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Interest Rates  
Impact on Farm Income

by

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Interest expenses continue to be one of the largest costs farmers incur in producing crops. Up to the late 1970's, farmers' interest rates were relatively low and the philosophy of becoming highly leveraged was encouraged on all fronts. It was possible to increase one's income through the use of someone else's capital.

However, since the late 70's interest rates have been much higher, with farmers and other businesses paying rates ranging from 15% to over 20%. Of course, agribusiness people who use their own money to finance production are not hurt directly by the high interest rates. Unfortunately, most agribusinesses do not possess their own operating capital and are borrowing large sums of money to finance production. In times of low commodity prices, the farmers' problem is compounded as costs of production are not covered, refinancing is required and higher leverage and interest bills result.

The interest rates which will prevail over the next few years are likely to be double digit. The following analysis of interest rate impact on crop costs and break-even prices involves interest rates of 10% experienced only a few years ago and 18% commonly experienced during the last two years. The analysis was done directly for east central and southeastern South Dakota but has implications for the remainder of the state as well.

With an annual interest rate on operating and investment capital (excluding land) of 18% compared to 10%, total costs of producing dryland crops rose from \$6 to \$12 per acre depending on the crop and region of the state. (see Table 1). Irrigated crop costs rose from \$24 to \$48 per acre with this 8% increment in the interest rate. Those crops requiring lesser amounts of operating capital were affected least by the interest rate change. In east central South Dakota, dryland alfalfa was affected the least and dryland corn the most. Both impacts, however, were less than one-third as large as the interest rate impacts for their more capital-intensive irrigated counterparts. Interest cost as a percent of total cost went from 6.8 to 11.6 for dryland alfalfa, and 7.5 to 12.8 for dryland corn. When crops are irrigated, the percentages go from 12.3 to 20.1 for alfalfa and from 11.9 to 19.6 for corn.

Table 1. The Impact of Different Interest Rates on Total Production Costs, Selected Dryland and Irrigated Crops, East Central and Southeastern South Dakota, 1981.

Crop	Cost per acre with various rates				Increment in cost; 10-18% rate change
	10%		18%		
	Total	Interest*	Total	Interest*	
<b>East Central</b>					
\$/A					
Dryland crops					
Alfalfa	112.51	7.64	118.62	13.75	6.11
Barley	133.10	12.24	142.89	22.03	9.79
Corn	181.20	13.61	192.09	24.50	10.89
Flax	134.09	12.94	144.36	23.11	10.27
Oats	130.26	11.99	139.85	21.58	9.59
Soybeans	138.86	12.58	148.92	22.64	10.06
Spring wheat	141.21	12.31	151.06	22.16	9.85
Sunflowers	141.66	11.46	150.83	20.63	9.17
Irrigated Crops					
Alfalfa	243.04	29.88	266.94	53.78	23.90
Corn	347.81	41.38	380.91	74.48	33.10
<b>Southeastern</b>					
\$/A					
Dryland crops					
Alfalfa	162.31	15.46	174.68	27.83	12.37
Barley	149.42	12.45	159.38	22.41	9.96
Corn	206.24	13.16	216.77	23.69	10.53
Flax	157.50	9.98	165.48	17.96	7.98
Oats	153.11	12.44	163.06	22.39	9.95
Sorghum	172.03	12.94	182.38	23.29	10.35
Soybeans	158.91	13.04	169.34	23.47	10.43
Spring wheat	158.49	12.51	168.50	22.52	10.01
Irrigated crops					
Alfalfa	351.23	60.48	399.61	108.86	48.38
Corn	402.27	53.69	445.22	96.64	42.95
Soybeans	298.40	42.55	332.44	76.59	34.04

\*Excluding land charges which were calculated as six percent of market value.

In southeastern South Dakota, the dryland crop impacts are greatest for alfalfa as more cuttings lead to



greater capital requirements. Corn was second in magnitude of impacts. Interest cost as a percent of total cost went from 9.5 to 15.9 for alfalfa and 6.4 to 10.9 for corn. Their irrigated counterparts incurred cost impacts about four times as large. As a percent of total cost, interest cost went from 17.2 to 27.2 for irrigated alfalfa and 13.3 to 21.7 for irrigated corn. To put this in a little different perspective, a farmer in southeastern South Dakota with two center pivots of corn (268A) watched his interest bill go up over \$11,500 as the interest rate went from 10% to 18%. His interest bill on dryland corn for the same acreage went up over \$2,800. A farmer with a section of dryland crops paid approximately an additional \$6,500 in interest as rates increased from 10% to 18%.

The magnitude of cost changes in producing crops as interest rates increase or decrease tells only part of the story. Relative yields have an impact on break-even prices (price required to cover total cost of production) as well. A cost increase in one region may be larger in dollar amount compared to a second region, but if the second region has larger yields its break-even price may not rise as much as that in the first region. Similarly, a cost increase for irrigated production may be larger in magnitude than for dryland production, but yield increases from irrigating may offset this difference.

Break-even crop prices with the two interest rate scenarios are presented in Table 2. With an interest rate movement from 10% to 18%, the dryland break-even price went up \$2.45 per ton in east central South Dakota and \$3.54 per ton in southeastern South Dakota. Irrigated alfalfa break-even prices went up \$5.25 and \$8.06 per ton in east central and southeastern South Dakota, respectively. This indicates increased alfalfa yields from irrigating are not large enough to offset the differential cost increases compared to dryland production.

Table 2. The Impact of Different Interest Rates on Break-Even Prices, Selected Dryland and Irrigated Crops, East Central and Southeastern South Dakota.

Crop	Unit	Break-Even Price with Various Rates		Increment in Cost: 10-18% Rate Change
		10%	18%	
East Central				
		(\$/unit)		(\$/unit)
Dryland crops				
Alfalfa	Ton	45.00	47.45	2.45
Barley	Bushe1	3.25	3.49	0.24
Corn	Bushe1	3.29	3.49	0.20
Flax	Bushe1	11.17	12.03	0.86
Oats	Bushe1	2.61	2.80	0.19
Soybeans	Bushe1	7.31	7.84	0.53
Spring wheat	Bushe1	5.04	5.40	0.36
Sunflowers	Cwt	15.74	16.76	1.02
Irrigated crops				
Alfalfa	Ton	53.42	58.67	5.25
Corn	Bushe1	2.70	2.95	0.25
Southeastern				
		(\$/unit)		(\$/unit)
Dryland crops				
Alfalfa	Ton	46.37	49.91	3.54
Barley	Bushe1	3.64	3.89	0.25
Corn	Bushe1	2.75	2.89	0.14
Flax	Bushe1	9.26	9.73	0.47
Oats	Bushe1	2.36	2.51	0.15
Sorghum	Cwt	5.93	6.29	0.36
Soybeans	Bushe1	6.36	6.77	0.41
Spring wheat	Bushe1	5.87	6.24	0.37
Irrigated crops				
Alfalfa	Ton	58.54	66.60	8.06
Corn	Bushe1	2.77	3.07	0.30
Soybeans	Bushe1	6.63	7.39	0.76

The cost impact differences between dryland and irrigated grain crops appear much lower when put on a break-even basis. Note, for example, that the dryland corn total cost went up \$10.80 per acre and the break-even price increased 20¢ per bushel compared to a rise in total cost for irrigated corn of \$33.10 per acre and a break-even price increase of 25¢ per bushel in east central South Dakota. In all cases the break-even prices for irrigated crops increased more than for their dryland counterparts supporting the assertion that as interest rates increase the more capital-intensive enterprises incur the greatest cost and income impacts.

Interest rates were singled out for analysis here because of recent variability in rates. A similar analysis could be applied to any farm input. However, when producers say "interest rates are killing me," they do have a point even though other costs are high also.

