

**Improving Federal Agricultural  
Conservation Incentives:  
*Lessons from the Schuylkill River Watershed***



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# Abstract

## IMPROVING FEDERAL AGRICULTURAL CONSERVATION INCENTIVES: LESSONS FROM THE SCHUYLKILL RIVER WATERSHED

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This study examines the perceptions of local stakeholders about the effectiveness of Farm Bill working lands incentives in the Schuylkill River Watershed in southeastern Pennsylvania. Farmers and program implementers were interviewed about program characteristics that are perceived as effective, gaps and inconsistencies across the full system of conservation incentives, and the actual or potential value of emerging strategies to maximize program performance, encourage management-intensive conservation, and reward stewardship. Such strategies, often associated with the “green payments” concept, strongly influenced the 2002 Farm Bill and its enactment of the Conservation Security Program (CSP). Since Schuylkill River Watershed farmers had the opportunity to participate in CSP in 2005, interviewees were asked about the usefulness of, and obstacles to implementing, the innovative components of CSP. Finally, this study also examined the relevance of federal programs to local conservation priorities, with special focus given to the effectiveness of NRCS programs in furthering the Schuylkill River Watershed’s water quality objectives.

Interviews were conducted with seven farmers with diverse operations and conservation program involvement histories (six of whom participated in CSP), seven implementers of Farm Bill programs (both NRCS and County Conservation District agents), and several implementers of water quality conservation efforts on agricultural land (led by local non-profits, the EPA, and the state of Pennsylvania). Interviews covered the perceptions of 1) the most important local resource concerns, 2) the best practices for addressing those issues and barriers to such practices, 3) the effectiveness of the full range of available conservation programs in promoting the best practices and addressing priority resource concerns, and 4) the value of emerging program strategies to reward stewardship payments, emphasize management rather than structural conservation practices, and increase conservation performance.

Several themes emerged from the interviews. First, all participants were deeply concerned about low NRCS staffing levels. Insufficient staffing appears to have serious consequences for basic program delivery, conservation planning, and management-intensive conservation initiatives. Farmers also expressed strong desires for more sophisticated technical assistance to address complex management challenges. Second, Farm Bill conservation investments do not appear to directly target locally important conservation objectives, nor do they appear to stimulate significant improvements in nutrient management practices, the most critical ingredient for improved water quality in the Schuylkill River Watershed. Third, respondents revealed a dearth of contract enforcement and program evaluation activity, both of which hinder the potential of performance-based programs. Fourth, farmers shared deep frustrations with the tendency of Farm Bill programs to provide more ample rewards for poor stewards than for good

ones. Fifth, CSP was criticized for many problems: for perpetuating inequitable payments between longstanding versus new stewardship commitments, for extremely limited outreach and sign up periods, for not having a continual presence in the same watershed, and for staffing levels too low to ensure accountability. Simultaneously, interviewees believed a stewardship payments program like CSP, if improved, has potential to create stronger incentives and more equity in the NRCS conservation program portfolio. Finally, farmers expressed tentative support for the “greening” of income support by shifting payments from commodity production to stewardship.

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## List of Acronyms

BMP – Best management practice

CEAP – Conservation Effects Assessment Project

CREP – Conservation Reserve Enhancement Program

CSP – Conservation Security Program

DCNR – (Pennsylvania) Department of Conservation and Natural Resources

DEP – (Pennsylvania) Department of Environmental Protection

EPA – Environmental Protection Agency

EQIP – Environmental Quality Incentives Program

FSA – Farm Service Agency (the agency of the USDA that disperses commodity subsidies)

IPM – Integrated pest management

LDP – Loan Deficiency Payment

NRCS – Natural Resources Conservation Service (the agency of the USDA that implements Farm Bill conservation programs)

PWD – Philadelphia Water Department

SAN – Schuylkill Action Network

USDA – United States Department of Agriculture



# 1. Introduction

This study examines the perceptions of farmers and program implementers about the effectiveness of federal agricultural working lands conservation programs in the Schuylkill River Watershed in southeastern Pennsylvania. A primary goal of the project was to gain insights—from those with ground-level experience of NRCS (Natural Resources Conservation Service) program implementation—into the actual or potential efficacy of strategies to maximize program performance and reward stewardship.

## *The Policy Context*

Several approaches to maximize environmental outcomes, or performance, have been advocated by agricultural economists and policy analysts over the last decade or two, some of which have begun to influence the form of federal working lands programs (Helms, 2003). Some strategies, described by such terms as performance-based (Claassen et al., 2001; Weinberg and Claassen, 2006), whole farm (Batie, 1994), and management-intensive (SWCS/ED 2007a; SAC, 2006) conservation planning, aim to improve outcomes and cost effectiveness at the scale of the individual farm. Other approaches focus on how best to target investments to gain measurable environmental improvements at larger scales for key natural resources and regions (Westra et al., 2004; Batie 1994). Examples include watershed-based program implementation (USDA NRCS, publication date unknown; Wu, 2004; HAWCAEP, 2001), geographic targeting of resources to select regions where critical improvements are needed (Wu, 2004; Hansen, 2006; USDA, 2006a; Batie, 1994), funding allocations by priority resource concerns (Zhao, 2004), and awards for cooperative efforts with participation of such stakeholders as farmers, non-profits, universities, and/or government agencies at local, state, and federal levels (SWCS/ED 2007a; SAC, 2006).

The focus on environmental performance has paralleled discussions about how to reform the Nation’s agricultural subsidy system so financial rewards are based on environmental stewardship rather than commodity production. *Green payments* is the term used to describe proposals that attempt to merge the objectives of farmer income support with incentives for conservation (Claassen and Morehart, 2006). Based on the assumption that farming should not be environmentally destructive, and that win-win solutions that invest in both farmers and our natural resources are possible, green payment approaches seek to pay for the value of a farmer’s stewardship. (Helm, 2003)

Those advocating measures to reward stewardship and improve the environmental performance of federal programs have won numerous victories since the passage of the 1985 Farm Bill, which ushered in “conservation compliance” (Helms, 2003). Requiring farmers to conserve soil and wetlands in exchange for commodity subsidies, conservation compliance measures were the first attempt to tie together farm income support and conservation goals (Claassen and Morehart, 2006). Since 1985, Farm Bill revisions have also established several new conservation programs (Helms, 2003), dramatically expanded conservation budgets (Clarren, 2007), and shifted the emphasis from land

retirement programs toward working lands programs (Helms, 2003; USDA, 2006a; Lichtenberg, 2004). New mandates for geographic and resource targeting (Helms, 2003; Claassen et al., 2001; SWCS/ED, 2007a), funding allocation criteria (Hansen, 2006; SWCS/ED, 2007a), and cooperative conservation requirements (USDA, publication date unknown, SWCS/ED, 2007a) also attempt to raise the level of environmental performance from program investments.

The enactment of the Conservation Security Program (CSP) in the 2002 Farm Bill has been hailed by many in the conservation community as a major step toward green payments (Helm, 2003; Zhao, 2004; Kemp, 2005). CSP was designed to reward existing stewardship and to do so in proportion to the conservation value of stewardship practices. These two qualities—rewarding ongoing stewardship and performance-based (rather than cost-based) payments—are what distinguish CSP from prior NRCS conservation programs that simply provided cost-share payments in exchange for agreements to implement future conservation practices (Helms, 2003, Weinberg and Claassen, 2006; Johansson, 2006). In addition, a little recognized, but important clause of the CSP statute provides for enhanced payments for farmers who address locally-defined conservation priorities, participate in cooperative watershed or regional conservation efforts, or carry out environmental monitoring of rewarded practices.

With two decades of conservation advocacy efforts realized in so many ways at the federal policy level, this study offers an opportunity to discover how these changes carried through the agricultural conservation system to shape the effectiveness of conservation incentives as experienced and perceived by local stakeholders.

### *The Schuylkill River Watershed*

The setting for this study was driven by initial support from the Northeast-Midwest Institute and the William Penn Foundation. The Northeast-Midwest Institute was interested in the potential of CSP in the broader system of agricultural conservation incentives and as a precursor to future green payments reforms. The Schuylkill River Watershed implemented CSP in 2005, the second year of the program. In addition, the William Penn Foundation, who provided support to the Northeast-Midwest Institute and this project, had funded many conservation efforts in the Schuylkill and was particularly interested in the relationship between locally and federally-driven efforts affecting agricultural land.

The Schuylkill Watershed is an unusually rich community in which to conduct this study. Agriculture is central to the area's history and culture. A sizeable Amish community continues to farm throughout the region, and Berks County—the central county of the watershed—is famous for its farmland preservation policies (AFT, 2005). Because the watershed is a major production center for the Philadelphia, New York, and D.C. markets, Schuylkill farmers operate a wide variety of farm types, especially cash crop and livestock operations, but also orchards, vegetable and horse farms (NASS, 2004).

The Watershed also hosts a diverse mix of activities to improve farm stewardship and reduce agricultural non-point source pollution. As the drinking water source for the 1.5

million residents of Philadelphia, the Schuylkill River is the target of several initiatives to improve water quality (PWD, 2002). Because agricultural sources comprise 30% of non-point source pollution in the watershed, several regional and national efforts focus on reducing pollution from farms (PWD, 2002). In addition, the Schuylkill Watershed was selected for implementation of CSP in 2005, the program's second year. This wealth of programmatic efforts to promote conservation practices on working land combined with the richness of the agricultural sector make the Schuylkill River Watershed a unique area in which to study perceptions of conservation program performance.

### *The Study's Evolution and Rationale*

While many studies have analyzed data or stakeholder input related to a particular program (Lundgren et al., 2006; Heller et al., 2005, SWCS/ED 2007b; Batie 2006), few have sought the points of view of farmers and local implementers on the strengths and gaps (as they experience it at the local level) in the full system of working lands conservation programs. I deliberately cast a wide net on the question of conservation program effectiveness for a couple reasons.

Though I was very interested in the ambitious aims of CSP, it was already clear two years into implementation that CSP was struggling to realize its potential (Lundgren et al., 2006; Heller et al., 2005), a situation typically attributed to severely constrained program funding (Johnson 2004a; Heller, 2005; Lundgren, 2006). Some of the early critiques of program implementation (Heller, 2005; Lundgren, 2006) however, seemed to suggest to me that there were other sources of problems, perhaps arising from the statutory language, gaps in NRCS infrastructure, and NRCS organizational norms that made some of the novel components of the program—and perhaps of any performance-based stewardship program—difficult to implement. Consequently, I wanted to learn more about the perceived value of, as well as obstacles to implementing, innovative measures like those incorporated in CSP. Since these measures were intended to resolve important gaps in the suite of established conservation programs, and perhaps, to even provide models for larger-scale green payments programs, understanding their inherent strengths and weaknesses seemed important.<sup>1</sup>

I knew the richest data would come from interviews, and from questions that are broad and inclusive. I wanted to mine participant's perspectives for clues as to what works, what does not, and why. I wondered what their thoughts were on the national policy debates that shaped the programs delivered in their communities. Did local stakeholders see value in the key strategies that informed CSP and are continuing to drive changes within the Farm Bill programs? I also wanted to hear how effectively the suite of federal

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<sup>1</sup> Note: I also considered evaluating the environmental performance of CSP and other programs in the Schuylkill against locally-defined conservation objectives. With data on the types of practices funded by NRCS and the location of improvements, several GIS-based simulation programs can aid in estimation of environmental outcomes (Smith and Weinberg, 2004). As it turned out, however, it is nearly impossible to obtain spatially referenced program data—at least in a reasonable time frame—from NRCS due to agency procedures to protect the confidentiality of farmers receiving federal investments. This is, apparently, not an uncommon obstacle for researchers (Batie, 2007), and creates a very serious barrier to critical environmental performance research.

programs were building upon and furthering local efforts such as the water quality initiatives taking place in the Schuylkill.

While a case study of this nature cannot produce statistically meaningful data to test hypotheses, nor can the findings be generalized to all agricultural regions, it can offer insight into the views of recipients of federal conservation program funds and serve as the basis for generating hypotheses. Furthermore, by not focusing on a specific program, but, instead, on the suite of tools available to farmers and implementers, the interviews can shed light on the gaps and inconsistencies in the system of programs intended to create incentives for conservation.

I believe this study will prove useful for a range of policy professionals who are currently working to improve the delivery of agricultural conservation programs through the 2007 Farm Bill drafting process and beyond. The first hand experiences of farmers and local implementers are essential to understanding whether program intentions are discernable at the point of program delivery, yet these voices are rarely at the front of the policy debates and program design discussions. Many concerns raised by participants in this study corroborate recommendations made by policy advocates. Others, however, reveal discrepancies between policy goals and actual implementation, typically resulting from distortions that occur throughout the program implementation chain. Such distortions limit the success of the most thoughtful, ambitious, and innovative policy goals, and must be understood if policy designers hope to realize their goals.

### *The Study's Structure*<sup>2</sup>

The analysis presented in this report comes from interviews of seven farmers who participated in CSP and other agricultural conservation programs and seven implementers of those programs (staff of NRCS and County Conservation District offices). Additional interviews took place with staff of water quality agencies who were involved in local agricultural conservation programs. Interview themes are contextualized against an extensive review of literature by academic researchers, policy analysts, and advocates on the Farm Bill, particular programs, agricultural conservation best management practices, program design elements, and the national green payments discussion.

The following set of broad, open-ended questions was used to discern what strategies stakeholders considered effective—and effective for accomplishing what—among the range of working lands conservation programs.

- What are the local conservation objectives and the best practices for addressing them?
- What are the incentives and barriers farmers have to implementing these practices?
- What programs are most effective in motivating farmers to implement these practices?
- What characteristics make programs effective, or prevent them from being effective?
- How is it known what is most effective? How are results measured?
- Are federal programs responsive to the local priorities?

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<sup>2</sup> A comprehensive description of the interview methodology and participants begins on page 19.

- How was CSP similar to or different than other programs? What value did it have relative to other programs?
- To what extent are interviewees aware of the national “green payments” (commodity replacement) discussion? What are their opinions?
- What’s missing from the available conservation incentives?

This report summarizes the key ideas and concerns raised by farmers and implementers. Study participants had strong opinions and concerns about the resource concerns and practices that are relevant for their region, the scarcity of on-farm technical assistance and inadequacy of available assistance for the complex challenge of whole farm planning, and the viability of agriculture in the face of enormous residential development pressure. They also raised concerns about the apparent difficulty of cooperation between various organizations working on agricultural conservation and the perversity of the current system of subsidies and conservation payments that seems to provide more ample rewards for poor stewards than for good ones.

I conclude the report with a discussion of the relevance of these findings in the context of proposals advocated by policy analysts. Preliminary recommendations are provided for changes that could strengthen the federal conservation portfolio, provide solutions to some of the gaps and disincentives in the system, and foster the infrastructure needed to support more sweeping reforms. Other issues raise more questions than they answer. In these instances, hypotheses for further testing are suggested.

## 2. Background

### THE FEDERAL POLICY CONTEXT

Reauthorized by Congress every five to six years, the Farm Bill provides the statutory framework and budget for the U. S. Department of Agriculture's (USDA) farm subsidy and conservation system (Clarren, 2007). Subsidies and other income support programs are primarily administered through the USDA's Farm Service Agency (FSA). The USDA's Natural Resources Conservation Service (NRCS), in conjunction with partner organizations such as the County Conservation Districts, holds primary responsibility for implementing Farm Bill conservation programs and assisting private landowners to conserve natural resources. Though other federal agencies, such as the U.S. Environmental Protection Agency (EPA), implement conservation programs that involve private landowners, the Farm Bill is "the largest single source of federal funding for conservation on private land" (Clarren, 2007).

### History

Until 1985, Farm Bill conservation programs focused almost entirely on conserving soil to sustain agricultural productivity, a priority established during the dust storms of the 1930s (Claassen et al., 2001; Clarren, 2007). Through extensive research into production systems for reducing erosion, demonstration projects, and aggressive farmer education efforts, soil conservation programs were successful in reducing erosion problems (Lichtenberg, 2004; Clarren, 2007).

Discussions about new conservation priorities and policies—during the height of the environmental movement in the 1970s and 80s—initiated a wave of changes to Farm Bill legislation. With the formation of the EPA in 1970 and passage of the Endangered Species Act in 1973, greater attention was directed to the impacts of agriculture on water quality and wildlife habitat (Clarren, 2007). Federal agricultural subsidies came under much greater scrutiny by representatives of academia, conservation groups, and government agencies, who pushed for subsidy reform and a much stronger conservation mandate for the USDA.

That mandate was won in the form of the 1977 Soil and Water Resources Conservation Act (RCA), legislation which directed the USDA to track the status and trends of soil, water, and other natural resources, and to develop appropriate conservation programs to address environmental problems (Helms, 2003). The debate surrounding this victory has been viewed as the beginning of the green payments movement (Helms, 2003). It set the stage for numerous conservation advances in subsequent Farm Bills and three decades of continuing agricultural policy reform debate. The following chronology highlights key developments in the history to win improved stewardship incentives and conservation program performance. These are the key themes investigated in this study and that underpin the ongoing push for green payments reforms currently influencing the debate of the 2007 Farm Bill.

### ***Food Security Act of 1985: Merging Farmer Support with Conservation Goals and Emphasizing Performance***

By the mid-1980s, many recognized that the commodity subsidy programs and other farm income support (loans and crop insurance) induced production patterns that degraded soil and water quality, and, therefore, conflicted with the objectives of USDA's conservation mandate (Claassen et al., 2001). The 1985 Farm Bill (the Food Security Act) was the first to explicitly recognize this inconsistency and to take steps to reconcile it by instituting conservation compliance provisions and the Conservation Reserve Program (CRP) (Claassen et al., 2001, Claassen and Morehart, 2006). These changes have been considered early steps towards green payments reforms of agricultural policy (Claassen and Morehart, 2006; Helms, 2003), and the conservation compliance provisions serve as a useful template—even today—for future reforms.

Conservation compliance requirements were designed to minimize the temptation of farmers to crop environmentally sensitive lands (Helms, 2003). As a condition of eligibility for commodity and other income support programs, they required farmers to meet a minimum standard of conservation—using effective soil conservation systems on highly erodible land and not converting wetlands to agricultural production. These two provisions, commonly referred to as “Sodbuster” and “Swampbuster” respectively, aimed to reduce soil erosion and sedimentation of surface waters, improve water quality, and protect wetlands. (USDA, 2006a; USDAA, publication date unknown)

CRP has been recognized as one of the first long-term land retirement incentive program with overt conservation objectives. Until 1985, various programs were used to encourage producers to divert land from production to control crop yields and prices (Johnson and Clark, publication date unknown). CRP, however, had a dual role. Its explicit goal was to protect natural resources, and it did so while also serving as a supply management tool (Johnson and Clark, publication date unknown; Claassen and Morehart, 2006). Its conservation objectives—considerably broader than the sole historic focus on soil conservation—were to safeguard environmentally sensitive lands from production to control soil erosion, improve water and air quality, and enhance wildlife habitat (USDAB, publication date unknown).

Alongside these measures to tie conservation objectives to farm-income support, the 1985 Farm Bill also included a program specifically designed to emphasize measurable environmental performance and locally-relevant conservation objectives. A land-retirement program providing payments above those provided by CRP, the Conservation Reserve Enhancement Program (CREP) was targeted to key geographic areas where organizational partnerships between NRCS, the State, and other stakeholders interested in addressing particular environmental issues existed. CREP partnerships were required to establish measurable objectives and conduct annual monitoring to measure progress toward implementation of those objectives. (USDAB, publication date unknown)

### ***Food, Agriculture, Conservation, and Trade Act of 1990: Addressing Disincentives to Stewardship and Unequal Payments for Good Stewards***

In spite of the critical measures passed in 1985, legitimate concerns continued about the environmental impacts of farm subsidies. The concept of decoupling—separating the level of income support from the amount of acres a farmer kept in production of commodity crops—shaped the discussions leading up to the 1990 Farm Bill (Helms, 2003). Conservation was not the only rationale suggested for decoupling; the issue of equity also arose. During the Farm Bill debates, Senators complained that farmers who used management practices like crop rotations and cover crops received less income support, due to lower production, than those who did not let good stewardship practices interfere with their production goals (Helms, 2003).

The 1990 Farm Bill (the Food Agriculture and Trade Act) loosened requirements for commodity production, allowing farmers to devote a percentage of their acres to other crops while maintaining subsidy payments based on historic commodity production levels (Helms, 2003). This was expected to reduce the effect of income support on production decisions (Claassen and Morehart, 2006) and encourage farmers to use more crop rotations and cover crops (Helms, 2003). This was a small, but important step, toward reducing disincentives to good stewardship and addressing a system-wide inequity. Nonetheless, such inequities and disincentives persist—as the perspectives gathered in this study show—and remain the subject of debate today.

### ***Federal Agriculture Improvement and Reform Act of 1996: Advancing Green Payments, Working Lands Stewardship, and Targeting***

The most remarkable aspect of the 1996 Farm Bill (the Federal Agriculture Improvement and Reform Act) was the vigor of green payments discourse that preceded it. Many conservation advocates favored merging the concepts of decoupling and stewardship payments by substituting a green payments system for the current income support system. Between 1994 and 1996, numerous agricultural economists, government policy analysts, and conservation advocacy groups—including American Farmland Trust, Natural Resources Defense Council, Sustainable Agriculture Coalition, Soil and Water Conservation Society, Environmental Working Group (Batie, 2007), among others—published proposals for green payment programs. (Helms, 2003)

At the same time, the recently signed General Agreement on Tariffs and Trade—which launched the World Trade Organization (WTO)—appeared to spell an eventual end to the subsidy system due to its market distorting effects. Some saw green payments as a means to ensure farmer income support under increasing trade restrictions. (Helms, 2003)

Expanding on the equity issue highlighted in the 1990 debates and foreshadowing a theme that shaped the 2002 Farm Bill, the agricultural community began to call attention to the need to support conservation efforts on working land and to reward good stewards. It was charged that farmers who practiced good stewardship were often shut out of the farm spending system, which mainly split its dollars between production-driven subsidies



and land retirement payments, with a few minor conservation programs making payments to farmers willing to implement new conservation practices. Gary Mast, a representative of the National Association of Conservation Districts, stated in a Congressional hearing, “Many agricultural producers feel that existing conservation programs are flawed: They reward primarily those farmers who have not managed their land well. Few programs offer incentives or rewards to landowners who have avoided natural resource programs by practicing good stewardship.” (Helms, 2003)

A final, but important, idea—the concept of targeting spending—was quietly raised which aimed to improve the environmental performance of conservation spending. Though many scientists and agricultural economists tout the cost- and environmental-effectiveness of targeting conservation programs to distinct geographic areas or resource concerns, such proposals tend to be politically difficult because of the beneficiaries who are left out. Without using the term “targeting,” however, the USDA’s Farm Bill proposal advocated focusing land retirement and cost-sharing programs “on clearly defined natural resources programs.” (Helms, 2003)

The resulting Farm Bill enacted both strong targeting measures and a conservation program that has become the key vehicle for working lands conservation incentives. The Environmental Quality Incentives Program (EQIP) was launched to provide cost-share payments to farmers for installing structural improvements or implementing management practices that would reduce environmental degradation. EQIP funds would be available for best management practices addressing a range of environmental issues, including nutrient management, integrated pest management, irrigation water management, and wildlife habitat management (Johansson, 2006).

Two provisions were enacted to more effectively target conservation investments. First, 50% of EQIP funds were targeted for livestock operations—farms with conservation needs that had not been addressed by most prior conservation programs and that were beginning to be subject to Clean Water Act regulations (Batie, 2007)—and producer applications would be ranked according to the expected environmental benefit per dollar of program expenditure (Claassen et al., 2001). Second, the Farm Bill authorized the Secretary of Agriculture to designate conservation priority areas—“watersheds, multi-state areas, or regions of special environmental sensitivity”—for a substantial share of EQIP and other conservation program investments (SWCS/ED, 2007a).

Interestingly, one historian reports that the 1996 bill also included the first, but unfortunately unfunded and unimplemented, initiative designed to make annual payments to good stewards—farmers who managed their operations according to a “whole farm conservation plan” instead of simply implementing ad-hoc efforts eligible for EQIP or land retirement program payments. The Conservation Farm Option, as it was called, was the precursor to the Conservation Security Program passed six years later in the 2002 Farm Bill. (Helms, 2003)

## ***The Farm Security and Rural Investment Act of 2002: Winning Working Lands and Green Payments Progress, Losing Targeting***

By all accounts, the 2002 Farm Bill (the Farm Security and Rural Investment Act) has been recognized for giving unprecedented priority to working lands programs and for establishing the Conservation Security Program (CSP), a major statutory victory for green payments advocates. And the debate the shaped the bill was persistent and lively.

In 2001, two important publications insisted that conservation investments needed to focus on land in production, especially to address critical nutrient management problems which were the target of increasing federal and state regulatory pressure. In January, a team of agricultural economists with the USDA Economic Research Service published *Agri-Environmental Policy at a Crossroads: Guideposts for a Changing Landscape* (Claassen et al., 2001). This paper asserted, “Since the mid-1980’s, land retirement has dominated Federal spending on [conservation] programs...[These] policies cannot address environmental damages from the vast majority of cropland that remains in production..., namely nutrient loss to surface and ground water.” Simultaneously, the USDA issued a vision statement, *Food and Agricultural Policy: Taking Stock for the New Century* (USDA 2001). Explaining that 92 percent of all farm conservation spending since 1985 had been spent on land retirement, the USDA argued that working lands investments were essential for reducing nutrient runoff from fertilizer and animal waste.

Simultaneously, a new green payments program began to take shape in the discussions among the USDA, economists, and conservation advocates—a program that would reward good stewards, provide payments in proportion to environmental performance, and model a different kind of farm-income support than the subsidy system. It would be based on paying for the environmental services, rather than the commodities, supplied by farmers. *Taking Stock for the New Century* (USDA 2001) described a new approach that could compensate farmers for the environmental amenities they provide and recognize the past efforts of “good actors” who already practice high levels of stewardship.

An initiative that would begin to advance a new kind of farmer income support, tied directly to conservation, was supported widely for several reasons. Sustainable agriculture, family-farm, and environmental organizations saw an opportunity to make the farm-income support system more equitable for small and sustainable farms, to expand incentives for conservation, and to create an alternative to the pesticide- and fertilizer-promoting commodity subsidies (Lichtenberg, 2004). Though they vehemently opposed substituting conservation payments for commodity subsidies, commodity growers’ associations supported a voluntary, incentive-based conservation subsidy that could help producers cover costs and risks associated with meeting increasing federal and state regulations (Helms, 2003). Additional support for conservation subsidies came from continuing WTO restrictions on trade-distorting commodity production subsidies (Lichtenberg, 2004; Helms, 2003).

The results of these efforts were the establishment of CSP, and between funding for it and an enormous expansion of funding for EQIP, a six-fold increase in funding for working

lands programs (Lichtenberg, 2004). These two major changes brought opportunities and challenges that are still being worked out to this day, and which are explored in this study.

One other, much less publicized, but significant component of the 2002 Farm Bill was the elimination of the targeting provisions advanced six years before. Conservation priority areas—watersheds and regions of special environmental concern—had been used by the USDA to focus the majority (73%) of EQIP spending between 1997 and 2002, and this caused frustration for producers outside those priority areas (SWCS/ED, 2007a; Johansson, 2006). As a result of the 2002 Farm Bill, national environmental priorities—reducing non-point source pollution, soil erosion, and habitat loss—replaced geographically-defined priority areas as a means to screen producers' EQIP applications (Johansson, 2006). The bill did, however, contain provisions to allow the USDA to dedicate a portion of program funding to local or regional partnerships, and to provide higher CSP payments to farmers participating in regional or watershed-based efforts (P.L. 107-171). Unfortunately, the USDA chose not to implement either provision (SAC, 2006; SWCS/ED, 2007a).

### Summary of Key Themes and Federal Working Lands Programs

The major increase in resources for conservation on working land delivered by the 2002 Farm Bill signifies a change in perception about agriculture and the environment. The historic emphasis of conservation programs on retiring land from agriculture was based on an assumption that agricultural production is inherently harmful to natural resources. “In most of the United States,” where, as the Director of the Soil and Water Conservation Society argues, “agriculture is the environment” as well as the leading cause of hypoxia in the Gulf of Mexico and the largest source of impaired rivers and streams (Cox, 2007), treating productive land as a sacrifice zone is terribly pessimistic. Fortunately, the new emphasis on working lands—now constituting half of all USDA conservation expenditures (USDA, 2006a)—“promotes agricultural production and environmental quality as compatible national goals” (USDA NRCS, 2007). It responds to the optimism of consumers, environmentalists, and farmers who have rallied for the possibility of sustainable production systems.

While shifting the priorities and affording new opportunities for agency implementers, the emergence of working lands programs also creates significant challenges. For example, it takes a different type and intensity of technical assistance to help farmers change their production practices (this is even more true if those changes are to be effective, monitored, and measured) than to simply offer monetary contracts for land retirement (Heimlich in Lynch and Batie, 2006). To deliver more robust technical assistance and track program progress, new analytical tools are needed. As conservation staff work with farmers to evaluate their operations for potential changes, it is inevitable that the influence of production subsidies on management practices will be more recognized as an impediment to conservation-oriented farm system. Program designers will be forced to consider the form incentives must take to stimulate desired changes. All of these changes will demand new knowledge, resources, and organizational infrastructure to succeed.

Since this study explores perceptions of the efficacy of working lands conservation incentives, it is important to briefly review the key programs and the critiques that surround them. The portfolio of USDA working lands conservation tools includes the conservation compliance provisions for farm income support, EQIP, CSP, and a variety of funding streams to support technical assistance services.

### **Conservation Compliance**

Currently, conservation compliance provisions require farmers who receive income support, such as subsidies or loans, to submit a farm conservation plan with NRCS which demonstrates the use of conservation practices on highly erodible land that has been in crop production since 1985 and certifies that highly erodible land and wetlands not in crop production before 1985 have not been converted to crop production (USDAa, publication date unknown). While extremely important for establishing minimum conservation expectations, compliance provisions are limited to commodity-producing operations and do not encourage higher levels of stewardship.

### **Environmental Quality Incentives Program (EQIP)**

As the dominant working lands program, EQIP is widely sought after by farmers. The program primarily provides cost-sharing (up to 75% of the cost) to farmers for implementing new conservation structures, such as manure storage facilities, sediment and nutrient filter strips, or grassed waterways (USDA NRCS, 2007). EQIP also provides incentive payments through several year contracts to help with the cost of management-intensive conservation practices, such as nutrient or pest management practices (USDA NRCS, 2007). These types of payments are much less common than cost-share payments—they constituted only 18% of all EQIP expenditures in 2005—and consequently, the program has been criticized for a bias towards ad-hoc conservation measures rather than whole system conservation planning (SWCS/ED, 2007a). It is not evident why this bias exists, but since it results from USDA operations, not any statutory limitation, limited technical assistance resources or the conservation preferences of farmers are likely culprits. Another possibility is that as a short-term incentive, EQIP is simply better suited to assist with the one-time costs of structural improvements.

EQIP has also been criticized by farmers who already have established records of good conservation practice for supporting “bad actors”—for providing payments to farmers who otherwise would not practice good stewardship rather than to those who already do. And, since the 2002 elimination of targeting provisions, conservation organizations complain that spending has become diffuse, preventing a “critical mass” of investments in any one area capable of producing meaningful environmental improvements (SWCS/ED, 2007a). Nonetheless, efforts to promote targeting continue to be promoted in the mission statements and Farm Bill objectives of the USDA (NRCS USDA, publication date unknown, USDA 2006, USDA 2007).

## *Technical Assistance*

Funding for technical assistance (for example, the human resources that deliver USDA conservation programs and assist farmers with management planning) comes from many sources. Some technical assistance (TA) funds are included within the budgets of particular programs, and other funds are provided through discrete Farm Bill line items. Resources for technical assistance—for knowledgeable field and technical staff—are essential to high quality program delivery, and the pressures for abundant and talented staff will increase with the move toward working lands, performance-based, and management-intensive conservation initiatives (Heimlich in Lynch and Batie, 2006; Cox, 2007).

## *Conservation Security Program (CSP)*

With many new features at both the statutory and program design levels, CSP is very much a work in progress, and as such, perceptions of its significance vary widely. On the one hand, CSP has been recognized as innovative on several levels. Promoted with the slogan “Reward the best and motivate the rest,” CSP is the first program that makes payments not only for new conservation commitments, but also for existing practices (Helms, 2003; Johansson, 2006; SWSC/ED, 2007b). In fact, existing performance in attaining soil and water conservation objectives on at least part of the farm is a prerequisite for program eligibility (Johansson, 2006).

With vigorous interest in whole-farm management by advocates of CSP and statutory language allowing the USDA to assist CSP producers “in developing a comprehensive, long-term strategy for improving and maintaining all natural resources of the agricultural operation” (P.L. 107-171), CSP has been perceived as basing rewards on the “benefits of the total package [of farm management] rather than on individual practices” (Helm, 2003). And unlike EQIP, CSP theoretically scales much of its payments to the estimated environmental gains from the whole package of management practices on a particular farm, as measured by environmental indices (Johansson, 2006; USDA, 2006a; Weinberg and Claassen, 2006).

On the other hand, as implemented, CSP contrasts with these expectations and has been the target of much criticism. First of all, because the statute covered a broad diversity of agricultural operations and conservation objectives, targeted existing stewardship practices, and prohibited the use of a competitive application process, it was written as an entitlement program (P.L. 107-171, Johnson, 2004b). The budget provided to implement CSP was severely limited, however (Johnson, 2004a), and as a result, the USDA was forced to design the program in such a way as to reduce its availability. Enrollment categories and tiers were designed to select applicants, and a watershed rotation system was instituted which would offer the program to an affordable number of watersheds each year until all U.S. farmers had a chance to apply (Johnson, 2004a; Johansson, 2006). These two changes, alone, created a complex and confusing program unable to have a continuous presence in any region. With such constraints, the ability for CSP to stimulate new stewardship commitments—“motivate the rest”—may have been severely compromised.

In addition, to underscore the income-support aspect of the program (Batie, 2007), Congress capped the percentage of resources available for funding technical assistance (as opposed to the resources available for farmer payments) at 15 percent (P.L. 107-171). Such a meager investment in TA conflicted with the increasing time and expertise demanded by a performance-based, whole-farm conservation program (Heimlich, 2006).

Consequently, the program has been disparaged for being confusing (Heimlich, 2006), “practice-based” rather than “performance-based” (Heimlich, 2006), over-emphasizing soil conservation objectives (a consequence of limited analytical tools—only indices for estimating environmental gains of soil condition have been thoroughly developed and implemented) (Lundgren et al., 2006, SAC, 2005; Heller, 2005; Heimlich, 2006), and for paying for “status quo” levels of stewardship that would have occurred anyway (SWCS/ED, 2007b). Small and sustainable farm advocacy organizations have additionally criticized CSP for a bias against small and organic operations and a failure to reward extremely thorough conservation practices like management intensive rotational grazing (SAC, 2004; Lundgren, 2006). While many have pointed out that the CSP was intentionally broad to appeal to a wide range of constituents and to support the dual goals of income-support and conservation (Helms, 2003), others have expressed that “there is nothing worse than implementing a broad program that addresses all objectives poorly” (Batie, 2006) and “CSP is falling short of realizing” any of its goals (Cox, 2006).

CSP is still a new program, and its identity is still emerging. Nonetheless, the objectives that shaped CSP—to provide incentives for stewardship, to begin to create an alternative to the environmental and market distorting commodity programs, and to achieve robust and measurable environmental outcomes—are important for the long term potential of the full suite of working lands conservation programs. The interviews in the Schuylkill attempt to ascertain the degree to which these priorities can be felt by stakeholders far down the implementation chain, the consistency between these objectives and local priorities for conservation programs, and the challenges to realizing their full potential.

## THE SCHUYLKILL RIVER WATERSHED

About 80 miles long and draining to the Delaware River in Philadelphia, the Schuylkill River’s watershed is located in southeastern Pennsylvania and includes the majority of Schuylkill, Berks, Montgomery, and Philadelphia Counties as well as portions of seven other counties. The watershed covers a diverse land area, from the Appalachian Mountains in the west through fertile farmland into highly urbanized Philadelphia. (The Conservation Fund, 2001)

In spite of increasing competition from sprawling residential development, over a third of the watershed is currently in agricultural land use, most of which is in Berks County (PWD, 2002). At the center of the watershed, Berks County comprises 40 percent of the watershed and is almost completely within the watershed boundaries, suggesting that the County’s land use has a significant impact on the condition of the Schuylkill and its tributaries (The Conservation Fund, 2001). Additionally, almost 40 percent of the land in

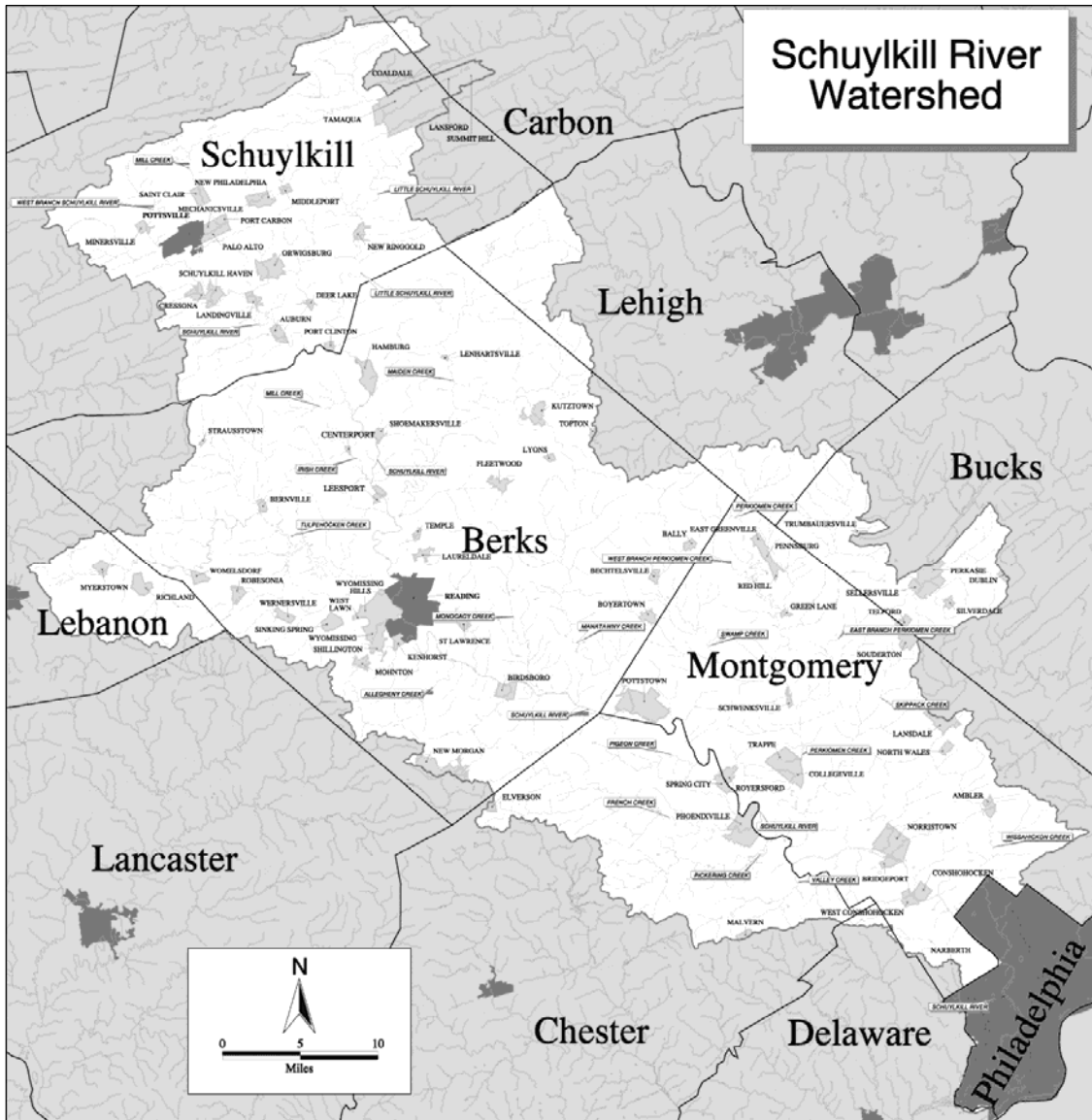


Figure 1 – Schuylkill River Watershed (The Conservation Fund, 2001)

Berks County is productive farmland (NASS, 2004). Figure 2 shows the percent of land use in the watershed that is agricultural.

This region has a long history of farming and today supports a diverse mix of livestock and crops and a relatively large number of small and medium sized farms. For example, in 2002, the average farm size in Berks County was 120 acres, with the vast majority being less than 500 acres and over half under 50 acres (NASS, 2004). About 20% of them grow row crops exclusively, a small percentage grow fruit and vegetables, and the rest support livestock or grow pasture and hay (PWD, 2002; NASS, 2004).

## Resource Concerns and Conservation Priorities in the Watershed

It is nearly impossible to consider key conservation issues in a watershed, without the geographic target itself—the fact that it is a *watershed* and not a political or other natural resource territory—leading to a consideration of water resources. The fact that about 1.8 million people residing in the Philadelphia Region depend on the Schuylkill River as their drinking source (PWD, 2002) makes water quality issues especially important. The Schuylkill River Watershed as a jurisdiction is well-recognized and water quality is a source of considerable attention and concern by environmental organizations and local residents.

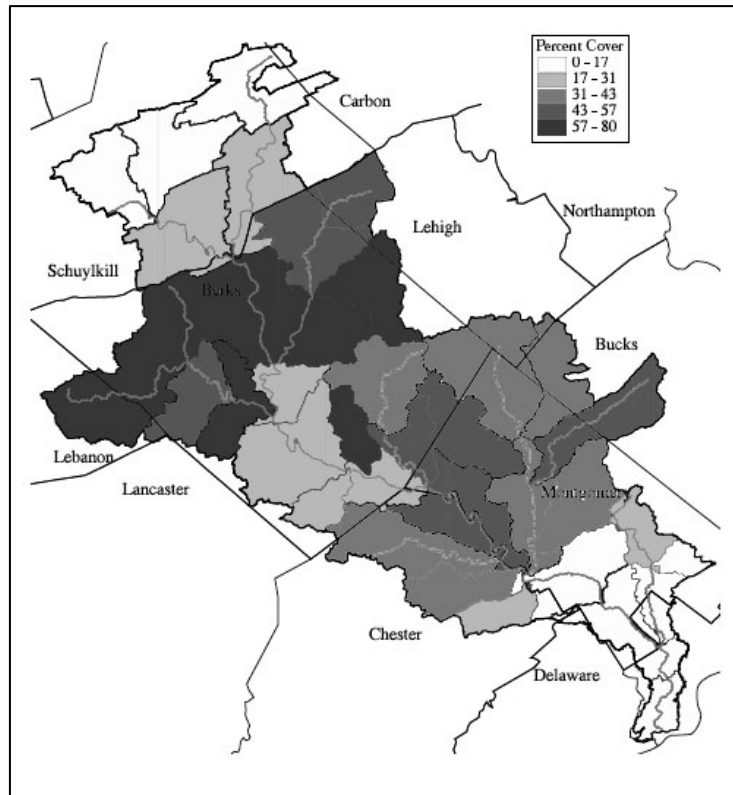


Figure 2 – Agricultural Land Cover (The Conservation Fund, 2001)

As a consequence of the high visibility of the Schuylkill, there are literally dozens of conservation efforts focusing on the Watershed and its tributaries. Led by government agencies, watershed organizations, educational institutions, and citizens groups, efforts include water quality reports, monitoring programs, conservation plans, riparian restoration, dam removal, and environmental education efforts. Most focus on water resource objectives, but a few focus on land conservation—especially connected greenways—for recreation, historic preservation, and wildlife habitat (PWD, 2002; The Conservation Fund, 2001). Of the numerous efforts, the two planning processes and coalition conservation effort described below appear to be most influential with regard to issues stemming from agriculture.

In 2002, the Philadelphia Water Department (PWD) conducted a study to assess the water quality in the Schuylkill River watershed. The *Source Water Assessment Report* attributed water quality impairments in the Schuylkill to four major factors: urban stormwater runoff, agricultural practices, abandoned mine drainage, and sewage overflows. Agricultural runoff was ranked as the second leading cause of pollution after impacts from urban runoff. As a significant source of sediment, phosphorous, and nitrogen pollution, as well as bacterial pathogens, farming practices degrade drinking water quality and aquatic habitat. (PWD, 2002)



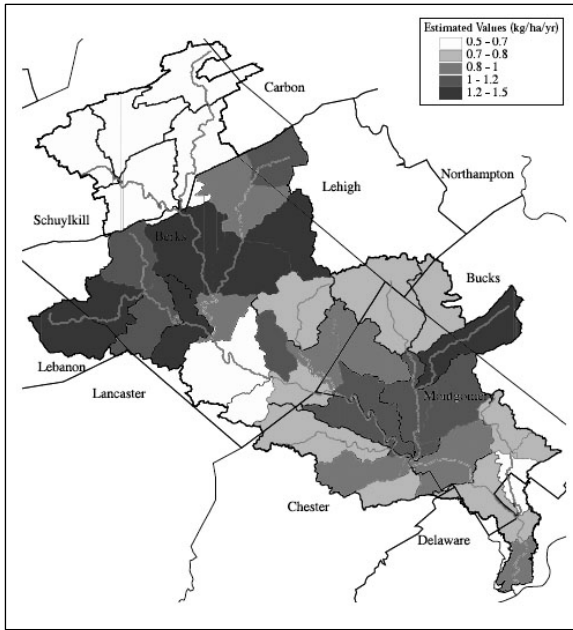


Figure 3 – Phosphorous from Land Cover

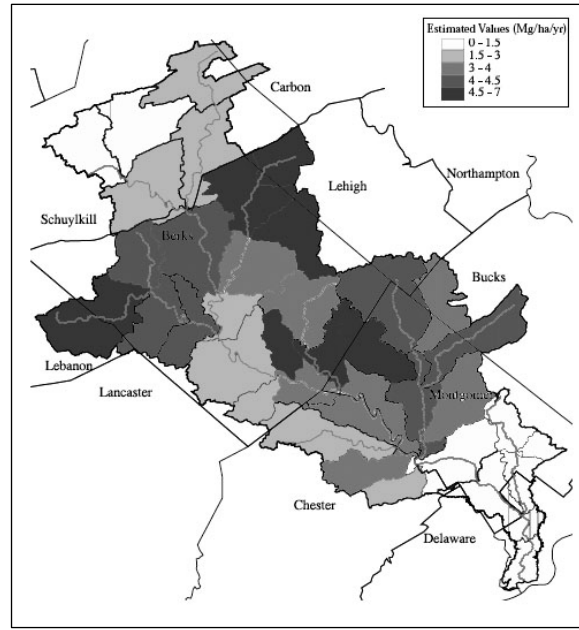


Figure 4 – Sediment from Land Cover

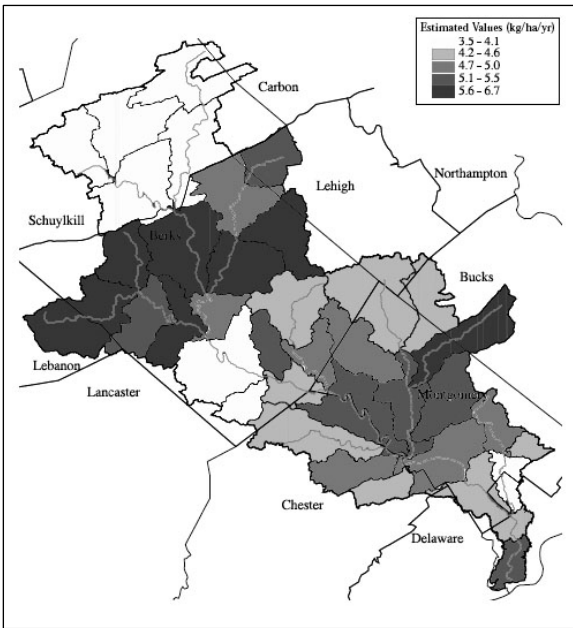


Figure 5 – Nitrogen from Land Cover  
(The Conservation Fund, 2001)

Using Pennsylvania Department of Environmental Protection impaired stream data (the EPA 303(d) listing), the study estimated that nearly 30% of impaired stream miles resulted from agriculture, and that 200 of the 258 agriculturally impaired stream miles are located in Berks County. The report further noted that though the amount of agricultural land is decreasing due to residential development, the impacts of agricultural activity are not likely to increase as production is concentrated into smaller areas. Figures 3-5<sup>3</sup> show stream load levels for the three most significant sources of agriculturally-driven water pollution. (PWD 2002)

Around the same time, the Conservation Fund gathered a committee of scientists, public officials, policy experts, and citizens to create the *Schuylkill River Watershed Conservation Plan* (The Conservation Fund, 2001) for the Pennsylvania Department of Conservation and Natural Resources (DCNR). In conjunction with a sister project called the *State of the Schuylkill River Watershed* (The Conservation Fund et al., 2002), this

<sup>3</sup> The maps are labeled as found (produced originally by the Patrick Center at the Academy of Natural Sciences), but the nitrogen map appears to be mixed up with one of the other two as the phosphorous and sediment patterns should be roughly parallel. Attempts to communicate with the author were unsuccessful.

effort compiled data on baseline water quality conditions from numerous sources, sought substantial public input, and made recommendations.

The process of creating these documents brought together a wide variety of stakeholders, some of whom had rarely worked together, as one participant interviewed for this study observed. Recognizing the significance of this collaboration, local stakeholders partnered with the EPA to launch the coalition, the Schuylkill Action Network (SAN). With a mission to restore and protect the regional drinking water supply (SAN, 2006) SAN institutionalized cooperation in the Schuylkill. Participating agencies were divided into working groups by pollution source, and the Agricultural Working Group represents several dozen staff from conservation organizations and agricultural assistance and water quality regulatory agencies (SAN website). Participants in the process have been enthusiastic about the resulting improved relations—traditionally fraught with distrust—between the water quality advocacy and regulation community and agricultural advocacy and assistance organizations.

The objectives of SAN and the two major planning efforts are consistent with one another: to control the entry of sediment and nutrients from farms to the Schuylkill River and its tributaries (SAN, 2006; PWD, 2002; The Conservation Fund, 2001). All three efforts also recommend common strategies:

1. To develop and implement nutrient management plans to reduce nutrient loading from excess fertilizer and animal waste
2. To implement erosion control practices to control sediment loading
3. To protect (fencing out livestock) and restore riparian buffers to address problems of sediment, nutrient, and pathogen pollution.

The high level of consistency of goals and recommendations across these efforts demonstrates strong consensus with regards to water quality objectives for the region. It is interesting to note that the Source Water Protection Assessment specifically calls on the USDA to target funding of its conservation programs for water quality protection and to consult water suppliers to identify critical geographic targets for improving water quality.

### **Farm Bill Conservation Activity in the Watershed**

Farm Bill conservation programs are primarily implemented by the Natural Resources Conservation Service (NRCS) through its county offices. In southeastern Pennsylvania, however, NRCS also contracts with the county Conservation Districts to deliver elements of Farm Bill conservation programs. Conservation District staff work closely not only with NRCS, but also with state agencies who they assist in implementing nutrient management and erosion control policies. Consequently, Conservation District staff have significant contact with many of the same farmers as NRCS.

In 2005, the full suite of Farm Bill conservation programs was available in the counties of the Schuylkill River Watershed, including CREP, which is only available for targeted regions and partnerships, and CSP, which is only available to a portion of the nation's

watersheds each year. In 2005, the Schuylkill was one of 202 watersheds selected nationally to participate in CSP.

Data on the funding of working lands programs in the Schuylkill is difficult to access. However, data is available on implementation of CSP. The NRCS District Manager in conjunction with the Berks County NRCS office delivered CSP in the Schuylkill. A total of 86 CSP contracts were awarded in the watershed with total fiscal year payments of \$307,362 (which only represents a portion of committed funds since contracts are 5-10 years in length) (SAC, 2006a). Those 86 contracts were awarded to 2.6% of all farms in the watershed and covered 12,745 acres, or 3.6% of the total agricultural acreage in the watershed (SAC, 2006a). The average size of the farms receiving CSP contracts in the Schuylkill is 148 acres, a bit larger than the overall average farm size of 120 acres for Berks County (NASS, 2004). (NRCS 2006)

## INTERVIEW PROCESS & PARTICIPANTS

The primary objective of the interviews was to understand which characteristics of conservation programs constituted effective conservation incentives as perceived by local stakeholders. In addition, I sought to discover how recent and emerging federal policy changes—to increase program performance, reform the farmer income-support system, and reward stewardship—carried through the implementation system and either increased or decreased the perceived effectiveness of conservation incentives. To do this, I sought observations on what worked best in the full suite of working lands programs, what the gaps were, and whether and how new reforms—especially those embodied in the national green payments discussion, CSP, and targeting and partnership measures aimed to produce regionally meaningful environmental outcomes—added value. I also sought information on how closely federal conservation priorities and strategies matched local conservation challenges and objectives.

I chose to interview local stakeholders who experience the major working lands conservation programs as close to the final stage of implementation as possible. These stakeholders include farmers and program implementers, both NRCS and others responsible for delivering conservation programs on working lands. By interviewing a range of local stakeholders, I believed I would be able to obtain a more complete and three-dimensional picture of patterns, opportunities, and challenges that should be considered as working lands conservation programs continue to evolve. The observations of farmers, field staff, and other community-level agency implementers provide critical information on the functional effectiveness of conservation programs, yet their voices are frequently absent from federal policy discussions.

Three sets of interview questions were developed: one for farmers, one for NRCS program implementers, and one for non-NRCS program implementers (see the appendices). Each set of questions covers four major topics:

- Perceptions of the most important local resource concerns

- Perceptions of the best practices for addressing those issues and barriers to such practices
- Perceptions of the effectiveness of the full range of available conservation programs in promoting the best practices and addressing priority resource concerns
- Perceptions of the value of emerging (green payments) program strategies such as stewardship payments, emphasis on management rather than structural conservation practices, and others aimed at increasing conservation performance

Within each topic, many questions were used to prompt participants and gain more detailed insights into particular characteristics of successful and flawed programs, other needed tools for promoting conservation, and their particular experiences. Each interview followed a unique trajectory, with slightly different questions, but the main themes were covered as completely and consistently as possible with each participant.

To protect the confidentiality of participants, all feedback is provided anonymously in this report. A brief description of the interview participants follows.

## The Farmers

Seven farmers were interviewed for this study. Six of those farmers received CSP contracts (out of 86 recipients total). Contact information was provided for those six by the NRCS district office<sup>4</sup> in response to a request for farmers who represent the range of farm sizes and types and who had experience with CSP as well as other programs. I specifically included experience with CSP in my request so I could hear how farmers perceived the comparative value of ongoing versus emerging program strategies. By prioritizing CSP participants in my interview pool, I was also able to glean information about the type of farmers identified by NRCS as good stewards. The seventh farmer interviewed was based on a referral from one of the other participating farmers and had participated in several NRCS programs, but not CSP. All farmers interviewed were located in Berks County. The following provides summary information on the farmers' operations and conservation experience.

**Mid-sized dairy:** One interviewee runs a dairy farm full-time with two brothers, none of whom earn income off the farm. The farm has about 120 milking age cows and an equal number of younger cows. They own 640 tillable acres (which is larger than 95% of farms in Berks County), all of which are in production except 120 acres which they bought while under a CREP land retirement contract. They plan on putting the CREP land into production as soon as the contract expires. About 80-100 acres is planted in alfalfa and grass hay. The rest is rotated between corn, soybeans, and wheat, which are fed to their own herds unless there is a surplus to sell. They reported receiving about \$9000 per year

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<sup>4</sup> This selection method may be inherently biased toward farmers NRCS staff believed likely to speak positively about their experience. Likewise, the fact that NRCS staff knew the identities of farmer interviewees may have also made them reluctant to share negative experiences. These potential biases were unavoidable since lists of CSP participants are not publicly available. Nonetheless, respondents seemed quite candid and comfortable expressing criticism.

in commodity payments and a varying level of loan deficiency payments (LDP)—\$16,000 in 2005, a high paying year. They practice no-till, other soil conservation practices, and have a manure storage facility. They have participated in EQIP and CSP. They received a \$20,500 CSP contract with an almost \$7000 first year payment (around twice the average size for the Schuylkill (SAC, 2006a)), most of which was for soil conservation.

**Small dairy:** Another interviewee runs a dairy farm full-time with 55 cows. The farmer owns 113 acres, 80 of which is in production, and rents 145 additional acres from neighbors, on which alfalfa, corn, and grass hay is grown for the cows. Typically, there is not a surplus crop. Previously, the farm had almost double the acreage and number of cows; the operation has shrunk due to loss of rental property to CREP and residential development. The farmer reported receiving about \$20,000 in commodity and loan deficiency payments in 2005, which was slightly higher than other years. The farm is a no-till operation. CSP is the first NRCS program the interviewee ever participated in. The CSP contract was over \$12,000 with a slightly larger than average first year payment for the watershed (SAC, 2006a), most of which was for soil conservation.

**Poultry farm:** A third farmer primarily grows chickens for a corporate poultry manufacturer in two broiler houses that shelter 5600 chickens at a time (seven flocks per year), boards 28 replacement cows for a nearby dairy, and grows feed for the cows and a bit of surplus cash crop. 340 acres, including 160 rental acres, grow corn, soybeans, a little wheat, and some hay. This farmer is relatively new to the industry, farming for only 10 years, but doing it full-time. The farm receives about \$3000 in commodity payments each year, and varying LDP payments (sometimes nothing). In 2005, LDP payments were between around \$7500, an unusually high payment. This farmer sold the development rights to protect the land as permanent farmland, practices no-till, maintains a manure storage facility, and has participated in EQIP for stream fencing and manure storage, CREP for riparian areas, and CSP. This farm's CSP award was \$15,000 and primarily for soil conservation.

**Orchard:** This farmer operates an orchard and several adjunct businesses—an orchard supply business, a direct-to-consumer retail outlet, and produces a line of peach wine. Four siblings are involved in the farm to varying degrees. On the majority of 117 acres they own and 60 acres they rent, they grow peaches, apples, pears, plums, nectarines, and pumpkins. Most of their produce is sold wholesale with a smaller volume going to the retail outlet. The siblings are working to diversify the operation. One received a grant to investigate the feasibility of agritourism, perhaps on-farm educational tours, a u-pick operation, or a bed and breakfast, and they all are trying to find a means for long term profitability. Over the years, they have sold a few acres and rented out a few buildings on the property to supplement the farm income. Fruit growers do not receive commodity payments, but in drought years, they may receive natural disaster payments. They implement integrated pest management (IPM) practices and have participated in state IPM research activities. They enrolled in CSP, receiving over \$17,500, mostly for IPM.

**Christmas tree farm/managed habitat:** A Christmas tree farm on ten acres of a 120-acre property is managed by its young landowner. Grown among tall, warm season

grasses and shrubs, the tree plantation is one part of a patchwork of woods, natural wetlands, former croplands planted into prairie species, small streams, and constructed ponds, all of which lie adjacent to a large public forest. Various long term income-generating strategies, such as establishing a hunting refuge, that do not conflict with restoration goals are being pursued. The landowner has participated in habitat restoration programs with the State and non-profit organizations, as well as the NRCS programs, EQIP, WHIP (Wildlife Habitat Incentive Program), and CSP. The CSP contract applied only to the tree plantation acreage (the productive land), was less than \$1500, about one-seventh the average Schuylkill payment (SAC, 2006a), and provided more benefits for energy conservation (recycling motor oil) than for the habitat value of the management practices.

**Horse farm:** This landowner operates a small horse farm that boards 15 horses, breeds, and teaches riding lessons. The farmer obtains the majority of income from breeding. 25 acres are used for a riding ring and six paddocks. Six acres, plus 20 rental acres, are used to grow hay for feed. CSP is the first NRCS program in which this farm has participated. The award was less than \$1800 and provided the greatest benefits for energy conservation (motor oil recycling). Over half the farm's acres were excluded from the contract because NRCS determined that breeding activities were insufficient to qualify the whole farm as working land.

**Small sheep/goat farm:** This last farm, a sheep and goat farm based on a 44-acre property and three additional rental properties, is arranged as a rotational grazing operation. The 40-50 ewes and 20-25 goats move between paddocks on all four properties and the farmer grows hay exclusively. The farmer has been trying to find a way through regulations to establish an on-site butchery. This operation is downsized from a prior farm with pigs, cattle, hay, and corn. The farmer did not apply to participate in CSP based on the belief that this new farm did not have established enough conservation practices to qualify, but has participated in EQIP.

## The Program Implementers

All program implementers interviewed were identified through conversations with NRCS staff and local conservation leaders. They are all individuals deeply involved in agricultural conservation program delivery in the Schuylkill River Watershed. Four NRCS employees were interviewed: two were involved with CSP implementation in the Schuylkill, one was engaged with SAN's Agricultural Working Group, and one had federal CSP experience. All had broad experience with the full suite of NRCS programs. Non-NRCS interview participants included three county Conservation District employees (from three different counties), one manager and two field staff; and four water quality conservation program managers working on agricultural non-point source pollution, two staff of the Pennsylvania Department of Environmental Protection, one staff member of the EPA, and a director of a local conservation non-profit. Most of these interviewees were familiar or involved with SAN's Agricultural Working Group, and all had experience partnering, some more closely than others, with NRCS.

### 3. Findings and Discussion

*I think more and more we are going to have to look to farmers to be our conservationists because pretty soon, with ongoing suburban sprawl, farms are going to be all we have left. We are going to need farmers to provide habitat for wildlife and protect our water.*

— comment from a county Conservation District employee

*Farmers are in complete and utter denial about the pollution occurring in their watersheds. The view is that farming is a natural process.*

— comment from a water quality program implementer

Like the above quotes, working lands conservation programs cut both ways. They are based on the premise that working farmland must not be an environmental sacrifice zone, that farmers can be an integral part of achieving conservation objectives. They have also been advanced as a means to address the serious problems caused by some production practices.

The farmers in this study were supportive of conservation programs focused on productive lands and often equally resentful of anything, such as CREP, that drove land out of production. CREP, the best funded land retirement program in the watershed, was identified by every farmer who grew cash crops or livestock feed as a barrier to profitability. Several had lost productive rental acres to the program, and one awaited the end of a CREP contract to put purchased land into production. One of the farmers described the situation this way: “Owners are putting land into CREP instead of renting it for production. Renters can’t compete with \$150/acre.” This concern was especially aggravated by the similar impacts of sprawling suburban development and the increasing value of grain crops in the wake of a growing ethanol industry. In contrast, these producers felt that working lands programs, like EQIP and CSP, were pro-farmer.

On the other hand, several farmers and agency implementers expressed concerns about an artificial divide between working lands and land retirement incentives. The horse farmer had to prove to NRCS that the farm was, in fact, a working farm by demonstrating that the majority of the operation’s income came from breeding. Another farmer reported that a nursery manager he knew was denied eligibility for CSP because nurseries do not count as working lands. In both cases, the land uses have potential for contributing to or preventing sediment and nutrient pollution similar to any livestock or produce operation.

The Christmas tree farmer believed it important to focus equally on the productive and fallow areas of the farm. Implementers agreed. Some felt there were not sufficient program tools available to fence off *and restore* the buffering capacity of riparian areas, a function straddling land retirement and working lands programs. Others pointed out the importance of CREP for removing riparian areas from production, and did not want to see this strategic use of CREP diminished.

These interviewees wanted to see a seamless one-stop-shop system where farmers could get strategic conservation planning assistance for their particular operation and apply for appropriate programs, whether in the land retirement or working lands category. The desire for comprehensive, strategic planning assistance by both farmers and agency staff is a theme that pervades these interviews.

This section of the report summarizes the findings from interviews about what works and what does not in the current system of conservation incentives. It is organized into four parts. The first two summarize what interviewees revealed about what may be needed for programs to maximize environmental outcomes, first, at the farm scale, and second, at the regional scale. The third part provides an overview of interviewee perceptions of how program performance is and can be evaluated. Finally, the last part covers the problems and values interviewees ascribed to stewardship payments.

## **MAXIMIZING PROGRAM PERFORMANCE AT THE FARM-SCALE**

There are two scales at which the effectiveness of conservation programs can be evaluated – that of the farm operation and that of the broader landscape or region. High performance at the farm-scale occurs when programs and incentives match the resource concerns where the most progress can be made and encourage the most environmentally- and cost-effective practices for addressing those concerns. When asked about what makes conservation programs effective, both farmers and implementers shared the following strong opinions.

- Programs, and the practices they encourage, should be tied to local conservation objectives and adapted to local agronomic and economic conditions.
- The effectiveness of conservation programming depends on adequate field staff and knowledgeable, and sometimes creative, technical support services.
- In the context of what was viewed as a severe field staff shortage, programs should focus on encouraging implementation of structural BMPs. Contracts for more comprehensive farm management plans appeared to be unenforceable without sufficient staff to provide follow up mentoring and monitoring.

Farmers also revealed, sometimes indirectly, the factors that influence their decisions to take on conservation practices: regulation, cost and impact on profitability, convenience, pride, and visible improvements in the health and abundance of soil, crops, and livestock. These findings are presented under the headings “Incentives & Obstacles to Conservation” and “The Critical Importance of Human Resources for Whole Farm Management.”



## Incentives & Obstacles to Conservation Practice

*I'm not really into conservation programs per say. I don't study it or anything. But if it helps the environment and still makes a profit, we'll do it.*

— comment from a farmer

The motive to sustain high production creates both the reasons for and against the adoption of on-farm conservation practices. On the one hand, farmers argued in favor of some conservation practices by saying they “benefit the ground and the next generation, and increase profits” and that “you want to try to not do any damage, to maintain what you had when you got the land.” Other practices, however, especially if they remove land from production or involve significant attention that seems only tenuously related to production, provoked much greater reluctance. The bottom line appeared to be that if conservation is not profitable in the near-term, then few if any would do it unless they had to.

The following outlines factors that prompted farmers to adopt the good stewardship practices they have and why they have not adopted other practices. Since all conservation practices take place within a regional context, interviewees were asked to identify the most important conservation concerns at the outset. A brief summary of their responses, immediately below, sets the stage for what was shared about the incentives and obstacles to implementing the conservation practices that address these important regional priorities.

### **Key Conservation Objectives & the Context of Conservation**

Consistent with the conservation objectives of local planning documents, the two primary resource concerns emphasized by stakeholders were water quality and soil condition. These twin concerns translated into a significant emphasis by both farmers and program implementers on *nutrient management* and *erosion control practices*, both of which relate to the delivery of sediment and nutrients to surface waters and affect soil fertility. Desires to advance *integrated pest management practices (IPM)* and *protect wildlife habitat* were also discussed by a few farmers and implementers. Almost above and beyond anything else, however, all stakeholders shared concerns about farm viability and farmland preservation. While not central to this study, farm viability profoundly shapes the context in which conservation occurs, so I have taken the liberty to share their concerns.

Virtually all farmers and agency staff had significant experience with and argued for the importance of soil conservation. There was little debate about the importance of this objective or the value of a whole range of erosion control practices intended to support it. Farmers, who felt proud of their stewardship advancements, emphasized the importance of no- or minimum-till practices. Other practices recognized as essential to soil conservation were the use of cover crops, crop rotations, contour and strip cropping, swales, and terraces. As important a strategy as it can be for livestock operations, only one farmer and one agency implementer discussed the value of using paddocks for management intensive rotational grazing.

Stakeholder responses related to nutrient management differed between farmers and agency staff. Few farmers identified nutrient management as a significant concern, while all program implementers felt it to be a serious concern, especially on livestock operations. Agency staff also made clear that this issue is not being adequately addressed by producers, even by some of the better stewards, a fact confirmed by the admission of several farmers in this study.

The two major concerns repeatedly discussed were a lack of proper manure management and the failure to protect streams from livestock. All implementers eagerly expressed the importance of protecting streams from livestock, and some discussed the value of having planted buffers that filter nutrients and sediment and shade aquatic habitat. Across the board, they also discussed the importance of BMPs to properly store, spread, and incorporate manure waste, while acknowledging considerable obstacles faced by many farmers.

To provide context, one program implementer with the Pennsylvania Department of Environmental Protection explained that the southeastern Pennsylvania region is experiencing an increasing predominance of livestock and an increase in confined animal operations. Driven by cheap grain coming out of the commodity-funded Midwest, the relative affordability of hauling feed rather than livestock, and the significant consumer market for meat in nearby DC, Philadelphia, and New York, the region is supporting a disproportionate amount of animal production. While the livestock operations of producers in this study are representative of the size of most operations in the region, there are also some very large meat packing and processing plants in the area, one of which was responsible for a recent fish kill in a local creek. Consequently, many agency staff argued that much progress is needed in managing manure waste on farms.

They also noted that this challenge cannot be solved with on-farm efforts alone as the amount of waste generated by farmers in the region exceeds the acreage available for absorbing the nutrients. The additional need for regional solutions, such as a nutrient export program (currently underway) or regional composting or incineration operations (merely envisioned), were discussed.

Integrated Pest Management and wildlife concerns were the only other conservation objectives mentioned by local stakeholders, and the emphasis on these issues was relatively insignificant compared to concerns about the nutrient and sediment impacts on water quality. The IPM issue is tied to concerns about the impacts of herbicides and pesticides. While the orchard operator and one program implementer were the only two to say they would like to see more support for IPM, another farmer and another agency staffperson did express concerns about the increased use of herbicides by no-till operations. Two farmers and one agency professional also mentioned the importance of wildlife habitat on farms, underscoring the point by pointing to the rapid loss of other sources of wildlife habitat to development.

Finally, while the preservation of farmland is not the focus of this study nor directly related to the environmental sustainability of agriculture, the issue looms large in the minds of those interviewed, especially farmers, for this project. Because discussion of the

issue was so pervasive and unanimous and such threats deter farmers from establishing new conservation practices, I am briefly covering the issue here.<sup>5</sup>

Four of the farmers interviewed expressed frustration about diminishing access to farmland and to neighbors who understand and are supportive of the realities of agricultural operations. Increasing suburban development, or sprawl, (along with CREP) was blamed. One farmer stated, “You can’t run the cows across the road anymore. People will lay on their horn. They are all commuting to and from work and don’t want to slow down. Things just aren’t laid back anymore. It makes things more stress filled.”

Another farmer who noted that “they’ve been growing house seeds in the area these days” wanted better zoning to “protect the ability to farm and run our machinery and animals without having to do it through the middle of a housing development.” A third farmer left the county he was raised in since the farmland had been “gobbled by development,” and lamented that “development in Berks County is also coming like crazy.” And a fifth complained, “People running the townships don’t know about agriculture the way they used to.” These demographic changes and real estate pressures combine with concerns farmers have about their financial security to make them reluctant to invest in new conservation practices.

### *Incentives for Soil Conservation*

Most of the farmers were proud of their soil conservation efforts, especially when it came to no- or minimum-till farming. All of those who grew field crops had been practicing no-till, for ten years since the purchase of the farm in one case to 20-25 years in a couple of other cases. While no-till may be a relatively conventional practice for some regions, like the grain growing upper Midwest, these farmers saw themselves as forward thinking and separate from some of their peers for the practice. All of the farmers also practiced a selection of other conventional soil conservation practices such as grassed swales, terraces, contour strips, crop rotations, and cover cropping, though some admitted that upkeep of these practices lagged intentions.

The incentives farmers indicated toward these practices included cost savings, time savings, and visible improvements of soil fertility and yields. Every farmer felt that their soil conservation practices helped prevent topsoil loss, build soil, and sustain the key assets of their operations. Enthusiasm for these benefits was particularly evident as farmers spoke about reduced tilling. Most cited reductions in fuel use (from tilling) and increased yields in drought years as key benefits of no-till. One farmer said that no-till saved at least 80% in fuel costs. Another attributed increased yields to better moisture retention, saying he gets a crop in dry years when neighbors who still plow get none. Another noted that no-till seemed to control weeds (by not exposing weed seeds in the soil), saved time, and gave him increased confidence that fertilizer and herbicide sprays were not washed away with soil erosion.

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<sup>5</sup> A study conducted by the American Farmland Trust on long term agricultural viability in Berks and Schuylkill Counties provides more in-depth information and recommendations related to this subject (American Farmland Trust 2005).

While a couple of these farmers had received a degree of technical assistance or cost-share payments at some point in time, not all did, and all maintained these efforts because they provided visible benefits and were economically sustainable—even profitable—without any form of ongoing assistance.

### **Obstacles to Soil Conservation**

In spite of the generally good performance of the farmers interviewed in terms of soil conservation, obstacles to complete adoption of many practices were evident. In addition, the farmers held that many other farmers were still plowing up their fields and shared their perceptions about why this is so.

Farmers and program implementers attributed the resistance of other farmers who do not adopt no-till to three things: transition costs, the conflict of no-till with manure incorporation, and the persistence of tradition. Several acknowledged that the cost for new no-till machinery can be a barrier. One implementer said the cost of a no-till drill is \$80,000 - \$100,000, and when the future of a farm is uncertain (as is often the case), this amount is a very large investment. Another implementer mentioned that during the transition to no-till, yield may temporarily decrease and farmers who do not anticipate this decline may become frustrated and retreat from adopting no-till.

On the other hand, the farmers in this study, who clearly took the risk to transition to no-till did not see the financial barrier as significant. One, who himself was looking at retirement, argued that a large no-till drill could be purchased, *used*, for \$50,000 and that a smaller used 6-row planter would only run about \$23,000. This same farmer said he was able to experiment with no-till in a low-commitment way 20 years before by using no-till attachments that came with his tractor. An implementer also said that the Resource Conservation & Development Council for southeastern Pennsylvania had a no-till drill available for farmers to borrow, though it was acknowledged that this resource could not support extensive demand.

The more enduring obstacles to no-till appeared to stem from conflicting stewardship objectives and perhaps different ideas about what constitutes good stewardship. Many agency staff and farmers agreed with the statement of one program implementer, who said, “Old moldboard plowers,<sup>6</sup> to their benefit, want to use and incorporate manure which seems incompatible with no-till.” In fact, the most committed no-tiller amongst the farmers interviewed admitted to wanting to incorporate manure and break up the clay soil, which he said he does, but “never more than once per year, and more typically every four or five years.” The second-longest no-tiller interviewed also felt that spreading manure without incorporating it might cause some nitrogen loss, though “not enough to be concerned about as long as streams are buffered.” In the words of one field technician, “People are confused about no-till. They don’t understand how you can incorporate manure [and still practice no-till].”

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<sup>6</sup> A form of traditional plowing or tillage

Some interviewees also felt that much resistance to no-till was simply resistance to change, and particularly to change advocated by government agencies. One program implementer described it this way: “In this area, many farmers have operated independently of the USDA system and aren’t used to taking assistance and directions.” Several other agency staff, who agreed, emphasized the need to involve producers in farmer-to-farmer education and demonstration.

One program employee also reported that many farmers who had off-farm jobs in construction or ran construction firms doubted whether soil erosion on farms was really significant compared to the huge expanses of soil disturbed for prolonged periods that they witnessed on new development sites. “They think that sedimentation from soil plowed for a month out of the year on a farm is a marginal contribution compared to what’s coming off these construction sites.”

Obstacles to other types of soil conservation practices also stemmed from financial costs and incompatibilities of the conservation practices with other management realities on the farm. For instance, one farmer, who said that the area has always supported crop rotations, and who typically rotates corn and beans with an alternate crop (wheat, rye, or alfalfa) every fifth year, also admitted to exceptions driven by profit potential. “We rarely do more than two rotations of corn. When we do, it’s because there is more of a market for corn for cattle feed, and soybeans get more disease and less money. On 20 acres, we did do corn year after year.”

Cover crops presented a similar predicament to the no-till vs. incorporating manure challenge. Two of the farmers with field crops spoke about the challenge of getting a cover crop in after a soybean harvest in spite of their awareness of the need. One said, “Soybeans don’t leave much residue like corn and they really need a cover crop, but they aren’t ready until November, and at that time it’s hard to get a cover crop to establish.” Another confirmed, “The time to establish a cover crop is exactly when we are busy harvesting, and after that, it’s too late in the season to get a cover crop to establish. You don’t really need a cover crop for corn because there’s enough residue, but it’s an issue with soybeans.” This same person saw someone who “rigged up his combine to spin out a cover crop while harvesting soybeans,” and said about it, “That was interesting, but it’s a lot of expense and work for something that’s not related to my production. It’s hard to justify the cost when I’m not certain of the benefits.”

One farmer also felt that the nitrogen from cover crops conflicted with the goal of spreading as much manure as allowable. The texture also made it difficult to spread the manure thinly. He acknowledged, “Maybe I just chose the wrong cover crop and it burned me? But I don’t have time for experimenting. If NRCS came out and said this is the crop that will work for you, okay, [then I would use it].”

In another instance of conflicts between conservation management recommendations and operational efficiency, this same farmer adapted contour strips on his farm to his own needs. He found that the recommended 125-foot wide strips led to too much “burning of crops” by weed spray along the edge between strips, and doubled the widths to 250 feet. One agency implementer said that not only is 250 feet too wide to be effective, but most

farmers simply alternate contour strips between corn and soybeans, when alternating strips are supposed to contain close-growing, sod-forming crops like alfalfa, barley, or oats that actually stop erosion.

### *Incentives for Nutrient Management and Riparian Protection*

In spite of the importance of nutrient management<sup>7</sup> and stream protection to the health of the watershed, incentives to sound practices appear slim, and most farmers in this study revealed serious nutrient management problems. The few reasons farmers stored manure and protected streams were articulated by one farmer interviewed. Seeking recognition in a stewardship competition, this farmer wanted proper manure storage and knew that EQIP provided cost-sharing for manure storage facilities in some parts of the country. So he waited until EQIP funds were made available locally for manure storage facilities and applied the first chance he got. Though grateful for the benefits of manure storage—it “will keep the manure dry which makes it easier to spread, lets me spread it at my leisure, and looks cleaner and neater”—he was, nonetheless, reluctant to build the facility at his own expense.

### *Obstacles to Nutrient Management and Riparian Protection*

The big picture, however, is that farmers in this study were challenged by nutrient management expectations—both legal requirements and simple good practices. In this study, only the poultry operation and one dairy had manure storage facilities, but the other two livestock operations did not. One of them spreads the manure daily throughout the year (including on rainy days and on ice and snow), but keeps it outside of a 40-yard grass buffer surrounding a stream.

Of the farmers with manure storage, one admitted that though he generally spreads in the spring and fall, he sometimes spreads in the winter. “I try not to spread on snow. But I’m not really sure what to think about it because everyone does it. Sometimes you like to spread on ground when it’s a little frozen because it supports the weight of the spreader better and prevents soil compaction.” As noted, he is not alone in his decision. Several producers and agency employees observed the spreading of manure on frozen ground throughout the area.

Several implementers spoke of the lack of enforcement of state nutrient management regulations, which impose restrictions of spreading manure near surface water, on frozen ground, and in excess. One amazed water quality agency implementer said “Farmers say they don’t know what to do with it. Even [the head of a high visibility farmer’s organization] talks casually about [his own practice of] spreading manure on frozen ground!” Federal regulations to control the most egregious nutrient pollution (i.e. those

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<sup>7</sup> Nutrient management for a livestock operation involves maintaining a manure storage facility, spreading manure only on *dry, non-frozen, non-compacted soil* (to prevent runoff due to rain or the fact that the manure cannot penetrate the soil), and spreading only to allowable nutrient levels according to a nutrient management plan. Nutrient management on a cash crop operation involves limiting the use of added fertilizers to levels not likely to leach or run-off, according to a nutrient management plan.

passed by the EPA that inspired much of the increase in Farm Bill working lands expenditures) are also not enforced.

Several Conservation District and NRCS staff weighed in on the issue of regulatory enforcement. In spite of the non-regulatory nature of these organizations and the historic tension between their work and that of regulators, they felt that farmers do not seek the available technical and financial assistance for nutrient management without sufficient regulatory pressure. One said farmers frequently ask, “If I don’t have to, why should I?” Two others believed that without regulatory enforcement, farmers see no reason to change, and one of them thought that many farmers might not even realize that what they are doing is a problem. All of these interviewees, however, urged that increased regulatory enforcement be tied to increases in funding for financial and technical assistance to farmers.

In addition, many observed that nutrient management plans, like all conservation plans, were not strictly adhered to. One farmer described the challenge of spreading manure as thinly as required to meet the expectations of his NRCS nutrient management plan. “My fertilizer goal is three tons for manure. I’m close. I’m at about three and half tons. It’s hard to get the spreader equipment to apply it as thin as the ideal.” Agency staff indicated that this problem is compounded by the fact that some farmers simply do not have enough acreage to store and apply the manure waste their operations generate. One noted that this puts NRCS and the Conservation District staff in an awkward position—and probably is one reason for a lack of regulatory enforcement—since they have no guidance to offer to farmers as to how to get rid of their waste.

Obstacles to riparian protection are also plentiful if not as difficult to overcome as those hindering manure management. Agency staff involved with the Schuylkill Action Network’s stream protection and restoration work observed that the disincentives to implementation include the desire to allow cows access to the drinking water and cooling temperatures of the stream, reluctance to take valuable land out of production, needs for an alternative water source, and the cost in time and money to maintain the health of the riparian zone.

One farmer interviewed in this study had participated in the CREP riparian program which fenced off a 35 foot buffer on either side of a stream, installed a cattle crossing, and planted 150 trees and shrubs per acre. Though he seemed unconcerned about the cows not accessing the stream—he actually saw the fences as a great value for enclosing his pasture—he was burdened by the upkeep of the buffer. He indicated that “it’s hard to maintain when it’s not really part of your production.” He went on to explain that NRCS monitors the riparian plantings, and that though his performance passed during the review, it was a close call. Had they not approved it, he would have had to replant on his expense. He complained, “It’s not fair to blame the landowner when what they plant is these tiny spindly trees that we have to go out and baby. That’s not realistic. Maybe they should spend more money up front for bigger trees and maybe plant less of them so success would be more assured and the landowners wouldn’t get screwed.”

An agency implementer expressed a similar sentiment: “When we ask farmers to keep their cows out of the stream, they see why that’s good, but it’s costly and it may not actually improve their operation. So if it doesn’t benefit their operation, then the public should help them with it.” One problem with this argument is that it assumes that farmers have the right to pollute and that they must be compensated in order to stop. One Conservation District employee, at least, saw the potential for profit in reforms, explaining that keeping dairy cows out of streams prevents foot rot disease and bacterial infections, which in turn increases milk production and reduces veterinary bills. He followed this statement, however, with a sense of frustration that sufficient resources are not available to increase outreach and education about benefits like these.

### *Incentives for Integrated Pest Management*

The fruit farm was actively attempting to reduce chemical usage by replacing pesticides with IPM. When asked why, the farmer answered, “Chemical options are disappearing. We are losing organic phosphates due to regulations so we need some other kind of control. And [my buyer] won’t take any apples if there are worms.” Prohibitions on the use of broad spectrum controls and increasing restrictions on the use of pesticides near the time of harvest created both costs and logistical challenges for orchard operators. Both drove a search for alternatives. When a Pennsylvania State University research program offered free IPM technology to participate in their field trials, the farmer took the opportunity.

Since that time, the farm has experimented with isomate ties (twist ties that attach to trees and emit pheromones that disrupt the mating of pests) on its own expense account. The farmer definitely indicated an attraction to the technological sophistication of IPM (a similar unspoken value seemed to support interest in no-till and modern manure storage), boasting that IPM technologies “are tested by bona fide scientists, not the Rodale Institute.”

### *Obstacles to Integrated Pest Management and Wildlife Conservation*

The main obstacle to further use of IPM strategies is cost. Like pesticides, IPM technology is expensive. The orchard operator could only afford isomate ties for one type of predator since the cost was about \$2000 for one season.

Other issues are also at play too, especially the issue of pride—the pride farmers took in having modern or sophisticated operations and in earning income from their business, not government grants. For example, the attraction to technological advancement might also be a hindrance to further reductions in pesticide use. In spite of a sibling’s encouragement to consider organic certification and protect natural areas around the farm as sources of beneficial predators, the orchard operator believed organic produce was low-standard produce full of worms and that natural areas simply bred more pests.

The same sibling, who managed the orchard’s accounts and tracked government grant opportunities, shared, “I’d hate to have all the other growers see us get all these grants. It’s kind of embarrassing.” This comment was reinforced by the orchard operator who



indicated a strong preference for business solutions—rather than grants—to IPM and profitability.

At a more basic level, the interviews revealed a lack of concern for the use of chemicals in agricultural operations. Though one agency implementer noted that we don't yet know what kind of damage the increased use of herbicides with no-till farming will cause, no one else brought up the issue or did anything to reduce herbicide use. It was interesting to note that no farmers believed no-till led to increasing use of herbicide sprays, though one indicated “using one or two more chemicals to burn off weed foliage” that he did not consider herbicides.

Similarly, though one implementer and two farmers indicated that wildlife concerns are important, none but the Christmas tree farmer took any action to protect wildlife habitat. Ironically, the passionate and ambitious restoration this landowner was undertaking revealed the many disincentives to such work. He was piecing together financial support from a number of difficult to discover programs and found it utterly impossible to obtain technical assistance from someone who knew “anything about the science of conservation.” He was especially frustrated that agency staff often did not know how their own habitat conservation programs worked and were advising people to plant known invasive plants for erosion control. He felt strongly that “People need to be paid for the goods they produce,” and wanted to see more robust cost-share and maintenance payments for high quality habitat management.

### ***The Impact of Farm Viability on Conservation***

*We'd like to see open space in the area. And we'd also like to see open space through farming. But we are barely making a profit without selling to a developer. We don't know what the future will hold. We're caught in a squeeze.*

— comment from a farmer

While rapid conversion of farmland to development and the financial vulnerability of some operations mainly serve as deterrents to improved stewardship, several farmers and agency staff pointed out a flip side—an opportunity that has not been seized. Most of the farmers in this study participated to some degree in farmland preservation programs. All had enrolled acreage in a local tax break program for farmland, and at least one had sold his property's development rights. Some of the counties in the watershed required farmers to obtain NRCS conservation plans upon entering into the county's farmland preservation program, but Berks County was not one of them.

In addition, the orchard operator, who is actively seeking assistance to diversify the operation and free it from an increasingly centralized and inaccessible wholesale market, was open to conservation-based production and marketing strategies. However, he had not yet been able to find assistance that took an integrative view of business and conservation planning. Such farmer vulnerabilities can present opportunities for tying conservation to the myriad changes operators are considering to survive.

### ***Leveraging the Incentives & Countering the Obstacles: What works?***

Upon considering the questions “what works?” and “what’s needed?” to really encourage conservation, farmers and implementers were clear. Voluntary conservation must be profitable, or at the very least, not costly. Alternatively, farmers must be required to conserve. Farmers measured profitability in more ways than dollars. In such a management-intensive business as farming, conservation measures must fit into the overall workings of the operation simply and efficiently. Many implementers felt that with regulatory burdens already significant for farmers and the survival of many operations already at risk, they hoped new regulatory enforcement—which they advocated for—would be accompanied by the necessary financial and technical support.

Farmers were clear too that they valued learning about new ways to be good stewards, especially if it increased the efficiency or profitability of their operations. They showed the most pride in practices they were *not* paid to do, but that enabled them to make tangible agronomic improvements, remain efficient and profitable, and see themselves as intelligent and forward-thinking farmers. One agency employee observed, “The people who voluntarily do conservation seem to because they know the environmental and business value of the practices and they have the skills to maintain it.”

To help farmers plan for reforms that can be sustained in this way is a challenging task for program implementers. It is one, however, that is consistent with the vision of those who advocate for whole farm conservation. What will be required is much more robust technical assistance than is currently available through NRCS or its partner agencies.

### ***The Critical Importance of Human Resources for Whole Farm Management***

Whether talking with the Christmas tree farm owner who needed help planning a prescribed burn regime for prairie restoration, the orchard operator who wanted assistance exploring alternative business diversification schemes to become more profitable, the crop and livestock farmers who were confused about how to get a cover crop in after soybeans, alter their manure spreading regime to accommodate cover crops, or incorporate manure with no-till, one theme was consistent. These farmers wanted much more sophisticated and diverse technical expertise than was available from any of the public agencies, especially NRCS.

Simultaneously, farmers revealed astonishing shortages of even the most basic levels of human resources at NRCS. They frequently could not get field staff to come to their farms or update conservation plans. No one monitored whether they kept to established plans, and many did not. Farmers found it extremely difficult to find out about the range of available programs, and were frustrated by spotty outreach, lost applications, incorrect information, and general disorganization. And what everyone really wanted was science-based and business-savvy assistance.

The push for management-intensive conservation—instead of merely expecting the implementation of structure changes—will only make this situation worse. As farmers are

expected to keep up a slew of management practices to comply with regulations or their CSP contracts, the demands on field staff will increase.

### **Severe Understaffing**

Interviewee observations about the current state of NRCS technical assistance painted an abysmal picture. Farmers, in particular, expressed disbelief and frustration about the understaffing and disorganization at NRCS. For instance, though conservation plans are required for any farmer receiving USDA financial support in the form of conservation payments or commodity subsidies, four out of the seven farmers interviewed volunteered that they have not been able to get a conservation plan (in three years in one case, eight in another) or that their plans were drastically out of date. They said this was due to a years-long waitlist to get an NRCS field worker to come to their farm. Both farmers and agency staff cited examples of NRCS turning away farmers interested in plans when the need was not perceived to be a high enough priority.

Many of these same farmers spoke more broadly about how difficult it is to get a staff person, from NRCS or any other agency, to actually come to their farm. They also complained, universally, about the lack of outreach and the seemingly impossible process of keeping track of available programs. Few knew how to identify what programs were available and depended on word of mouth from neighbors, a tip from an NRCS agent they already had a relationship with, or an advertisement in a local farming publication. One described, “When you go in the office, these girls are so stressed out, they can’t possibly let everyone know about all of the programs available.”

Tales of lost program applications and receipt of information about the availability of programs only after the application deadlines had passed abounded. One farmer’s WHIP (Wildlife Habitat Incentives Program) application was lost by NRCS after the application deadline. Consequently, he had to retool his habitat management plans to fit within the parameters of the EQIP program. He reported, “I don’t know why they didn’t just let me reapply and back date the application like they’ve done before.”

Another farmer who had awaited EQIP funding for a manure storage facility for years reported learning from an NRCS field agent that a new program had become available to support this, but that this agent was only provided information about the program by a supervisor three weeks after the deadline had passed. The farmer would have to wait another year for the next sign up period.

Both NRCS managers, and Conservation District staff (though not the target of these complaints), readily agreed with these concerns and were adamant that they did not have enough resources. One manager said, “Farmers need a lot of technical assistance. They complain that they can’t get folks to come out to the farm. And here in the agency offices, technical assistance is totally underfunded.” Agency staff were particularly upset by a trend where federal programs were coming with fewer and fewer funds to pay for the costs of implementation. A Conservation District manager called these “unfunded mandates,” and explained that “a lot of grants, programs, and legislation are increasingly targeting all or most of the funds to the project themselves with very small, or merely

temporary, allocations for administration or technical assistance costs.” An NRCS employee said, “It’s great that all these programs are available, but there are dwindling funds to hire people to implement it all. When funding sources dry up for paying for staff time to educate and implement program, then the programs suffer.”

CSP provided a perfect example of this problem. With a 15% cap on funds for staffing, combined with many new program and application processes and little lead time before the sign-up, NRCS staff were totally overwhelmed and dropped the ball on many other programs during implementation. All agency implementers observed that this trend seems to stem from a Congressional idea that money provided for staffing and implementation is a drain on the resources provided to farmers. They also argued that the results of inadequate staffing are programs poorly implemented and funds poorly spent.

Additionally, NRCS and Conservation District staff complained that what funding there was for technical assistance did not support competitive salaries for competent field staff. An NRCS manager argued, “The field staff are the most important people in our work. Some of them perform phenomenally with incredible commitment and overtime hours, which NRCS is not allowed to pay them for. There is no way to reward them properly. We need to be able to offer higher pay grades at the field tech level, so the best field techs and the ones who love the work aren’t forced to move out of the field into management to earn an adequate salary.” A Conservation District manager cited a recent and typical program budget which provided only \$32,000 to cover the costs of a stewardship coordinator, a figure she described as “totally inadequate to pay for competitive salaries with benefits and payroll taxes.”

These same two managers also complained about the frequency with which they must implement brand new programs over very short periods of time. “To get through the start up learning curve and be effective, we need more than one year to implement programs. Three years should be the minimum for a new program—this would give us enough time to get going, do outreach, and implement.” The other raised the same point saying, “Start up grants need to be at least three years. Five years would be great,” and added, “But afterwards, they still need to offer funds for ongoing program staffing.”

The result is too few staff attempting to implement too much. Staff everywhere complained about the lack of availability of resource lists about programs being implemented by other agencies. A Conservation District field technician who felt out of the loop on a number of available programs said, “Those who implement the programs need to train others to talk about them.” On the other hand, ideas offered like “Techs could get supplemental training on local programs to help make farmers aware of these programs,” ended with caveats such as “but they are swamped as it is.”

### ***Prospects for Meaningful Technical Assistance and Management-Intensive Conservation***

Against this backdrop, it is no wonder farmers complained that NRCS seemed to be in the business of delivering contracts, not of providing technical or planning assistance and helping farmers evaluate and address their individual operation’s needs. It is also not

surprising that agency field technicians—in stark contrast to the preference of many leading policy advocates for management-intensive practices—believed the only effective investments were in structural improvements, like streambank fences and manure storage, not in management-intensive conservation. They believed that encouraging farmers to undertake more comprehensive conservation practice required follow-up monitoring and enforcement, never mind creative and knowledgeable technical assistance.

It was felt that investments in structural best management practices (BMPs) assure some measure of results without dependence on significant time or knowledge from program implementers. One field technician felt very strongly that “[y]ou can’t know if a farmer implements a plan. No one’s out there monitoring whether they follow through. Whereas with physical BMPs, you know you are getting results.” He added, “Six out of ten conservation plans aren’t followed. Sometime farmers don’t even realize that they aren’t following what’s in their plan, and other times, there are excuses.” Frequently he sees continuous corn on land where the conservation plan specifies a crop rotation, or moldboard plowing when it is supposed to be minimum-till.

Other field staff confirmed this sentiment. Another program implementer explained, “Farmers sign contracts and want money, but sometimes they don’t really want to follow the rules or implement the plans they signed the contracts on. NRCS writes the contracts with farmers, and when they come back to help the farmers install what they agreed to install, some farmers seem stunned that you actually expect them to follow through.” A third agency staff said, “You hate to spend money on a farm and find out that in five years, things are back to the way they were [before the contract].”

Several Conservation District employees also raised concerns, specifically, about the particular challenges of implementing the concept of whole farm planning. It was felt that because there is not sufficient technical time and expertise to support this activity, NRCS is relying on bureaucratic formulas that distort the intention of comprehensive planning. One said, “This seems to translate into NRCS giving preference to prescribing more practices even if the costs are higher and the effectiveness lower than choosing just one or two practices that would more efficiently solve the problem.” Another corroborated this sentiment, saying, “Sometimes it seems like NRCS programs have a slant toward meeting quotas—saying how many practices are implemented—rather than actually helping farmers [implement the best solutions].”

As a program intended not simply as cost-share but as an ongoing incentive for ongoing stewardship, CSP attempted to solve this problem with a farmer self-reporting process as part of the CSP application. One Conservation District technician worried that this practice is a dubious substitute for field-based monitoring and support. He cited a call from a farmer who asked, “How would [NRCS] know if I’m providing accurate information in my records?” He explained, “This is a real problem with record-based rather than visible land-based qualification, and raises the complication of how to determine with certainty whether day-to-day practices are implemented.”

Perhaps not surprisingly, the federal program protocols and insufficient human resource investments that stymied the kind of creative leadership that could help farmers improve stewardship on the farm also stood in the way of regional effectiveness.

## MAXIMIZING PROGRAM PERFORMANCE AT THE REGIONAL-SCALE

Both experts and interview participants agree that at the regional scale, environmental gains are more significant when the work of multiple agencies and programs reinforces one another, the conservation objectives of programs are narrow and focused, appropriate geographic targets are selected based on the potential for improvement, and investments are sufficient to cause marked and sustainable reforms. Here are a few of the thoughts of program staff:

*The strongest programs have staff that can work cooperatively. You want everyone rowing in the same direction.*

— comment from a water quality regulator

*Critical mass is essential. It's a visual thing. When landowners see their neighbors install buffers or fences, they will do it too.*

— comment from a county Conservation District employee

*Small watersheds are the only level at which you can get visible environmental results, but is the investment worth it? After all, there may not even be farms there tomorrow!*

— comment from an NRCS employee

Across the board, however, interviewees could identify only one example of regional effectiveness—the Schuylkill Action Network (SAN)—and blamed the inflexibility of federal rules, programs, and agencies for hindering other strategic regional investments. In fact, the discussion of regional effectiveness brought to the surface a litany of frustration over seemingly intractable obstacles to shared desires for more locally-relevant, cooperative, and targeted conservation.

Starting with the goal of addressing key local concerns, several felt that the only organizations able to do this were local groups. While NRCS programs certainly addressed water quality and nutrient management concerns, they did not seem to do so in a focused way. They also addressed a laundry list of other resource concerns in the Schuylkill, diffusing the potential effectiveness of conservation spending.

One Conservation District employee complained, “There is a problem of the federal bureaucracy making a uniform program for the whole country. There needs to be some recognition of local and regional needs.” While recognizing the need for program consistency and public accountability, several wondered if NRCS program rules could be better designed at the state level to support greater variation in local priorities and realities. Another interviewee, who saw NRCS staff as administrators and implementers of programs, not creators, felt hopeless about NRCS’s ability to exercise the kind of

leadership and creativity needed for local and regional responsiveness even if the mechanisms were in place to allow it.

Criticisms of inflexible NRCS rules and culture extended as well to the issue of cooperation. Several Conservation District and water quality agency staff who were involved with SAN reported challenges attempting to engage NRCS in their work developing geographic priorities for and installing streambank protection measures. An NRCS employee was defensive about this issue, having felt pressed to share data about farms needing improved stream bank protection and believing the agency must not use its knowledge in any way that could expose farmers to negative publicity or regulatory enforcement. NRCS staff also felt that SAN's installation of best management practices did not comply with the federal standards required for NRCS participation.

Criticism for inflexibility and difficulty collaborating was not exclusive to NRCS, however. The EPA, the other federal agency driving most agricultural conservation activity in the Schuylkill and a key player in SAN and many other local initiatives, was also blamed. EPA rules were often described as equally inflexible, and several people acknowledged the difficult history of trust between the two agencies. NRCS staff, who must earn the trust of farmers to operate, are understandably suspicious of jeopardizing their reputations by working with a major regulatory agency, and EPA staff have often felt frustrated by NRCS's voluntary approach. Ironically, however, NRCS and Conservation District staff were frustrated with the EPA's lack of regulatory enforcement, without which farmers were not driven to seek available programs or implement contracts. One participant argued that the only solution to this situation is a federal one, that the White House or Congress must mandate closer cooperation between these agencies.

Unsurprisingly, given the political challenges to maintaining Congressional support for geographic targeting, state NRCS staff did not feel they had the discretion to prioritize program delivery to particular areas or watersheds. They explained that "regional equity" standards prevented geographic targeting, and noted that the only targeting tools they had was the ability to rank farms near streams higher among EQIP applications.

## MEASURING PROGRAM PERFORMANCE

The findings, so far, have focused on what participants believe make effective programs. Participants were also asked *how* they knew what made conservation programs effective. While farmers focused on the sustainability of conditions at the scale of the farm, agency staff who must demonstrate the success of programs tended to look at the question from a jurisdictional point of view. All discussed the real challenges to estimating and measuring the success of programs. And the discussion with implementers routinely led right back to the importance of regional targeting and coordination for achieving outcomes large enough to register on any kind of real system of measurement.

Farmers knew whether conservation measures reduced soil erosion on their properties by observation. Some also identified good habitat for wildlife by the presence of certain

species. But none had any way to know whether nutrients were leaching into ground or surface waters.

In fact, none of the Farm Bill conservation programs in the Schuylkill included efforts to test the environmental results of conservation activities. One NRCS official explained that measurability is one of the toughest challenges, indicating that uniform baseline data prior to implementation of conservation measures have not been gathered. The challenges to measuring the success of nutrient management efforts are particularly and inherently problematic, and not just for NRCS. Standard soil tests, often used by fertilizer consultants, do not provide reliable information about nutrient levels, as they change throughout a season and according to recent weather. Farmers and field technicians did suggest that soil, well, and plant tests might be useful for nitrogen monitoring if performed as part of a comprehensive evaluation over time, but wondered where the staff and technical resources would come from to conduct these tests.

The most commonly cited example of a potential testing strategy was that used by SAN to test the results of their riparian fencing and buffer work. Appropriate for sites adjacent to streams, a water quality evaluation—using EPA’s guidelines for wildlife, visual, and chemical evaluation—is conducted both upstream and downstream of a targeted farm, before and after BMP implementation. One County Conservation District manager involved in both the Schuylkill Action Network and the implementation of a number of Farm Bill programs, described the inclusion of monitoring into the SAN work as an important accomplishment for any agricultural conservation program.

The performance-evaluation method most frequently used by NRCS is one of estimation, rather than measurement. This approach could be valuable, but unfortunately, current resources only include reliable tools for estimating soil stability. Several field staff identified RUSLE2, a formula for measuring potential soil erosion, as extremely useful for estimating the impacts of a set of conservation practices on the farm. And they wanted similar tools for estimating the potential efficacy of nutrient management and other conservation practices.

Without other tools, NRCS appears to over-rely on RUSLE2 and other soil condition measures. This dependence was evident in the scoring of CSP applications. Because of reliance on a soil condition index and the fact that there are no equivalent tools to estimate other conservation factors, farms with strong erosion control practices were awarded the largest share of CSP payments in Pennsylvania (SAC, 2006a), and in this study. A pattern has been observed in other studies (Heller, 2005; Lundgren, 2006) and nationally (SAC, 2005) in which CSP farm selection is heavily weighted toward low-till operations and away from operations (like organic produce farms) involving soil cultivation, in spite of other potential conservation benefits. While many have advocated for aggressive national research and development efforts to create reliable indices for estimating conservation of resources other than soil (SAC, 2006b; SWCS/ED, 2007b), no results have been reported as yet.

NRCS is undertaking a couple of efforts to estimate program performance, though neither has produced results yet that are applicable to program implementation at the field level.



One effort is the Conservation Effects Assessment Project (CEAP). Actually lead by the USDA in conjunction with other federal agencies, CEAP is an effort to quantify the effects of conservation practices in response to the federal government emphasis on performance measures and the 2002 Farm Bill’s substantial increase in conservation funding. Through research on representative crop fields, grazing lands, and watersheds throughout the country, sampling and modeling approaches are being tested for estimating the impacts of conservation measures on water quality, water quantity, and soil quality. (USDA, 2006b)

The other change involves how NRCS reports the results of their programs. An NRCS manager interviewed touted the shift from “output-based” reporting, i.e. how many acres were set aside from production or how many miles of streams were fenced, toward “performance-based” reporting. The new reporting system requires implementers to convert a concrete practice, such as miles of fence installed, to environmental results, such as the volume of nutrients kept out of the stream. The formulas used to convert the numbers for reporting purposes, however, do not appear to be used for prescribing or evaluating conservation measures in the field.

Improved measures for performance will take time. Until they are developed, and even once they are, NRCS will be confronted with the challenge of encouraging higher levels of conservation, especially management-intensive conservation, without sufficient staff resources and program flexibility to enable them to address the particular concerns of farmers in watersheds like the Schuylkill. It is in this context that this study evaluates the potential for stewardship payments to add value to the NRCS conservation portfolio as well as the difficulties to success.

## THE VALUE OF GREEN PAYMENTS

As a program, at least in intent, formed to provide a backdrop of incentives that reward and encourage agricultural stewardship, CSP was given special attention in the interviews. Knowing that many problems had already been reported about CSP’s performance, I also inquired about the values, if any, interviewees found in the program and in the concept of green payments reforms. I sought perspectives on what would make a more effective stewardship payment program—whether that be a future iteration of CSP or some other green payments system.

### The CSP Implementation Process

According to the watershed rotation established by NRCS to spread CSP around the country over an eight to ten year time span (and keep spending within the program budget), 2005 was the year Schuylkill River Watershed farmers got their chance to enroll. The experience began with the program announcement on March 25, 2005. The sign-up period would commence in just three days and last for two months during the height of the growing season, from March 28 to May 27. Outreach was rushed and spotty, as it only could be in such a short time frame, and the sign-up process was frenzied.

Half the farmers in this study learned about the program in a trade journal or local newsletter, and the other three heard about it from others, one from an NRCS agent he had a relationship with and another from a nutrient management consultant who was trying to sign up all his clients (as evidence of the value of his work, this farmer thought). Though the CSP outreach was adequate enough to get six of the farmers interviewed in this study involved, all farmers interviewed commented that the program did not appear to be well publicized and that most people they knew had not heard of the program. County Conservation District employees were very concerned about the short timing of the sign-up and the limited publicity, noting that many farmers did not know about the program or have time to apply.

Interviewees also described the rush that characterized sign-up. A Conservation District employee said that NRCS staff were “putting in a lot of extra hours, seeking extra office space for farmers to come in and do applications. They needed volunteer help.” Another described farmers who were in the middle of EQIP projects with NRCS who “all of the sudden didn’t hear from NRCS staff for a month,” a situation that happened to one of the farmers interviewed. Due to the rush, none of the farmers had the time to get their landlords to sign the forms that would have allowed them to enroll their rental acreage.

Interestingly, the rushed implementation did not stop with sign up. Interviews for this study were conducted in early August, 2006, during the first week of a six week contract modification request period. Some farmers had still not received their notification letters, while the others received theirs only a day or two before, after the sign-up period had already begun.

Farmers were “ranked”<sup>8</sup> based on the information in their applications, most of which came from a farmer’s own records and memory. To keep staff efforts within the capped 15% technical assistance budget, CSP relied on a “self-certifying” application process. One of the County Conservation District field technicians was concerned about this, as he got calls from farmers asking “How would they know if I’m providing accurate information in my records?” One of the farmers also said it struck him as strange that CSP eligibility was basically determined “on your honor.” One NRCS implementer complained that though this was meant to save staff time, the process was actually “a huge amount of work, and the results were less trusted.”

Consistent with NRCS’ soil conservation legacy, and due to a lack of indices to estimate the impacts of a range of management practices, CSP used a Soil Condition Index (SCI) to score applications and to determine payment levels. The result is that farmers with good soil conservation practices were selected over those whose conservation practices benefited other resource concerns. Heller (2005) and Lundgren (2006) have documented, for instance, how the prominence of SCI scores in the selection of CSP applicants

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<sup>8</sup> I use the term ranked in quotes because ranking was actually prohibited by the CSP statute since the program was designed as an entitlement program for all good stewards. Due to an insufficient budget allocated by Congress, NRCS was forced to find a means to select applicants. Modeled on a system used by the Veterans Administration (as reported by a federal NRCS employee), NRCS used enrollment categories. Farmers were placed into categories by a set of criteria, and funds were dispersed to the top enrollment category and then each subsequent category until they ran out.

resulted in the exclusion of organic farmers who rely on tillage practices to control weeds. While the sample of farmers interviewed in this study is small (only 7 percent of all CSP awardees in the Schuylkill), it is perhaps no surprise that they were—on the whole—much more fluent in soil management practices than in other conservation practices.

CSP contract payments followed a similar pattern. The majority of a contract's payments are called "enhancement payments," which are dispersed by resource concern: soil management, pest management, nutrient management, energy management, and so on. Statewide, soil management enhancement payments constituted 43% of all CSP payments in 2005 (SAC 2006a). Likewise, 46% of the CSP payments to farmers in this study were targeted for soil management practices. In contrast, nutrient management payments only made up 7% of the contracts awarded to the farmers in this study. This meager investment appears to be inconsistent with the importance of this conservation objective for the Schuylkill River Watershed.

In designing the program, NRCS also chose to offer two levels of enhancement payments. Existing practices would receive a diminishing level of payments throughout the 5-10 year life of the contract. What that means is that a farmer would receive a 100% payment in the first year and decreasing percentages for each year thereafter. In contrast, new practices—those farmers commit to start at or after the establishment of the contract—would receive enhancement payments at the 100% level for every year of the contract. This schedule of payments was intended by NRCS to motivate applicants and contract-holders to implement conservation improvements. Whether this is a sound strategy is worth careful consideration. Some of the farmer observations that follow suggest that this type of payment structure is not what it seems.

### Perpetuating Inequities: Missing CSP's Unique Potential

Discussing CSP, and the idea of stewardship payments in general, revealed many observations and frustrations about who benefited most from our national agricultural income-support and conservation payment system. The consensus from the interviewees was that our system generally penalized, not encouraged, good stewardship and was downright inequitable to conservation pioneers. Farmers and implementers believed CSP was a start, but only that, toward resolving system-wide payment inequities. They also noted, with great frustration, that CSP continued some of the inequities that many perceived the program was meant to correct.

The following quotes give a sense of what I heard:

*If you were already doing no-till, you got 100% payment in the first year and lowering percentages afterwards. But if you just started no tilling that day, you would get 100% each year! That's the way it was for every enhancement in the contract. So the lousiest farmer gets the most money. This is true with other programs too. I almost felt like I should go put manure out in the stream to get more money.*

— comment from a farmer about CSP's enhancement payment structure

*The guy who is doing a great job wants to participate, but he's doing too good a job to get in. Others who are doing a sloppy job, who don't care about participating, are the ones who can get into the program.*

— comment from a farmer about EQIP's application ranking criteria

*'Why should I do it well when the folks who don't get all the money?'*

— a quote about what farmers say to a Conservation District employee

Everyone saw the idea of stewardship payments as inherently good and important. One farmer simply said, "CSP has the right idea. You are rewarding people for the good things they do...People need to be paid for the goods they produce." Both NRCS and Conservation District staff indicated that they saw a lot of demand for CSP, that farmers were looking forward to getting their chance to demonstrate their good stewardship. An NRCS manager said that CSP especially had support from "old time conservation farmers," those who practiced good conservation before programs like EQIP came along to pay others to adopt what these farmers had already been doing voluntarily. Whether the farmers in this study are such conservation pioneers, their experience begins to give a sense of what makes stewardship payments really ground-breaking and quite welcome by the farming community.

Study participants saw inequities through the whole USDA system, starting with the commodity programs and extending through the conservation programs that provided higher payments to lesser stewards. Many could understand that such inequities in the conservation programs were driven by the goal to get results at the lowest cost, though they were frustrated by this strategy. Several believed that a more equitable stewardship payment system might improve conservation outcomes in the long term by supporting the type of management practices that involve ongoing costs.

Everyone interviewed in this study thought the most lucrative financial rewards are still for growing commodity crops. And all of those who received commodity payments believed that they distort the market and might reduce the prices of their produce as much as they help their income. These growers stated that they would prefer to see their profits from the market.

Several also indicated that they think all payments—including commodity payments—should be tied to minimum stewardship expectations. One farmer insisted that payments should never go "to farmers who plow everything up or do idiotic things. A neighbor plowed everything up in the fall and left it open all winter until they planted in the spring. If you're doing that, you shouldn't get a cent." When asked if this neighbor does, in fact, receive commodity subsidies, the interviewee did not know.

Aside from CSP, EQIP is the dominant program making direct payments to farmers for conservation practices. Farmers, conservationists, and policy analysts, by and large, are extremely enthusiastic about EQIP. It has provided funds needed by farmers to share the costs of new conservation infrastructure and transitions to new management practices.

EQIP is criticized by some farmers, however, and it has clear limitations. Farmers who already implemented the kinds of conservation measures that EQIP covers using their own funds were frustrated to watch their more conventional and less altruistic peers get more money. This situation is exacerbated by another strength and liability of the EQIP program—its ranking criteria. The demand for EQIP far outstrips the available funds, and consequently, NRCS must prioritize applicants most in need of improvements (or, looked at another way, currently causing the most environmental damage). A couple of farmers in this study complained about the unfairness of this system.

In addition, as a one-time payment (or only a short-term contract), EQIP is most useful for defraying one-time or short-term costs. This cost-sharing is helpful for farmers needing to install riparian protection or a manure storage facility, but EQIP fails to provide a sufficient incentive for ongoing management practices—such as the cover cropping, contour strip farming, riparian vegetation maintenance, and manure spreading—that involve ongoing maintenance costs and inconveniences. Farmers will only have an incentive to maintain these practices if they are required to through regulation or assisted by payments.

This is the unique value that CSP brings to the workings lands program portfolio. As an ongoing stewardship payment, it can provide an incentive significant enough to alter the profit potential of ongoing management-intensive conservation practices. Ironically, however, CSP’s payment structure works against this potential. As observed by one Conservation District employee, declining payments for ongoing practices that do not decline in cost do not make sense, just as higher payments for new practices are not necessary to build into CSP when CSP farmers can still access EQIP for transition costs.

And given the perception of farmers that CSP was the program to finally recognize the efforts of those that already committed to good stewardship, the unequal treatment of enhancement payments—higher payments for new versus ongoing practices—caught the attention of every farmer receiving a CSP contract in this study. This inequity infuriated several of them. Others simply did not understand the value this inequity had. They all said they would adopt new practices so long as they were profitable, and that they would consider available CSP and EQIP payments in that decision. A couple wondered how, if CSP only provided good payments while practices were new, they could be assured of the ongoing payments they would need to sustain those practices over time.

It seems reasonable to ask, “Why did NRCS design the program this way?” Many would answer that since CSP was intended to “reward the best and motivate the rest,” this approach is merely a cost effective way to create incentives toward new practices. People feared that the majority of CSP funds would be spent on existing practices, and after all that spending, we would be left with no new conservation activity.

### **CSP Results: Did it “reward the best and motivate the rest”?**

Unfortunately, CSP’s performance confirmed the fears of some: that the program would not stimulate new stewardship. Nationally, CSP has been criticized as an investment in the “status quo” by Craig Cox of the Soil and Water Conservation Society (Cox, 2007;

SWCS/ED, 2007b). And this study offers no evidence to counter that assertion. Farmers admitted that they were not motivated to make any substantial changes in their management practices because of CSP. One said clearly, “It was absolutely worth my time for the money I got paid. But if CSP wasn’t here, nothing would change about my operation.”

This sentiment is not entirely surprising since there was almost no time to apply for CSP, nor was there time for farmers to change their conservation practices to become eligible for CSP. One conservation District employee argued that CSP could motivate farmers to adopt new practices if they knew about the opportunity a few years in advance of the sign-up. Another indicated that the program would have to stick around long enough for farmers to become aware of the benefits since, apparently, many farmers began asking about participating in CSP after they became aware of the kind of payments CSP contract-holders received. This interviewee believed the watershed rotation—which guaranteed that CSP would not return for at least eight more years—made it impossible to “motivate the rest” of the farmers in the watershed.

What these observers were saying is that CSP needs to have a dependable, ongoing presence to motivate the rest. Such criteria seem so obvious, it should almost go without saying. And yet, CSP was not implemented this way due to an insufficient budget.

When I asked NRCS staff about whether CSP motivated new conservation practices, staff focused not on whether “the rest” were motivated, but whether the current-contract holders (theoretically “the best”) were interested in making additional improvements. One said current CSP participants expressed interest in new practices, such as rotational grazing, as a result of the educational nature of the application process. My interviews with farmers did not support this point of view. Only two farmers were interested in making contract modifications, and the modifications they sought involved no additional conservation. They both wanted to enroll rental acres left out of the initial contract due to application time constraints, and one wanted to get rewards for recycling motor oil, something he has always done, but for which he had never gotten receipts until this year.

The fact that current CSP participants who *do* have the ongoing option of improving their contracts—and in fact, an option which would reward them at a higher rate than for their existing practices—were not motivated to do more seems to indicate problems beyond the watershed rotation. A clue emerged when farmer after farmer could not recall what practices their contracts rewarded them for and what level of rewards they received (CSP has three tiers of payments). As it turned out, no farmer interviewed in this study received a top tier reward, so all had an opportunity to substantially increase payments. And, as noted above, most of the payments were for soil conservation practices.

This suggests that the actions that must be taken to earn a CSP contract in the first place, never mind take steps to improve that contract, are not readily apparent to the CSP contract-holders. These farmers had taken steps toward good conservation, but did not possess a vision of what top level stewardship could be. And CSP did not articulate a clear vision to them to provide something to aim for. This situation also illuminates a major obstacle to “motivating the rest.” Even if CSP maintained a continuous presence in

the region, if CSP farmers themselves do not know what actions triggered their reward, how can “the rest” possibly get a clear idea of what they should do to eventually become a CSP farmer?

In addition to “motivating the rest,” CSP was meant to reward “the best” stewards in the nation. It is difficult to imagine that program criteria guaranteed selection of the best farm stewards in the Schuylkill. The farmers interviewed were arguably relatively good soil conservationists who also had committed to one or two other conservation measures (with the exception of the Christmas tree farmer/habitat manager who, though comprehensive in his habitat conservation practices, received a meager CSP payment). The additional conservation measures implemented by these farmers never amounted to a comprehensive treatment of any resource concern. In addition, it appears that some of the CSP awardees may not even be in compliance with state and federal nutrient management regulations.

CSP was an intentionally broad program. Its statutory objective is to promote “conservation and improvement of soil, water, air, energy, plant and animal life, and any other conservation purposes” on “cropland, grassland, prairie land, improved pasture land, and rangeland” (P.L. 107-171). Though this objective would seem to allow a lot of flexibility and latitude to implementers, it may in fact deprive program implementers of needed guidance for effectively targeting the program to a well-articulated, narrow band of stewards.

In fact, though implementers argued that CSP would have to maintain a continuous presence to work as an incentive (and not just a reward), they felt that a continuous CSP that continued to fund the level of stewardship it currently funds would be inordinately expensive. It would.

### Stewardship Payments Through Commodity Reform

For NRCS employees, musings about the costs of an ongoing stewardship entitlement program evolved into the idea that stewardship payments were meant to be an eventual replacement for commodity payments. In spite of the fact that CSP, as implemented, has not been a clear expression of green payments, NRCS staff clearly held to the notion that CSP evolved from the green payments concept of linking income-support to stewardship rather than commodity production.

When I asked farmers what they thought about the concept of an eventual replacement of commodity subsidies with something like CSP, they both had strong feelings about the commodity subsidies and a degree of support for green payments. One farmer who received subsidies said, “If corn and beans brought the price they should, we wouldn’t need the commodity programs. But I’d like to see conservation programming that rewards me for what I’ve been doing.” Another who received subsidies but felt like the system did not sufficiently reward conservation shared, “I’ve never been a fan of the commodity program in the first place because it causes more production of something that is under-priced and then it pays you for the very problem that it’s creating. But I

participate to the fullest, so I'm talking out of both sides of my mouth. I'm not afraid of green payments though."

Another, who used to rely on commodity subsidies, argued, "If the government would get out of the agriculture business, we'd all be a lot better off. If subsidies dried up, land would be cheaper for other farmers and cutting down on supply would mean prices would go up." On the other hand, one farmer warned, "Without commodity payments, there will be no more agriculture in this nation."

Implementers were quick to point out that a move towards a subsidy replacement stewardship program is far in the future. One explained, "No one is ready for that in this next Farm Bill and the advocacy community would have to be working on it now to get something like this in the next Farm Bill. [Green payments] is ultimately going to be a really hard sell to those receiving commodity payments. They are not going to support losing their commodity payments toward a program they have to compete to get into. All you have to do to qualify for commodity payments is plant and attempt to grow grain."

While CSP is not the only means to green or stewardship payments, it would be a loss for the agricultural community to have come this far and not capitalize on CSP's greatest potential value—to provide a powerful incentive for management-intensive conservation. My own belief is that CSP is not likely to expand substantially until it has proven its effectiveness as a conservation incentive, so CSP will have to prove itself within a tight budget. This fact makes the lessons revealed in the Schuylkill important to the future success of CSP and the effectiveness of federal portfolio of working lands programs.



## 4. Conclusions

While the findings in this report came from a relatively small sample of farmers and agency staff in one, unique, northeastern watershed, the strong consistency among the perspectives of interviewees does reveal a fairly clear picture of the way the portfolio of federal working lands conservation programs is functioning locally. In addition, the parallels between the issues voiced by interviewees and those raised by policy critics in program assessments and 2007 Farm Bill proposals suggest that the themes arising from this study are relevant to national policy considerations (Cox, 2007; FFPP, 2007; SWCS/ED, 2007a; SWCS/ED, 2007b; SAC; 2006b; USDA, 2006a; USDA, 2007). Nonetheless, this study's findings should not be considered conclusive. The sample of interviewees is much too small for that. The findings do, however, represent strong hypotheses for further research and evaluation.

Interview questions focused primarily on perceptions of the effectiveness of working lands conservation incentives and the actual or potential value of stewardship payments within the portfolio of federal conservation programs. Inquiries about the strengths and weaknesses of current conservation incentives, the relevance of federal programs to local conservation objectives, the tools for encouraging whole farm or management-intensive conservation, and the influence of performance-based and green payments ideologies on the local experience elicited several important themes.

First, study participants had strong opinions about the resource concerns and practices that are relevant for their region and concerns about the apparent difficulty of getting federal programs to strategically address local conservation objectives in a targeted enough way to yield measurable improvements. This appeared especially true for resource concerns beyond soil conservation. Second, interviewees also shared deep frustrations with NRCS understaffing, the scarcity of on-farm technical assistance, and inadequacy of available assistance for the complex challenge of whole farm planning. Farmers also consistently expressed a vision for more comprehensive, science-based and business-savvy conservation assistance. Third, this study revealed a dearth of meaningful program evaluation activity. NRCS appears to be limited by a lack of effective protocols and tools to measure the success of adopted conservation practices. For resource concerns other than soil management, NRCS does not even appear to employ indices to estimate the potential effectiveness of conservation changes.

Fourth, the question of what kind of incentives motivates farmers to adopt improved conservation practices arose on numerous occasions. While there is much academic literature on this subject that was not explored in this study, these interviews suggest that the current mix of (state- and EPA-driven) regulatory measures and (NRCS) financial incentives is not motivating widespread improvements in nutrient management practices. Interviewees also raised concerns about the perversity of the Farm Bill's system of subsidies and conservation payments that seems to provide more ample rewards for poor stewards than for good ones. Fifth, study participants discussed the problems with current stewardship payments (as provided through CSP) as well as the potential values of

stewardship payment programs as incentives for broader adoption and maintenance of management-intensive conservation efforts. Finally, farmers expressed optimism about a future in which farm income support is shifted from rewarding commodity production to rewarding stewardship.

The following asserts six key hypotheses resulting from the findings of this study.

***Effective programs have targeted and locally-relevant conservation objectives.***

1. The current structure of federal programs spreads spending across a broad range of resource concerns, diffusing the potential of these programs to initiate substantial improvement in any resource area. A narrow band of key conservation objectives should guide NRCS program delivery.
2. To effectively encourage adoption of the conservation practices by farmers, program objectives should target the most important local or regional conservation concerns. Program delivery should adapt to local agronomic and economic conditions.
3. To maximize the effectiveness of conservation investments, NRCS should target investments to geographic areas most capable of (as determined by existing infrastructure and leadership) and most in need of change.
4. To maximize the effectiveness of conservation incentives, NRCS should have the agility to engage in local partnerships to leverage local human resource and organizational strengths where they exist. Partnerships currently appear to be hindered by rigid agency rules and program delivery protocols and overwhelmed staff.

***Quality technical assistance services are critical and severely underfunded.***

5. NRCS staff resources are inadequate for the *basic* responsibilities involved in delivering the current portfolio or programs: keeping up with the need for farm conservation planning as required by conservation compliance measures and all conservation programs, conducting reliable program outreach, being accessible for on-farm assistance, and maintaining an organized operation.
6. Program staff indicated that the proportion of funding for the costs of program implementation is slipping relative the number and complexity of programs staff are expected to implement. They also indicated that top pay grades for field technicians are too low to keep dedicated and talented staff in the field. Congress needs to make funding NRCS human resources a much higher priority if the agency is to successfully deliver programs.
7. The current level of staffing is a major impediment to the success of management-intensive conservation. Programs meant to encourage any kind of whole farm or practice-based conservation require staff to develop plans, mentor and problem-solve with farmers, and monitor implementation. Due to the lack of staff capacity to support even meager levels of such activities, many considered programs meant to

encourage management changes a waste of money and felt much more confident in spending on structural investments. Though there appears to be a federal trend to increase payments for management-intensive conservation (SWCS/ED, 2007a, and CSP itself), the findings in this study suggest that such investments may be wasteful without accompanying investments in human resources.

8. Farmers are confused by how to integrate conservation practices with other essential management activities. Examples include questions about how to get a cover crop in after harvesting soybeans, how to spread manure thinly over cover crops, and how to properly implement contour strip farming. They need technical assistance to support them with these challenges. And many would like assistance with more complex challenges.
9. Farmers also complained about the challenges of tracking available programs and identifying the rights source of assistance to meet their needs. They wanted a seamless “one-stop-shop” system where they could obtain strategic planning assistance for their particular operation and apply for appropriate programs, whether in the land retirement or working lands category.
10. Staff knowledge, skills, and time are also insufficient for addressing additional demands for collaborating with other organizations, adapting uniform federal programs to local needs, and providing the creative and strategic conservation and business planning farmers want.

***Performance-based programs must include performance evaluations.***

11. In spite of 30 years of statutory mandates to focus on resource concerns other than soil conservation, NRCS has a dearth of tools to support effective conservation improvements targeted to other resource concerns. The agency and its field staff need low-cost ranking protocols, indices, and measurement tools for selecting and evaluating the management practices it promotes to accomplish objectives beyond soil conservation, especially nutrient management and water quality objectives. This problem was particularly evident in CSP’s application process.
12. In contrast to soil management practices, other practices that aim to reduce cumulative environmental degradation, such as non-point source pollution, do not produce results that are easily measured at the scale of the farm. Therefore, some proxy must be developed to provide an indication of a farm’s success in conserving resources beyond soil. Without a means to estimate a farm’s conservation performance, programs will continue to tie payments to practices, not performance.

***Farmers are motivated by cost, time, and the law.***

13. Farmers are in a management-intensive business where profit margins can be slim. They are only likely to make and sustain changes that maintain or increase existing profits or if they are required to make those changes by regulations. Conservation practices must also be viable against the needs for management efficiency, crop

predictability, and soil fertility. Conservation practices that produce visible improvements or are perceived as scientifically sound or sophisticated may be preferred. In addition, farmers may be more responsive to information about the efficacy and profitability of stewardship practices if it comes from other farmers rather than from agency staff.

14. If financial incentives or assistance do not compensate for the cost inherent in some conservation practices, whether they be one-time or ongoing costs, such practices are less likely to be adopted.
15. Real estate development and economic pressures that put farm viability at risk constitute barriers to interest by farmers in establishing new management practices.
16. Farmers perceive inequalities in the federal agricultural conservation and income-support system. There appears to be little relationship between the quality of stewardship and the scale of payments, the highest payments sometimes going to the worst stewards. This can serve as a disincentive to improved stewardship. CSP perpetuated these system-wide inequalities in its own payment structure.

***CSP must be continuous, legible, equitable, and sufficiently staffed to realize its potential.***

17. Currently no federal working lands programs provide payments sufficient to promote ongoing, management-intensive conservation practices. CSP has unique potential to fill this gap in the suite of working lands programs by serving as an ongoing payment that can make ongoing, management practices profitable for farmers. To capitalize on this potential of the program, Congress must raise the 15% TA cap to ensure sufficient planning assistance, field-based evaluation for CSP contract selection, and contract monitoring. In addition, NRCS must:
  - eliminate declining payments,
  - ensure contracts are renewable,
  - calibrate payments levels to alleviate the costs of ongoing practices,
  - and target the program to the practices most in need of ongoing assistance.
18. CSP contracts were provided for a wide range of farmers whose stewardship practices were relatively good related to soil conservation, but dubiously “the best” when considered against the key water quality conservation objectives in the Schuylkill River Watershed.
19. CSP needs to provide a clear depiction and criteria for selection of “the best” stewards (tied to targeted conservation objectives) and reward them first. If local implementers do not have the authority or infrastructure to lead this effort, the federal rules must provide bold leadership.

20. To “motivate the rest,” CSP needs to maintain an ongoing, dependable presence and must visibly reward a clear standard of stewardship. If the availability of CSP cannot be continuous, at minimum, farmers must be apprised of the opportunity to enroll in CSP several years before the sign-up so that they may begin conservation planning and implementation.
21. A payment scheme that equally rewards new and ongoing practices is essential to creating an incentive for proactive and ongoing stewardship.
22. To encourage stewardship practices beyond conventional soil management, CSP must incorporate methods other than the Soil Conditioning Index (SCI) to select farms where high levels of stewardship have been reached.

*Farmers indicate tentative support for green payment reforms.*

23. There is more openness among farmers in this study to green payments reforms than might be anticipated. Farmers were critical of the current system that rewards commodity growers over good stewards, and at least wanted to see payments tied to more aggressive stewardship expectations. Those that received commodity payments expressed a need for continued income support, but showed a preference for stewardship-based payments. Perhaps this represents an opportunity to increase the rigor of conservation compliance requirements, cautiously and strategically divert some funds from the commodity programs to finance expanded conservation programs, or to expand CSP.

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# Appendices

## APPENDIX A: FARMER INTERVIEW QUESTIONS

### 1) Agricultural Conservation in the Schuylkill

#### *Farm Experience*

- What do you produce? How many acres? Do you own this land?
- Do you receive FSA commodity payments?
- Do you have income from other sources?
- How long have you been farming? What changes have you seen? What changes are good? What are you sorry to see change?

#### *Conservation*

- What kinds of conservation practices do you implement here? Are you involved in any kinds of farm groups or programs that work on getting more conservation?
- What are the most important conservation issues on your farm? What about other farms in this area?
- What practices work best for addressing these concerns? How do you know?
- What conservation practices have been most widely adopted in your area?
- What are the main barriers to greater adoption of critical conservation practices on your farm? Or among other farmers you know? A need for technical assistance? Cost? Labor constraints? Market pressures? Commodity programs? Risk aversion? Rental farming? Bank loans???
- What motivates you toward conservation?

#### *Program Observations*

- There is a great array of programs out there to help farmers promote conservation in this region, and there have been so many changes over the years – which have you been involved or familiar with?
- Just for context, in your experience, is NRCS the main agent of agricultural conservation in the region, or is some other entity more influential?
- In your opinion, which programs have (or have had) the greatest conservation impact? How so? What do you see as key criteria for judging that impact? What factors make these programs more successful? Which do not have much value? What factors make other programs not as successful?
- Among the array of programs in the region, are there types of programs that are really needed?

### 2) CSP

#### *The Experience*

- How did you find out about CSP? Did you attend an NRCS workshop on CSP prior to applying? Did you see a copy of the Penn State Extension service publication on CSP, and if so, was it useful?
- What was the application process like? Did you like the process of filling out a farmer “self assessment” booklet? Was it easy to use and understand? Did it generate questions that you needed to follow-up on with NRCS staff? NRCS is planning on adopting a similar self assessment process for EQIP and other conservation programs. Would you recommend that they continue down that path?
- What existing conservation practices on your farm do you think most helped you qualify for CSP? Which did not affect your application? Should they have? What do you think of the qualification process?
- Which tier of CSP are you in? Which enhancement payments did you qualify for under the various categories (soil, water, wildlife, energy)?
- Letters were recently mailed regarding the sign up (Aug 1- Sept 15) for contract modifications – does this process match how you were told it would be? Are you planning to go for contract changes? Why or why not? Is the sign up consistent with how you were told it would be?

### ***Evaluation***

- Has the contract been worth your time? What is working really well about CSP? What needs improvement? Ideally, how would you hope for the program to work?
- What do you think about watershed implementation? Were you aware of it being implemented in the whole watershed?
- CSP is supposed to be performance-based, or results-based (rather than practice-based). Having good conservation results (not just practices) is supposed to guide eligibility for the program and is supposed to predict how much you can earn? How do you think that was implemented? Have you participated in or seen any other results-driven programs? How did they work? How do you recommend ways to show the results of conservation practices? Do you think there are ways that you or other farmers can do themselves so that they would know how they are doing or whether they qualify for more payments? Do you have experience with on-farm water quality or wildlife monitoring? If there was an option to participate in this, would you?
- Did CSP cover the right types of conservation systems and activities? If not, which should have been covered? Would you scratch any from the list? Do you think CSP should have covered management intensive rotational grazing, organic transition, crop rotations? What about alternatives like direct marketing or agrotourism?
- The concept of rewarding farmers who already practice conservation, versus paying for new BMPs, was very controversial. What do you think of this?
- Overall, in your opinion, what value does CSP have relative to other NRCS or other conservation programs? Would you like to see it back in the Schuylkill? Expanded? Changed?
- Are you aware of the green payments concept and the WTO pressure to eliminate commodities (this is long term, of course)? Do you think there is a better way to replace commodities than how CSP is trying to do it?

- If you were to allocate dollars among programs, which would get the most? The least? Would CSP be on that list? Why?

### **3) Lessons for the Future**

- How do you shift the incentives toward conservation, to counter all the other pressures on farmers to focus on the short term?
- What lessons would you want to see incorporated into the way agricultural conservation programs are developed in the future? What is needed?
- Is there anything else you would like to tell me that I haven't asked about?

## APPENDIX B: NRCS IMPLEMENTER INTERVIEW QUESTIONS

### 1) Agricultural Conservation Programs in the Schuylkill

#### *Involvement*

- How did you become involved with NRCS or agricultural conservation work?
- What are the most important resource concerns/conservation issues on farms in this watershed? What are the highest priority conservation practices or conservation systems for addressing the most important concerns/issues?
- What are the main barriers to greater adoption of the critical conservation practices or systems among farmers? Lack of knowledge or experience? Cost? Labor constraints? Market pressures? Commodity programs? Risk aversion? Rental farming? Bank loans???
- What motivates farmers toward conservation?

#### *Program Observations*

- There is a great array of programs to help farmers promote conservation in this region, both within NRCS and in the larger community – SAN, for instance.
- In your opinion, which programs really stand out for having the greatest conservation impact? How so? What do you see as key criteria for judging that impact? What factors make these programs more successful? What factors make other programs not as successful?
- Where do you see needs for improvement? Either in particular programs or other broader challenges.
- Among the array of programs in the region, are there types of programs that are really needed? Resources that are badly needed to expand existing efforts? What are the obstacles?
- Have you seen any changes in the strategies or emphasis of NRCS programming or the agricultural conservation work of other organizations since you've been involved?

### 2) CSP

I know this was a difficult program to implement with constrained timelines and resources. My questions here are both to hear your perspective on CSP implementation, but also to discuss more broadly the potential of some of the very unique features of the statute. Let's start with implementation.

#### *Implementation Feedback*

- What was successful about the program? Who do you think benefited? What environmental outcomes do you think that translates to?
- What was difficult and ineffective about the program? What were the missed opportunities? What changes do you think would improve the program?

- Do you have ideas about how you'd implement that payment structure or application process?
- As implemented, were there any unique characteristics about CSP relative to other programs? What value, if any, do these have?
- As implemented, what value, if any, does CSP have relative to other programs?
- Would you put more funding into CSP in the future, or less?

### ***The Statute***

- How familiar are you with what didn't get implemented? With ideas that were in the statute that didn't make it through the complications of implementation and funding cuts?
- So did you know about...?
  - Green payments – That CSP was influenced by this concept of eventually replacing the income support of commodity payments with conservation payments that pay more based on greater environmental benefits.
  - That there was an entitlement aspect, prior to the underfunding of the program
  - The Performance-based concept – that unlike other federal conservation programs, like EQIP which allows adoption of practices “a la carte,” CSP requires participants to adopt a combination of practices that “solve” a conservation issue. Which of course raised the question of how to measure results.
  - That there were supposed to be greater rewards for farms that choose their conservation priorities and conduct their farm planning in conjunction with local or regional conservation efforts.

### ***Conceptual Feedback***

- So, did you see any promise in the statute that didn't survive implementation?
- Pulling these pieces apart, I'd love to mine your experience for insights, ideas, models, or lessons that could be useful as future policies that use these concepts are shaped.
  - *Performance-based programs* – Have you seen programs that are good examples of ones where assessment of actual environmental progress was built in? How did it work? How else could results be gauged or demonstrated? Management intensity factors? Indices? On-site monitoring? Water quality monitoring? Modeling? Do you know how to make these transparent so a farmer can determine their own eligibility for the program?
  - *Watershed-based programs* – What value does this concept have? What problems are caused by having a county-based agency implement based on watersheds? Are those problems or barriers surmountable?
  - *Entitlement programs/Rewarding existing conservation systems and practices* – This has been really controversial about CSP and very difficult to fund. What do you think about this? In your opinion, if the

program continues on a watershed rotation basis, what is the maximum number of years between sign-ups for anyone to be motivated to prepare to participate?

- *Collaboration* – In what ways has cooperation or resource-sharing been really successful in the region? Are there certain local assets – knowledge, institutional relationships, plans, monitoring infrastructure – that would add a lot of value to new programs? What are the barriers to greater collaboration and resource sharing? How is the relationship between local NRCS offices in the Schuylkill and the community of water quality regulators and environmental advocates?

### **3) Lessons for the Future**

- How do you shift the incentives toward conservation, to counter all the other pressures on farmers to focus on the short term?
- To which existing programs or new priorities would you direct funding in the future? If you were to imagine a program....
- What lessons would you want to see incorporated into the way agricultural conservation programs are developed in the future?  
Is there anything else you would like to tell me that I haven't asked about?



## APPENDIX C: NON-NRCS AGENCY STAFF INTERVIEW QUESTIONS

### 1) Agricultural Conservation in the Schuylkill

#### *Involvement*

- What is your involvement with agricultural conservation work in the Schuylkill? How did you become involved?
- What are the most important resource concerns/conservation issues on farms in this watershed? What are the highest priority conservation practices or conservation systems for addressing the most important concerns/issues?
- What are the main barriers to greater adoption of the critical conservation practices or systems among farmers? Lack of knowledge or experience? Cost? Labor constraints? Market pressures? Commodity programs? Risk aversion? Rental farming? Bank loans???
- What motivates farmers toward conservation?

#### *Program Observations*

- There is a great array of programs to help farmers promote conservation in this region – which are you familiar with?
- In your opinion, which programs currently have the greatest conservation impact? How so? What do you see as key criteria for judging that impact? What factors make these programs more successful? What factors make other programs not as successful?
- Among the array of programs in the region, are there types of programs that are really needed? Resources that are badly needed to expand existing efforts? What are the obstacles?

### 2) NRCS Programs

- Do you have any contact with the work of NRCS? Are they perceived as the main agent of agricultural conservation efforts in the region? Are there institutions/programs that are of equal influence?
- What works best about NRCS programs? What needs improvement?
- Have you seen any changes in the strategies or emphasis of NRCS programming since you've been involved?

### 3) CSP

#### *Describing the Statute*

My questions here are not mainly to assess the performance of that program, but to have a conversation about some of the very unique and potentially progressive features of the statute that gave birth to the program. I don't want you to feel like you need to evaluate that which you aren't familiar with. I mostly want to talk with you about some concepts that influenced the statute and may show up again in the future.

Can I tell you a bit about the program's original goals?

- Green payments – It came out of the idea of eventually replacing the income support of commodity payments with conservation payments that pay more based on greater environmental benefits. This is by no means going to happen tomorrow or with CSP specifically but there is a movement and CSP was influenced by it.
- With CSP, the green payments concept resulted in an entitlement program aspect (“reward the best”) – Due to a shortage of NRCS staff and technical assistance dollars and CSP funding cuts made by Congress, this original vision was modified.
- Unlike other federal conservation programs, like EQIP which allows adoption of practices “a la carte,” CSP requires participants to adopt a combination of practices that “solve” a conservation issue. This is referred to as being performance-based – that the goal is not the practice, but the result – so if that takes a whole combination of practices, fine. The challenge is that tools to measure these results, whether they be on farm monitoring or some sort of index for predicting soil loss or non-point source pollution, are still being developed in many ways – it's not always obvious or agreed upon as to how to do this.
- Related to this, CSP was supposed to be implemented at a watershed-scale so that the results of the changes could be measured.
- There was even a piece that said the program should offer greater rewards to farms that choose their conservation priorities and conduct their farm planning in conjunction with local or regional conservation efforts, i.e. groups like SAN!

### ***Conceptual Feedback***

- I'm curious what your response is to all that? Is this news that CSP had any of these intentions? Do these seem like promising program concepts? Did you happen to see any of these concepts come through in implementation?
- Pulling these pieces apart, I'd love to mine your experience for insights, ideas, models, or lessons that could be useful as future policies like CSP are shaped.
  - *Performance-based programs* – Have you seen programs that are good examples of ones where assessment of actual environmental progress was built in? How did it work? How else could results be gauged or demonstrated? Management intensity factors? Indices? On-site monitoring? Water quality monitoring? Modeling? Do you know how to make these transparent so a farmer can determine their own eligibility for the program?
  - *Watershed-based programs* – Have you encountered this in other programs? What value does this concept have?
  - *Entitlement programs/Rewarding existing conservation systems and practices* – This has been really controversial about CSP and very difficult to fund. What do you think about this?
  - *Collaboration* – In what ways has cooperation or resource-sharing been really successful in the region? Are there certain local assets –

knowledge, institutional relationships, plans, monitoring infrastructure – that would add a lot of value to new programs? What are the barriers to greater collaboration and resource sharing? How is the relationship between local NRCS offices in the Schuylkill and the community of water quality regulators and environmental advocates?

### ***Implementation Feedback***

If you know about CSP implementation and are comfortable sharing your perspective, I have a few questions.

- What was successful about the program? Who do you think benefited? What environmental outcomes do you think that translates to? What was accomplished?  
What were the missed opportunities? What changes do you think would improve the program?
- Did any of its unique characteristics that we discussed show up?
- What value do these accomplishments have relative to other programs?

### **4) Lessons for the Future**

- How do you shift the incentives toward conservation, to counter all the other pressures on farmers to focus on the short term?
- To which existing programs or new priorities would you direct funding in the future? If you were to imagine a program....
- What lessons would you want to see incorporated into the way agricultural conservation programs are developed in the future?
- Is there anything else you would like to tell me that I haven't asked about?