



CAN PRODUCERS SURVIVE INCREASING FERTILIZER AND FUEL PRICES?

Over the past couple of years, producer comments about increasing fuel and fertilizer prices have become progressively more common. Just what is the effect of increasing input prices on the potential profitability of farms? Of course, they will cut into the profit potential, but will they take all of the profits out of crop production?

Table 1, on the following page, looks at the effects of increasing fuel and fertilizer costs on Northeast Kansas dryland corn production. The table is based on a spreadsheet developed by North Central KFMA Economists Dave Rempe, Matt Thielen and Aaron Gasper, which was used in North Central Summary Meetings to demonstrate the impact of increasing input prices.

The premise is simple. Variable costs are condensed into three categories—fuel, fertilizer and other variable costs. The base costs in the first column are from the 2007 Northeast Kansas Summary Book for dryland corn. The income categories are yield, price, operator percent and a final category for government payments, crop insurance and other income. The yield used is the 2002 – 2006 average for

Northeast Kansas of 111 bushels per acre. The government payments and other income were taken from the 2007 summary data to reflect the lower government payments received due to the higher prices.

The tough income decision was what price to use, since it is no secret that current prices are relatively high and volatile. In a bid to be somewhat conservative, I decided to use the average price received by KFMA NE members from the 2007 summary book, which was \$3.87 per bushel. This price is higher than has been received over the past several years, but lower than prices that have been received since the beginning of 2008.

On the expense side, the per acre fuel and fertilizer price have been increased in percentage increments. Two increases in fuel price were used in this example, 25% and 35%. Per acre fertilizer prices were raised by 25%, 50%, 75% and 100%. All eight possible combinations of increases were used in this example. Of course other input prices such as seed and crop insurance have risen, but these have been left constant in this example for the sake of simplicity.

As you can see, each of the scenarios in the table show a per-acre return above variable costs at the assumed price and yield. The lowest return, of course is when fuel is raised by 35% and fertilizer price is doubled. However, this still leaves a return above variable costs of \$59.19, which is higher than the 2002 – 2006 per acre of return of \$50.63 for the Northeast Kansas dryland corn enterprise.

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It is interesting to note that the breakeven yields range from 79 to 83 bushels per acre at the assumed price, while the highest breakeven price is \$3.24 per bushel at the assumed yield of 111 bushels per acre.

This example illustrates that at current price levels, corn production is still profitable even

with higher input costs. It also illustrates that producing bushels is critical to being profitable, especially as rising input costs increase the downside risk of a below average per-acre crop yield.

*Clay Simons, Agricultural Economist
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Table 1. Projected Corn Per Acre Profitability with Variable Fertilizer and Fuel Costs Per Acre

	2007 Summary	Percentage Increase							
		25% Fuel 25% Fert	25% Fuel 50% Fert	25% Fuel 75% Fert	25% Fuel 100% Fert	35% Fuel 25% Fert	35% Fuel 50% Fert	35% Fuel 75% Fert	35% Fuel 100% Fert
Income									
Price	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87
Yield	111	111	111	111	111	111	111	111	111
Operator %	84.37%	84.37%	84.37%	84.37%	84.37%	84.37%	84.37%	84.37%	84.37%
Crop Income	362.43	362.43	362.43	362.43	362.43	362.43	362.43	362.43	362.43
FSA Pmts, Crop Ins, etc.	22.17	22.17	22.17	22.17	22.17	22.17	22.17	22.17	22.17
Gross Income	384.60	384.60	384.60	384.60	384.60	384.60	384.60	384.60	384.60
Expense									
Fuel	20.12	25.15	25.15	25.15	25.15	27.16	27.16	27.16	27.16
Fertilizer	57.77	72.21	86.66	101.10	115.54	72.21	86.66	101.10	115.54
Other Variable Costs	182.71	182.71	182.71	182.71	182.71	182.71	182.71	182.71	182.71
Total Variable Costs	260.60	280.07	294.52	308.96	323.40	282.08	296.53	310.97	325.41
Return Over Variable Cost	124.00	104.53	90.08	75.64	61.20	102.51	88.07	73.63	59.19
Breakeven Price	2.55	2.75	2.91	3.06	3.22	2.78	2.93	3.08	3.24
Breakeven Bushels	73	79	83	88	92	80	84	88	93

KNOWING COST OF PRODUCTION— AN IMPORTANT TOOL FOR PRODUCERS

One of the common producer questions asked throughout the year actually comes in the following statement, “I need to do a better job of marketing.” Wrapped up in that one simple statement are many questions, which include, “Should I use futures or options?” “Should I forward contract?” “How should my cash sales be timed?”

These questions definitely take on more importance during these times of volatile prices and uncertainty. And just what marketing strategy should a producer use? There is no magic bullet, and the decision on marketing farm products is actually highly dependent upon the risk tolerance of the producer. However, it really doesn't matter what strategy is used—be

it a sophisticated options strategy, selling a portion of a crop before harvest, or just making cash sales three or four times per year—if one important piece of information is not known. And that piece of information is cost of production. It is impossible to decide what price level is profitable for a commodity if the cost of production is unknown.

Backgrounders and cattle feeders have been calculating breakevens on cattle for as long as resale cattle have been fed. However, it is less common for crop producers to calculate per unit cost of crop production. So how should producers go about calculating cost of production?

First, variable costs should be considered, because they are the costs that can be controlled in the near term. Fixed costs, such as the cost of owning land, and machinery, are slow to change over time, and are sometimes not used to calculate breakevens for crop production. But, Kansas Farm Management Association members have access to a calculated management depreciation value that is reported on a per crop acre basis. Because of this, it is possible to allocate the machinery cost per acre to a specific crop enterprise.

So what should go into this calculation? The big items can be taken care of first. Seed, fertilizer and chemical costs for a crop can be easily segregated, since they are applied directly on the acres planted to a crop. Crop insurance costs are also tied to a specific acreage and crop, as are cash rents.

Hired labor and operator labor can also be tracked and charged to specific crop acreage. Fuel can be a little more difficult to segregate on a per crop basis, but by keeping a record of the machine hours used and allocating the fuel based on the percentage of tractor time spent on a crop, a reasonable fuel cost can be approximated. Labor and fuel costs can also be

divided based on a percentage of crop acreage if another method is not available.

More difficult to allocate to a specific crop enterprise are expenses such as repairs, interest, utilities, taxes and miscellaneous expenses such as dues, fees and travel. Sometimes one just has to make some assumptions regarding the percentage of these expenses to be allocated to a crop budget. While it is easy to agonize over how to divide these expenses, the experience of the producer is the key to deciding. After all, who has a better feel for the percentage of resources used in a certain crop enterprise? A producer can also use the experience of their economist, recent Farm Management Association Summary Books and K-State Research and Extension's Cost – Return budgets as guides in allocating the expenses that are hard to divide. An example of per acre cost of production is provided in Table 2.

Finally, once the expense side is taken care of, producers might want to project the income side of a crop enterprise. Typically, long term

Table 2. Example per acre cost of production--NE Kansas
Dryland Corn, 2007

EXPENSE	\$ / Acre
Labor Hired	\$ 3.69
Machinery Repairs	\$ 21.78
Interest Paid	\$ 15.77
Seed/Other Crop Expense	\$ 39.15
Crop Insurance	\$ 16.56
Fertilizer/Lime	\$ 57.77
Machine Hire/Lease	\$ 11.75
Fees, Pub, Travel	\$ 3.60
Gas/Fuel/Oil	\$ 20.12
Crop Storage Marketing	\$ 1.33
Personal Prop Tax	\$ 1.59
General Farm Ins	\$ 5.20
Utilities	\$ 2.80
Cash Farm Rent	\$ 33.32
Herbicide/Insecticide	\$ 24.67
Conservation	\$ 1.44
Auto Expense	\$ 0.06
TOTAL EXPENSE	\$ 260.60

averages, such as a five or ten year average, should be used for predicting yields.

Prices are tougher. Studies have shown that the best predictor of price is that period's futures price, adjusted for local basis. For example, the best predictor at the present time for 2008 new crop corn would be the December 2008 CBOT futures price, adjusted for the typical local basis. Another method in times of relatively stable prices would be a long term average price received for a crop. However, since commodity prices are not stable, and substantially higher than 2006, it would be plausible to use the average price received in 2007. While these are not perfect methods of predicting price, they do

give a reasonable proxy for a crop's anticipated price.

In conclusion, before deciding the price that a crop should be sold for, producers need to have a handle on what exactly it costs to produce that crop. Calculating an estimate of cost of production can help producers accurately estimate per unit costs. Also, using past data from the member's analysis, the producer's experience, and the experience of outside experts such as the member's economist, lenders or suppliers can be helpful in making these calculations.

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MORE THAN JUST A REBATE— THE ECONOMIC STIMULUS ACT OF 2008

Are you in need of a building or structure on your farm? The Economic Stimulus Act of 2008 may give you some extra incentive to purchase these assets. The act facilitated two depreciation changes for calendar year 2008, and only 2008. The first change deals with the Section 179 accelerated depreciation deduction. The second change brings back 50% bonus depreciation for a limited time.

SECTION 179, ACCELERATED DEPRECIATION

The maximum amount that can be written-off of current year depreciable purchases in 2008 using the Section 179 deduction has been increased from \$125,000 to \$250,000. As has been the case in previous years, this only applies to depreciable assets with a 10-year life or less and does not discriminate between new or used equipment. Table 3, on the following page, lists the depreciable life for most farm assets.

If you are a major purchaser of equipment, keep in mind that the Section 179 deduction is phased out if you purchase more than \$800,000 of qualified Section 179 assets.

50% BONUS DEPRECIATION

Under the 50% bonus provision, half of a brand new purchase in 2008 can be expensed on the 2008 tax return. The remaining 50% will be depreciated over the asset's normal life. The term bonus may be a little misleading, as there is no extra depreciation available, it just allows some of the depreciation to be taken earlier than normal. Also, the taxpayer can elect not to take the bonus depreciation and instead depreciate the entire purchase price of the asset over its useful life.

There are several things associated with this change to consider when purchasing depreciable assets in 2008. These factors include asset life, age, timing, trades, and fiscal years, which are discussed below.

Asset life

Assets with up to a 20-year life are eligible for bonus depreciation. Looking at Table 3 on the following page, one can see that paved lots and farm buildings have 15- to 20-year recovery periods. These items are not eligible for Section

179 deduction, but are eligible for bonus depreciation.

If one chooses to use bonus depreciation on a particular asset, all other assets purchased in 2008 of the same recovery period and meeting the requirements of bonus depreciation, also must use 50% bonus depreciation. For example, if 50% bonus depreciation is used on a tractor purchased in 2008, all other eligible 7-year property must use 50% bonus depreciation. But

the taxpayer could still elect to exempt eligible five-year property from bonus depreciation.

Asset Age

For a depreciable asset to be eligible for bonus depreciation, original use must commence with the taxpayer (i.e., the asset must be BRAND NEW). Used machinery, equipment, or structures will not qualify for bonus depreciation.

Table 3: Farm Property Depreciation Recovery Periods

Assets	GDS
Agricultural structures (single purpose)	10
Automobiles	5
Calculators and copiers	5
Cattle (dairy or breeding)	5
Communication equipment ¹	7
Computer and peripheral equipment	5
Drainage facilities	15
Farm buildings ²	20
Farm machinery and equipment	7
Fences (agricultural)	7
Goats and sheep (breeding)	5
Grain bin	7
Hogs (breeding)	3
Horses (age when placed in service)	
Breeding and working (12 years or less)	7
Breeding and working (more than 12 years)	3
Racing horses (more than 2 years)	3
Horticultural structures (single purpose)	10
Logging machinery and equipment ³	5
Nonresidential real property	39 ⁴
Office furniture, fixtures, and equipment (not calculators, copiers, or typewriters)	7
Paved lots	15
Residential rental property	27.5
Tractor units (over-the-road)	3
Trees or vines bearing fruit or nuts	10
Truck (heavy duty, unloaded weight 13,000 lbs. or more)	5
Truck (actual weight less than 13,000 lbs)	5
Water wells	15

¹ Not including communication equipment listed in other classes.
² Not including single purpose agricultural or horticultural structures.
³ Used by logging and sawmill operators for cutting of timber.
⁴ For property placed in service after May 12, 1993; for property placed in service before May 13, 1993, the recovery period is 31.5 years.

Source: IRS publication 225, *Farmer's Tax Guide 2007*, www.irs.gov.

Timing

The asset must be purchased and placed in service between January 1, 2008 and December 31, 2008.

There are also two items regarding the timing of purchase contracts that should be considered. The first states that if a written binding contract for the asset was signed prior to January 1, 2008, that asset is not eligible for bonus depreciation.

For example, if a combine was purchased under a written binding contract in the fall of 2007, but was not delivered until 2008, it would not be eligible for bonus depreciation. Although, in this case, the combine would still be eligible for Section 179 deduction.

The second distinction would be for those assets with a recovery period of 10 years or longer. For these assets the placed in service date is extended until December 31, 2009, as long as the taxpayer has a written binding contract between January 1 and December 31, 2008. As you can see in Table 3, farm machinery has a recovery period of 7 years and would not qualify for the extended placed in service date. On the other hand, a farm building has a

recovery period of 20 years and would qualify for the extended service date.

It is important to note that assets purchased and sold within the same year are not eligible for bonus depreciation, as is also the case with the Section 179 deduction.

Trades

Unlike the Section 179 deduction in which only boot trade difference is eligible, bonus depreciation allows the remaining basis of the traded item plus the boot paid to be eligible. For instance, if a farm trades a planter every two years and does not accelerate depreciation, at the next trade the depreciable basis in the old planter will be about 70% of the last boot paid in the prior trade. The remaining depreciable basis is added to current boot to determine the depreciable basis available for bonus

Table 4. Example of bonus depreciation for a traded asset.

Boot paid at last trade 2 years ago	\$20,000
Depreciation in year of trade	-\$2,143
Depreciation in year after trade	-\$3,825
Remaining Depreciable Basis	\$14,032
Boot trade difference in current trade	+\$30,000
Basis in new planter	\$44,032
Current year bonus depreciation	\$22,016
Remaining basis for depreciation over the next 7 years	\$22,016

depreciation. Table 4 calculates an example of this situation.

Fiscal year entities

Fiscal year entities need to be extra careful. The bonus depreciation eligibility runs with calendar year 2008, not fiscal year 2008. The entity is still eligible, but the assets must be purchased or the contract to purchase signed on or prior to December 31, 2008.

In closing, if you are in a high tax situation for 2008 and your Farm Management Economist and you feel that first-year depreciation-write off is right for your operation, consider the following strategies.

- Trading assets that have high depreciable basis to get more depreciation deduction without all the cash outlay.
- If you cannot get a building on the property before December 31, 2008, go ahead and enter into a written, binding contract for the asset, and make sure that the purchase is on your property prior to December 31, 2009.
- Use 2008 to update buildings and structures rather than equipment.

As always, never hesitate to ask your KFMA Economist questions relating to depreciation. They will be able to give more specific information relating to your situation.

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INITIAL STATE FARM INCOME SUMMARY RELEASED

The numbers have been crunched and the results are now starting to come in. No, it's not the results of the presidential race that keeps dragging on. It's the initial release of the state-wide 2007 Kansas Farm Management Association (KFMA) Summary results. The following information provides an overview of

2007 KFMA financial information. More detailed results will be released later on the KFMA web site (www.kmar105.com/kfma).

The tables on the following pages show what many would consider obvious given crop prices and yields across much of Kansas in 2007—

value of farm production and net farm income were higher in 2007. This is true across the entire state of Kansas, but is especially true in western Kansas, where a tremendous wheat harvest made up for years of drought.

The first table on the next page details net farm income for various types of farms. The most profitable operations in 2007 were either crop farms, or farms that had a combination of crops and livestock, especially dairies. The least profitable type of operation was backgrounding. Cowherds were profitable, but not as profitable as recent years.

One final comparison is large and small agricultural operations. One method of distinguishing these farms is through value of farm production, or gross revenue from farms. It is clear that the top twenty-five percent of farms in the data-bank had a tremendous year. It is also clear that even in a year marked by both high production and high prices, the

smallest twenty-five percent of association farms in terms of gross revenue still lost money, with the exception of Northwest Kansas. While it is true that there are some small farms that are profitable, it is the exception and not the rule.

As stated earlier, more detailed information will be released later this spring, but the results do provide a glimpse of what happened in 2007. Finally, a thank you needs to be extended to the KFMA members, who make the summary results possible. The aggregate data is used in a variety of extension, research, and teaching projects at Kansas State University, ranging from farm management and policy research to water conservation issues, among many others. This information serves the greater good of Kansas agriculture, and would not be possible without your faithful support.

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VALUE OF FARM PRODUCTION

Year	NW	NC	NE	SW	SC	SE
2007	\$696,902	\$321,257	\$391,896	\$405,898	\$376,111	\$390,616
2006	\$377,128	\$259,335	\$294,436	\$260,130	\$314,336	\$291,010
2005	\$364,436	\$258,323	\$290,570	\$264,536	\$268,648	\$312,390
2004	\$289,904	\$241,269	\$269,048	\$233,102	\$259,927	\$283,622
2003	\$271,200	\$226,788	\$213,380	\$242,700	\$247,129	\$244,661
5 Year Avg	\$399,914	\$261,394	\$291,866	\$281,273	\$293,230	\$304,460

NET FARM INCOME

Year	NW	NC	NE	SW	SC	SE
2007	\$233,000	\$81,288	\$114,118	\$108,397	\$88,849	\$114,423
2006	\$58,517	\$40,742	\$52,259	\$21,779	\$57,960	\$40,026
2005	\$66,930	\$42,065	\$68,325	\$23,779	\$36,535	\$76,283
2004	\$45,801	\$51,670	\$77,393	\$29,927	\$52,709	\$84,394
2003	\$59,988	\$52,511	\$38,630	\$37,329	\$43,628	\$63,155
5 Year Avg	\$92,847	\$53,655	\$70,145	\$44,242	\$55,936	\$75,656

**FIVE-YEAR TREND ANALYSIS
TYPE OF FARM
2003-2007**

Type of Farm	No. of Farms	Net Income/Operator				
		2007	2007	2006	2005	2004
All Farms	1,453	\$116,130	\$46,804	\$57,584	\$63,491	\$52,410
Cash Crop Dryland	1,010	120,594	49,366	49,422	57,087	51,424
Cash Crop Irrigated	62	280,585	92,335	64,955	62,729	57,580
Stock-Ranch Cowherd	21	23,633	35,986	45,396	51,366	34,148
Cowherd	15	34,948	13,344	24,914	32,088	22,458
Dairy	35	82,088	25,663	52,658	71,192	24,484
Backgrounding	11	(941)	(5,823)	63,279	82,252	63,035
Cash Crop-Cowherd	137	61,588	31,132	50,149	49,613	33,879
Cash Crop-Dairy	11	161,507	55,538	72,799	81,068	49,643
Cash Crop-Backgrounding	29	74,803	1,203	83,820	79,308	87,728
Cash Crop-Beef	44	104,912	12,898	97,138	80,306	89,456
Turkeys	9	44,338	46,732	48,093	47,912	36,777
Cash Crop – Livestock	31	76,332	34,629	85,253	110,064	55,244

**VALUE OF PRODUCTION, TOTAL EXPENSE, and NET FARM INCOME
by INCOME—2007**

Assn	Number Farms (25% of Total)	High Income Farms (25%)			Low Income Farms (25%)		
		Value of Farm Production	Total Farm Expenses	Net Farm Income	Value of Farm Production	Total Farm Expenses	Net Farm Income
NW	37	\$1,449,675	\$860,267	\$589,408	\$374,085	\$353,844	\$20,241
SW	23	\$848,624	\$553,694	\$294,930	\$252,435	\$259,959	(\$ 7,524)
NC	64	\$602,639	\$389,349	\$213,291	\$152,183	\$166,625	(\$14,442)
SC	74	\$652,000	\$411,109	\$240,891	\$243,711	\$274,382	(\$30,671)
NE	59	\$797,389	\$497,671	\$299,718	\$139,987	\$158,099	(\$18,112)
SE	107	\$891,324	\$551,362	\$339,962	\$116,066	\$130,435	(\$14,369)
2007	363	\$846,644	\$524,484	\$322,160	\$179,819	\$196,269	(\$16,450)

The Kansas Farm Management Association (KFMA) Newsletter is distributed monthly to provide farm management information to farm decision makers. Further farm management information can be found on the KFMA program website: www.kmar105.com/kfma; and, on the Extension Agricultural Economics website: www.agmanager.info. The Newsletter is edited by Michael Langemeier, Professor; and, Kevin Herbel, Administrator, KFMA Program, Department of Agricultural Economics, Kansas State University.



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