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Returning to Crop Production**

by

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The Economic Impact of CRP Acres in South Dakota Returning to Crop Production

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Background

The Conservation Reserve Program (CRP) was created in the 1985 Farm Bill as a program to remove highly erodible and environmentally sensitive land from agricultural production for from 10 to 15 years. Although CRP was originally viewed as a supply control program it rapidly evolved into a program that met many environmental objectives.

In 2007 South Dakota had 729,397 acres of CRP contracts expired, which was nearly 47% of the 1.56 million acres enrolled in the program. During this period, there was no new farm bill or new CRP policy provisions. The policy environment in late 2006 and most of 2007 consisted of CRP program offers for renewals or extensions (2-5 years) of many CRP contracts against a backdrop of escalating crop prices and economic incentives to return expiring contract acres to agricultural production. Overall there was a net reduction of 263.7 thousand acres of CRP land in South Dakota, or 17% of acres previously enrolled in CRP.¹

The economic conditions in 2008 are markedly different. Commodity prices are nearly double what they were a year ago and many producers view putting CRP acres back into production as a viable and profitable option. Approximately 508,000 acres of CRP contract will be expiring from 2008 to 2010, 420,700 from 2011 to 2013, and an additional 364,600 acres between 2014 and 2023 (FSA).

¹ In 2006 and 2007, the Farm Service Agency of the U.S. Department of Agriculture (USDA – FSA) made enrollment offers for 10 – 15 years or contract extension offers of 2 – 5 years for many CRP contracts expiring from 2007 – 2010. For South Dakota contracts expiring in 2007, a total of 52.7 thousand CRP acres were re-enrolled and 370.6 thousand acres were accepted in contract extensions. The remaining 306 thousand acres of expired contracts were not re-enrolled or extended and likely converted to crop or forage production. In addition, there were 38.8 thousand CRP acres added through new enrollments, mostly from continuous signups (USDA - FSA).

Just as enrolling these acres into the program had significant negative impacts on revenue generation in the farm and rural economy in South Dakota, putting these acres back into production will also have significant positive impacts on the economy of the state. The objective of this study is to estimate the economic impacts that could occur as some of these CRP acres are converted back to production for three different regions within the state. The effect of converting some of the CRP land to grazing is not examined in this analysis. Only the effects of converting CRP land to crop production is analyzed here.

Introduction

The analysis tool used in this project is IMPLAN Pro, a regional economic impact modeling software program developed by the U.S. Forest Service. It has since gone private and is currently managed by the Minnesota IMPLAN Group in Stillwater, MN. The U.S. economy is broken down into 509 separate sectors and production functions which describe the economic interactions between the sectors are imbedded in the program. The results of these interactions can then be calculated and a number of different economic impacts can be quantified. Multipliers are also calculated so that additional investment in any sector may be determined (IMPLAN). Most of the data for this study comes from a survey of South Dakota producers with CRP contracts conducted in fall 2007. These results are then extrapolated to the state as a whole. Additional details from the survey may be obtained at <http://econ.sdstate.edu/Research/CRP2008.pdf> (Janssen et.al).

Commodity prices used to calculate revenues generated by putting this land back into production were the 2007 marketing year prices determined by the USDA. These prices are \$3.85 per bushel for corn, \$9.80 for soybeans, \$6.55 for wheat, and alfalfa hay was \$100/ton. These prices were combined with acreage numbers from the survey and yields for the past two years, the average of 2006 and 2007, from the South Dakota Ag Statistics Service to calculate crop production revenues for three areas of the state. These three regions are: all of the West River counties combined, the North Central and Northeast reporting districts combined, and the East Central, Southeast, and Central reporting

districts combined. The yields used in the analysis are listed in the table below. These yields are the simple average of yields from 2006 and 2007 from these geographic areas and are not weighted.

Crop Yields used to Calculate Revenue Per Acre

	Corn	Soybeans	Wheat	Hay
West River			26.61 bpa	1.05 tons/acre
NE/NC	111.33 bpa	33.73 bpa	44.25 bpa	
EC/SE/C	104.25 bpa	40.17 bpa	47.5 bpa	

Source: SDASS

Based on data from the 2007 South Dakota CRP survey, an estimated 60.7% of CRP acres in expiring contracts are projected to return to crop production. The proportion of CRP acres likely to convert to crop production varies from 45.5% in the Western regions, to 60.1% in the EC/SE/C region to 71.8% in the North Central and Northeast region. The remaining post-CRP acres will mainly be used for grass production and/or wildlife habitat (Janssen et.al. , table 7)

Based on 2007 survey data, an estimated 65% of CRP contract acres are “very likely” or “somewhat likely” to be converted to agricultural production instead of re-enrolled in new contracts. In this analyses, we examine two scenarios: 100% of CRP land leaving the program which is the maximum impact scenario, and (2) 65% of CRP acres exiting the program, which represents the more likely scenario.

In the 100% scenario, a total of 788,741 acres of expired CRP contracts are projected to return to crop production. These acres are distributed as follows: 399,324 acres are in the NE/NC region, 217,662 are in the EC/SE/C region, and the remaining 171,755 are in the West River region. In the 65% scenario the acres are distributed as 262,755 in the NE/NC region, 143,222 in the EC/SE/C region, and 112,883 in the West River region. These are the acres that are assumed to be returning to crop production in this analysis.

The crop mix was weighted for this analysis. For the West River area the gross revenue per acre was calculated as \$145.19 per acre. In this area the wheat and hay acreage was 58% and 42% respectively. For the NE/NC area the gross revenue per acre is \$359.02 with corn comprising 39% of the total, 37% for soybeans, and 24% for wheat. In the EC/SE/C area the gross revenue per acre is \$381.43 per acre with corn comprising 47.5%, 33.25% for soybeans, and 19.25% for wheat.

Given the volatility in both prices and yields that may occur the estimates tend to be on the conservative side. Two different levels of production were examined, one with 100% of the land identified by producers going back into production and a second scenario with 65% of the land going back into production. The 65% level was identified in the survey as the producers who were either very or somewhat likely to put their land back into production.

CRP Impacts

In order to establish a baseline for comparison the economic impact of the land in CRP will be presented. For each of the previously mentioned areas of the state the direct, indirect, and induced impacts of the revenue generated from the CRP rental rates will be presented. In addition, the employment and tax ramifications will also be examined. The direct effect is the actual revenue generated from the rental rates. The indirect effects are the business to business activities generated by firms restocking after sales. The induced effects result from the extra spending in the area that is encouraged by the additional economic activity in the area. These effects will be the same for each analysis and will not be repeated in each additional section.

West River CRP Results

(2006 dollars)

Direct	\$4,838,716
Indirect	\$691,414
Induced	\$1,708,533
Total	\$7,238,663

The multiplier for the West River area is 1.495. This means that for each additional dollar of revenue generated from CRP rental rates, an additional \$0.495 of economic activity is created in the area. The West River area had 186,823 acres of CRP land that was expected to go into crop production. The CRP rental rates used to calculate this level of revenue was the 2007 average reported by USDA-FSA.

Employment activity in the area was also examined. The direct employment impact is 23.8, meaning this many jobs result from having the land in CRP. The indirect effect, or employment in the support industries, is an additional 7.3 jobs. The induced effect, or the jobs resulting from the increased economic activity in the area, is an additional 18.6. This is a total impact of 49.6 jobs.

The final effect to examine is the indirect business taxes. These are all the taxes, excluding income taxes, which does not impact South Dakota. The direct effect is \$93,504, the indirect effect is \$38,090, and the induced effect is 108,455, for a total tax revenue generated of \$240,049.

EC/SE/C CRP Results
(2006 dollars)

Direct	\$13,875,601
Indirect	\$2,741,681
Induced	\$5,410,746
Total	\$22,028,028

The multiplier for this area is 1.587. This means that for each additional dollar of CRP rental rate revenue that there will be an additional \$0.587 of economic activity generated. There are 225,987 acres of CRP land that is expected to go back into crop production in this area.

The direct employment activity in this area was 45.4, the indirect effect was 25.2 and the induced effect was 56.1, making the total employment impact 126.7.

The indirect business tax effects are as follows. The direct effect is \$268,134, the indirect effect is \$168,261, and the induced effect is \$346,657. This sums to a total tax effect of \$783,052.

NC/NE CRP Results
(2006 dollars)

Direct	\$22,855,260
Indirect	\$3,309,154
Induced	\$7,406,646
Total	\$33,571,060

The output multiplier for this area is 1.468. This means that an additional \$0.468 of economic activity is generated for each dollar of CRP rental rate revenue. There are 491,511 acres of CRP land that is expected to be put back into production in this area.

The direct employment activity in this area is 65.1, the indirect impact is 33.1, and the induced effect is 86, making the total employment impact 184.2.

The indirect tax effects are; direct, \$441,657, indirect, \$148,178, and the induced effect is \$459,462, resulting in a total tax effect of \$1,049,297.

Production Impacts

As seen above the revenue generated from the rental payments for enrolling land in CRP does have a positive economic impact on the area. However, it is also clear that the revenue generated from putting this land back into crop production will generate much more gross revenue for the state. As stated before there are 171,755 acres in the West River area that could go back into production, 399,324 in the NC/NE area, and 217,662

in the EC/SE/C area. The prospect of 100% of these acres being put back into production will be examined first.

West River 100% Production
(2006 dollars)

Direct	\$24,937,108
Indirect	\$3,563,317
Induced	\$8,805,200
Total	\$37,305,625

As seen in the table, there is a direct impact of almost \$25 million dollars resulting from putting the 171,755 back into production. This would result from the sales of wheat and alfalfa hay. This crop choice comes from data gathered in the 2007 CRP survey cited previously. The indirect and induced effects are as defined previously in the paper. The total impact would be nearly \$37.3 million dollars. This may be compared with the \$7,238,663 total impact of the CRP rental payments for the acres.

The employment impacts are also significantly different. The direct effect is 122.5, the indirect effect is 37.6, and the induced effect is 95.8, producing a total employment effect of 255.9. This may be compared with the total employment impact of 49.6 for the CRP analysis.

The amount of taxes generated for the state would also be significantly greater. The direct effect would be \$481,887, the indirect effect would be \$196,305, and the induced effect would be \$558,939, for a total effect of \$1,237,131. This may be compared with the CRP tax effect of \$240,049.

As discussed before, putting 100% of the expiring acres back into crop production is not likely to occur. Information from the survey leads us to believe the producers are likely to put 65% of this land back into production. That analysis follows.

West River 65%
(2006 dollars)

Direct	\$16,389,482
Indirect	\$2,341,929
Induced	\$5,787,065
Total	\$24,518,476

As we can see from the table, the results are lower than the 100% scenario, approximately \$8 million less in total impact, but still significantly higher than the approximately \$7.2 million CRP impact. Similar impacts may be observed in both employment and taxes.

The direct employment impact would be 80.5, the indirect 24.7, and the induced 63 for a total impact of 168.2 jobs. This may be compared to the 100% scenario of 255.9 and the CRP scenario of 49.6.

Tax revenues are also significantly different. The direct effect is \$316,712, the indirect is \$129,018, and the induced is \$367,353, for a total effect of \$813,083. This may be compared with the \$1,237,131 of the 100% scenario and the \$240,049 from the CRP scenario.

The 100% and 65% results for the other two study areas will be put together in tabular form to reduce repetition. In both of these regions the cropping pattern was a mix of corn, soybeans, and wheat.

EC/SE/C 100% and 65% Results

Output Impact

(2006 dollars)

100%

65%

Direct	\$83,022,816	\$54,629,168
Indirect	\$17,746,128	\$11,676,985
Induced	\$32,170,044	\$21,167,950
Total	\$132,938,988	\$87,474,101

As we can observe from the table above there is a difference in the total impact of approximately \$45.5 million between the two scenarios. However, both are significantly greater than the CRP impact of \$22,028,028.

EC/SE/C 100% and 65% Results

Employment Impacts

100%

65%

Direct	935.6	615.7
Indirect	174	114.5
Induced	333.3	219.3
Total	1442.9	949.5

These employment numbers may be compared to each other, resulting in approximately 320 more jobs in the 100% scenario, and also be compared to the CRP scenario where only 126.7 jobs resulted.

EC/SE/C Indirect Business Taxes Impact

100% and 65% Scenarios

(2006 dollars)

	100%	65%
Direct	\$1,495,647	\$984,138
Indirect	\$1,132,692	\$745,313
Induced	\$2,061,071	\$1,356,189
Total	\$4,689,409	\$3,085,640

Again we can see that there is a significant difference in the amount of tax revenue generated, approximately \$1.6 million between the 100% and 65% scenarios. This may be compared to the \$783,052 generated in the CRP scenario.

NC/NE Output Results

100% and 65% Scenarios

(2006 dollars)

	100%	65%
Direct	\$143,365,296	\$94,334,304
Indirect	\$20,926,601	\$13,769,688
Induced	\$45,235,042	\$29,764,638
Total	\$209,526,935	\$137,868,633

As we can observe from the table there is approximately a \$72 million difference in the total impact between the 100% and 65% scenarios. Again, this may be compared to the CRP results of \$33,571,060.

NC/NE Employment Impact
100% and 65% Scenarios

	100%	65%
Direct	1,332.4	876.7
Indirect	235.9	155.2
Induced	525.1	345.5
Total	2,093.4	1,377.4

We can see from the table that there is a total impact difference of 716 jobs between the 100% and 65% scenarios. The CRP scenario only produced 184.2 jobs.

NC/NE Indirect Business Taxes Impacts
100% and 65% Scenarios
(2006 dollars)

	100%	65%
Direct	\$2,582,710	\$1,699,422
Indirect	\$1,022,421	\$672,752
Induced	\$2,806,166	\$1,846,456
Total	\$6,411,297	\$4,218,631

The 100% scenario generated approximately \$2 million more in tax revenue than the 65% and significantly more than the \$1,049,297 generated in the CRP scenario.

Conclusions

Over its more than twenty year life the Conservation Reserve Program has provided producers with incentives to either temporarily or permanently retire highly erodible or environmentally fragile land. Due to changes in the structure of the agricultural industry and the increased volatility in commodity prices producers are observing economic incentives that are encouraging them not to re-enroll land into the program.

For the State of South Dakota these incentives are quite clear. Putting at least some of these expiring CRP acres back into production can provide significant increases in GSP, employment, and tax revenues. The impact of these changes in production will be different in the three study areas, based on crop mix, number of acres going back into production, and the population in each area. For the state as a whole these impacts are quite significant. The value of the CRP rental rate revenue would be \$62,837,751. The value of the additional output in the 100% scenario would be approximately 7 times that amount, \$432,483,894. The output value of the 65% scenario would be \$249,861,210.

Similar results may be observed in employment and tax revenues. The 100% scenario would generate 3792.2 jobs. The 65% scenario generates 2495.1 jobs and the CRP scenario generates 360.5 jobs. Tax revenues would also be significantly increased. The CRP scenario generates tax revenue of \$2,072,398. This may be compared with the \$12,337,837 for the 100% scenario and \$8,117,354 for the 65% scenario.

These numbers certainly lead to some clear conclusions for the state. Producing crops on these acres is financially beneficial for the state, far exceeding the revenue generated from CRP rental rates. However, the potential reduction in hunting revenues is not considered in this analysis, along with the potential revenue generated from grazing. The decisions for individual producers may not be as clear cut. Economics is only one factor in their decision making process. There are a number of competing objectives that producers must weigh as they make decisions on land usage and cropping mix.

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