



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

**CONSERVATION RESERVE PROGRAM
in SOUTH DAKOTA
Major Findings from 2007 Survey of
South Dakota CRP Respondents**

**Dr. Larry Janssen, Dr. Nicole Klein, Dr. Gary Taylor,
Mr. Emmanuel Opoku and Mr. Michael Holbeck**

Economics Research Report 2008 - 1

July 2008

Drs. Janssen and Klein are professors, Dr. Taylor is associate professor, Mr. Opoku is graduate research assistant, and Mr. Holbeck is former graduate student, Department of Economics, South Dakota State University.

Funding for this CRP study was provided by the South Dakota Agricultural Experiment Station Hatch project H-207 and a grant from the South Dakota Corn Utilization Council.

The electronic version of this report is available at:

<http://econ.sdstate.edu/Research/CRP2008.pdf>

Table of Contents

| | <u>Page</u> |
|---|-------------|
| EXECUTIVE SUMMARY | 1 |
| Background | 1 |
| CRP Survey and Respondent Characteristics | 2 |
| Post-CRP Land Use Plans of Respondents | 2 |
| Other Key Findings..... | 4 |
| I. INTRODUCTION | 6 |
| II. OVERVIEW of CONSERVATION RESERVE PROGRAM | 9 |
| Background Information – National CRP..... | 9 |
| South Dakota CRP – Background..... | 13 |
| III. SOUTH DAKOTA CRP SURVEY and RESPONDENT CHARACTERISTICS | 16 |
| CRP survey development..... | 16 |
| Regional distribution..... | 16 |
| Respondent demographic and business characteristics..... | 20 |
| IV. POST-CRP LAND USE PLANS OF RESPONDENTS | 24 |
| Re-enrollment of CRP acres vs. CRP land use conversions to agricultural production | 24 |
| CRP land use conversion plans..... | 26 |
| Factors affecting post-CRP land use decisions..... | 29 |
| V. CRP, GRASS, AND LIVESTOCK | 33 |

| | | |
|------|---|----|
| VI. | CRP AND CROP MANAGEMENT | 36 |
| | Crop management practices | 36 |
| | Weed management and weed control | 39 |
| | Crop residue management..... | 39 |
| VII. | ENVIRONMENTAL MANAGEMENT ISSUES..... | 43 |
| | Wildlife and wildlife habitat | 43 |
| | Wetland acres..... | 43 |
| | CONCLUDING REMARKS..... | 45 |
| | LIST OF REFERENCES..... | 47 |
| | APPENDIX A: South Dakota CRP Survey | 49 |

List of Figures

| <u>Figure</u> | <u>Title</u> | <u>Page</u> |
|---------------|--|-------------|
| 1 | Agricultural regions of South Dakota | 8 |
| 2 | CRP acres in U.S. by year, 1986-2007 | 12 |
| 3 | CRP acres in South Dakota by year, 1986-2007..... | 12 |
| 4. | Distribution of South Dakota CRP enrollment and CRP cropland intensity, statewide and regional, Feb. 2008 | 14 |
| 5. | Distribution of conservation practices on CRP land in South Dakota..... | 15 |
| 6. | Distribution of CRP acres, total and percent, held by respondents statewide and regional..... | 18 |
| 7 | Distribution of acres per CRP respondent farm by region, district, and statewide..... | 19 |

| | | |
|------|---|----|
| 8A. | Relative importance of CRP future land use decisions..... | 30 |
| 8B. | Percent of respondents who consider CRP future land use decisions As important or very important..... | 30 |
| 9. | Comparison of CRP new and existing payment rate and 2007 cropland cash rental rates, statewide and regional..... | 32 |
| 10A. | Importance of crop management practices | 38 |
| 10B. | Percent of respondents who consider crop management practices as important or very important..... | 38 |
| 11A. | Relative importance of various weeds on South Dakota farmland..... | 41 |
| 11B. | Percent of respondents who consider control of specific weeds in South Dakota CRP lands as an important or very important management concern..... | 41 |
| 12A. | Relative importance of factors influencing respondent’s decision to harvest crop residue | 42 |
| 12B. | Percent of respondents who consider specific factors in decision to harvest crop residue as important or very important..... | 42 |

List of Tables

| <u>Table</u> | <u>Title</u> | <u>Page</u> |
|--------------|---|-------------|
| 1. | Distribution of acres per CRP respondent farm by region, district and statewide..... | 18 |
| 2. | Selected demographic (age, education, and gender) characteristics of South Dakota CRP survey respondents | 21 |
| 3. | Selected business characteristics of South Dakota CRP survey respondents | 22 |
| 4. | Distribution of respondents, CRP acres, and total acres by farm type | 23 |
| 5. | Projection of CRP acre retention | 27 |
| 6. | Premium in CRP payment needed to re-enroll CRP acres | 28 |
| 7. | Post-CRP land use distribution, statewide and district | 28 |

| | | |
|-----|---|----|
| 8. | Percent of respondents with specific improvements on their CRP lands..... | 34 |
| 9. | Factors related to suitability of CRP lands for livestock grazing | 35 |
| 10. | Suitability of CRP lands for livestock grazing based on availability of fencing and water sources..... | 35 |
| 11. | Percent of respondents raising crops on their farm within the past two years | 37 |
| 12. | Hunting related decisions of respondents on their CRP lands | 44 |
| 13. | Respondent plans for managing their wetland acres..... | 45 |

FOREWORD

This report contains the major findings from a survey of South Dakota CRP contract holders which is a major component of an SDSU research project on the “Impact of CRP (Conservation Reserve Program) Acres in South Dakota Being Put Back Into Production.”

The major objectives of the research are: 1) to estimate the number of acres of CRP land that are likely to revert back to crop production, their location, and estimated crop mix on those acres; and 2) to determine the main factors that influence post-CRP land use decisions. The primary data source for examining these objectives is a survey completed by 753 CRP contract holders in South Dakota. Additional information can also be found in a companion report on the economic impact of post-CRP land use changes in South Dakota using IMPLAN analysis.

General funding for this project is from the South Dakota Corn Utilization Council grant #3XG216 and from the SDSU Agricultural Experiment Station Project H – 207: Economic analysis of agricultural land conservation, land use, and land market changes in South Dakota.

We wish to thank the South Dakota Corn Utilization Council for providing the funding to conduct this survey of CRP contract holders. We also wish to thank the United States Department of Agriculture, National Agricultural Statistics Service (USDA/NASS) South Dakota Field Office for their role in this project. The USDA/NASS South Dakota Field Office selected the sample of CRP contract holders, printed and mailed the survey, and entered the data into a spreadsheet after edits were conducted by the authors.

We wish to thank our reviewers, Dr. Gerald Warmann, SDSU professor of Economics, and Mr. Carter Anderson, director of USDA / NASS South Dakota Field Office for their helpful comments. We also wish to thank our colleagues, Dr. David Clay and Dr. Sharon Clay, SDSU professors of Plant Science for their contributions to the CRP survey review and development.

Finally, we wish to thank all of the 753 respondents who participated in the 2007 CRP survey. Without their responses, this report would not be possible.

The electronic version of this report is available at:

<http://econ.sdstate.edu/Research/CRP2008.pdf>

CONSERVATION RESERVE PROGRAM in SOUTH DAKOTA

Major Findings from the 2007 Survey of South Dakota CRP Respondents

**Dr. Larry Janssen, Dr. Nicole Klein, Dr. Gary Taylor,
Mr. Emmanuel Opoku and Mr. Michael Holbeck
Economics Dept., South Dakota State University¹**

EXECUTIVE SUMMARY

Major findings from a 2007 survey of South Dakota CRP contract holders are presented in this SDSU economics report and are summarized in this section.² This CRP survey was the main primary data source to complete the major research objectives of: (1) estimating the number of CRP acres that are likely to revert back to crop production, their location, and estimated crop mix on those acres; and 2) determining the main factors that influence post-CRP land use decisions.

Background

The Conservation Reserve Program (CRP) was created in 1985 as a federal program to retire highly erodible and environmentally sensitive cropland and pasture. CRP land is set aside for 10-15 years. CRP was initially viewed as a supply control program targeted to highly erodible cropland. During subsequent years, CRP has evolved into a land retirement program designed to help meet many environmental objectives.

South Dakota currently has about 1.3 million acres of cropland enrolled in CRP or 6.5% of total cropland acres. The greatest number and intensity of CRP acres are located in the northeast and north central regions of South Dakota. From 2008 to 2010, CRP contracts totaling nearly 508,000 acres in South Dakota are set to expire. From 2011 to 2013 another 420,700 acres are in expiring CRP contracts and the remaining 364,600 CRP acres are in contracts expiring from 2014 – 2023. Many of these acres may be re-

¹ Drs. Janssen and Klein are professors, Dr. Taylor is associate professor, Mr. Opoku is graduate research assistant, and Mr. Holbeck is former graduate student (May 2008 completion), Department of Economics, South Dakota State University.

² Financial support for this study was provided by the South Dakota Agricultural Experiment Station and a grant from the South Dakota Corn Utilization Council on the “Impact of CRP acres in South Dakota being put back into production.” The CRP survey instrument was developed by co-authors Janssen, Klein, and Taylor from the SDSU Economics Dept. and Drs. Sharon Clay and David Clay from the SDSU Plant Science Dept.

enrolled or contracts extended depending on CRP program funding and landowner preferences.

CRP Survey and Respondent Characteristics

During September and October 2007, the CRP survey was sent to a total of 2,524 CRP contract holders in South Dakota. The USDA/NASS South Dakota Field Office selected the sample, mailed the survey, and entered the data into a spreadsheet. The survey instrument included six sections: 1) CRP enrollment factors, 2) CRP future land use plans, 3) CRP, grass, and livestock, 4) CRP and crop management, 5) CRP and environment, and 6) General characteristics of CRP respondents. A total of 753 respondents provided useable data for this report, for an overall useable response rate of thirty percent.

The farm size and distribution of acres among survey respondents closely matches statewide and regional characteristics. The statewide average farm size per respondent was 1393 acres with 174 acres enrolled in CRP. Statewide, CRP acres were an average of 12% of total acres and 27% of cropland acres per respondent farm.

CRP acres are more concentrated in the northeast and north-central regions than elsewhere in South Dakota. These two regions have 27% of total farm acres and 42.8% of CRP acres held by respondents. Furthermore, CRP acres are an average of 20% of total farm acres and 30% of cropland acres for these respondents.

Compared to all South Dakota producers, respondents with CRP contracts are older (average age of 60.8 years versus 53.3 years), obtained more formal education (two-fifths have at least a 4 year college degree), are less likely to have farming as their primary occupation (only 37.5% are primarily farmers or ranchers), and have lower gross farm income (73.7% have less than \$100,000 of annual gross farm income).

Over half of the CRP acres (57.8%) are held by either retirees or those who do not consider farming or ranching as their primary business. This could have a significant impact on the factors influencing post-CRP land use decisions.

Post-CRP Land Use Plans of Respondents

Post-CRP land use plans refer to respondents' plans for their CRP acres after their contracts expire. These land use plans involve a series of interrelated and sequential decisions. Some alternatives are: re-enrolling some or all CRP acres into a new CRP

contract, converting CRP acres to crop production, or retaining CRP acres in grass for hay, livestock grazing, or wildlife habitat.

The extent of CRP land conversion to crop production and what cropping patterns are projected in different regions of South Dakota are of major concern to farmers, agribusinesses, landowners, and main street businesses in the State. Potential land use changes also involve a host of crop, grass, wildlife, wetland, and other agricultural management decisions.

Potential post-CRP land use plans indicated by respondents are very tentative. Major changes that have occurred since the survey was administered include the passage of a new farm bill, significant increases in commodity prices, and major increases in energy-based input costs. All of these could have a significant impact on producer's decisions to re-enroll acres in CRP or convert their CRP acres to crop production or other uses. A majority of respondents indicate the "opportunity to re-enroll" and "market prices of crops / livestock" were the most important factors that will influence their decisions.

The most basic post-CRP land use decision is related to the question: "What percent of CRP acres is expected to be converted to agricultural production vs. re-enrollment into a new CRP program?" In many respects, this important issue is the most difficult to answer because so many factors are related to this land use decision, including unknown payment rate provisions and land use restrictions in new CRP contracts. Based on their response pattern to several key survey questions, we classify the extent of CRP re-enrollment / conversion into these categories: "very likely", "somewhat likely", and "not likely" to re-enroll some or all of their CRP acres. Based on respondent land use plans and re-enrollment preference and the amount of CRP acres held by each group, we project:

- 34.2% of respondent CRP acres are considered "very likely" to be enrolled,
- 28.8% of their CRP acres are "somewhat likely" to be re-enrolled, and
- 37.0% of their CRP acres are "not likely" to be enrolled and would be converted.

From the perspective of conversion of CRP lands to agricultural production, 37% of respondent CRP acres are very likely to be converted and nearly two-thirds (65.8%) of CRP acres are "very likely" to "somewhat likely" to be converted to production.

Data on CRP premiums (increase in CRP payment rate per acre from the existing contract) needed to re-enroll CRP acres as expressed by survey respondents are consistent with our classification of respondent preferences for re-enrollment. CRP premium amounts and percentage increases in payment rates are considerably lower for those respondents classified as “very likely” to re-enroll some of their CRP acres.

Statewide, 60.7% of respondent post-CRP acres, not re-enrolled, are projected to be used for crop production such as corn, wheat, soybeans, alfalfa, sorghum, sunflowers and other crops. Another 30% of CRP acres are projected to remain in grass and used for livestock grazing or grass hay. The remaining 9.3% of post-CRP acres are projected for other uses including wetlands, wildlife habitat, buffer strips, shelterbelts etc. As expected, grass production use (50% of post-CRP acres) is more likely in West River regions, while crop production uses are predominant (71.8% of post-CRP acres) in the north-central and northeast regions.

Concerning crop mix, 26% of post-CRP acres, statewide, are projected to go into a corn / soybean / wheat rotation, 15% of post-CRP acres into a corn / soybean rotation, and lesser proportions into continuous corn, wheat, or alfalfa. Overall, corn or soybeans would be planted on 44% of post-CRP acres and wheat would be included on 35% of post-CRP acres. The regional distribution of specific crops planted on post-CRP lands corresponds with overall cropping patterns across regions.

The statewide and regional economic impact of post-CRP land use changes are addressed in a companion report. However, the land use change information used to estimate these economic impacts are provided from the survey data. For example, if the minimum amount of 37% of CRP acres is converted, an estimated 480,000 CRP acres would be converted to agricultural production. However, if the maximum amount of 65.8% of CRP acres is converted, then an estimated 850,000 CRP acres would be converted to agricultural production.

Other Key Findings

Post-CRP land use intentions for livestock grazing is closely related to current or recent livestock (especially beef cows) on their farm, the overall suitability of their CRP land for livestock grazing, and the costs of getting their land ready for livestock. Lack of existing fences, the need to repair fences, or the need to establish water sources for

livestock were the three most commonly cited limitations to future grazing of livestock on their CRP lands.

Canadian thistle was listed by 78% of respondents as an important weed control problem on their farm and was the only one of eleven common weeds perceived as a weed control problem for a majority of respondents in all regions. Canadian thistle was also listed as a major weed control problem on some CRP tracts, much more so than any other weed.

Crop residue is currently being harvested by one-sixth or more respondents for four main crops: wheat, corn, sorghum and oats. Nearly half of the respondents would consider harvesting crop residue for bio-fuels if there is a market for it. Another 36% of respondents were “uncertain” and only 16% would not consider this management option. Three items (price per ton of crop residue, impact on soil structure, and impact on soil fertility) were considered important factors in the crop residue management decision by more than two-thirds of 500 respondents answering these questions.

Hunting is a common occurrence on CRP lands in South Dakota, with 94% reporting their CRP lands were used for hunting by themselves, their family and friends, or other hunters. Only 10% of respondents with 17% of CRP acres reported fee hunting on their land.

Hunting will be impacted if CRP acres are not renewed. Only a quarter of the respondents indicated that there would be no impact on their land if they do not re-enroll their acres in CRP. Close to half (43.6%) of respondents, representing 53% of CRP acres, indicated that there would be a substantial impact.

Wetlands were present on a majority of respondent farms located east of the Missouri River. The mean amount of wetlands on their CRP tracts was 32 acres or an average of 18% of their CRP acres. Nearly equal proportions (46% to 47%) of respondents plan to manage their wetlands for wildlife habitat, versus managing wetlands for grazing or crop production.

Wildlife and wildlife habitat were important considerations in their production management practices for 68% of respondents. Furthermore, nearly three-fifths of respondents consider wildlife and wildlife habitat as important factors in their decision of whether to re-enroll their CRP contracts.

I. INTRODUCTION

This report is a major component of an SDSU research project on the “Impact of CRP (Conservation Reserve Program) Acres in South Dakota Being Put Back Into Production.” This project is funded by the South Dakota Agricultural Experiment Station and a grant from the South Dakota Corn Utilization Council. The major objectives are:

1. To estimate the number of acres of CRP land that are likely to revert back to crop production and the location of these acres within the state of South Dakota. We will also estimate the mix of crops that will be produced on these acres.
2. To determine the main factors that influence post-CRP land use decisions and determine the main management issues related to these land use decisions. This includes analysis of the major characteristics of CRP contract holders and their attitudes concerning managing their post-CRP lands for crops, livestock, wildlife and hunting, and other potential uses.
3. To determine the regional economic impacts that may be expected from conversion of CRP acres into agricultural productions and how these impacts will be distributed in the state. An analysis using IMPLAN³ software will be used to determine regional and statewide economic impacts of these changes.

The major data source for examining the first two objectives is from a survey of CRP contract holders in South Dakota. This report contains the major findings from the 753 South Dakota respondents completing this survey during September and October of 2007.

³ IMPLAN is a regional economic analysis software package used to model the monetary and labor impacts of economic changes in a region or state. We intend to use the information generated in this report to adjust the baseline model for the post-CRP land use impacts at the regional and state level. Economic and employment impacts will be generated along with multipliers to determine the impact of additional jobs and revenues created by these changes.

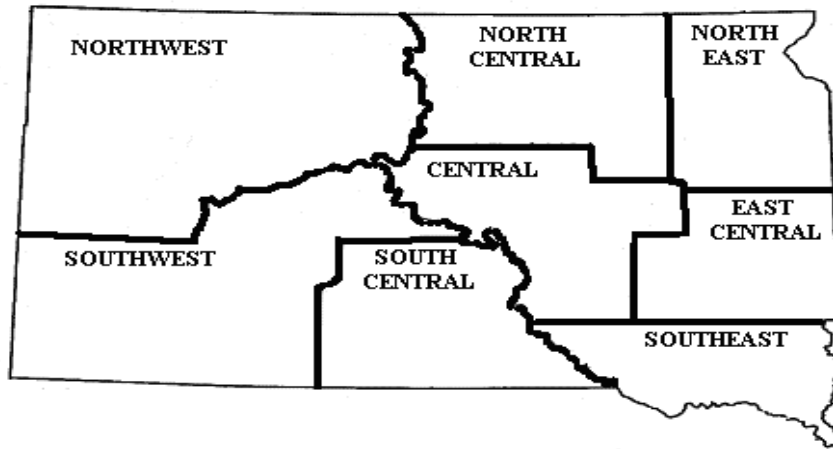
This report is organized as follows:

- II. Overview of Conservation Reserve Program, U.S. and South Dakota
- III. South Dakota CRP Survey and Respondent Characteristics
- IV. Post-CRP Land Use Plans of Respondents
- V. CRP, Grass, and Livestock
- VI. Crop Management and CRP
- VII. Environmental Management Issues
- VIII. Concluding Remarks

A companion report on the economic impact of post-CRP land use changes in South Dakota will focus on the IMPLAN results from the third objective (Taylor et.al. 2008).

Geographic differences in agricultural characteristics, including CRP, are pervasive in South Dakota. Eight agricultural regions are used in this report to help examine key findings from the South Dakota CRP survey (Figure 1 map) and have been used by the SDSU Economics Department in past CRP research and for agricultural land market reports since 1991 (Janssen, Pflueger, and Ahrendt. 2007; Venhuizen, 1996; Ghebremicael, 1994). The eight agricultural regions used in this report are an adaptation of the nine Agricultural Statistics Districts used by USDA / NASS, the only difference is the West River counties are divided into three regions instead of the four districts used by the USDA. In some cases to simplify reporting, the eight regions are clustered into three larger geographic districts: East River North, East River South, and West River.

Figure 1. Agricultural Regions of South Dakota



Source: Janssen, Larry and Burton Pflueger. "South Dakota Agricultural Land Market Trends 1991-2006." (C272). SDSU, Brookings, SD: SD Ag. Expt. Station

Description of Regions including counties

Southeast - Bon Homme, Charles Mix, Clay, Douglas, Hutchinson, Lincoln, Turner, Union, and Yankton
 East Central -Brookings, Davison, Hanson, Kingsbury, Lake, McCook, Miner, Minnehaha, Moody, and Sanborn

Central - Aurora, Beadle, Brule, Hand, Hughes, Hyde, Jerauld, and Sully

Northeast - Clark, Codington, Day, Deuel, Grant, Hamlin, Marshall, and Roberts

North Central - Brown, Campbell, Edmunds, Faulk, McPherson, Potter, Spink, and Walworth

South Central - Gregory, Jones, Lyman, Mellette, Todd, and Tripp counties

Southwest - Bennett, Custer, Fall River, Haakon, Jackson, Pennington, Shannon, and Stanley

Northwest - Butte, Corson, Dewey, Harding, Lawrence, Meade, Perkins, and Ziebach

CRP Districts

- East River North = Northeast and North Central regions
- East River South = East Central, Southeast, and Central regions
- West River = South Central, Southwest, and Northwest regions

II. OVERVIEW of CONSERVATION RESERVE PROGRAM

Background Information – National CRP

The Conservation Reserve Program (CRP) was authorized in the Food Security Act of 1985 as a federal program to retire highly erodible and other environmentally sensitive cropland and pasture. This voluntary long-term land retirement program is administered by the U.S. Department of Agriculture through contracts with land owners. In exchange for fixed annual rental payments and cost-share of 50 percent of cover establishment, operators agree to establish and maintain an approved permanent cover (such as grasses, trees, or wildlife habitat) on their CRP acres for 10 to 15 years.

The original CRP had enrollment goals of 40 - 45 million cropland acres by 1990, with a primary goal of reducing soil erosion on highly erodible cropland. “Secondary objectives included protecting our nation’s long run capability to produce food and fiber, reduce sedimentation, improve wildlife habitat, curbing production of surplus commodities, and providing income support for farmers.” (USDA-FSA CRP summary, 2006)

The CRP was initially viewed as a supply control program targeted to highly erodible cropland. During the intervening years, the CRP has evolved into a land retirement program designed to help meet many environmental objectives. For example, wetlands in cropped fields were targeted for enrollment in 1989, while enrollment for specific conservation practices including filter strips, riparian buffers, windbreaks, and grass waterways were included in 1991 and 1992. Further targeting occurred in the 1990’s as maximum CRP payment rates per acre became based on soil specific productivity rental rates and the concept of an environmental benefit index (EBI) was developed to help rank CRP land offers.

The maximum enrollment during the first ten years of CRP was 35 million acres or nearly nine percent of U.S. cropland. Twelve general signup periods were used to secure these enrolled acres from 1986 to 1992. Two-thirds of the enrolled CRP acres were located in ten states: Texas, North Dakota, Kansas, Montana, Iowa, Colorado, Minnesota, **South Dakota**, Missouri, and Nebraska. All of these states are located in the Great Plains and western Cornbelt regions of the United States.

The 1996 FAIR (Federal Agriculture Improvement and Reform) Act re-authorized CRP enrollment and set a maximum limit of 36.4 million acres. The Secretary of Agriculture was instructed to obtain CRP acres through contracts that maximized the environmental benefits per dollar spent. Eligibility criteria for CRP enrollment shifted from mostly water and wind erosion measures to ranking CRP contract offers based on an environmental benefit index (EBI) that provided equal weights for soil erosion, water quality, and wildlife benefits and lesser weights for air quality benefits and enduring post-contract benefits (such as tree plantings). Cropland could now be enrolled under:

- (1) general signups and competitive offers based on EBI rankings in relation to rental rate bids, or
- (2) continuous signups for specific practices, such as filter strips, riparian buffers, and wildlife habitat. These contracts were non-competitive and often provided incentive payments for adopting specific practices.

In 2002, the CRP program acreage maximum was increased to 39 million acres and added flexibility was provided in administering CRP contracts.

Total CRP acreage in the U.S. declined from 35 million in 1994 to a low of 29.8 million acres in 1999, as existing contracts expired and fewer acres were enrolled. Thereafter, CRP acreage enrollment increased each year to a peak enrollment of 36.0 million acres in 2006 (Figure 2). Ninety percent (32.45 million acres) of CRP acres were enrolled in general signups and ten percent (3.55 million acres) were enrolled through continuous signups. The average size of a general signup CRP contract was 79 acres, compared to an average of 11 acres for a CRP contract enrolled under continuous signup. In terms of state rankings, Washington replaced Nebraska for 10th place while the other nine states, including South Dakota, remained among the top ten states in CRP acres enrolled (USDA-FSA CRP summary, 2006)

Total CRP acreage declined by 1.34 million acres to 34.66 million acres in 2007 as many contracts expired during a time period of very high grain and oilseed prices. Further reductions in CRP acreage in the next few years are likely, but the actual amount will be influenced by conservation policies and appropriations.

In summary, the CRP has become the major cropland retirement and agro-environmental conservation program in the United States. For most years from 1990 to

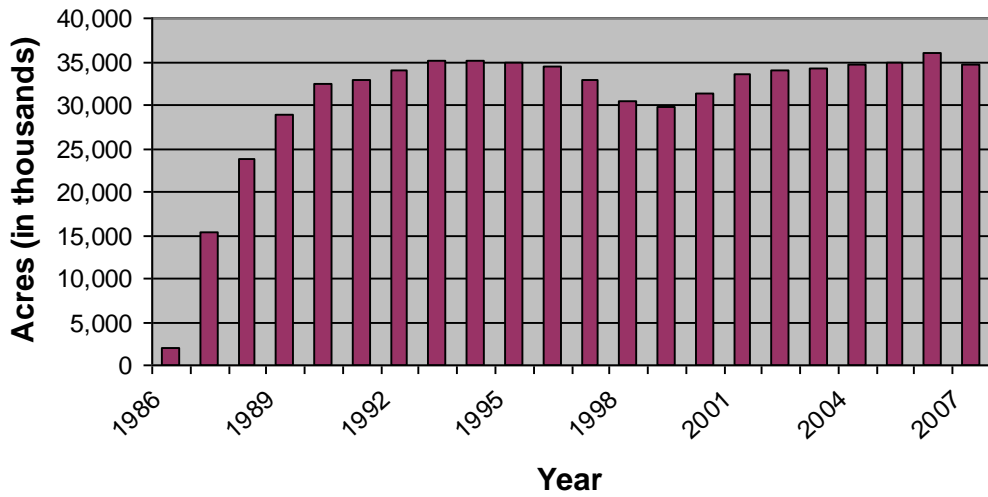
2007, at least 34 million acres have been enrolled in CRP. Most (\$1.65 of \$1.83 billion) of the CRP budget is used for annual rental payments averaging \$48 per acre, with the remainder used for cost-share and incentive payments.

A comprehensive review of economic and environmental benefits and costs of the Conservation Reserve Program are available in USDA and USGS reports and in agricultural economics journal articles. Key environmental benefits include: (1) reduced soil erosion and protection of 25 million acres of highly erodible cropland from erosion, (2) enhanced water quality – lower sediment and nutrient enrichment into surface water and ground water, (3) wetland restoration and protection of 3.2 million acres of wetland and associated cropland, (4) improving wildlife habitat for many species including pheasant, ducks and geese, grouse and quail, and (5) sequestering carbon on enrolled lands. However, less than one-fourth of the economic values of these environmental benefits are on-site benefits to CRP land owners and farm operators. (Sullivan, et.al. 2004; Allen and Vandever, 2003; Johnson, 2005; Hellerstein, 2006; Reichelderfer and Boggess, 1988).

More than three-fourths of the environmental benefits of CRP are off-site benefits to others and to general society. These off-site benefits include cleaner water for recreation and municipal use, improved air quality and are often measured as “cost savings and quality of life improvements rather than as more jobs or increased economic activity – the usual measures of economic progress” (Sullivan, et.al. 2004). The extent of off-site benefits is a major reason for this federally funded conservation program.

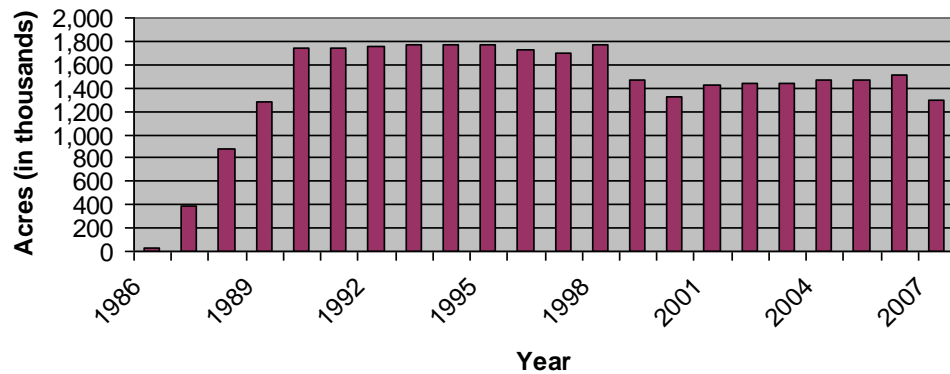
Most economic impact studies on reducing the number of CRP acres show some increase in agricultural and nonagricultural employment and value added. However, reduced crop prices associated with return of CRP land to crop production, loss of CRP payments, and reduced hunting / recreation spending can offset some of these economic gains. Based on USDA studies, the regional economic impacts of changes in CRP are likely to be the greatest in the Northern Plains states of South Dakota, North Dakota, and eastern Montana (Sullivan et. al. 2004)

Figure 2. CRP acres in U.S. by year, 1986-2007



Source: USDA Farm Service Agency, CRP Summary.

Figure 3. CRP acres in South Dakota by year, 1986-2007



Source: USDA Farm Service Agency, CRP Summary.

South Dakota CRP – Background

The Conservation Reserve Program has been very popular in South Dakota. Total CRP enrollment increased rapidly from 35.8 thousand acres in 1986 to 1.74 million acres enrolled in 1990. Most of the CRP acres were initially enrolled under soil erosion (both wind and water) criteria, with wetland criteria added in 1989 for cropland in the Prairie Pothole regions of South Dakota, North Dakota, Minnesota, and Montana. CRP acreage remained quite stable from 1.69 to 1.74 million acres from 1990 to 1998 (Figure 3). Thereafter, from 1999 to 2006, CRP acres declined to a lower range of 1.41 to 1.51 million acres reflecting changes in acceptance criteria.

CRP acreage in South Dakota declined by 260,000 acres in 2007 to 1.293 million acres as contracts expired for nearly 680,000 acres and fewer acres were obtained from re-enrollment or from new acre signups. By February 2008, CRP acres were 6.5% of total cropland acres in South Dakota, compared to 7.5% in 2006 and 8.7% of South Dakota's cropland acres during most of the 1990's.

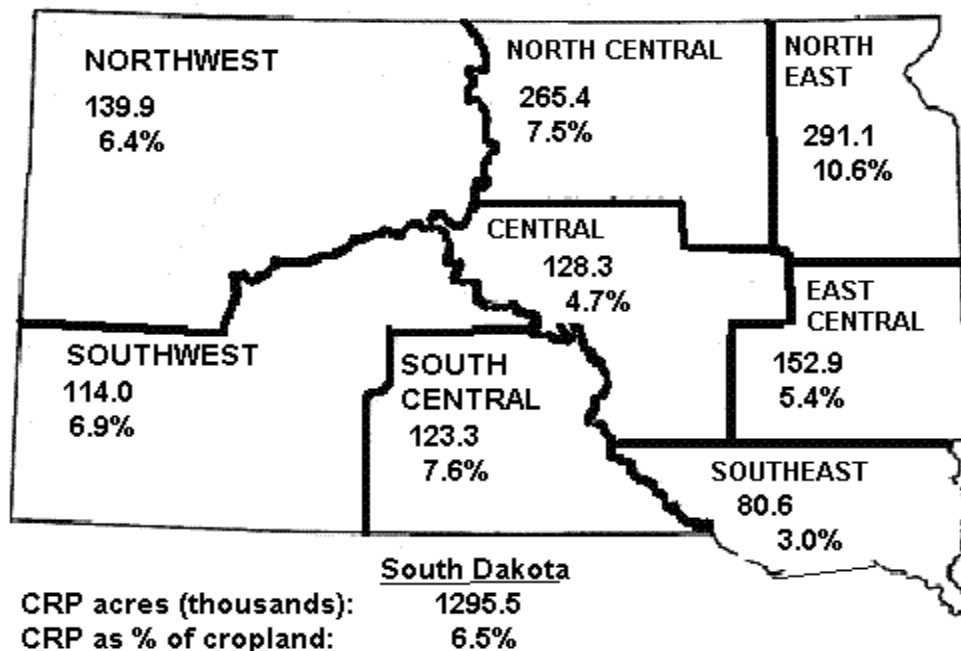
The greatest number and intensity of CRP acres are located in the northeast and north central regions of South Dakota. These two regions contain 43% of total CRP acres in South Dakota, with CRP comprising more than 10% of cropland acres in the northeast. (Figure 4 map).

Since the early 1990's, wetland systems acres have been an increasingly important source of cropland acres enrolled in the Conservation Reserve Program in South Dakota. In February 2008, wetland systems acres were 47.4% (about 613,000 acres) of total CRP acres enrolled in South Dakota. Wetland system acres enrolled in CRP include cropped wetland acres (119,100 acres), uplands associated with cropped wetlands (401,500 acres), and another 103,800 cropland acres adjacent to non-cropped wetlands (wetlands with no recent cropping history). Most of the surrounding upland and adjacent cropland acres were seeded to grasses. Furthermore, most of the wetland system acres are located in the counties east of the Missouri River with the greatest concentration in the northeast, north central and east-central regions. (USDA-FSA CRP summary, 2006 and USDA-FSA CRP monthly summary, Feb.2008).

Conservation practices related to wetland restoration, farmed wetlands, filter strips, and riparian buffer strips were used on nearly 30% of CRP acres in South Dakota.

(Figure 5). These practices were also used on more than 20% of CRP acres enrolled in the surrounding states of North Dakota, Minnesota, and Iowa, but were only 10% of national CRP acreage enrollment. Wetland related enrollment and wetland conservation practices are the greatest difference in South Dakota's CRP profile compared to the national CRP profile. South Dakota is similar to the nation and most states in that most CRP land was in conservation practices related to introduced, native, or existing grasses.

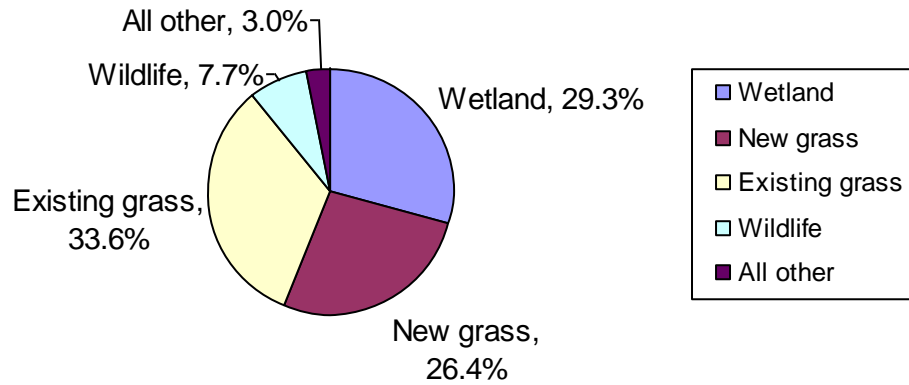
Figure 4. Distribution of South Dakota CRP enrollment and CRP cropland intensity statewide and regional, Feb. 2008.



Source: USDA, FSA, Conservation Reserve Program Reports for State and County, Feb. 2008.

From 2008 to 2010, CRP contracts totaling nearly 508,000 acres in South Dakota are set to expire. From 2011 to 2013 another 420,700 acres are in expiring CRP contracts and the remaining 364,600 CRP acres are in contracts that will expire from 2014 – 2023 (USDA-FSA CRP monthly summary, Feb. 2008). Changes in federal agricultural conservation policies along with growing demands on U.S. cropland for food, feed, energy, and exports, will certainly impact the future of CRP enrollments.

Figure 5. Distribution of conservation practices on CRP lands in South Dakota (% of CRP acres)



Source: South Dakota Farm Service Agency, conservation practices, 2007

III. SOUTH DAKOTA CRP SURVEY and RESPONDENT CHARACTERISTICS

CRP survey development

The research proposal objectives described earlier required primary data from CRP contract holders in South Dakota. The CRP survey instrument developed and pre-tested for this purpose included six sections: 1) CRP enrollment factors, 2) CRP future land use plans, 3) CRP, grass, and livestock, 4) CRP and crop management, 5) CRP and environment, and 6) General characteristics of CRP respondents. A copy of the survey instrument is in appendix A.

A subcontract with the USDA / NASS South Dakota Field Office was developed for selecting the sample and conducting two mailings of the survey. The questionnaires were reviewed by the authors before SDASS personnel entered the survey data into a spreadsheet. During September and October 2007, the survey was sent to a total of 2,524 CRP contract holders in South Dakota.

A total of 753 respondents provided useable data for this report, for an overall useable response rate of 30%. All of these respondents had current CRP contracts and land enrolled in CRP.^{4 5} Not all respondents answered every survey question. Analysis for each topic is based on the actual responses to specific questions with the number of responses indicated in endnotes to the tables and figures.

Regional distribution

The regional distribution of respondent's CRP acres is shown in Figure 6. The land use distribution, including the number of CRP acres, per respondent farm by region is shown in Table 1 and Figure 7. Key findings from this figure, table, and supporting data are:

- Farm size (statewide) of 1393 acres is very close to the statewide average of 1396 acres per farm reported by USDA / NASS.

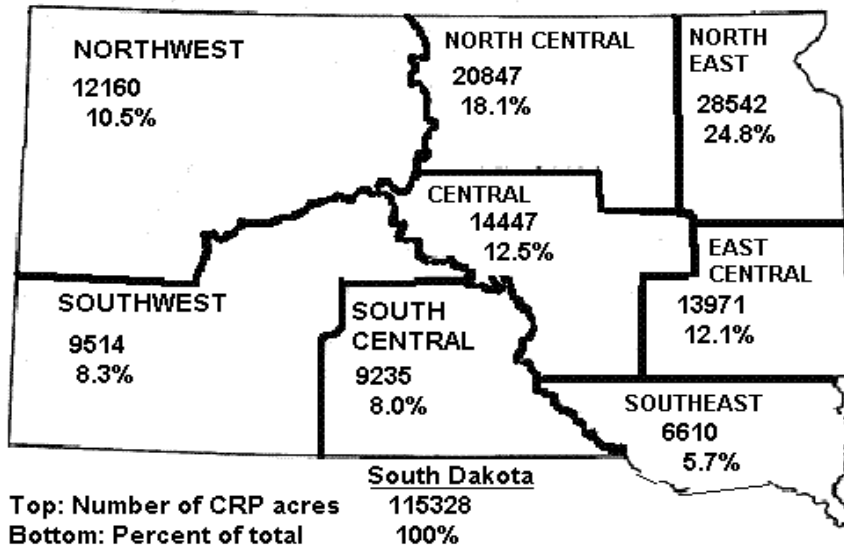
⁴ Another 60 respondents no longer had or did not have any CRP lands, but completed some questions in the crop management section and demographic section of the report. These respondents were not included in this report which is focused on respondents with CRP contracts at the time they completed the questionnaire.

⁵ Respondent CRP data is weighted by their regional location. West River respondents were sampled at a higher rate, but had lower response rates to the survey. To assure proper regional and statewide estimates, a weighting factor of 0.6 was used for West River responses and 1.0 for East River responses (Holbeck, 2008)

- Average farm size varies from more than 6200 acres in the northwest and southwest regions to between 600 and 650 acres in the east central and southeast regions. As expected, pasture acres varied from over three-fourths of total acres in the western regions to about one-fourth of total acres in the eastern regions.
- The statewide average of 174 CRP acres per respondent is 12.5% of total farm and ranch land acres held by respondents. CRP acres as a portion of total farm acres held by respondents varies from 20% in the East River North district to less than seven percent of farm / ranch acres in the northwest and southwest regions.
- The average number of CRP acres varies from 429 acres in the northwest and 362 acres in the southwest region to only 75 acres in the southeast and 102 acres in the east central region. In the other four regions, the average number of CRP acres per respondent was close to the statewide average of 174 CRP acres.
- CRP intensity can be measured by the proportion of CRP land to total cropland (including CRP acres). CRP intensity was more than 30% of total cropland acres held by respondents in the West River and East River North districts, compared to 22% of respondent cropland acres in the East River South district.
- West River regions account for 47% of total farm acres, 69% of pasture acres but only 27% of CRP acres held by respondents. Farm size, CRP acres, crop acres, and pasture acres per farm are considerably higher in the three regions of the West River district than in the East River regions of South Dakota.
- The north central and northeast regions (East River North district) have 27% of total farm acres and 43% of CRP acres held by all respondents. An average of 20% of total farm acres for respondents in these two regions is enrolled in CRP.
- The remaining East River regions have 26% of total acres and 30% of CRP acres. The average number of CRP acres per farm in these regions is considerably lower than found in other regions of South Dakota.
- The regional patterns for respondent CRP acres are pretty close to their reported patterns for all CRP contract holders. For South Dakota, respondents hold 8.9% of the state's total CRP acres. At the district level, the proportion of respondent to total CRP acres varies from 8.2% for West River, 8.9% for the East River North District, and 9.7% of total CRP acres in the East River South District.

In summary, the regional distribution of respondent CRP acres and total farmland is close to the overall distribution of CRP acres and farmland acres, both statewide and regional. Thus the major findings in the remainder of this report should be representative of the overall population of CRP contract holders and South Dakota producers.

Figure 6. Distributions of CRP acres, total and percent, held by respondents statewide and regional.



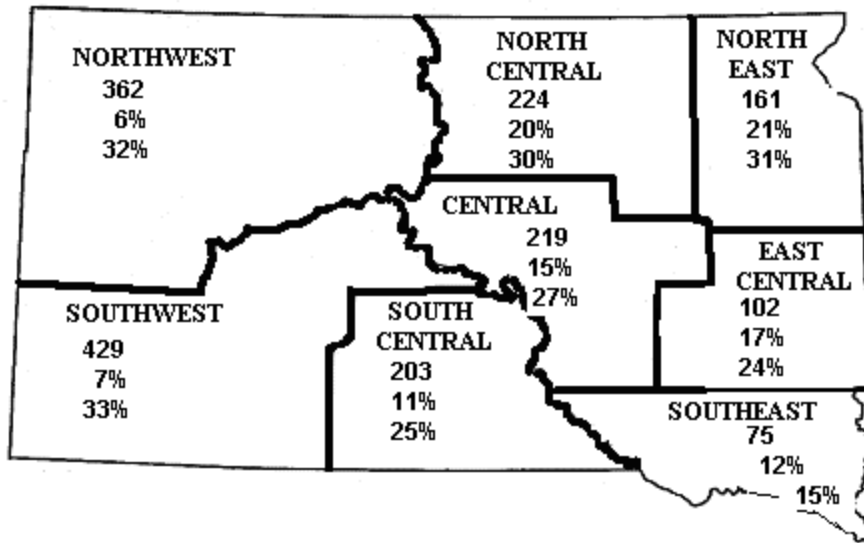
Source: South Dakota CRP Survey, Sept/Oct 2007.
Based on 730 completed responses.

Table 1 Distribution of acres per CRP respondent farm by region, district, and statewide

| Region or District | Total | CRP | Crop | Pasture | Other |
|--------------------|-------|-----|------|---------|-------|
| Central | 1477 | 219 | 581 | 625 | 53 |
| East Central | 606 | 102 | 318 | 156 | 30 |
| Southeast | 649 | 75 | 434 | 121 | 19 |
| EAST RIVER SOUTH | 817 | 120 | 413 | 252 | 32 |
| Northeast | 784 | 161 | 364 | 217 | 42 |
| North Central | 1181 | 224 | 521 | 375 | 61 |
| EAST RIVER NORTH | 921 | 183 | 418 | 272 | 48 |
| Northwest | 6230 | 362 | 758 | 4965 | 144 |
| Southwest | 6560 | 429 | 860 | 5103 | 169 |
| South Central | 1782 | 203 | 597 | 931 | 51 |
| WEST RIVER | 4302 | 305 | 708 | 3181 | 107 |
| STATEWIDE | 1393 | 174 | 460 | 708 | 50 |

Source: South Dakota CRP Survey, Sept / Oct 2007.
Calculated from data provided by 730 respondents to the land use question #1 of the CRP survey.

Figure 7. Distribution of acres per CRP respondent farm by region, district, and statewide.



| <u>Item</u> | <u>State</u> | <u>West River</u> | <u>East River North</u> | <u>East River South</u> |
|--|--------------|-------------------|-------------------------|-------------------------|
| Top: Average number of CRP acres | 174 | 305 | 183 | 120 |
| Middle: CRP acres as % of total acres | 12% | 7% | 20% | 15% |
| Bottom: CRP acres as % of cropland acres | 27% | 30% | 30% | 22% |

District Regions

West River = Southwest, South Central, Northwest
 East River North = North Central, Northeast
 East River South = Central, East Central, Southeast

Source: South Dakota CRP Survey, Sept / Oct 2007.

Respondent demographic and business characteristics

Decision making is often related to demographic characteristics (such as age, education, and gender) and business-related characteristics of individuals. Compared to all South Dakota producers, respondents with CRP contracts are older, obtained more formal education, are less likely to have farming as their primary occupation, and have lower gross farm income.

Demographic and business characteristics of survey respondents are reported in Tables 2, 3 and 4. The average respondent age was 60.8 years compared to 53.3 years for all South Dakota farmers. More than one-sixth (17.7%) are elderly respondents from 75 to 96 years of age compared to only 8.6% of respondents that are 23 to 44 years of age. Relatively few respondents are female, but their average age is nearly eight years higher than males (Table 2). Most of the women are retired or engaged in a nonfarm occupation.

Respondents have relatively high levels of education attainment, after accounting for their age level. Nearly two-fifths have completed college degree(s) and another 23% have graduated from a vocational technical school or completed some college (Table 2).

Most respondents (73.7%) operate small farms with less than \$100,000 of annual gross farm income. A major reason is that only 37.5% of respondents list farming / ranching as their main occupation, with the remainder almost equally divided between retired and nonfarm business or off-farm employment (Table 3).

Most (93%) nonfarm or retired respondents operated small farms, compared to only 43% of those reporting farming as their main occupation. Almost all respondents operating medium or larger farms, generating more than \$100,000 of gross farm income, reported farming as their main occupation.

Farm rental income, including CRP payments, was the main source of farm income for 87% of retired and 63% of nonfarm respondents. CRP acres averaged 30% of total acres held by these respondents. Crop and /or livestock income was the main farm income source for almost all farming occupation respondents and CRP acres averaged less than 10% of total acres held by this group.

Post-CRP management decisions may also be related to the presence of crop and / or livestock enterprises on their farms. Respondents with CRP, crop and livestock

enterprises operated much larger farms than respondents with CRP and crop only or CRP and livestock only enterprises. Finally, nearly one-sixth of respondents did not have any livestock and had not raised any crops within the past two years. CRP payments and farm rental income was the major source of gross farm income for all of these respondents. Furthermore, more than half of their farmland acres were enrolled in CRP contracts.

Most respondents were owner-operators or owner-landlords of their CRP land. Nearly 70% of respondents had one or two CRP contracts and 30% had three or more contracts. The mean number of CRP contracts per respondents was 2.3 (Table 3).

Most CRP acres are controlled by respondents operating smaller farms, regardless of occupational orientation. Retired and nonfarm occupation respondents control 57.4% of CRP acres but only operate 25.1% of farmland acres. Small farm operators control another 18% of CRP acres, while operators of medium or large farms control 24.5% of CRP acres (Table 4).

Table 2. Selected demographic (age, education, and gender) characteristics of South Dakota CRP survey respondents

| <u>Age Distribution (n=729)</u> | | <u>Education (n=743)</u> | |
|---------------------------------|-------------------------------|----------------------------------|-------------------------------|
| <u>Years</u> | <u>Percent of Respondents</u> | <u>Description</u> | <u>Percent of Respondents</u> |
| 23-44 | 8.6 | Less than high school | 7.9 |
| 45-54 | 24.3 | High school diploma | 29.9 |
| 55-64 | 29.0 | Technical school or some college | 23.0 |
| 65-74 | 20.4 | Undergraduate degree | 16.2 |
| 75-96 | <u>17.7</u> | Graduate or professional degree | <u>23.0</u> |
| | 100.0 | | 100.0 |
| Median | 60.0 years | | |
| Average | 60.8 years | | |
| <u>Gender</u> | <u>Percent of Respondents</u> | <u>Average Age</u> | |
| Male | 89.4 | 60.0 years | |
| Female | 10.6 | 67.8 years | |

Source: South Dakota CRP Survey, Sept/Oct 2007 completed by 753 respondents.

Table 3. Selected business characteristics of South Dakota CRP survey respondents.

| <u>Principal Occupation</u> | <u>Percent of Respondents</u> | <u>Annual Gross Farm Income</u> | <u>Percent of Respondents</u> |
|--|-------------------------------|---|-------------------------------|
| Farming/ranching | 37.5 | <\$10,000 | 21.2 |
| Nonfarm business or off-farm employment | 31.5 | \$10,000-49,999 | 37.2 |
| Retired | <u>31.0</u> | \$50,000-99,999 | 15.4 |
| | 100.0 | \$100,000-249,999 | 14.5 |
| | | \$250,000-499,999 | 7.8 |
| | | \$500,000 or more | <u>4.0</u> |
| | N= 720 | | 100.0 |
| | | | N= 705 |
| <u>Main source of Farm Income</u> | <u>Percent of Respondents</u> | <u>Major Farm Enterprises</u> | <u>Percent of Respondents</u> |
| Livestock | 26.3 | Crops and livestock | 41.8 |
| Crop sales | 23.7 | Crops only | 34.3 |
| Farm rental income (including CRP payment) | 47.6 | Livestock only | 8.0 |
| Other | <u>2.4</u> | No crops or livestock (CRP/ rental income only) | <u>15.9</u> |
| | 100.0 | | 100.0 |
| | N= 682 | | N=705 |
| <u>CRP land tenure and ownership</u> | <u>Percent of Respondents</u> | <u>Number of CRP contracts</u> | <u>Percent of Respondents</u> |
| Owner - operator | 69.6 | One | 45.7 |
| Owner- landlord | 19.2 | Two | 24.0 |
| Renter – operator | 4.6 | Three | 13.7 |
| Owner combinations* | <u>6.6</u> | Four or more | <u>16.6</u> |
| | 100.0 | | 100.0 |
| | N= 735 | | N= 720 |

* Owner & renter; owner, operator and landlord etc.

Source: South Dakota CRP Survey, Sept/Oct 2007 completed by 753 respondents.

Table 4. Distribution of respondents, CRP acres, and total acres by farm type.

| <u>Farm Type*</u> | <u>Respondents</u> | | <u>CRP Acres</u> | | <u>Total farmland acres</u> | |
|-------------------|--------------------|--------|------------------|--------|-----------------------------|--------|
| | No. | % | No. | % | No. | % |
| Retired | 222 | 30.8% | 35,070 | 31.4% | 114,510 | 12.5% |
| Nonfarm | 223 | 31.0% | 29,140 | 26.1% | 115,450 | 12.6% |
| Small Farm | 119 | 16.5% | 20,183 | 18.0% | 185,724 | 20.3% |
| Medium Farm | 75 | 10.4% | 13,181 | 11.8% | 161,218 | 17.6% |
| Large Farm | 81 | 11.3% | 14,245 | 12.7% | 338,545 | 37.0% |
| SUM | 720 | 100.0% | 111,819 | 100.0% | 915,447 | 100.0% |

*Definitions of Farm Type are based on the combination of respondent's principal occupation and their gross farm income. Retired and nonfarm occupation are mostly small farms with less than \$100,000 of gross farm income. Respondents whose principal occupation is farming were divided into three categories based on gross farm income (GFI): Small = less than \$100,000, Medium= \$100,000 - \$249,999, and Large=\$250,000 or more GFI. This farm typology closely corresponds with a classification developed by the USDA Economic Research Service and is widely used to examine farm household / business issues.

IV. POST-CRP LAND USE PLANS OF RESPONDENTS

Post-CRP land use plans refer to respondents' plans for their CRP acres after their contracts expire. These land use plans involve a series of interrelated and sequential decisions. Some alternatives are: re-enrolling some or all CRP acres into a new CRP contract, converting CRP acres to crop production, or retaining CRP acres in grass for hay, livestock grazing, or wildlife habitat.

The extent of CRP land conversion to crop production and what cropping patterns are projected in different regions of South Dakota are of major concern to farmers, agribusinesses, landowners, and main street businesses in the State. Potential land use changes also involve a host of crop, grass, wildlife, wetland, and other agricultural management decisions.

In this section, we examine the projected (and very tentative) post-CRP land use plans of respondents and some of the key factors that may influence their actual decision. During the CRP survey period in September and October 2007, new farm program legislation was being debated in the U.S. Congress during a time of rapidly rising grain and oilseed prices and major increases in energy-based input costs. Commodity markets were providing strong signals to increase crop production, especially for corn, wheat, and soybeans. The basic parameters of new commodity and conservation programs, including availability of CRP renewal options, were not finalized. Consequently, respondents could only provide their best assessment of their future CRP land use plans in an unusually fluid and dynamic agricultural economic environment.

Re-enrollment of CRP acres vs. CRP land use conversion to agricultural production

The most basic post-CRP land use decision is related to the question: "What percent of CRP acres is expected to be converted to agricultural production vs. re-enrollment into a new CRP program?" In many respects, this important issue is the most difficult to answer because so many factors are related to this land use decision, including unknown payment rate provisions and land use restrictions in new CRP contracts.

Based on their response pattern to several key survey questions (#8, #10, and #6), we classify the extent of CRP re-enrollment / conversion into these categories: "very likely", "somewhat likely", and "not likely" to re-enroll some or all of their CRP acres (Tables 5 and 6).

Overall, 42% of respondents have definite plans to re-enroll some or all of their CRP lands. We classified their CRP acre enrollment intentions as “very likely” if new program dollars are available. Another 36% plan to convert their CRP lands to crop or grass production, but many would consider re-enrolling some of their CRP lands. Finally 22% of respondents did not provide specific post-CRP land use plans, but many would also consider re-enrolling some or all of their CRP acres. For these two respondent groups, we classified their CRP acre enrollment intentions as “somewhat likely”. Remaining CRP contract acres held by each group were placed in the “not likely” column and represent the CRP acres that are most likely to be converted to production uses (Table 5).

Based on respondent land use plans and re-enrollment preference and the amount of CRP acres held by each group, we project:

- 34.2% of respondent CRP acres are considered “very likely” to be re-enrolled,
- 28.8% of their CRP acres are “somewhat likely” to be re-enrolled, and
- 37.0% of their CRP acres are “not likely” to be enrolled.

From the perspective of conversion of CRP lands to agricultural production, 37% of respondent CRP acres are very likely to be converted and nearly two-thirds (65.8%) of CRP acres are very likely to somewhat likely to be converted to agricultural production.

Data on CRP premiums (increase in CRP payment rate per acre from the existing contract) needed to re-enroll CRP acres as expressed by survey respondents are generally consistent with our classification of respondent preferences for re-enrollment.

Respondents intending to re-enroll all of their CRP land only needed a premium of \$16.30 / acre or a 29% higher rate than their current CRP payment. Respondents with plans to convert their lands to agricultural production needed a premium of \$28.20 / acre or a 62% higher rate than their current CRP payment to consider re-enrolling some of their land in CRP. The other two land use decision groups needed a premium of \$20 to \$23 per acre or a 41% to 43% increase in their per acre CRP payment rate (Table 6).

Thus, CRP premium amounts and percentage increases in payment rates are lower for those respondents classified as “very likely” to re-enroll some of their CRP acres (Holbeck, 2008).

CRP land use conversion plans

A total of 458 of 753 respondents provided detailed information on their post-CRP land use conversion plans to specific crops, pasture / grass, and other uses. This information is directly used to estimate land use for CRP lands coming out of the reserve and into production, and is reported in Table 7. Statewide, 60.7% of respondent post-CRP acres, not re-enrolled, are projected to be used for crop production such as corn, wheat, soybeans, alfalfa, sorghum, sunflowers and other crops. Another 30% of CRP acres are projected to remain in grass and used for livestock grazing or grass hay. The remaining 9.3% of post-CRP acres are projected for other uses including wetlands, wildlife habitat, buffer strips, shelterbelts etc.

As expected, grass production use (50% of post-CRP acres) is more likely in West River regions, while crop production uses are predominant (71.8% of post-CRP acres) in the north central and northeast regions (Table 7). Post-CRP land use distribution in the East River South district is pretty close to the statewide distribution.

The percentage distribution of post-CRP land use plans by CRP respondents is very close to SDSU farmland market survey estimates in 2006 provided by lenders and appraisers. Projections from this 2006 farmland market survey estimated 61% of CRP acres would revert to cropland, 27% to grassland, and 12% to other uses including wildlife habitat (Janssen and Pflueger, 2006). The similarity in post-CRP land use results from two very different surveys in South Dakota provides additional validation of these results.

Concerning crop mix, 26% of post-CRP acres, statewide, are projected to go into a corn / soybean / wheat rotation, 15% of post-CRP acres into a corn / soybean rotation, and lesser proportions into continuous corn, wheat, or alfalfa (Table 7). Overall, corn or soybeans would be planted on 44% of post-CRP acres and wheat would be included on 35% of post-CRP acres. The regional distribution of specific crops planted on post-CRP lands corresponds with overall cropping patterns across regions.

The statewide and regional economic impact of post-CRP land use changes are addressed in a companion report (Taylor et.al. 2008). However, the land use change information used to estimate these economic impacts are provided from the survey data

reported in Tables 5 and 7 of this report. For example, if the minimum amount of 37% of CRP acres is converted, an estimated 480,000 CRP acres would be converted to agricultural production. However, if the maximum amount of 66% of CRP acres is converted, then an estimated 850,000 CRP acres would be converted to agricultural production.

Table 5. Projection of CRP acre retention^a

| Land Use Plans | Respondents | | Total CRP acres | CRP re-enrollment intentions | | | |
|--------------------------------|-------------|-------|-----------------|------------------------------|-----------------|------------|--------|
| | No. | Pct | | Very likely | Somewhat likely | Not likely | |
| -----number of CRP acres ----- | | | | | | | |
| CRP Only | 144 | 19.6 | 18,660 | 18,660 | - | - | |
| CRP and other uses | 164 | 22.3 | 31,480 | 21,230 | - | 10,250 | |
| Crops/Grass maybe CRP | 265 | 36.0 | 46,320 | - | 22,050 | 24,270 | |
| No plans maybe CRP | 163 | 22.1 | 20,150 | - | 11,530 | 8,620 | |
| | | 100.0 | | | | | |
| | | | CRP acres: | | | | |
| | | | Total | 116,610 | 39,890 | 33,580 | 43,140 |
| | | | Percent | 100.0 | 34.2 | 28.8 | 37.0 |

^aBased on joint response to future land use plans (Question #8) and potential for CRP re-enrollment (CRP acres reported in questions #10).

Source: South Dakota CRP Survey, Sept/Oct 2007.

Table 6. Premium in CRP payment needed to re-enroll CRP acres ^a

| Land Use Plan | Projected CRP acres re-enrolled | CRP premium ^b | |
|--------------------------------|---------------------------------------|--------------------------|---------------------|
| | | \$/acres | percent increase |
| CRP only | 18660 | +\$16.30 | +29% |
| CRP and Other uses | 21230 | +\$20.00 | +41% |
| Crops/Grass maybe CRP | 22050 | +\$28.20 | +62% |
| No specific plans maybe CRP | 11530 | +\$23.00 | +43% |

^aBased on cross tabulation of responses to question on future land use plans (#8), possible re-enrollment of CRP acres in question #10, and CRP payment rates, existing and projected, in questions #6.

^bCRP premium is the difference between the CRP payment rate needed by respondents to re-enroll some CRP acres and the existing CRP payment rate.

Source: South Dakota CRP Survey, Sept/Oct 2007.

Table 7. Post-CRP land use distribution, statewide and district.

| Land Use | South Dakota | Districts/regions | | |
|---------------------|----------------------------------|-------------------|---------------------|---------------------|
| | | West River | East River North | East River South |
| | ----- percent of CRP acres ----- | | | |
| Continuous corn | 2.6 | 0.6 | 1.3 | 6.6 |
| Corn/soybeans | 15.1 | 4.2 | 17.5 | 22.9 |
| Corn/soybeans/wheat | 26.6 | 6.5 | 42.1 | 24.4 |
| Wheat | 9.7 | 21.4 | 5.5 | 3.5 |
| Alfalfa | <u>6.9</u> | <u>12.9</u> | <u>5.3</u> | <u>2.7</u> |
| Major crops | 60.7 | 45.5 | 71.8 | 60.1 |
| Grass | 29.9 | 50.4 | 18.3 | 25.9 |
| Other | <u>9.3</u> | <u>4.1</u> | <u>9.1</u> | <u>14.0</u> |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

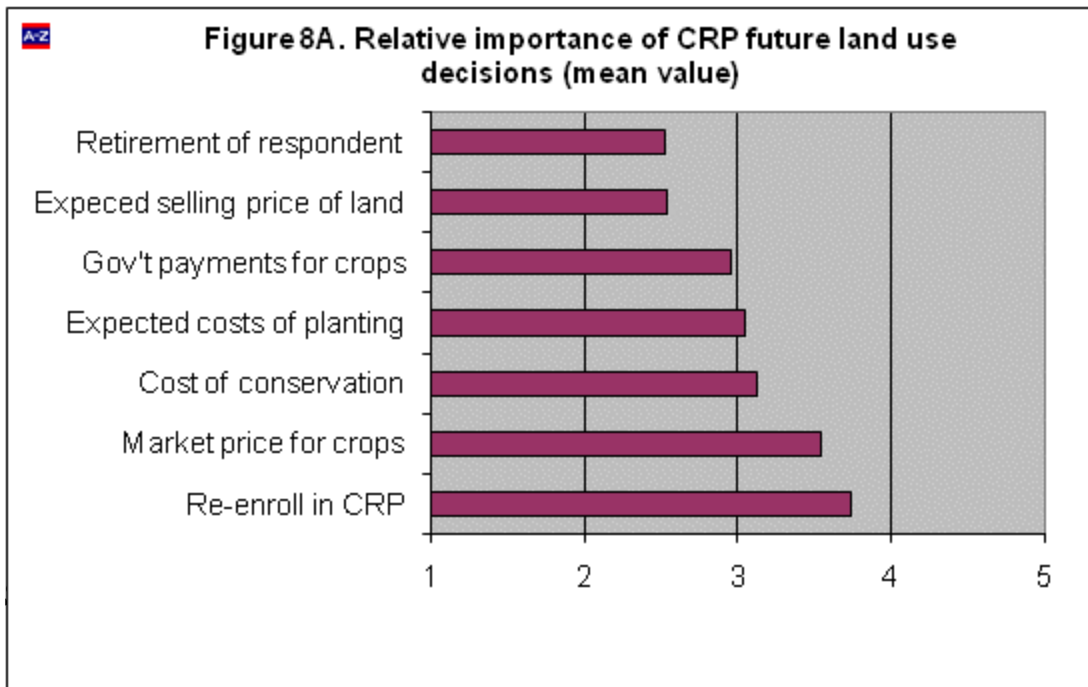
Source: Based on responses to Question #11 by 458 respondents to the South Dakota CRP Survey, Sept/Oct 2007.

Factors affecting post-CRP land use decisions

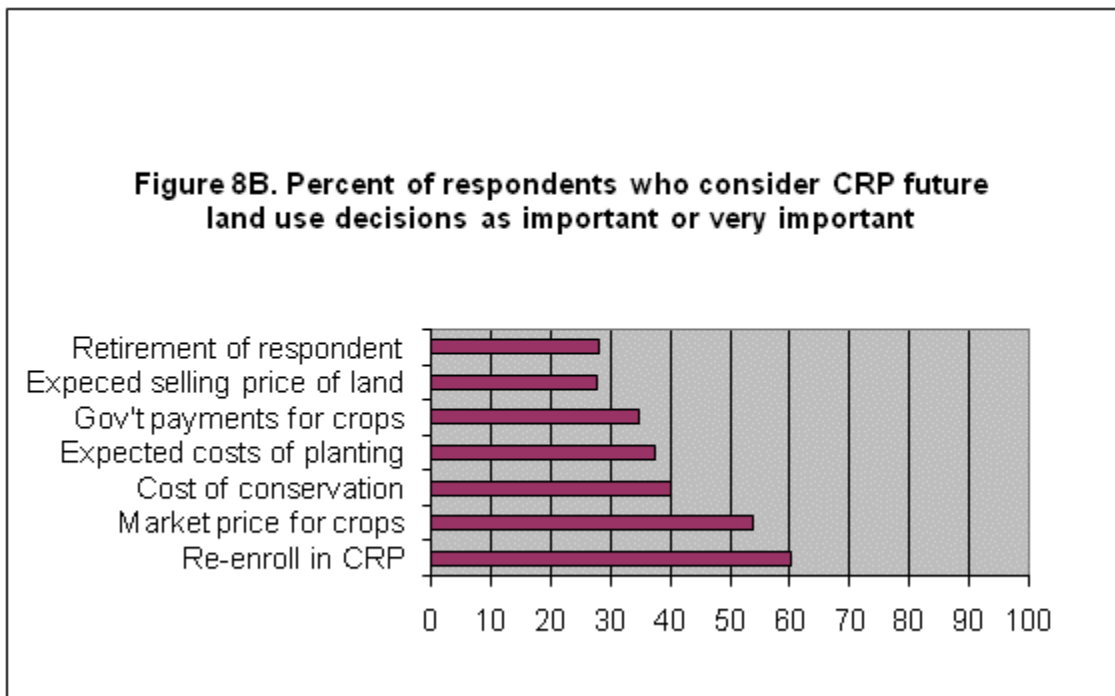
Many factors are likely to influence decisions about future CRP land uses after the contract expires. Qualitative assessment was obtained by asking respondents to rate the relative importance of selected factors, listed in question #9 of the survey, on a five point scale from 1 = 'not important' to 3 = 'somewhat important' to 5 = 'very important'. Results are reported in Figures 8A and 8B by their mean value and by the percent of respondents considering the specific factor as "important or very important". These items were coded in the survey as 4 or 5 and hereafter referred to as "important".

The most important factor was the "opportunity to re-enroll into a new CRP contract" with a mean value of 3.74 and 60% of respondents considering this item as important. Retired farmers were the most likely respondent group to consider this item as important. The second ranked factor was "market prices for crops/ livestock that could be produced on CRP acres after the contract expires" with a mean value of 3.54 and 54% of respondents considering this economic factor as important. Farmer-respondents were much more likely to consider this an "important" factor in their decision making than retired or nonfarm occupation respondents.

Three other factors: "cost of conservation practices", "expected costs of planting / harvesting crops" and "government payments" had mean values varying from 3.12 to 2.96 and 35 to 40% of respondents considering each of these three factors as important. The other two factors related to land selling price and retirement were important factors to 28% of respondents, primarily retired farmers (figure 8).



Source: South Dakota CRP Survey, Sept/Oct 2007.



Source: South Dakota CRP Survey, Sept/Oct 2007.

Cropland cash rental rates are viewed as an important measure of current cash returns to land in the private market and used as a key reference point to help determine CRP payment rate offers and acceptances. Finally, CRP payment rates per acre are usually fixed payments for the duration (10 to 15 years) of the contract. However, cropland cash rental rates and farmland related costs such as real estate taxes, weed control, seed, and fertilizer continue to increase over the same time period.

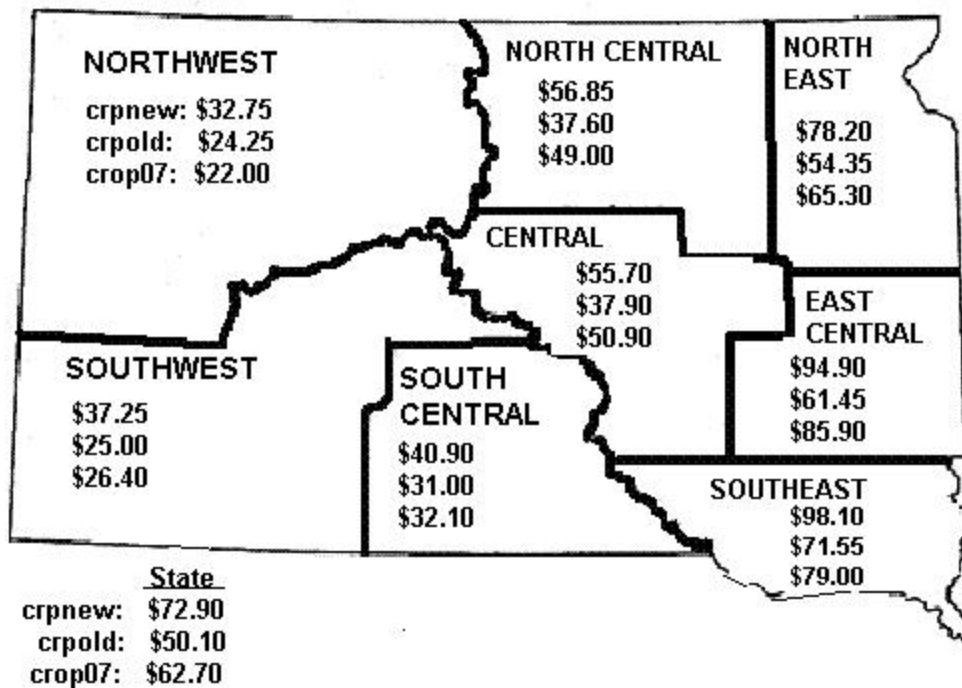
Statewide, the existing CRP payment rate averages \$50.10 per acre with regional averages varying from \$24.25 to \$25 per acre in the northwest and southwest region to an average of \$71.55 per acre in the southeast region (Figure 9). Payment rates on existing CRP contracts are similar to cropland rental rates reported for West River regions, but are much lower than 2007 cropland cash rental rates in all East River regions. Statewide average cropland cash rental rates exceed CRP payment rates on existing contracts by \$12.60 or 25% (Figure 9).

Respondents in all regions clearly indicate that CRP renewal payment rates need to be much higher than payment rates on their existing CRP contracts and somewhat higher than 2007 cropland cash rental rates. Both findings are sensible because per acre farmland returns and land-related costs in South Dakota have been increasing in most years since the beginning of the Conservation Reserve Program.

The CRP rate premium (renewal vs. existing CRP payment rate) needed varies from +\$8.50 per acre or 35% rate increase in the northwest region to +\$33.45 per acre or a 55% increase in the east central region. Statewide, the average CRP rate premium is +\$22.80 or a 45% increase (Figure 9). The increase in CRP renewal rates above recent (2007) cropland cash rental rates reflect: (1) past trends of 3- 6% annual increases in cash rental rates, and (2) prospective increases in cropland returns, relative to a fixed rate contract, over the next 10 – 15 years.

Holbeck, a co-author this report, examined CRP renewal rates, factors affecting the level of CRP premiums, and their implications for CRP program management in considerably more detail than presented in this report (Holbeck, 2008). Data in Figure 9 and Table 6 of this report are based on his Master's research paper.

Figure 9. Comparison of CRP new and existing payment rate and 2007 cropland cash rental rates, statewide and regional.



crpnew: Payment rate (\$/acre) needed to re-enroll in CRP
 crpold: Payment rates (\$/acre) on existing CRP contract
 crop07: Cash rental rate (\$/acre) on cropland in 2007

Based on responses from 610 respondents to South Dakota CRP Survey, Sept/Oct 2007.

V. CRP, GRASS, AND LIVESTOCK

Most CRP acres in South Dakota, including acres enrolled under wetland criteria, are seeded to native or introduced grasses. Improvements on CRP land can facilitate post-CRP land management for specific purposes such as livestock grazing, hay or crop production, or wildlife. For example, livestock use is facilitated by fences and water sources, while food plots are beneficial for wildlife. Shelterbelts / windbreaks are beneficial to both livestock and wildlife.

Nearly three-fifths of respondents reported shelterbelts or windbreaks on their CRP lands, one-half reported wildlife food plots, three-eighths reported fences, and less than one-third (31.7%) reported waterways as improvements on their CRP land (Table 8).

Nearly one-half (49.8%) of respondents raise livestock on their farm, with most (43%) raising beef cows and calves. No other livestock enterprise (beef finishing, sheep and lambs, swine, or dairy) was produced on more than six percent of respondent farms. Two-thirds of West River respondents and 44% of East River respondents raised livestock on their farm or ranch.

During the past five years, 61% of CRP respondents reported that they raised livestock for one or more years and 60% indicated that they would be able to lease some of their CRP land for livestock grazing after their contracts expired. However, based on data in Table 7, only 30% of post-CRP acres are projected to remain in grass and used for grazing or hunting purposes. The likelihood of using post-CRP acres for grazing is closely related to the suitability of CRP lands for grazing livestock and the costs of needed improvements.

We asked South Dakota CRP respondents to assess the suitability of their CRP lands for livestock grazing after their contracts expire. Ninety-two percent (693 of 753) provided responses. Data in Table 9 report the percent of respondents checking each item, such as “fences need repair”, while Table 10 shows the distribution of respondents by the overall suitability of their CRP lands for livestock grazing.

Lack of existing fences, the need to repair fences, or the need to establish livestock water sources were the three most commonly cited limitations to grazing

livestock on their CRP lands (Table 9). Noxious weeds, especially Canadian thistles, were cited as a serious impediment to grazing livestock by 8% of respondents.

Based on survey responses, one-third of respondents have fencing and livestock water sources available on their CRP lands, although fences or water source may need to be repaired. Another 32 percent report that fences need to be built on their CRP lands but adequate water is available for livestock. Finally, 34.2% of respondents report the need to establish livestock water sources with most (26%) also needing to build new fences (Table 10).

In summary, post-CRP land use for livestock grazing is closely related to current or recent livestock (especially beef cows) on their farm, the overall suitability of their CRP land for livestock grazing, and the costs of getting their land ready for livestock.

Table 8. Percent of respondents with specific improvements on their CRP lands

| <u>Improvement</u> | <u>Percent of Respondents*</u> |
|------------------------|--------------------------------|
| Shelterbelt/Windbreak | 59.3 |
| Wildlife food plots | 50.3 |
| Fences | 38.0 |
| Waterways | 31.7 |
| Livestock water source | 18.9 |
| Terraces | 4.0 |

*Based on 577 respondents completing Question #5 of CRP survey. Respondent could check one or more items.

Source: South Dakota CRP Survey, Sept/Oct 2007.

Table 9. Factors related to suitability of CRP lands for livestock grazing.

| <u>Item</u> | <u>Percent of Respondents</u> |
|-----------------------------------|-------------------------------|
| Ready for grazing | 27.0 |
| Fences need repair | 36.2 |
| Fences need to be built | 58.5 |
| Water source need repaid | 19.0 |
| Need to establish water source | 34.2 |
| Grasses need to be seeded | 5.3 |
| Noxious weeds are a major problem | 8.0 |

Based on responses to Question #14 completed by 693 respondents.
Multiple items could be checked.

Source: South Dakota CRP Survey, Sept/Oct 2007.

Table 10. Suitability of CRP lands for livestock grazing based on availability of fencing and water sources.

| <u>Description of Suitability for Grazing</u> | <u>Index</u> | <u>Respondents</u> | |
|---|--------------|--------------------|-------------|
| | | <u>No.</u> | <u>pct.</u> |
| 1. Water source and fencing is available and ready | 1 | 100 | 14.4 |
| 2. Water source and fencing is available, but one or both need repair | 2 | 134 | 19.3 |
| 3. Fences need to be built, water source is available | 3 | 222 | 32.0 |
| 4. Need to establish water source, fences are available | 4 | 54 | 7.8 |
| 5. Need to build fences and establish water source | 5 | 183 | 26.4 |

* Based on patterns of responses to fencing and water source items in Question #14 of CRP survey. In general, the higher the suitability index number, the less ready or more costly it is to use post-CRP land for grazing.

Source: South Dakota CRP Survey, Sept/Oct 2007

VI. CRP AND CROP MANAGEMENT

Three fourths of CRP respondents reported raising crops on their farm or ranch during the past two years. Corn, soybeans, alfalfa, and wheat were the four major crops reported, with corn raised on three-fifths of the farms compared to wheat and alfalfa acres reported by two-fifths of South Dakota CRP respondents. Grain sorghum, sunflowers, oats, and other crops were each reported on 6.0% to 10.2% of respondent farms (Table 11). Corn and soybeans were mainly reported on East River farms, while wheat and alfalfa were reported across the state.

Post-CRP crop use projections reported in Table 7 were consistent with reports of specific crops raised on respondents' cropland in the previous two years. In other words, respondent plans to raise specific crops in the future on their CRP lands were consistent with their existing crop mix and crop rotation.

Crop management practices

Crop management practices substantially affect crop production sustainability, yield levels and production costs. Respondents were asked to evaluate the relative importance of ten specific crop management practices on a five point scale of 1 = not important to 5= very important. Mean values of responses and percent of respondents considering each practice as important are reported in Figures 10A and 10B, respectively. Two general management practices: knowing costs of production and using prior history were considered as important by more than two-thirds of respondents. Another three specific management practices of soil sampling, scouting for pests, and pesticide rotation had mean values from 3.61 to 3.34 and were considered important by 58 to 48 percent of respondents.

The remaining five crop management practices had mean values from 2.52 to 2.77 and were each considered important by fewer than 30% of respondents. Developing and using pest maps had the lowest mean values and were considered important by only 15 to 18% of respondents.

In general, specific crop management practices were considered important by a higher percentage of East River respondents and by operators of medium and larger farms.

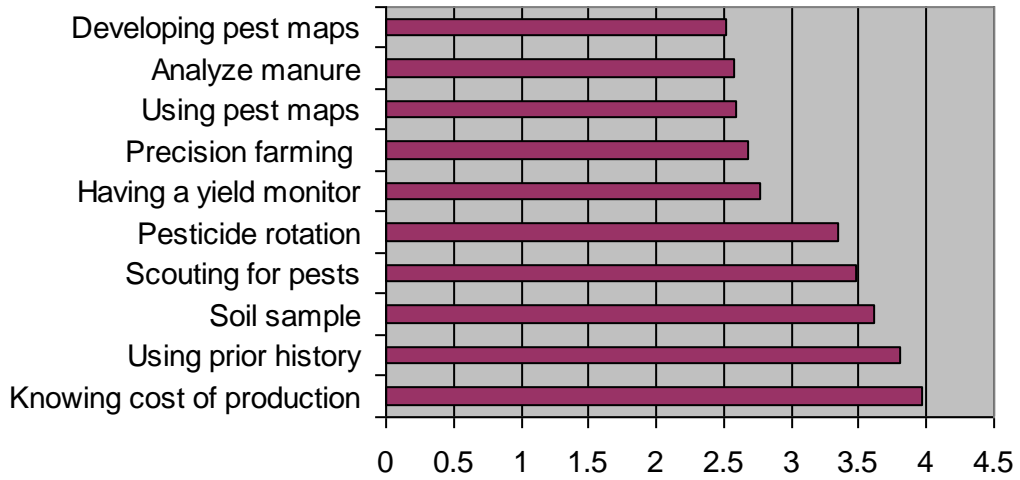
Table 11. Percent of respondents raising crops on their farm within the past two years.

| | <u>Percent of all responses*</u> |
|----------------------|----------------------------------|
| No crops | 24.4 |
| Crops raised | 75.6 |
| <u>Specific crop</u> | |
| Corn | 59.7 |
| Soybeans | 46.9 |
| Alfalfa | 40.7 |
| Wheat | 40.0 |
| Sorghum | 10.2 |
| Sunflowers | 6.5 |
| Oats | 6.0 |
| Other | 8.2 |

*Based on 690-700 responses to Question #15 of CRP survey.

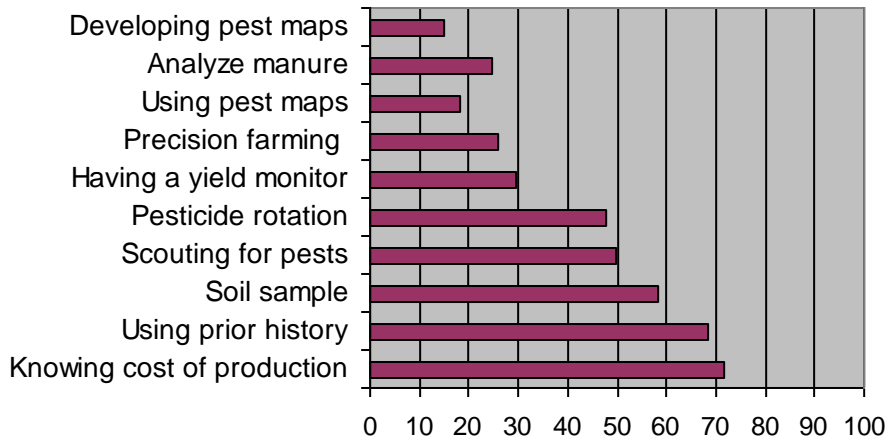
Source: South Dakota CRP Survey, Sept/Oct 2007.

Fig 10A. Importance of crop management practices (mean values)



Source: South Dakota CRP Survey, Sept/Oct 2007.

Figure 10B. Percent of respondents who consider crop management practices as important or very important



Source: South Dakota CRP Survey, Sept/Oct 2007.

Weed management and weed control

Weed control and weed management are important for all major land uses: cropland, CRP, and pasture / rangeland. Over 95% of pesticides used in South Dakota are herbicides to control weeds. Respondents were asked to evaluate the relative importance of eleven specific weeds in their total operation using the same five point scale as ranking crop management practices.

Canadian thistle was reported as an important weed control problem by 78% of respondents and received a mean value of 4.21 (Figures 11a and 11b). Foxtail and field bindweed had mean values of 3.19 and 3.14, respectively, and were the only other two weeds reported as an important weed control problem by more than 40% of respondents. For most other weeds, respondent mean values on their relative importance for weed control varied from 2.5 to 2.95, with 18 to 33 percent of respondents considering these specific weeds as an important weed control problem.

Canadian thistle was the only weed ranked as an important weed control problem by a majority of respondents in all regions of South Dakota. It was also mentioned as a major weed problem on some CRP tracts, much more so than any other weed.

The other weeds listed in Figure 11 were often a more important control problem in specific regions. In general, East River respondents raising corn, soybeans, or wheat were more likely to list specific weed control problems compared to other respondents.

Crop residue management

Crop residue management is a very important consideration in land management. Reduced-tillage and no-tillage practices are examples of technologies developed and widely adopted to increase crop residue, reduce water and wind erosion, and retain more soil moisture. In the past few years, harvesting crop residue (besides cattle grazing of corn stover) has become a management consideration involved in the future development of the ethanol industry. Harvesting crop residue is an important component for ethanol plants using corn stalks and other crop residue as their main raw material input.

Nearly one-sixth of respondents raising wheat, corn, or sorghum and 40% of those raising oats reported harvesting some of their crop residue. Very few respondents reported harvesting crop residue for soybeans or sunflowers.

Respondents were asked the question: “Would you consider harvesting crop residue for bio-fuels if there is a market for it?” A total of 595 of the 753 respondents answered this very important question. The percentage of responses for each answer was:

Yes = 48% No = 16% Don’t Know= 36%

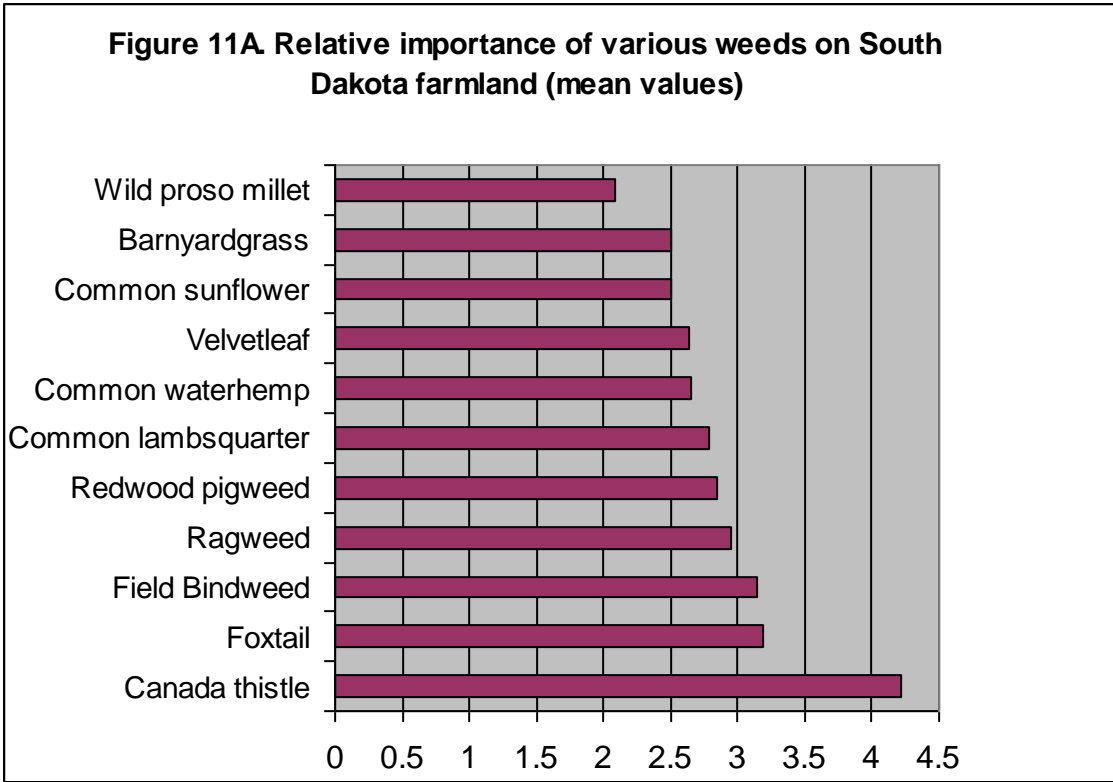
Respondents were also asked about the price per ton needed as an incentive for harvesting crop residue. Nearly three-fifths of the 286 respondents answering “Yes” to the above question provided their answer. The overall mean of their responses was \$58.70 per ton. Twenty percent of the respondents answering “No” or “Don’t Know” also provided responses. The overall mean of their responses was \$62.60 per ton.

Nearly 500 respondents provided their assessment of the relative importance of various crop management factors on their decision to harvest crop residue for bio-fuels (Figures 12 A and 12 B). The same five point assessment scale used to examine weed control and crop practices (Figures 10 and 11) was also used for this assessment.

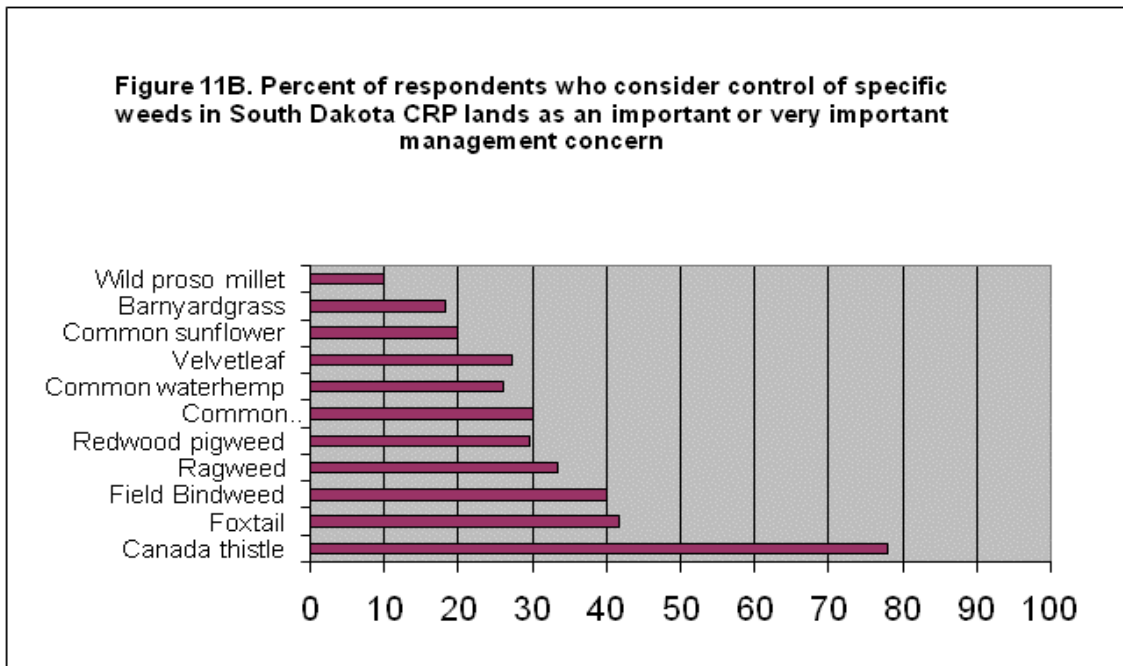
Price per ton for crop residue, impact on soil structure and impact of soil fertility had the highest mean values of 3.93, 3.85 and 3.84 respectively and were considered important by more than two-thirds of the respondents answering the items in question #17. However, all other factors—ability to find markets, cost of harvesting, value of leaving crop residue, and availability of machinery / equipment—were each considered as important factors by a majority of respondents. These factors had mean values from 3.63 to 3.43. In other words, all of these factors were considered to be “important” for sound decision making on harvesting crop residue for bio-fuels.

In summary, crop management practices will be an important component as alternative fuel sources for the bio-fuels industry are developed. Respondents consider knowing the cost of production and using prior history to manage problems to be very important components of their crop management strategies.

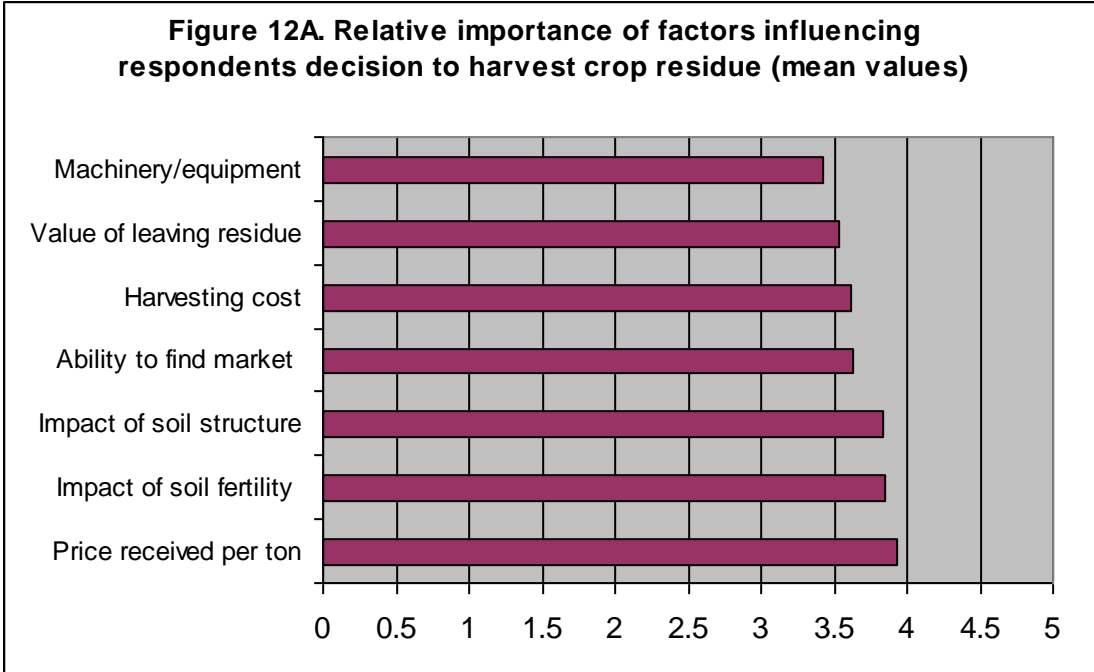
Crop residue is currently being harvested by one-sixth of respondents for three main crops. The price received per ton is the most critical factor in respondent’s decision to harvest more residue for the bio-fuels industry, with an overall mean response of \$58.70 per ton needed by a majority of those who would consider harvesting their residue. A slightly higher price would be required by those who are not sure if they would consider harvesting crop residues for bio-fuels.



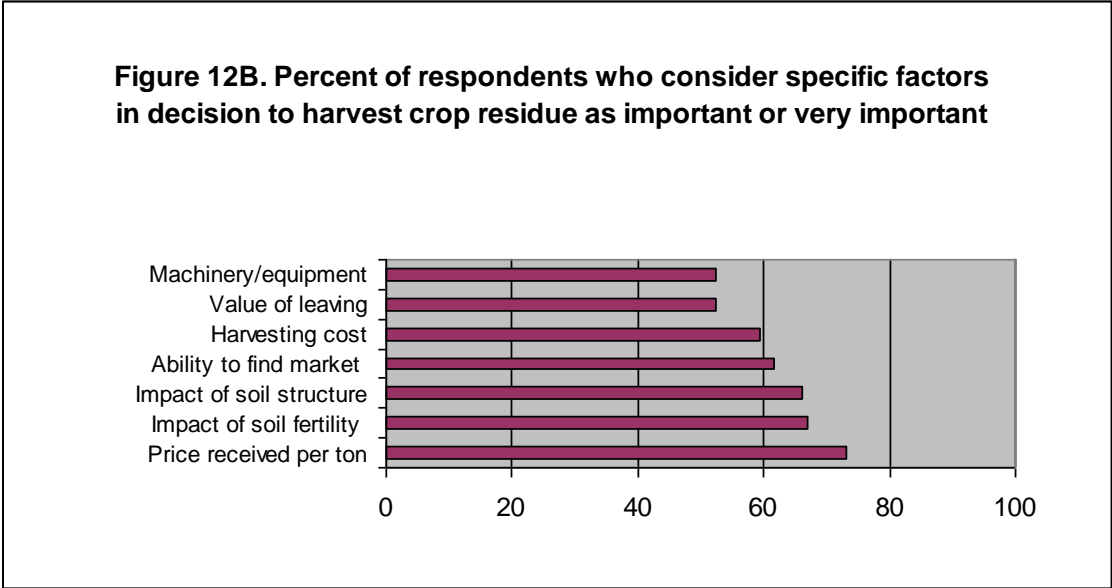
Source: South Dakota CRP Survey, Sept/Oct 2007.



Source: South Dakota CRP Survey, Sept/Oct 2007.



Source; South Dakota CRP Survey, Sept/Oct 2007.



Source: South Dakota CRP Survey, Sept/Oct 2007.

VII. ENVIRONMENTAL MANAGEMENT ISSUES

The potential for CRP acres returning to cropland is of major concern to those with an interest in wildlife. As CRP acres are returned to crop production, less habitat is available for wildlife. This has implications for hunting as well as environmental concerns.

Wildlife and wildlife habitat

Survey respondents were asked to rank the importance of wildlife and wildlife habitat in their production management practices, as well as their decision to re-enroll their expiring contracts in CRP. The same five point assessment scale used to examine previous topics (reported in Figures 10, 11, and 12) was also used here. Over two-thirds (68%) of respondents consider wildlife and wildlife habitat to be important in their production management practices, with a mean score of 4.0 on the 5 point scale. Along with that, 59% of respondents, representing 64% of the acres, consider wildlife and wildlife habitat important in their decision of whether to re-enroll their CRP contracts. Respondents managing wetlands for wildlife habitat as well as nonfarm respondents were significantly more likely to view wildlife issues as important considerations.

The prevalence of hunting on CRP land, what type of hunting is done, and the potential impact of not re-enrolling CRP acres on hunting is reported in Table 12. Hunting is a common occurrence on most of the CRP land in the state, with only 5.9% of respondents indicating that they did not allow hunting on their CRP land. Pheasants (92.6% of respondents) and deer (84.4%) are the animals that are most commonly hunted. However, only slightly less than 10% of respondents indicated that they charge a fee for hunters to hunt on their land.

Hunting will be impacted if CRP acres are not renewed. Only a quarter of the respondents indicated that there would be no impact on their land if they do not re-enroll their acres in CRP. Close to half (43.6%) of respondents, representing 53% of the acres, indicated that there would be a substantial impact.

Wetland acres

The survey also asked the importance of wetland acres, as well as management of the wetland acres. Responses are given in Table 13. For farms reporting specific number of wetland acres, the mean amount of wetlands in crop fields was 32 acres, which

represents an average of 18% of their CRP land. The number of wetland acres as a percent of CRP acres corresponds with FSA data for all CRP land enrolled under wetland criteria.

Of those respondents indicating management plans for their wetland acres, an approximately equal portion (46 to 47%) indicated that they intend to manage their wetlands for wildlife habitat, versus managing wetlands for agricultural production (grazing or crop production).

Table 12. Hunting related decisions of respondents on their CRP lands.

| | | <u>Respondents</u> | |
|-----|--|---------------------------------|----------------|
| | | <u>Number</u> | <u>Percent</u> |
| (a) | Who is allowed to hunt: | | |
| | Myself & personal friends only | 296 | 41.9 |
| | Others allowed, but no fees | 301 | 42.6 |
| | Fee hunting | 68 | 9.6 |
| | No hunting | <u>41</u> | <u>5.9</u> |
| | | 706 | 100.0 |
| | | <u>Percent of 690 responses</u> | |
| (b) | What type of hunting is done on your CRP land: | | |
| | Pheasants | 92.6 | |
| | Deer | 84.4 | |
| | Antelope | 9.4 | |
| | Ducks or geese | 29.8 | |
| | Other game birds | 19.0 | |
| | Other game | 5.6 | |
| | | <u>Respondents</u> | |
| | | <u>Number</u> | <u>Percent</u> |
| (c) | Impact of not enrolling CRP acres on hunting on your land: | | |
| | No impact | 179 | 26.4 |
| | Minor impact | 203 | 30.0 |
| | Substantial impact | <u>295</u> | <u>43.6</u> |
| | | 677 | 100.0 |

Source: South Dakota CRP Survey, Sept/Oct 2007.

Table 13. Respondent plans for managing their wetland acres.

| Wetland management plan ** | <u>Percent*</u> |
|-------------------------------|-----------------|
| Keep in wetland and | |
| Use for grazing | 21.0 |
| Use for crop production | 26.0 |
| Use for wildlife habitat | 46.1 |
| Drain or redrain wetlands and | |
| Use for crop/hay | 6.9 |
| Uncertain /No other plans | <u>21.7</u> |
| | <u>121.7</u> |

* Based on 423 respondents providing their answers to Question #27 of CRP Survey. Multiple responses were permitted.

**The main combinations of wetland management plans were:

| | |
|------------------------------|-------------------|
| Wildlife habitat and grazing | 6.9% of responses |
| Wildlife habitat and crops | 6.1% |
| Grazing and crop production | 3.6% |
| Drain some wetlands | 3.0% |

Source: South Dakota CRP Survey, Sept/Oct 2007.

VIII. CONCLUDING REMARKS

The survey of CRP contract holders in South Dakota was used to help: (1) estimate the number of CRP acres that are likely to revert to crop production, their location, and estimated crop mix on those acres and (2) determine the main factors that influence post-CRP land use decisions.

Projecting re-enrollment rates on new CRP contracts in the next few years was the most difficult portion of this project. Using various assessment approaches, we estimated the proportion of respondent CRP acres that are “very likely”, “somewhat likely”, and “not likely” to be re-enrolled. Applying the proportions to total (1,295,000) CRP acres in South Dakota, we estimate that nearly 442,000 CRP acres held by existing contract holders are “very likely” to be re-enrolled, another 373,000 CRP acres are “somewhat likely” to be re-enrolled, and 480,000 acres are not likely to be re-enrolled. Conversely,

this implies that the likely range of CRP acres converted to other uses varies from 480,000 acres to 853,000 acres. This range of CRP acreage conversion is being used in a related study to estimate the regional economic impact of projected land used changes. However, respondents clearly indicated that actual re-enrollment and land conversion decisions will be related to farm economic conditions and actual payment rates and other provisions offered for new CRP contracts at the time of contract expiration. Using the CRP program as a means to provide many environmental benefits will come at a substantially higher per acre cost.

The projected cropland conversion rate of 60 – 62% of CRP acres not re-enrolled is consistent with the regional distribution of CRP acres in South Dakota and with findings from earlier CRP related studies. As expected, the predicted proportion of cropland conversion is higher in the cropland-intensive eastern regions than in the western regions of the state. However, there are many land use characteristics of CRP contract acres, such as wetlands enrollment, that limits the potential for profitable conversion to cropland in many regions. Many producers recognize the profit-potential of record crop prices is partly offset by rapidly increasing input costs and the likelihood of obtaining no / minimal crop production in many wetland areas. Also, integration of CRP land into the rest of the farm / ranch operation is a very important component of the CRP decision making process for most respondents.

Finally, recent passage of the federal farm bill (June 2008) indicates the Conservation Reserve Program will remain as an important feature of federal agricultural and conservation policies. Changes in CRP program provisions in the legislation will certainly impact rural land use, environmental benefits, and economic activity in the Northern Plains, but the changes are likely to be fairly modest.

LIST of REFERENCES

- Allen, Arthur & Mark Vandever. 2003. "A National Survey of Conservation Reserve Program (CRP) Participants on Environmental Effects, Wildlife Issues, and Vegetation Management on Program Lands." Biological Science Report (2003): USGS.
- Ghebremicael, Tecleberhan. 1994. "Analysis of Conservation Reserve Program Contracts, CRP Contract Holders' Characteristics, and Post-CRP Land Use Intentions in South Dakota." MS Thesis. Dept. of Economics. South Dakota State University.
- Hellerstein, Daniel 2006. "USDA Land Retirement Programs". Chapter 5.2 in Agricultural Resource Economics Indicators. EIB 16, Economic Research Service, U.S. Department of Agriculture. Washington D.C.
<<http://www.ers.usda.gov/publications/arei/eib16/Chapter5/5.2/>>.
- Holbeck, Michael. 2008. "Analysis of Conservation Reserve Program Prices and Their Effect on Future CRP Intentions in South Dakota". Master's Research Paper. Dept. of Economics. South Dakota State University.
- Janssen, Larry; Burton Pflueger, and Tyler Ahrendt. 2007. South Dakota agricultural land market trends, 1991 – 2007. (C272) Brookings, SD: SD Ag. Expt. Station.
< <http://agbiopubs.sdstate.edu/articles/C272.pdf>.>
- Janssen, Larry and Burton Pflueger. 2006. South Dakota farmland market trends, 1991 – 2006. (C271) Brookings, SD: SD Ag. Expt. Station.
<<http://agbiopubs.sdstate.edu/articles/C271.pdf>>
- Johnson, Douglas. "Grassland Bird Use of Conservation Reserve Program Fields in the Great Plains." Fish and Wildlife Benefits of Farm Bill Programs 2000-2005 Update. USGS Northern Prairie Wildlife Research Center.
- Reichelderfer, Katherine, & William Boggess. "Government Decision Making and Program Performance: The Case of the Conservation Reserve Program." *American Agricultural Economics Association* (1988): 1-10.
- Sullivan, Patrick, Daniel Hellerstein, LeRovy Hansen, Robert Johansson, Steven Koenig, Ruben Lubowski, William McBride, David McGranahan, Michael Roberts, Stephen Vogel, and Shawn Bucholtz. 2004. Conservation Reserve Program: Economic Implications for Rural America. USDA. Economic Research Service. Agricultural Economic Report 834. Washington, D.C.
- Taylor, Gary; Nicole Klein and Larry Janssen. 2008. Economic Impacts of the Conservation Reserve Program in South Dakota. Economics Dept. Staff Paper. South Dakota State University.

USDA Farm Service Agency (a). May 2007.
Conservation Reserve Program: Summary and Enrollment Statistics FY 2006.

USDA Farm Service Agency (b) Feb. 2008.
Conservation Reserve Program – Monthly Summary – February 2008.

USDA Farm Service Agency (c). Feb. 29, 2008. “Conservation Reserve Program Reports for State and County.” <<http://content.fsa.usda.gov/crpstorpt/rlsumsn/sd.htm>>.

Venhuizen, Laurel. 1996. Impacts of Post-CRP Policy Options and Land Use Decisions on various South Dakota Economic Sectors. .” MS Thesis. Dept. of Economics, South Dakota State University.

Appendix A:

**The Conservation Reserve Program
in South Dakota: Producer Opinions
About Current and Future Land Use**



Department of Economics, South Dakota State University,
Brookings, SD 57007-0895

This survey is a joint effort between the Economics Department at South Dakota State University, the South Dakota Agricultural Statistics Service, and the South Dakota Corn Utilization Council. It will ask for your preferences and opinions about the Conservation Reserve Program (CRP) and what the potential uses of land may be after current CRP contract(s) expires. Questions about producer decision making processes and best management practices will also be included. Your responses to these questions are important and will be kept confidential. This information will help guide policymakers in their decision making process as they debate and refine the program. The results of this research will be reported in a publication that will help determine the role of the CRP in future farm bills. Your assistance in this endeavor is greatly appreciated. Thank you.

SECTION I: CRP ENROLLMENT FACTORS

1. a. How many total acres of agricultural land (OWNED and RENTED) are in your South Dakota farm/ranch operations? _____ ACRES

b. For the land acres listed above, please provide the approximate number of acres by major land use.

- _____ ACRES of land enrolled in CRP (Conservation Reserve Program)
- _____ ACRES of cropland not enrolled in CRP
- _____ ACRES of pasture or rangeland
- _____ ACRES of other agricultural land
- _____ TOTAL ACRES OF AGRICULTURAL LAND (as shown in Question 1a)

(If CRP acres equals zero, please go to SECTION IV: CROP MANAGEMENT and CRP)

2. a. Please list the South Dakota county in which the majority of your CRP acres are located. _____ COUNTY

b. How many CRP contracts do you have on South Dakota lands that you own or manage? _____ NUMBER of CRP Contracts

3. How many acres do you have in CRP contracts that will expire in the year

2008 _____ acres 2010 _____ acres
2009 _____ acres 2011 or later _____ acres

4. What is your relationship with the CRP acres?
_____ OWNER and OPERATOR
_____ OWNER and LANDLORD
_____ RENTER and OPERATOR
_____ OTHER (specify) _____

5. What improvements are currently on your CRP lands? (check all that apply)

- _____ Waterways _____ Terraces
- _____ Fences _____ Wildlife food plots
- _____ Livestock water sources
- _____ Livestock handling facilities
- _____ Shelterbelts / windbreaks

6. Some farmers may wish to re-enroll their CRP lands.

a. What is the average current CRP payment rate per acre on your existing CRP contract(s)?

\$ _____ / CRP acre

b. If some or all of your CRP land would qualify what CRP rental rate per acre would it take before you would re-enroll?

\$ _____ / CRP acre

7. a. Do you cash lease any cropland? ___YES ___NO

If YES, what was the average rental rate in 2007?

\$ _____ / crop acre

b. Do you cash lease any pasture? ___YES ___NO

If YES what was the average rental rate in 2007?

\$ _____ / acre of pasture

SECTION II: CRP FUTURE LAND USE PLANS

8. When your CRP contract(s) expires, how do you plan to use that land? (check any item that is an intended use of some or all of your CRP acres)

- No land use plans have been considered.
- Re-enroll acres in CRP.
- Return to annual crop production.
- Keep in grass for livestock grazing or hay.
- Keep in grass and/or trees for wildlife habitat.
- Sell the land soon after the contract expires.
- Other (please specify) _____

9. How will the following factors influence your decisions about your future CRP land uses after the contract expires? (circle one number per item)

| | Not Important | | Some- what | Very Important |
|--|------------------|---|---------------|-------------------|
| Opportunity to re-enroll into a new CRP contract | 1 | 2 | 3 | 4 5 |
| Market prices for crops/livestock that could be produced on CRP acres after the contract expires | 1 | 2 | 3 | 4 5 |
| Government payments for crops that could be grown on the CRP acres after contract expires | 1 | 2 | 3 | 4 5 |
| Cost of conservation practices required before CRP acres can be returned to crop production | 1 | 2 | 3 | 4 5 |
| Expected costs of planting, growing and harvesting crops on your CRP land after the contract expires | 1 | 2 | 3 | 4 5 |
| Expected selling price for the land after CRP contract expires | 1 | 2 | 3 | 4 5 |
| Your possible retirement from farming/ranching | 1 | 2 | 3 | 4 5 |
| Other (please specify) | 1 | 2 | 3 | 4 5 |

10. If you have the opportunity to re-enroll your land in CRP, would you choose to do so?
 YES NO

If YES, how many CRP acres would you re-enroll?
 _____ # of acres

11. When your land comes out of CRP, how many of your CRP acres do you expect to go into:

- # of Acres
- Continuous Corn
 - Corn / Soybean Rotation
 - Corn / Soybean / Wheat Rotation
 - Wheat
 - Alfalfa
 - Grass Hay or Pasture
 - Other (Please specify) _____

SECTION III: CRP, GRASS, AND LIVESTOCK

12. What livestock enterprises, if any, do you presently have in your operation (check all that apply)

- None
- Sheep
- Dairy
- Other Livestock (specify) _____
- Beef Cow-Calf
- Beef Finishing
- Hogs or Pigs

13. a. Have you grazed livestock on your farm (ranch) during the past five years? YES NO

b. Would you be able to rent out your CRP lands for livestock grazing if it were left in permanent cover? (check one) YES NO

c. Do you own any hay harvesting equipment? (check one) YES NO

14. Which of the following best describe the suitability of your CRP lands for livestock grazing? (check all that apply)

- Ready for grazing
 - Fences need repair
 - Fences need to be built
 - Water source needs repair
 - Need to establish water source
 - Grasses need to be reseeded
 - Noxious weeds are a major problem
- If so, what are the main noxious weeds?

SECTION IV: CROP MANAGEMENT and CRP

15. During the past two years, have you raised any of the following crops on your farm? (check all that apply)

- No crops were grown on our farm
(If no crops grown, go to question 20.)
- Corn Soybeans Alfalfa
- Wheat Sorghum Sunflowers
- Other crops. Please specify _____

16. Do you harvest the following crops on your farm for grain, silage or crop residue? (check all that apply)

| | Harvest for grain or oilseed | Harvest for silage | Harvest crop residue |
|------------|------------------------------------|-----------------------|-------------------------|
| Corn | _____ | _____ | _____ |
| Soybeans | _____ | _____ | _____ |
| Wheat | _____ | _____ | _____ |
| Sorghum | _____ | _____ | _____ |
| Sunflowers | _____ | _____ | _____ |
| Other | _____ | _____ | _____ |

17. Using crop residue (corn stover, wheat straw, etc) as potential feedstock for the ethanol industry is in the forefront of discussions. Please rate the importance of each of the following items in your decision to harvest crop residue. (Circle one number per item)

| | Not Important | Some -what | Very Important | | |
|--|------------------|---------------|-------------------|---|---|
| Ability to find a market | 1 | 2 | 3 | 4 | 5 |
| Cost of harvesting | 1 | 2 | 3 | 4 | 5 |
| Machinery/equipment needed to harvest | 1 | 2 | 3 | 4 | 5 |
| Price received per ton | 1 | 2 | 3 | 4 | 5 |
| Impact on soil structure (compaction, loss of organic materials, etc.) | 1 | 2 | 3 | 4 | 5 |
| Impact on soil fertility | 1 | 2 | 3 | 4 | 5 |
| Impact on weed management | 1 | 2 | 3 | 4 | 5 |
| Value of leaving residue in field | 1 | 2 | 3 | 4 | 5 |
| Other factors (please specify) | 1 | 2 | 3 | 4 | 5 |

18 a. Would you consider harvesting crop residue for processing into bio-fuels if there is a market for it?
 YES NO Don't know

b. What price would you need for the crop residue in order to entice you to harvest it for processing into bio-fuels? _____ \$/ton

19. How important are the following practices in your crop management program? (Circle one number per item)

| | Not Important | Some -what | Very Important | | |
|---|------------------|---------------|-------------------|---|---|
| Scouting for pests | 1 | 2 | 3 | 4 | 5 |
| Developing field specific pest maps | 1 | 2 | 3 | 4 | 5 |
| Using pest maps for targeted treatments | 1 | 2 | 3 | 4 | 5 |
| Rotating different pesticides to avoid developing resistant populations | 1 | 2 | 3 | 4 | 5 |
| Analyze manure for nutrient analysis | 1 | 2 | 3 | 4 | 5 |
| Soil sample individual fields for fertilizer application annually or biannually | 1 | 2 | 3 | 4 | 5 |
| Having a yield monitor | 1 | 2 | 3 | 4 | 5 |
| Precision farming | 1 | 2 | 3 | 4 | 5 |
| Knowing cost of production | 1 | 2 | 3 | 4 | 5 |
| Using prior history to manage problems | 1 | 2 | 3 | 4 | 5 |
| Other practices (please specify) | 1 | 2 | 3 | 4 | 5 |

20. a. Over 95% of the pesticides used in South Dakota are herbicides used to control weeds. How important are the following weeds in your operation? (Circle one number per item)

| | Not Important | Some -what | Very Important | | |
|--------------------------------|------------------|---------------|-------------------|---|---|
| Canada thistle | 1 | 2 | 3 | 4 | 5 |
| Common waterhemp | 1 | 2 | 3 | 4 | 5 |
| Wild proso millet | 1 | 2 | 3 | 4 | 5 |
| Common lambsquarters | 1 | 2 | 3 | 4 | 5 |
| Field bindweed | 1 | 2 | 3 | 4 | 5 |
| Ragweed (giant, common) | 1 | 2 | 3 | 4 | 5 |
| Common sunflower | 1 | 2 | 3 | 4 | 5 |
| Foxtail (green, yellow, giant) | 1 | 2 | 3 | 4 | 5 |
| Barnyardgrass | 1 | 2 | 3 | 4 | 5 |
| Redroot pigweed | 1 | 2 | 3 | 4 | 5 |
| Velvetleaf | 1 | 2 | 3 | 4 | 5 |

21. Please list any new weed problems you are concerned about?

SECTION V: CRP AND ENVIRONMENT

22. How important is wildlife and wildlife habitat:
(Circle one number per item)

| | Not Important | 1 | 2 | 3 | 4 | 5 Very Important |
|---|------------------|---|---|---|---|------------------------|
| In your choice of production management practices? | 1 | 2 | 3 | 4 | 5 | |
| In your decision whether to re-enroll your expiring contracts in CRP? | 1 | 2 | 3 | 4 | 5 | |

23. Do you currently allow hunting on your CRP land?
(check one)

- yes, but only myself and personal friends.
- yes, I allow other people to come in and hunt, but do not charge a fee.
- yes, I allow other people to come in and hunt and charge a fee.
- no, I do not allow hunting on my CRP lands.
(If no hunting is allowed, please go to question 26.)

24. What type of hunting is done on your CRP land?
(check all that apply)

- Pheasant Deer
- Ducks / Geese Antelope
- Other game birds Other Game

25. If you do not re-enroll your acres in CRP, will hunting on your land be affected? (check one)

- No impact
- Minor impact
- Substantial impact

26. a. Do you have any WETLAND acres located in crop fields or in CRP lands?

YES NO
(If NO, please continue to Question 28.)

b. If YES, approximately how many wetland acres are:

Enrolled in your CRP land _____ wetland acres

Located in your crop fields _____ wetland acres

27. How do you plan to manage your wetland acres?
(check all that apply)

- Keep in wetlands and use for grazing
- Keep in wetlands and use for crop production
- Keep in wetlands for wildlife habitat
- Drain or redrain the wetlands and use for crop/hay
- Uncertain / don't know

SECTION VI: GENERAL CHARACTERISTICS

28. What do you consider to be your principal occupation?
(check one)

- Farming or Ranching
- Employed in an off-farm job
- Retired
- Operate a non-farm business
- Other (please specify) _____

29. What if your gender: Male Female

30. What is your age? _____ Years

31. What is your highest level of schooling completed?
(check one)

- Less than high school diploma
- High school diploma
- Technical school or some college
- Undergraduate degree
- Graduate or professional degree

32. Which of the following best describes your average annual GROSS FARM INCOME from all agricultural sources (check one)

- Less than \$10,000 \$100,000 - \$249,999
- \$10,000 - \$49,999 \$250,000 - \$499,999
- \$50,000 - \$99,999 \$500,000 or MORE

33. Which is your MAJOR source of gross farm income:
(check one)

- Livestock
- Crop Sales
- Farm Rental Income (Including CRP Payment)
- Other (Please Specify) _____

34. Are you interested in receiving a summary of the results of this survey? YES NO

Thank you for taking the time to complete this survey. Please return the questionnaire in the self-addressed postage paid business reply envelope.