom" in 2011-2013, and mild declines since then, at least as far as land values and rents. Cash rent as a percent of value is the lowest it has been over the entire time frame, averaging 3.1 percent in the past seven years. Land values have maintained an upward trend, with an increase of 9.6 percent, but did see an average decline of 1.9 percent in the three most recent years when record yields have also been realized. Total return for this time period was 12.7 percent.

Entire period - From 1970 to the present time, farmland has returned an average of 13.6 percent, of which land value increases accounted for 7.3 percent of the increase, and rent as a percent of land value accounted for the remaining 6.3 percent.

Results by farmland purchase date

Rates of return on farmland investments vary greatly depending on when farmland is purchased. In Table 3, farmland is assumed to be purchased at five different time-periods; the beginning of the boom period (1970), the end of the boom period (1981), the end of the crisis period (1987), the beginning of the ethanol boom (2004), and the beginning of the current period (2011). The rates of return for each of these five investment periods are shown in Table 3.

Beginning of boom period (1970) - A typical Iowa farmland purchase in 1970 would have been $392 per acre. The value of the farmland 47 years later in 2017 was $8,000, for an increase of 1,941 percent or 41 percent per year. The average gross cash return over the period was 30 percent. This was computed by dividing the cash rental rate for each year by the 1970 original purchase price of $392. The return ranged from eight percent in the year of purchase in 1970 to a high of 64 percent in 2014.

End of boom period (1981) - The average farmland purchase in 1981 would have been for $1,999 per acre. The value 36 years later in 2017 was four times the 1981 value, for an average increase of eight percent per year. The average gross cash return over the period was seven percent. The gross cash return was 12.5 percent in 2014 when cash rents were $250 per acre.

End of the crisis period (1987) - In 1987, the average Iowa farmland value was $786 per acre. The value in 2017, 30 years later, was $8,000 for an increase of 918 percent or 31 percent per year. The average gross cash return over the period was 18 percent. The gross cash return in 2017 was 29 percent.

Beginning of ethanol boom period (2004) - The rapid expansion of the corn ethanol industry beginning around 2004 pushed both land values and rental rates upward. The average value of a farmland purchase in 2004 would have been $2,200. The value in 2017, thirteen years later was $8,000 for an increase of 264 percent or 20 percent per year. The average gross cash return over the period was eight percent.

Table 3. Returns to farmland ownership in Iowa by purchase date

Ownership period	Purchase price	2017 Price	Percent increase in price	Average annual rent as percent of purchase price*
Beginning of boom period to present (1970 - 2017)	$392	$8,000	1,941%	30%
End of boom period to present (1981 - 2017)	1,999	8,000	300%	7%
End of crisis period to present (1987- 2017)	786	8,000	918%	18%
Beginning of ethanol boom to present (2004 - 2017)	2,200	8,000	264%	8%
Current period (2011-2017)	5,410	8,000	84%	4%

** The cash return per year is computed by dividing the cash rental rate for each year during the time period by the farmland purchase price. An average cash return is then computed for the time period.*

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Returns to farmland ownership in Iowa, continued from page 5

Current period (2011) - In 2011, the average acre of Iowa farmland was valued at $5,410 per acre. The value six years later, is an increase of 84 percent, or 14 percent per year. Average gross cash returns over the period were lower than other time frames at four percent.

Summary

Over the years, farmland investments have yielded a very competitive rate of return. However, more than half of the return comes from appreciation in land value, which can be highly unpredictable. Moreover, it does not provide any cash for making mortgage payments or paying other ownership costs.

Note: This article is an update of a previous version, which appeared in the May 2010 Ag Decision Maker Newsletter.

Updates, continued from page 1

Internet Updates

The following Information File and Decision Tools have been updated on www.extension.iastate.edu/agdm.

Cropland Cash Rental Rate Estimation – C2-20 (Decision Tool)

Flexible Lease Agreement Worksheet – C2-21 (Decision Tool)

Crop Share Lease Analysis – C2-30 (Decision Tool)

Are You Transferring Management? – C4-77 (3 Pages)

Current Profitability

The following tools have been updated on www.extension.iastate.edu/agdm/info/outlook.html.

Corn Profitability – A1-85 (Decision Tool)
Soybean Profitability – A1-86 (Decision Tool)
Iowa Cash Corn and Soybean Prices – A2-11
Season Average Price Calculator – A2-15
Ethanol Profitability – D1-10
Biodiesel Profitability – D1-15