Farmer Decision-Making on Enrollment in the Conservation Reserve Program

Background
High commodity prices and other factors have led to reduced conservation acres, to include loss of enrolled acres in the large and popular land retirement option, the USDA Conservation Reserve Program (CRP) (Staudt, 2012). The loss of associated environmental/benefits as producers opt out of participation can be especially long felt for, because, for land in production, it may take years to recover the cost of conversion. The Prairie Pothole Region (PPR), spanning parts of Montana, North Dakota, South Dakota, Minnesota and Iowa, relies on conservation efforts to provide important wildlife habitat and other environmental benefits. The region is especially important in providing nesting habitat for American migratory waterfowl (DeGraaf et al., 2011). Here, CRP and the Wetlands Reserve Program (WRP) have restored approximately 5.4 million acres of wetland and grassland habitats.

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Lessons from the Literature
Many studies concluding that factors contributing to landowner and producer decisions to engage in conservation, our goals were to: identify factors important when conducting research eliciting landowner decision-making about conservation; understand what influences the efficacy of conservation programs in meeting policy objectives, with a secondary focus on CRP; and make recommendations about the implementation of existing programs.

Lesch and Wachenheim (2014) and Wachenheim and Lesch (2014) compiled related literature. They considered research investigating (intended or actual) adoption of conservation practices on working lands and in land retirement programs. Wachenheim and Lesch put special emphasis on identifying factors influencing participation in the Conservation Reserve Program and also cover literature related to program effectiveness.

A majority of literature reviewed was based on research using producer and landowner input elicited through surveys, interviews, and instruments obtaining their reactions to hypothetical choice sets including conservation practices. Literature using secondary data was also considered. Two models were introduced: the rational economic man model, based on profit maximization, and the utility model, which considers the perceived value of a basket of factors, including those monetary and non-monetary.

Recommendations Regarding Data Collection and Analysis
1. Recognize and incorporate the reality that few decisions are made in isolation by paying attention to the influence of others on and role of others in the decision-making process.
2. Consider that what respondents report may not be what they do, believe, or experience, or the specific farm structure and practices in place. Research which examines behavior, especially when it is evidenced by supporting secondary data, may be more predictive of future behavior than respondent-reported intentions. The tradeoff is an understanding of why.
3. Work to ensure the right variables are included. Consider those related to farm structure (land location, farm type, type of conservation practice) and landowner (their tenure, retirement, occupation including farm and non-farm, land ownership, level of interest in what others are doing and their motivation, motivations of on external stakeholders, tradition, and attitudes about property rights and the role of the government). Consider barriers to adoption. Knowing what would prevent it/prompting participation may require that question be explicitly asked.
4. Consider whether important differences in farmer or farm structure characteristics call for estimation of separate equations (conservation practice under consideration; benefit of practicing farm locally, farm type, migration use, and full versus part-time farmer).
5. Consider that clearly targeted research objectives may be better than that more general.
6. However, recognize that a focus on a particular conservation practice and/or program may be limiting if considered in isolation (e.g., decisions regarding conservation practices are not independent).
7. Be cognizant of the overarching importance of economic factors (e.g., real or perceived effect on profit, payments) that a farmer may not be working to maximize/want to maximize.
8. Consider continued, not just initial, adoption. What may motivate participation or conversion may differ from what would motivate continued participation or conversion.
9. Explicitly address non-response bias and response distribution.
10. Consider how data is represented as it may influence revealed effects (e.g., selection of variable categories, use of categorical versus continuous measurements).

The Conservation Reserve Program
1. Encompass market conditions and expectations are important in decisions regarding enrollment in CRP, which may limit the value of existing literature.
2. Even given the steep penalty, early withdrawal from a CRP contract might be relatively viable.
3. Structural/other changes associated with conservation adoption or returning land to production can be expensive and time-consuming.
4. Some conservation may be occurring outside of CRP, in CRP-like conditions.
5. The effect of enrollment on farm-level prices for enrolled and nearby acres should be included as an economic consideration, although farmers may not be aware of this effect.
6. Landowners refine their bids in response to results of earlier enrollment periods.
7. Grouping or clustering producers by their characteristics and those of their farms will provide more insight on producer behavior.
8. Other methods of eliciting landowner perceptions should be considered to refine variables considered (e.g., open-ended questioning).

Recommendations under Existing Conservation Programs
1. Encourage and facilitate relationships between farmers and external stakeholders so that each better understands and can empathize with the situation of the other.
2. Educate farmers on specific benefits rather than the more general impact of conservation on the environment.
3. Live in defining the economic and other benefits of programs. Whatever matters most to the target audience should be emphasized and, what they, understand.
4. Increase research and extension outreach efforts regarding the economic impact of particular conservation practices under specific farm and market environments and under different programs.
5. Look for innovative, efficient methods to increase farmer access to information (e.g., use of social networks to extend reach of extension and other educational efforts; peer dissemination).

Methods
Sample of convenience interviews of producers in South Dakota, Iowa, and Minnesota. Detailed interviews eliciting producer behaviors, intentions, attitudes and ideas related to adoption of conservation practices and participation in conservation programs.

Results / Very Preliminary Findings / General Observations
1. Few farmers were engaged in formal long-term planning for their crop and livestock enterprises. Few reported that they had crop plans at least five years out; most reported they were engaged in planning during the 6 to 18 months prior to planting. Decision factors include rotation considerations for soil fertility, insect or disease control; commodity price; input costs; interest of livestock crops production needs; and agri/food considerations.
2. Few farmers reported removing parcels from CRP under penalty. Many reported the return to production following contract expiration, some because of commodity prices or their value to the farm operation and others because the land no longer qualified. Farmers are participating in a number of federal, state, and local conservation programs that provide technical and monetary assistance and land payments. There is considerable variability in level of knowledge regarding these opportunities and this is in part a result of farmer participation in ancillary opportunities (e.g., county boards, commodity associations).
3. Most reported that CRP was a choice when the land was not suitable for economic reasons (only marginally productive or environmentally viable); or, for soil preservation (erosion). Few farmers produced in CRP primarily as a conservation ethic.
4. A majority of farmers commented on the effects of non-local decision-making regarding conservation program eligibility and implementation rules. The associated cost of local control would be an important hurdle (difficult to administer and polices).
5. Educational efforts that focus on economic impact (or lack thereof) program availability, and support one to be at high value levels of limited resources.
6. Variability in person-staff does appear to be a factor in program adoption. Some agencies are better at facilitating conservation efforts than others; training and education may help.
7. Technology influences ability to implement conservation practices and the cost of doing so.

The Way Forward
A contingent valuation experiment was conducted to identify the relative importance of conservation characteristics on likelihood of enrollment in CRP. Choice options defined by:
• Rental payment (50%, 100%, and 120% of comparable land lease rates)
• Length of contract (10 years or 15 years)
• Terms (fixed vs. open or precluded for entire five years)
• Establishment cost paid (government 50% or 100%)
• Land used options (allowed buying or grazing every two or three years)

Two groups completed the exercise.
1. Farmers participating in interviews (currently 60)
2. Student/farmer teams comprised of students in an introductory agricultural economics course at North Dakota State University and the primary decision on when to enroll in CRP.

The resulting information will be analyzed using an Exploded List or Conditional Logit to estimate the relative importance of program features to farmers.