



# ECONOMICS COMMENTATOR

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## Crop Decisions in 2008

by

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South Dakota producers are looking forward to the 2008 crop year. While several factors, including weather during the planting season, will still influence the final acreage planted, producers are gathering the information they need to reach a decision concerning their 2008 intentions. Estimates of costs and returns will be major factors in the consideration of what crops to plant and whether producers will make adjustments to their crop rotations and crop enterprise mix. Higher costs of fertilizer, seed and fuel, along with current commodity prices, will continue to influence the final decision on not only which crops to plant, but also how many acres of each chosen crop will be planted.

While the influence of higher commodity prices and debate surrounding the passage of a new Farm bill cannot and should not be ignored, the economics of crop selection will still be the primary determining factor of which crops are planted. Yield reports from the 2007 crop year illustrate that South Dakota farmers continue to excel at production agriculture. However, many producers realize that simply producing more bushels is not the foundation for sound economic decisions. Profitable cropping decisions must rely on the return generated per acre – not just how many bushels were produced or and at how high a price production was sold for.

One strategy for dealing with high input costs is to simply use fewer inputs. However, many producers are reluctant to reduce quantities of some inputs such

as fertilizer knowing that a yield response from applying additional fertilizer may be rewarded if commodity prices stay at current high levels. Data from Ron Gelderman, Director, Soil Testing Programs & Professor, Plant Science Department, South Dakota State University, illustrates that fertilizer needs will vary across South Dakota.

**Table 1. Average soil nitrate-N by region and previous crop, Sep. 1 – Dec. 6, 2007, SDSU Soil Testing Lab**

Crop	Region of State					State MEAN
	NE	SE	NC	SC	WR	
	----- lb/a in two feet -----					
Grass	20	10	53	55	56	38
Alfalfa	50	42	74	85	--	57
Soybean	52	49	56	42	--	51
Wheat	77	65	76	81	135	83
Corn, grain	86	93	78	64	65	84
Corn silage	111	115	50	80	100	107
Fallow	138	--	114	103	--	122
MEAN	68	74	66	62	125	70

State averages for fall 2004, 2005 and 2006 were 55, 60, and 68 lb/a, respectively.

Therefore, since different cropping regions of South Dakota have varying levels of residual nitrogen available for 2008 crops, producers in different regions will not need the same levels of fertilizer applied for the 2008 crop year.

Costs to produce different crops will vary by region of the state and producers will have to make adjustments to their production budgets to reflect the region of the state where they produce. Cost of production estimate information is available to assist South Dakota producers with their spring planting budgets and can be found on the SDSU Extension Economics web site at

<http://econ.sdstate.edu/Extension/otherlinks.htm>.  
Templates of cost of production budgets for major spring crops are available with space provided for producers to complete the budget using their own figures based on their actual production history. Producers are encouraged to complete their budget

projections using a range of estimates (low, medium and high) for costs, prices and yields. Using a combination of scenarios will be useful to evaluate the sensitivity of projected changes to price, cost, and yield estimates.

For the 2008 planting season, consideration of input costs will be a critical factor in the decision process. Adjustments will be made to the levels of inputs used, to the number of acres of high input crops planted, and the overall crop mix. South Dakota producers will strive for production efficiency and will focus on prudent management of their crop inputs to achieve their financial objectives.

One question several producers are struggling with is whether to plant more acres to soybeans because corn acres will incur higher production costs due to high fertilizer prices. A partial budget approach can be used to answer this question. The typical partial budget usually consists of a seven-point plan. The seven components are additional costs, reduced returns, reduced costs, additional returns, totals of the first two and the second two, and a net difference. Table 2 shows the basic form of the typical partial budget.

**Table 2: Partial budget form**

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Additional costs _____	Additional returns _____
Reduced returns _____	Reduced costs _____
A. Total additional costs and reduced returns _____	B. Total additional returns and reduced costs _____
Net change in income (B minus A) _____	

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For the question of whether to plant 2007 corn crop acres to soybeans, the value to be used for additional costs would be the direct costs of planting soybeans. (For this example it is assumed that both corn and soybeans would have the same machinery ownership and land charge costs.) The value to be used for additional returns would be the income to be generated from the sale of soybeans. The value to be used for reduced returns would be the income to be generated from the sale of corn and the value to be used for reduced costs would be the direct costs of planting corn. If the total of column A is greater than the total of column B, it would be profitable to plant 2007 corn acres to soybeans.

A producer's financial objectives will be best achieved by managing their crop decisions focusing on returns per acre and net return per dollar invested. Many producers are aware that producing an acre of corn may produce the highest gross return per acre. However, prudent managers will base their cropping decisions on net returns per acre or net return per bushel produced. The following table shows per bushel net return over direct production costs and per acre rate of return for major South Dakota crops. (Rate of return per acre is calculated by dividing return over direct costs by direct costs.) Accessible farm level data for South Dakota cost of production comparisons is contained in the annual report published by the Farm Business Management Program instructors. The Farm Business Management Program is coordinated by the Division of Workforce and Career Preparation with the South Dakota Department of Education and Cultural Affairs. The annual published report contains a summary of data voluntarily submitted by program participants and is

<b>Table 3. Crop Rate or Return</b>								<b>5 Year</b>	<b>3 Year</b>
Average of all Fields	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>Average</b>	<b>Average</b>
Corn Per Bushel Net Return Over Direct Cost	\$1.00	\$0.99	\$1.77	\$1.24	\$1.10	\$0.87	\$1.94	\$1.38	\$1.30
Corn Rate Of Return Over Direct Cost	1.28	1.14	1.23	1.37	1.28	0.66	1.32	1.17	1.09
Soybeans Per Bushel Net Return Over Direct Cost	\$3.38	\$3.34	\$3.76	\$5.22	\$3.35	\$3.32	\$3.73	\$3.88	\$3.47
Soybeans Rate Of Return Over Direct Cost	2.06	1.89	1.93	2.41	1.85	1.46	2.44	2.02	1.92
W Wheat Per Bushel Net Return Over Direct Cost	\$1.75	\$2.18	\$3.12	\$2.34	\$2.32	\$1.85	\$3.15	\$2.56	\$2.44
W Wheat Rate Of Return Over Direct Cost	1.69	1.80	2.73	2.36	2.29	1.31	1.97	2.13	1.86
S Wheat Per Bushel Net Return Over Direct Cost	\$2.00	\$1.64	\$2.30	\$2.56	\$2.43	\$2.14	\$3.10	\$2.51	\$2.56
S Wheat Rate Of Return Over Direct Cost	1.85	1.47	1.59	2.82	2.25	1.37	1.69	1.94	1.77

a valuable resource for South Dakota's agricultural sector. While not necessarily reflective of all agricultural producers in South Dakota, valuable information comes from observing trends over time for South Dakota producers

Table 3 shows that, based on an average of the last three years, soybeans generated the highest net return per bushel produced. Also shown is that one dollar spent on soybean production had the highest rate of return generating \$1.92 per dollar of production cost invested.

However, the decision on which crops to plant will be based on many more factors than just which crop will generate the greatest dollar value of return. Several of these additional considerations were addressed in Extension Extra 5073 published in February 2007. (<http://agbiopubs.sdstate.edu/articles/ExEx5073.pdf>)

Producers will have to examine the capital they have available and how best to expend their crop production dollars taking into account all the factors of their farming system. Simply producing those crops that generate the greatest net return per acre will not account for all the management factors relevant to the decision. For those producers who face limited capital available, their consideration may center on which crops will generate the greatest return per dollar expended. At the same time, producers will need to generate a sufficient level of return over direct costs to meet fixed cost and family living

expenditures. For example, average corn yield for South Dakota for the period 2004-2006 is 115 bushels per acre. Using this yield, expected return over direct costs per acre of corn would be \$149.50 ( $115 * \$1.30$ ). For soybeans, average yield for South Dakota for the period 2004-2006 is 34 bushels per acre. Using this yield, expected return over direct costs per acre of soybeans would be \$117.98 ( $34 * \$3.47$ ). Thus, some balance between corn and soybean acres may be prudent – corn acres generating the greater return over direct cost per acre while soybeans yielding the greatest return per dollar spent on production costs.

While high prices of certain production inputs are currently being discussed in popular farm press, producers know that there is more to the decision than just what crop can be produced the cheapest, or which crop will give the highest return over direct costs per acre. Re-evaluation of 2008 cropping decisions will be a continuous process until planting time. Producers will make those decisions attempting to achieve simultaneous objectives of efficient use of production inputs, including capital, and generation of sufficient return to the use of those inputs.

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