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**Working Lands Agri-environmental Policy Options
and Issues for the Next United States Farm Bill**

by
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U.S. farm legislation is due to be updated in 2007, to become effective with the 2008 crop year. Major questions surround the role of environmental or conservation provisions in the new Federal farm bill. In this paper, I first present some background on the evolution of U.S. ‘*agri-environmental policies*’—policies encompassing conservation of agriculture’s natural resources and agriculture’s impact on the environment. I follow that with a brief discussion of the concept of ‘*multifunctionality*’ in agriculture, a concept that increasingly is driving discussions of agri-environmental policy options in Europe and the U.S. The subsequent section of the paper contains discussion of four broad alternative approaches to agri-environmental policy in the next farm bill. Then, there are sections on each of three specific agri-environmental programs and sets of policies: the Environmental Quality Incentives Program, the Conservation Security Program, and policies to support organic agriculture. I conclude the paper with my observations on prospects for fundamental reforms related to agri-environmental policies in the next farm bill.

I. Policy Background

What are now generally referred to as agri-environmental policies and programs have roots in President Franklin Roosevelt’s ‘New Deal’ conservation programs of the 1930s. The Soil Conservation Service, the predecessor of today’s U.S. Department of

Agriculture (USDA) Natural Resources Conservation Service (NRCS), was created in 1935 (Knutson, et al., 1998). Both soil conservation and today's Federal farm price support programs have New Deal roots.

The 1985 'Farm Bill' was the first to significantly broaden U.S. agricultural policy beyond conservation to a somewhat more integrated approach to environmental and farm income concerns. The Conservation Reserve Program (CRP) program was created, taking highly erodible land out of production under long-term contracts. Similar to an earlier, 1950s-era 'soil bank' program, the CRP serves both soil conservation objectives and farm income objectives—the latter by reducing commodity supplies and raising prices above what they otherwise would have been (Knutson, et al., 1998). Over time, other environmental objectives in addition to soil conservation also have become important in administration of the CRP; wildlife enhancement is especially prominent in some regions. Environmental compliance provisions were enacted for the first time in the 1985 Farm Bill. Under these provisions, farmers can be denied eligibility for farm program benefits if they: (1) convert highly erodible land (HEL) to crop production without applying an approved soil conservation system (the 'sodbuster' provision); (2) convert wetlands to crop production under certain circumstances (the 'swampbuster' provision); or (3) fail to use an NRCS-approved soil conservation system on HEL (the 'conservation compliance' provision) (Claassen, 2006a; Claassen, et al., 2004; Dobbs, 1993).

The Environmental Quality Incentives Program (EQIP) was enacted in the 1996 Farm Bill. In part, EQIP resulted from combining and consolidating environmental programs of the early-1990s that were intended to reduce negative environmental

externalities on farmed land. The Integrated Crop Management (ICM) Program and the Water Quality Incentive Program (the WQIP) were two such pre-EQIP programs designed for ‘working lands’. EQIP, which was continued with modifications in the 2002 Farm Bill (Federal Agricultural Improvement and Reform, or FAIR, Act), encompasses both crop and livestock production practices. (Dobbs, 1993; Johansson, 2006b) EQIP and its immediate predecessors—with foci often inclusive of, but broader than, soil conservation, encompassing a variety of environmental ‘externality’ and ‘public good’ concerns—represent the type of program that we have subsequently come to include under the label ‘agri-environmental programs’.

Agri-environmental programs took on even greater importance from an expenditure standpoint in the 2002 Farm Bill. Funding for EQIP was substantially expanded, and the Conservation Security Program (CSP) was newly created. The CSP, as called for in the enabling legislation, was to be an ‘entitlement’ working lands program. Farms of all types, throughout the country, were to be eligible to participate on a non-competitive basis. The 2002 Bill authorized a 10-year expenditure plan calling for an 80 percent increase in spending on conservation and environmental programs (compared with a baseline projection under previous programs and policies). Much of the increase in expenditures was to be for working lands agri-environmental programs, particularly EQIP and the new CSP. However, the CSP was substantially delayed—the first signups were not held until 2004—and altered, with severe funding restrictions. Only farmers in selected watersheds have been eligible to enroll in the first three signups (in 2004, 2005, and 2006), and there has been a quasi-competitive process for selecting participants. Although \$6 billion was authorized for the CSP for the time period 2002-2011, only

about \$500 million (in total) has actually been made available for the first three sign-up periods (2004-2006). Substantial additional funding has gone into EQIP, however. EQIP received \$3.95 billion for the 2002-2006 5-year period. This was an average of nearly \$800 million/year, compared to a funding limit of \$200 million/year under the previous (1996) farm bill. (Cattaneo, et al., 2005; Claassen, 2006b; Claassen and Ribaud, 2006; Dobbs and Pretty, 2004; Dobbs and Streff, 2005 and 2006)

EQIP and the CSP are not the only agri-environmental programs for working lands. Among the programs are ones to preserve grasslands and to support the expansion of 'organic agriculture'. The 2002 Farm Bill provided for a new Grassland Reserve Program (GRP). Under this program, the Federal government offers long-term easements and rental agreements to preserve privately owned grasslands for livestock grazing and other uses. The agreements entail approved grassland management plans (Aillery and Gadsby, 2006).

Although U.S. support for organic agriculture does not even begin to approach the scope and magnitude of agri-environmental programs in Western Europe, some modest initiatives have been launched in the U.S. in recent years. Private and some State agency organic certification programs have been around for some time, but it was not until 2002 that national organic standards took effect in the U.S. A program to provide some support for organic certification costs was begun in 2001, and the 2002 Farm Bill included a new organic agriculture research and extension initiative. Approximately \$7 million was made available in FY 2005 specifically for organic agriculture programs, including \$4.7 million for a research grant program. (Dobbs, 2006; Dimitri and Oberholtzer, 2006; Greene, 2006a) These amounts are minuscule in relation to government expenditures in support of

‘conventional’ agriculture, though there has been some modest previous and on-going Federal and State-level support for organic research and development under other ‘sustainable agriculture’ and agri-environmental programs. However, the earmarking of funds specifically for organic agriculture has been considered important both substantively and symbolically by proponents of organic agriculture.

Expenditures on so-called ‘conservation of agricultural lands’ constituted only 17 percent of Federal ‘natural resources’ expenditures in FY 2004, considering all agencies and programs (U.S. Office of Management and Budget data cited by Claassen and Rebaudo, 2006). The attention of the present Economics Staff Paper is on agri-environmental programs only, however, which means primarily programs administered by the USDA. We can get some sense of context for USDA programs by viewing Table 1, which shows estimated expenditures on ‘conservation programs’ in 2005. Land retirement programs (\$2.2 billion), principally the CRP (\$1.9 billion), made up nearly half (48 percent) of the total (\$4.5 billion). Working lands programs (\$1.3 billion) made up 29 percent, with EQIP expenditures (\$995 million) constituting roughly three-fourths of that. The GRP—which was not listed under the ‘working lands heading in the source for Table 1, though it very well could have been listed there—made up only 2 percent of the total. The table does not include organic or other agri-environmental research expenditures, nor are other Federal programs specific to organic agriculture included. Organic program expenditures were extremely small in relation to the conservation expenditures shown in Table 1, however.

Table 1. Estimated 2005 expenditures on major USDA conservation programs

Program type and program	\$million	Percent of total	
Land retirement			
Conservation Reserve Program	1,937		
Wetlands Reserve Program	268		
subtotal		2,205	48
Working lands			
Environmental Quality Incentives Program	995		
Ground and surface water	54		
Klamath Basin	9		
Wildlife Habitat Incentives Program	47		
Conservation Security Program	202		
subtotal		1,307	29
Agricultural land preservation			
Farm and Ranch Land Protection Program		112	2
Other			
Grassland Reserve Program	128		3
Emergency Conservation Program	80		2
Conservation Technical Assistance	720		16
Overall total	4,552		100

Source: Claassen and Ribaudo (2006) drawing on USDA Economic Research Service analysis of Office of Budget and Program Analysis data

Despite the increases in Federal expenditures on agricultural resource conservation under the 2002 Farm Bill, farm 'commodity program' payments remain much higher. Direct payments, counter-cyclical payments, and marketing assistance loan benefits were forecast to be \$16 billion for the 2005 crop year. They are estimated to average \$11.7 billion/year over the crop years 2002 through 2005. The combination of government payments through commodity programs, emergency assistance, and conservation programs was \$23 billion in calendar year 2005, and it averaged \$16.2 billion/year during calendar years 2002-2005 (USDA, 2006b).

Because of the magnitude and nature of its commodity program payments, the U.S. has been under considerable pressure in the Doha Round of World Trade Organization (WTO) talks to reduce payment levels. There is strong feeling in a number of circles that U.S. commodity programs continue to raise production above 'free-market' levels, thereby putting downward pressure on world prices and making it difficult for farmers in developing countries to compete. The European Union (EU) also has been under intense pressure to further reduce its farm 'subsidies' and import protection measures. These pressures have stimulated discussion about the feasibility, appropriateness, and economic impacts of shifting substantial portions of commodity program payments to agri-environmental programs, which are more likely to gain 'green box' exceptions from WTO requirements to cut payments. The EU has already taken steps in that direction with some of its Common Agricultural Policy (CAP) reforms (Dobbs and Pretty, 2004 and 2005).

The Doha Round talks seemingly have collapsed, however, at least for now. Repeated attempts to resolve major agricultural issues have failed since collapse of

discussions at a major meeting in Cancun, Mexico in August 2003. Although the WTO did settle on a 'Framework Agreement' in July 2004 (Thompson, 2005), talks again reached an impasse in the summer of 2006. Many people now believe that there will be no Doha Round agreement prior to U.S. farm bill legislation in 2007. That would relieve some pressure on the U.S. to make major changes in its commodity programs, though domestic budgetary pressure will not go away anytime soon. If WTO negotiations regarding agricultural trade are to make any further major progress, at some point the U.S. may need to make major changes in its commodity programs, and this could have implications for the country's agri-environmental policies and programs.

II. Agriculture's 'Multifunctionality'

WTO negotiations and farm policy debates on both sides of the Atlantic in recent years have been taking place in the context of a broadening view of the roles of agriculture in societies. Starting in Europe in the late-1990s, and now in the U.S., agriculture's '*multifunctionality*' frequently has been discussed by policy analysts. This notion is that policy objectives for agriculture do not only revolve around producing food and fiber. Agriculture—particularly in the U.S. and the nations of Western Europe, where food 'surpluses' have been a central policy problem in recent decades, rather than a problem of adequate production—has additional important functions for society. Those additional functions include both environmental and social concerns. Agriculture can either contribute to or detract from environmental quality. Environmental quality is enhanced when agriculture contributes to biodiversity and enjoyment of wildlife, for example. Agriculture diminishes environmental quality when soil is eroded into

waterways and when drinking water supplies are contaminated by synthetic chemical fertilizers and pesticides. Similarly, agriculture performs a positive social function when it contributes to good quality rural jobs and healthy small town economies. On the other hand, social concerns are negatively affected when agricultural systems lead to the gradual disappearance of rural small towns and deterioration of the local tax base and related public services. (Dobbs and Pretty, 2004)

Of course, we have long known that agriculture has many of these types of positive and negatives effects on society. What is fresh about the multifunctionality perspective is the incorporation in policy analyses of more formal recognition of agricultural functions in addition to food and fiber production. This perspective facilitates more transparent identification and discussion of the competitiveness and complementarity between production, environmental, and social impacts of particular policies related to agriculture. In a sense, this helps to legitimize societies changing their priorities over time about which functions are most important. In Western Europe, for example, food security (i.e., food production) was extremely important to most countries in the years immediately following World War II. By the 1980s, however, with food production in abundance and deteriorating rural environments, agriculture's environmental functions began to take on much greater importance in EU policies and the policies of individual EU member countries. Agricultural production and farm income related thereto continue to dominate policy discussions in the U.S., but, as explained in the introductory section of this paper, environmental concerns have been on the rise here, too, since the 1980s. Following the lead of their counterparts in Europe, economists and

other policy analysts in the U.S. increasingly have couched their policy discussions in multifunctionality terms over the last 4 to 5 years.

This multifunctionality perspective will be employed in the discussions of agri-environmental policy options and issues to follow.

III. Alternative Approaches to the Next Farm Bill

The USDA has released a series of ‘2007 Farm Bill Theme Papers’ in recent months, the second of which deals with “Conservation and the Environment” (USDA, 2006a). Alternative general approaches for the next farm bill are presented in these papers. The papers do not contain official USDA or Executive Branch positions on what approaches should be taken. Four alternative approaches or general directions are examined in the theme paper dealing with conservation and the environment:¹ (1) improve existing agri-environmental programs; (2) place much greater emphasis on environmental stewardship payments; (3) encourage private sector markets for environmental services; and (4) expand or strengthen environmental compliance. Obviously, policies and programs across these different areas are not necessarily mutually exclusive, but the four general directions represent alternative possible emphases. I will now discuss each, in turn. Except where other sources are cited at particular places in the following four sub-sections, information has been drawn from the USDA’s “Conservation and Environment” paper.

¹ I have modified the terminology in some cases, for consistency with the rest of this Staff Paper.

Improve existing agri-environmental programs

One alternative is to continue most existing agri-environmental programs but concentrate on changes to make them more effective and efficient. Four areas in which substantial modifications might be made are listed in the conservation and environment theme paper:

(1) making programs more targeted and increasing the use of market mechanisms; (2) consolidating programs that share common purposes and incentives; (3) rebalancing conservation investments among programs and purposes; and (4) enhancing the support of farm and ranch energy management and development of alternative energy sources. (USDA, 2006a, p. 23)

One way to expand ‘targeting’ is to make greater use watershed or landscape approaches. The watershed approach already is being used in the CSP. However, national targeting based primarily on the severity of environmental problems or potential for environmental improvement could make programs like EQIP and CSP less uniformly distributed, geographically, than at present.

Market mechanisms already are being used to some extent, but the 2002 Farm Bill forbade “bidding down” of the cost-share in EQIP. The thinking was that large farms have economies of size that would enable them to more easily bid down than could small farms, resulting in more EQIP funds going to the larger farms.

Just as the 1996 Farm Bill consolidated a number of programs under EQIP, another round of consolidation of various programs might achieve administrative efficiencies and improve delivery. By way of cross-Atlantic comparison, England has recently consolidated a number of its agri-environmental programs. Several major previous agri-environmental schemes have now been collapsed into three interrelated schemes: Entry Level Stewardship, Organic Entry Level Stewardship, and Higher Level

Stewardship. The first two schemes are open to entry for all farms in England, though farms enter either one or the other. Under either of these entry-level schemes, farmers draw up whole farm plans and enter into agreements with the government to address environmental issues beyond what are required under ‘environmental compliance’ provisions. In return for providing the additional environmental services, farmers receive annual payments over a several-year period. Farmers that are enrolled in either one of these entry level schemes can apply for enrollment in the more demanding Higher Level Stewardship Scheme. Acceptance into this program, which provides higher payments over a longer contract period, is determined on a competitive basis, however. Applications are judged on the basis of environmental benefit per unit of expenditure. (Dobbs and Pretty, 2005)

If the U.S. were to do a similar consolidation of programs, cost-share and incentive programs like EQIP and CSP might be combined into a single, tiered program. Other programs aimed at keeping land in a particular use for long periods of time—like CRP, GRP, and the Wetlands Reserve Program (WRP)—could be combined under a single, multipurpose easement program. These are just a couple of consolidation possibilities.

Even with the expanded emphasis on ‘working lands’ agri-environmental programs in the 2002 Farm Bill, roughly half of conservation program expenditures remain devoted to land retirement (Table 1). It is quite possible that greater environmental benefits could be obtained for a given level of environmental expenditure by shifting even more funds from land retirement to working lands programs. A large

number of CRP contracts will be expiring in 2007 and 2008, making such a shift possible.

There are a variety of ways in which energy conservation and production could be more fully integrated with agri-environmental programs. EQIP and CSP already have provisions that support bio-energy production. Expansion of such provisions, or greater use of existing provisions, could further capitalize on agriculture's multifunctionality by simultaneously contributing to energy production, environmental quality, and strengthening of rural economies. However, energy and environmental functions can be competitive in some cases. Use of agricultural biomass for energy at levels that severely deplete soil organic matter is one tradeoff that requires careful examination in policy proposals to incorporate energy production in agri-environmental programs.

Place greater emphasis on environmental stewardship payments

Until the recent collapse of WTO negotiations, one alternative that was the subject of increased discussion was to shift substantial portions of the 'commodity program' payments to environmental stewardship (or "green") payments. In this way, some farm organizations have sought continued Federal payments on a large scale, but through mechanisms that they hope would fall in the WTO's 'green box'. This alternative could face distributional challenges. Also, it may be difficult, if pushed to an extreme, to achieve the desired green box status.

At the present time, there is a quite different distribution of commodity payments and conservation payments. More than 50 percent of commodity payments go to large, commercial farms, whereas a similar portion of conservation payments go to small, rural residence farms. Commodity payments are concentrated in the Corn Belt, Northern

Plains, and Mississippi Delta, where ‘program crops’—including corn, wheat, and cotton—are prevalent. Conservation payments are high in some portions of those areas (including portions of the Northern Plains), but overall, they are more widely distributed by geography and farm type. EQIP, for example, encompasses not just cropland, but also grazing land and other livestock related environmental issues. (Claassen and Morehart, 2006)

If a major shift of funds from commodity payments to agri-environmental programs were to be accomplished by channeling the additional funds into existing programs, that could result in an overall redistribution of farm payments from large farms producing ‘program’ crops to farms producing livestock and a wide range of crops. On the other hand, if the shift were to be accomplished by targeting most of the additional agri-environmental funds to farms that produce the major ‘program’ crops, this might result in substantially less environmental benefit than would a strategy based on environmental costs and benefits.

How the additional agri-environmental funds are spent also could have WTO implications. If agri-environmental payments compensate farmers only for costs incurred or income foregone, the payments may be green box compliant, but they provide no net income support. If the payments exceed farmers’ costs or income foregone in carrying out an environmental practice or set of practices, the payments must be considered decoupled income support in order to comply with WTO green box rules. However, it could be difficult for environmental practices to satisfy the decoupling criterion, because that criterion requires payments to be unrelated to input use, and environmental practices often involve some changes in production inputs. “A conservation program that enhances

net farm income, is environmentally effective, and is green box for WTO purposes would be a challenge to design and require careful development” (USDA, 2006a, p. 29).

There may be situations with expanded emphasis on environmental stewardship programs that call for new WTO rulings or interpretations, however (Dobbs and Pretty, 2004). Three broad criteria may be useful if policy makers consider a major expansion of stewardship programs, but also need to be sensitive to international trade issues: (1) Do the programs substantially encourage environmental stewardship over the long run? (2) Are *trade distorting* effects minimized? and (3) Do the farmer eligibility rules satisfy basic concepts of fairness and consistency? The first and second criteria draw on the concept of *multifunctionality* discussed earlier. Stewardship payment programs should increase agriculture’s positive environmental services (or reduce the negative environmental effects) while keeping any increases in crop or livestock output to a minimum. The third criterion has particular relevance to the issue of whether farmers who were already carrying out eligible practices or providing particular environmental services should be eligible for stewardship payments. The WTO’s *additionality* provision would seem to call for exclusion of payments to farmers already providing an environmental service. However, this interpretation raises fundamental fairness concerns. Moreover, such an interpretation, over the long run, likely discourages voluntary, uncompensated stewardship actions (Dobbs and Pretty, 2004, pp. 230-231).

Encourage private sector markets for environmental services

A third alternative approach to environmental concerns in the next Federal farm bill would be to encourage new and expanded private sector markets for environmental services. Programs like EQIP and CSP essentially are programs for the Federal

government to purchase environmental services from agriculture. This third alternative would entail creation and facilitation of market institutions and mechanisms for the private sector to make such purchases. There is a great deal of interest among economists and policy makers at present in the scope for expanded private sector purchases of environmental services from agriculture, including forestry (USDA, 2006a; Wunder, 2005). In some cases, private sector markets might replace government agri-environmental programs. More likely, however, they might sometimes serve as a complement to government programs, in some cases providing scope for reducing (but not eliminating) government expenditures.

Government has been the major purchaser of environmental services from agriculture in the U.S. because many of these services are in the nature of either *externalities* or *public goods*. By definition, the private market tends to ‘fail’ for such goods—providing too little of the positive goods and too much of the negative ones. One step in expanding the scope of private sector environmental markets, then, is to sort out which of agriculture’s environmental services are more in the nature of *private* goods than of *public goods* or *externalities*. Some forms of recreation in agricultural landscapes—hiking, hunting, boating, for example—have private goods characteristics to at least some extent. Where transactions costs are not too high, private sector markets may be used to induce agricultural land uses that provide those types of services. Carbon sequestration is a good example of a service for which market institutions have evolved in recent years, but much remains to be done to make those institutions more effective.

A combination of regulations and agri-environmental programs like EQIP have been used to provide clean water from rivers and aquifers in agricultural areas, but there

is scope for greater use of markets to complement those programs. In the years ahead, we may see rural and municipal water systems paying farmers to adopt practices and land uses to protect water quality for human consumption, as has been done in the State of New York. There, New York City's water authority contracted with farmers in the Catskills watershed to carry out whole farm plans to satisfy the City's water quality objectives (Appleton, 2001). Admittedly, the City water authority is a government entity, but this is a good example of a market-type mechanism being used for a particular environmental service from agriculture.

For expanded use of private sector markets to complement and reduce the cost of Federal agri-environmental programs, program rules need to allow farmers to sell environmental credits produced as a result of the government support. This is currently permitted under EQIP. In addition, programs need to be structured in such a way that farmers who have potential to market those credits will have incentive to participate in the particular agri-environmental program (e.g., EQIP) at a lower level of compensation than would be required without private sector market opportunities. In practice, many agri-environmental programs induce multiple environmental services, only some of which (if any) might lend themselves to private markets. Therefore, the trick is to design competitive bid or other contract negotiation procedures in such a way that farmer participants will maximize their use of private sector markets and offer the bundle of environmental services at the lowest possible cost (per unit of environmental service) to the agri-environmental program. This can be a challenge, given the difficulties of measuring and monitoring most environmental services from agriculture.

Expand or strengthen environmental compliance

Yet another alternative approach to environmental problems is to expand or strengthen ‘environmental compliance’ provisions (often called ‘conservation compliance’, or ‘cross-compliance’). At present, environmental compliance in U.S. farm policy is focused on HEL and wetlands, as explained earlier in this paper. It would be possible to expand compliance provisions to all cropland and to environmental concerns other than soil erosion and wetland protection. A prime candidate concern would be nutrient runoff and leaching. Most nitrogen runoff and leaching come from cropland that is covered by commodity payments. Livestock production is frequently associated with phosphorus runoff problems, but since manure management plans generally call for applications to cropland, commodity payments also could provide some compliance leverage for those problems, as well. USDA research has shown that commodity payments generally exceed the costs of dealing with nutrient runoff and leaching through combinations of nutrient management and buffer practices. This suggests that extending environmental compliance to nutrient externalities could be effective (Claassen, et al., 2004).

Greater emphasis on regulations and environmental compliance would be consistent with some trends in the EU. For a number of years during the 1990s, United Kingdom (UK) policy makers used the Nitrate Sensitive Areas (NSA) scheme as one of the means to address nitrate contamination of water by agriculture. Somewhat similar to EQIP, this voluntary scheme provided payments to participating farmers for reducing or eliminating nitrate contamination. However, several years ago the UK began to phase out the NSA scheme and to place greater reliance on mandatory nitrogen management

(Dobbs and Pretty, 2004). More recently, the EU CAP reforms of 2003 are placing greater reliance on environmental compliance than previously. Member states of the EU have been transitioning into farm support programs that collapse most previous commodity payments into single farm payments. While these single farm payments are being accompanied by a much greater degree of ‘decoupling’—giving farmers more flexibility in their production decisions—farmers are subject to more comprehensive environmental compliance provisions than in the past (Dobbs and Pretty, 2005).

One way U.S. farm policy could expand environmental compliance is by incorporating a “standard of care” approach to managing natural resources. For example, this standard could be based on the soil and water conservation requirements for Tier I eligibility in the CSP. Farmers failing to meet this standard would be denied eligibility for commodity and various other Federal farm payments.

Depending on how expanded compliance provisions are specified and carried out, there could be significant technical assistance costs for the Federal government, but other Federal costs could be low or non-existent. Farmers presumably would incur the principal costs of compliance, though some costs might be offset by existing agri-environmental programs like EQIP. The added compliance costs are likely to be unevenly distributed across farm types and regions.

IV. Environmental Quality Incentives Program Issues

EQIP remains the centerpiece working lands agri-environmental program in the U.S., though that could change if the CSP ever were to be implemented and funded the way Congress originally intended.

In addition to the large increase in EQIP funding that was authorized by the 2002 Farm Bill, that bill included a major change in EQIP's funding of environmental problems related to livestock. Previously, only small livestock operations (fewer than 1,000 animal units) were eligible to receive EQIP funds for waste management structures. The larger units—often referred to as Confined Animal Feeding Operations (CAFOs)—were eligible only for technical assistance. Although it was a controversial decision, with many 'small farm' advocates strongly opposed to the change, the 2002 Bill opened structural funds eligibility to CAFOs. This has allowed many CAFOs to utilize EQIP funds to help them comply with new Federal Clean Water Act regulations. There is no annual payment limitation, and the sum of all EQIP payments to an individual or entity can go up to \$450,000. Also, the 2002 legislation dedicated 60 percent of EQIP funds for livestock (including poultry) concerns. (Cattaneo, et al., 2005) The combination of these 2002 Farm Bill provisions makes EQIP a significant support program for large-scale livestock operations at present. This support continues to be a thorn in the side of numerous small farm and environmental groups, but it would be very difficult politically to reverse direction in a 2007 Farm Bill.

What could be revisited, however, are the methods of targeting and screening used in EQIP. Under the 2002 Farm Bill, money is allocated to States based on an aggregate ranking index. States, in turn, develop their own ranking mechanisms for allocating funds among applicants.² The Natural Resources Conservation Service (NRCS), which administers EQIP, calculates an "offer index" for each proposed

² Individual State NRCS offices are now in the process of adopting a National Ranking Template that contains sections for important State and local watershed concerns. The National template is intended to make the process of ranking more uniform across the U.S. (Washecheck, 2006)

conservation plan. This index takes into account the expected environmental benefits and cost-share required for each practice. However, since 2002, it is not required that EQIP maximize net environmental benefits per dollar expended. Inducements for farmer participation come in two forms: (1) cost-share; and (2) incentive payments. From 1997 through 2001, the average cost-share born by EQIP varied by management and structural practice, but the overall averages were 43 percent for all management practices and 35 percent for all structural practices. At present, the EQIP cost-share is typically 50 percent on structural and vegetative practices, but it can go up to 75 percent with special approval (or 90 percent for ‘limited resource’ and beginning farmers and ranchers). ‘Incentive payments’ can be paid for up to 3 years for management practices. Set at the local or State level, the incentive payment rates are to be based on expected requirements to induce participation—given probable additional costs (including lost production) and risks for farmer participants. (Cattaneo, et al., 2005; Hansen and Hellerstein, 2006; Johansson, 2006a and 2006b)

One possible change would be to restore the ‘bidding down’ option that existed prior to 2002. Depending on the magnitude of expected private benefits, individual farmers have incentive to offer to carry out some practices at lower than allowed cost-share rates if the probability of any given offer being accepted is based in part on the reimbursement rate the offerer is willing to accept. Economic theory suggests that overall environmental benefits are likely to be higher (in relation to overall program costs) when bid procedures like this are used, compared to procedures lacking them. However, transactions costs can be higher for both farmers and the NRCS whenever complexity is added to the offer and selection process (Johansson, 2006a).

Also, unless care is taken in specifying the environmental benefits, reintroduction of bidding down could result in perverse effects. For example, CAFOs supposedly are required to meet certain waste management environmental standards whether or not a cost-share program like EQIP is available. Therefore, from the standpoint of economic theory, using EQIP funds for cost-share on CAFO waste management structures adds no net environmental benefits—at least if we assume that present environmental regulations will be maintained and enforced. By this logic, most or all of the ‘benefits’ are private; i.e., EQIP cost-share simply reduces private expenditure outlays CAFOs would otherwise have to make. Hence, there would be ample incentive for CAFOs to ‘bid down’—unless other administrative factors (such as the requirement that 60 percent of EQIP funds are to be spent on livestock environmental problems) would cause EQIP funds to continue to flow to CAFOs—thereby potentially pulling cost-share funds away from small livestock producers and crop farmers. Even though it is no longer required that EQIP maximize environmental benefits per dollar of costs, it certainly makes economic sense to include in the ranking process a strong consideration of the extent to which environmental benefits are truly attributable to a particular set of planned actions. Actions that would have to be carried out by CAFOs even without EQIP cost-share funds or technical assistance have no environmental benefits that are attributable to EQIP. If that reality is taken into consideration, bidding down *should not* push CAFOs to the head of the line in EQIP contract allocations.

V. Conservation Security Program Issues

The CSP is the U.S. agri-environmental program which comes closest to embodying the kinds of ‘multifunctionality’ dimensions that are central to a number of agri-environmental programs that have emerged in the EU over the last 5-10 years (Basquin and Dobbs, 2005; Dobbs and Pretty, 2004). It is a tiered program, in which farmers satisfying certain soil and water concerns on a portion of their farm may apply to enroll that portion in a Tier I contract, the lowest tier. Those who have met those standards on the entire farm and who agree to address (or have already addressed) at least one additional significant resource concern applicable to their watershed are eligible for Tier II. To be eligible for Tier III, the highest tier, farmers not only must have met the required soil and water conditions, but must also have conservation practices in place that address all other relevant resource concerns on the entire farm. There also is provision for the possibility of Tier I and II contract farmers moving up to higher tiers over time. As a result of modifications in 2004 CSP contracts under that provision, Tier I and II contract numbers for 2004 have decreased by 28 and 4 percent, respectively, and the numbers in Tier III have increased by 46 percent. Tier I contracts are for a 5-year duration and have maximum payment limits of \$20,000/year. Tier II and III contracts are of 5 to 10-year duration, with payment limits of \$35,000/year and \$45,000/year, respectively. (Dobbs and Streff, 2005 and 2006; Johansson, 2006b; NRCS, 2006a and 2006b)

In the original 2002 Farm Bill legislation, the CSP was intended to be universally available on a non-competitive basis. However, funding limitations have forced the NRCS to develop rationing mechanisms. This has been done by limiting signups to selected watersheds each year—18 in 2004, 202 in 2005, and 60 in 2006—and by the

development of ‘enrollment categories and subcategories’ (Cattaneo, et al., 2005; Johansson, 2006b; NRCS, 2006a). In effect, placement of applications in these categories and subcategories serves as a de facto ranking process, since there are insufficient funds to approve contracts for all eligible applicants. Only 58 percent of qualifying applicants in the Spring 2006 signup were approved for contracts (Bruckner, 2006). In the 2005 signup, of all farms in the 202 eligible watersheds—not just farms with qualifying applications—only 5 percent received CSP contracts; these contracts covered about 10 percent of the farmland in those watersheds, not including CRP land (SAC, 2006a). In a true ‘entitlement’ program, there is no ranking because there is no competition to be funded. Hence, the CSP is not operating as an entitlement program, as intended by Congress. The USDA’s intention has been to rotate funding across all watersheds in the country over an 8-year rotation cycle. However, given current funding levels, it would take over 30 years to fund contracts in every U.S. watershed (Bruckner, 2006).

The CSP differs from most previous conservation and agri-environmental programs in the U.S. in that some provisions are made for rewarding good environmental behavior already carried out or underway. Two of the four types of available payments under CSP contracts are for past behavior: *stewardship payments* and *existing practice payments*. Stewardship and existing practice payment rates are based, roughly, on a percentage of the county average rental rate for enrolled land in a contract. The payment rates increase with the tier level. (Cattaneo, 2005; Johansson, 2006b)

The other two types of CSP payments are *cost-share* and *enhancement* payments. Cost-share for new practices can be paid at a rate of up to 50 percent, or up to 65 percent for limited-resource, beginning, and ‘small’ farmers. Enhancement payments address

local resource concerns and encourage practices or activities beyond minimum standards. In some cases, the payments are based on performance rather than costs, as with a 'soil condition index', for example. (Cattaneo, 2005; Johansson, 2006b; NRCS, 2006a; Weinberg and Claassen, 2006) Components eligible for enhancement payments in the 2006 signup were:

- (1) Additional conservation treatment above the quality criteria for soil quality, nutrient management, pest management, irrigation water management, grazing, air and energy management; and
- (2) Conservation measures that address locally identified conservation needs shown on the watershed specific enhancement lists. (NRCS, 2006a, p. 6252)

Also, enhancement payments could be allowed by the NRCS Chief for:

special enhancements for producer-based studies, watershed scale projects and evaluation and assessment activities . . . (NRCS, 2006a, p. 6252)

The biggest single issue regarding the CSP is the level of funding. This has become an annual battle in the Congressional authorization process, with the CSP usually coming out on the short end of the stick when funding priorities for the USDA budget are set. Unless and until the CSP is funded much closer to levels allowed in the 2002 Farm Bill, there is little prospect of moving away from the rotational watershed approach and the quasi-competitive category selection process.

Another issue concerns greater emphasis on ecological diversity, a fundamental concept in sustainable agriculture (Dobbs and Streff, 2005 and 2006). Some sustainable agriculture interests have urged NRCS to use a Soil Management Assessment Framework and a Crop Diversity Index in eligibility and payment portions of the CSP (SAC, 2006b). They believe that higher priority needs to be placed on the kinds of diverse farming systems that many agriculture researchers feel contribute strongly to ecological

sustainability. This would not necessarily require legislative action, though the next farm bill could give the USDA direction to place greater emphasis on such systems in implementation of the CSP.

VI. Organic Agriculture Policy Issues

Numerous factors influence farmers' decisions about whether to farm organically and market organically certified products. It is increasingly clear, however, that public policies play a big role (Dobbs, 2006). Recent experiences in Europe demonstrate the importance of policies specifically designed to encourage the adoption and continued use of organic farming systems (Dabbert, Häring, and Zanolli, 2004; Dimitri and Oberholtzer, 2006; Thilmany, 2006). The unintended effects of agricultural 'commodity program' policies also are extremely important (Dobbs, 2006; Dobbs and Pretty, 2004; Dobbs and Streff, 2006).

Both production and consumption of organic agricultural products have grown substantially in the U.S. in recent years, though starting from very small bases. Certified organic crop acreage increased by 71 percent between 1997 and 2003, to nearly 1.5 million acres. Organic pasture and rangeland increased by 50 percent over the same time period, to approximately 0.7 million acres. However, the combined total of certified organic cropland, pasture, and rangeland—2.2 million acres—is only 0.2 percent of U.S. farmland. This compares to around 4 percent of farmland in the EU, where organic agriculture has been promoted by public policies in many countries for at least a decade. (Greene, 2006a and 2006b) It is widely accepted in Western European policy circles that

organic practices contribute positively to agriculture's multifunctionality, and this belief is supported by substantial research.

Certified organic livestock numbers also have been growing in the U.S., by more than fivefold between 1997 and 2003. Organic dairy products have constituted an important segment of the U.S. market. By 2003, organic milk cows made up 1-2 percent of the total in the country's top two dairy States, Wisconsin and California. (Greene, 2006a and 2006b)

Organic foods account for approximately 2 percent of total U.S. food sales, the result of quite rapid growth over the past decade. Per capita retail organic food sales are about the same in the U.S. and the EU. Combined, the U.S. and the EU account for 95 percent of world organic food product retail sales. U.S. organic food sales are predicted to grow 9-16 percent annually through 2010. (Dimitri and Oberholtzer, 2006; Greene, 2006b)

Because of the acceptance in Western Europe of organic agriculture's positive contributions to environmental and other social goals, a number of countries have established targets for percentage of farmland under organic production methods. They have implemented policies designed to try to achieve those targets. U.S. policies regarding organic agriculture, in contrast, are largely passive. They are intended to enable organic agriculture to grow, but they do not favor organic over 'conventional' agriculture. While quite a number of U.S. scientists accept organic agriculture's positive contributions to the environment, as do many 'sustainable agriculture' practitioners and advocates, widespread acceptance of the existence or importance of these contributions does not yet exist in the broad U.S. food and agriculture policy community. While this

acceptance may come in time, its absence at present means that it is unlikely there will be a European-style aggressive approach to supporting organic agriculture in the next farm bill.

Proponents of organic agriculture continue to put forth concrete policy suggestions to improve the technology and economic incentives for organic agriculture. Among the suggestions, generally building on successful policy initiatives of recent years, including some in the 2002 Farm Bill, are the following (Tencer, 2006³):

- Increase funding (and earmarking) for organic agriculture research and data collection, including research on production, marketing, economics, and policy.
- Add legislative language to enable and encourage greater use of EQIP and CSP as programs to support transition to—and continuation of—organic farming. (EQIP already has been used for organic conversion assistance in some States. The extent to which farmers have been able to utilize CSP for cost-share on new practices or for stewardship or existing practice payments is not yet clear.)
- Redirect funds and programs to give greater support for organic agriculture extension outreach.
- Provide mandatory annual funding for the organic certification cost-share program.

³ See this source for details and some other policy recommendations.

- Make additional changes in Federal crop and revenue insurance programs to make them better fit the needs of organic farmers and be more widely available.

Even with policy initiatives such as these and ones already implemented, there is unlikely to be any widespread shift to organic or other ecologically diverse forms of agricultural production in the U.S. so long as price and income support programs remain as closely linked to ‘commodities’ as they are today.

VII. Prospects for Fundamental Reforms

At the time of this writing (September 2006), it is unclear if U.S. legislation in 2007 will entail a new farm bill of 5 or 6 years duration or a mere 1 or 2-year extension of the current farm program framework. In either case, it does not seem likely that there will be a fundamental reform in 2007 of the ‘commodity programs’ or a major shift of funds from the commodity programs to agri-environmental programs. Fundamental reforms and major funding shifts may come in time, but political forces are such that they appear quite unlikely to come about in legislation over the next year or so.

The big issue with respect to agri-environmental policies over the next several years, however, is if the U.S. will embark on a more comprehensive ‘multifunctional’ approach to agriculture. That approach has been under way for some time in the EU (Dobbs and Pretty, 2004), and the CAP reforms of 2003 appear to be moving the EU even further down the multifunctionality policy path (Dobbs and Pretty, 2005). The latest CAP reforms further ‘decouple’ farm payments from crop and livestock commodity production and place even greater emphasis on rural development and the rural

environment. If the U.S. were to embark on a similar path, there could be a major shift of funds from commodity programs to the CSP, allowing the CSP to be carried out more like it was intended in the original 2002 legislation. In addition, the CSP could be broadened to explicitly address rural development objectives, in addition to environmental objectives, as have some of the agri-environmental programs in Europe like the Contrat Territorial d'Exploitation in France (Basquin and Dobbs, 2005) and the Norfolk Area Land Management Initiative in England (Dobbs and Pretty, 2004).

The USDA already has some experience with a framework for integrating rural development and natural resource concerns, that being the Resource Conservation and Development (RC&D) program. Administered by NRCS, this program provides for multi-county areas and councils to help guide and integrate land and water management and community development (USDA, 2006c). The current RC&D framework might not be adequate to guide a massive expansion of agri-environmental funding and to fully integrate environmental and rural development strategies, but it could be a starting point. Building on RC&D and other existing institutions, rather than creating entirely new local/regional institutions from scratch, would seem to make sense. However, the makeup of councils and methods of operation would deserve serious scrutiny to be sure that entrenched interests do not subvert a true multifunctionality approach to agriculture. Agri-environmental and rural development policy based on multifunctionality should not simply be a means of channeling new money to old programs and vested interests—*old programs dressed up in new clothes*.

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