

# Applying Multifunctionality To U.S. Farm Policy

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# Applying Multifunctionality To U.S. Farm Policy<sup>1</sup>

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With each farm bill cycle there are calls for a major rethinking of U.S. farm policy to make it better suit current farm conditions and the expectations of the broader American public about the roles of agriculture. These calls for reform have been for the most part been unsuccessful because there has been no argument compelling enough to overcome advocates of the status quo. But as time passes the wisdom of maintaining a set of policies that have their basis in the 1930s and were designed to support a structure of agriculture that no longer exists becomes more questionable. And with each farm bill, policy shifts to include more aspects of agriculture than simply support for the production of farm commodities (Heuer, 2001).

One alternative that has been proposed as a new way to restructure farm policy is the concept of multifunctionality. It is based on a belief that farming produces multiple outputs, only some of which have market prices and many of which are public goods. In addition the production process is one where there is a link among outputs so that levels of one output are linked to production levels of another (OECD, 2001). Those advocating the use of multifunctionality as a way to think about agriculture and agricultural policy argue that in the 21<sup>st</sup> century many of the non-market outputs of agriculture are being under produced, and that the existence of jointness of production and the public good nature of major agricultural outputs requires a different and more systematic approach to agricultural policy. Three explanations for a socially undesirable mix of products are:

- that as society has become more wealthy and food outlays are a smaller share of household expenditures, the positive non-market values of agriculture, mainly visual amenity and environmental benefits, have become relatively more valuable,
- at the same time new production technology has led agriculture to adopt practices that increase the relative quantity of undesirable nonmarket outputs, such as pollution, and questionable food safety and animal welfare practices, and,
- agricultural policy by continuing to favor increases in the quantity of market outputs through price supports and other policies sends

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inappropriate signals to farmers encouraging higher levels of production of the subsidized commodities.

To date these arguments have not been very successful in the United States, but they do provide a basis for thinking about alternatives to current policy.

### **Current Farm Policy and Multifunctionality**

In recent years a large amount of the discussion of agricultural policy in the developed countries has focused on the trade effects of the various elements of farm policy. This has been most evident in the work of the OECD which has created a well recognized methodology for identifying the extent to which the various elements of national policy are trade distorting (OECD, 2002). The focus on trade is important because financial returns to farming in the industrial countries are typically now more dependent upon trade than ever. Ironically as the domestic role of agriculture has declined in terms of the share of population and share of GDP, its international role has become more visible. As a result, agricultural exports remain important for a considerable number of the industrialized countries. In turn these exports, when subsidized, create significant problems for the development prospects of many poorer countries by crowding out their farm exports and by weakening broader arguments for trade liberalization.

Blandford and Boisvert (2002a) argue that the current structure of trade policy dispute resolution is fundamentally incapable of dealing with multifunctionality as an argument for agricultural policy. If outputs are linked then what may appear to be an output subsidy for an agricultural commodity may in fact be the payment necessary for farmers to produce the optimal quantity of a non-market public good that is jointly produced (p.114 - 118). For a country that chooses to protect its domestic production this creates a plausible rationale for price supports. Given this it is clear why exporting countries cling to the argument that agriculture produces multiple outputs but they can be produced using separable production technologies. If joint-production links are established among priced and unpriced outputs, trade issues cannot be cleanly separated from domestic issues and trade agreements become both harder to negotiate and enforce.

But while agricultural trade issues are an element in agricultural policy, the main forces driving this policy are domestic. Trade effects are only the tail of the farm policy dog, and this means that domestic considerations mainly dictate how policy is developed and implemented. This is particularly true in the United States and Europe, the two dominant economic regions with major agricultural trade distorting policies. In Europe CAP reform would benefit consumers and facilitate enlargement, but the interests of some member states in protecting their farmers have proved a major impediment to bringing it about. In the United States the 2002 Farm Security and Rural Investment Act (FSARI) put in place

new farm policy that is widely seen as moving the United States away from the principles of freer trade that were important in the 1996 FAIR act.

To reinforce this point it is useful to summarize the main differences between the 1996 and 2002 acts. With the previous farm bill of 1996 the United States seemed to be adopting a policy that would lead to farmers being weaned from government subsidies and many federal regulations. But the bill was developed under the assumption that long run market conditions would be favorable and that U.S. farmers would be highly competitive in international markets. Production decisions of farmers were to finally be decoupled from federal payments, and transition payments that compensated producers for this policy shift were to decline over the life of the bill. However in 2002 four years of high emergency government payouts in excess of \$30 billion to protect farm income and weak short term prospects for improved prices, were combined with a major political battle for control of the Congress. The result was a situation where both major political parties believed that they could not afford to alienate farmers by refusing to provide generous levels of support in a new farm bill. Thus the 2002 farm bill was not about trade, and it was not even really about what was best in the long run for U.S. agriculture. What it was about was a critical battle for the votes of farmers in a handful of states in the Midwest and South, where the number of farm votes is large enough to decide the balance of power in both the Senate and the House of Representatives in the 2002 national mid-term elections.

The result is a farm policy that returns to the old approach of providing counter-cyclical price supports to a small number of major commodities, but FSARI preserves the important change from 1996 of decoupling support from production decisions. Farmers are not required to reduce planted acres in order to receive support, although the level of support is capped, both in terms of aggregate payment value and the size of the eligible production base. The result is a bill that has a projected outlay over its life that is likely to set a new record for farm income support, even though the number of farmers continues to decline. The trade consequences of FSARI have been widely criticized, notwithstanding the commitment made by the United States not to exceed any of the caps on support levels it agreed to under WTO. Nevertheless the new bill clearly will adversely affect the agricultural exports of developing countries and cannot be seen as making future trade negotiations easier.

But how does this new U.S. legislation relate to multifunctionality? In the most obvious sense there is no direct link, because multifunctionality is not a concept that received any attention in the legislation. This continues past U.S. policy in the sense that when multifunctionality is explicitly considered it is seen as a foreign strategy that will harm U.S. interests. The conventional American view of multifunctionality is that it is promoted by countries with no comparative advantage in agriculture to protect their domestic producers from competition. Consequently America tends to view multifunctionality as a device to restore the

production subsidies that have been limited under WTO agreements and create trade barriers.

From a U.S. policy perspective multifunctionality is a suspect concept for two reasons. First it is seen as being mainly about trade protection and not about enhancing efficiency, and second it implies a more coordinated and unified notion of agricultural policy formation than is seen as desirable in the United States. This latter point is important because for many Americans a more active policy suggests that the government, and not market forces, may play the main role in agriculture.

### **Multiple Outputs and Multifunctionality**

Although multifunctionality is an alien term in U.S. farm policy many of the concepts that underlie it are important factors in the policy process. These include: a concern with the environmental and wildlife habitat consequences of farming, the link between agriculture and rural development, and the amenity value of farms. This is evident by the inclusion of multiple references in *Food and Agricultural Policy: Taking Stock for the New Century*, the most recent USDA farm policy document, to the importance of recognizing the multiple outputs of agriculture and of forming policy that is sensitive to them (for example, USDA 2001, p.2, p.10, p.16).

In *Food and Agricultural Policy* there is an explicit recognition that farm production and farm policy should be driven by domestic consumer demands that encompass not only the nature and quantity of the outputs, but also how they are produced. Although high levels of agricultural exports are recognized as being vital to the financial well-being of most farmers because the current level of output cannot be absorbed domestically, policy has to do more than promote exports. In particular, the document recognizes that: only some farmers benefit from past policy, that a significant share of the benefits flow to unintended recipients and that there have been adverse environmental and food safety consequences from past policy, as well as negative impacts on rural communities. The document makes it clear that there are multiple goals for agriculture and for agricultural policy even though it does not explicitly identify which are the most important, nor whether there are minimum acceptable levels for some goals.

At the most fundamental level the United States has implicitly accepted a major part of the concept of multifunctionality. While farm legislation started out with a relatively narrow focus of preserving farmers' income by stabilizing and supporting crop prices over time there has been a steady broadening of the subjects considered and types of programs funded (Cochrane, 1993). Thus there is a longstanding recognition that agriculture produces many outputs.

The United States has also applied the concept of balancing multiple uses of resources for a long time in other resource management activities. Within USDA and a number of other federal agencies multiple-use management of public lands has long been a central principle for forests and range land and for river management. In each of these cases public policy initially emphasized a single activity, tree harvesting, livestock grazing and navigation or flood control and endorsed practices that maximized the benefits from that activity. Over time those who placed a value on other outputs that were adversely affected by the emphasis on producing the primary target good began to try to influence public policy. Initially this process was driven by local concerns but it steadily became more centralized with national objectives becoming part of the management process. In 1960 the U.S. Forest Service was formally required by the Multiple Use Sustained Yield Act to consider competing and complementary uses for forests (Bowes and Krutilla, 1989). These requirements were steadily expanded by legislation through the rest of the 1960s and the 1970s and extended to range land and rivers. Relative to other countries the United States has a lot of experience with both policies and management practices associated with multiple uses.

However while the United States has recognized the importance of developing special plans where multiple outputs are produced in a variety of circumstances it has never embraced the full concept of multifunctionality. In particular there is only limited support within the United States for a key element of multifunctionality – jointness of production (Abler, 2001b; Bohman, Cooper, Mullarkey, Normile, Skully, Vogel and Young, 1999). It is generally accepted in the United States that agriculture, like forests and rivers, has multiple outputs, including both those with market values and those without, but the usual assumption is that the outputs are in some sense separable and therefore appropriate levels of each output can be achieved by choosing a specific policy that addresses that particular output. Thus if soil erosion is a consequence of agricultural production, it can be addressed through specific policies and regulations that deal with erosion, and these policies can be developed independently of commodity price policy.

If the outputs of agriculture are not separable, in that levels of one output determine levels of another, it is more difficult to achieve any given desired mix of outputs without explicitly taking the linkages into consideration. Using the previous example it would be hard to get the desired level of conservation without modifying commodity price policy as well as conservation policy. But, even with jointness there is still the possibility for something other than government policy to bring about a more desirable mix of outputs (Abler 2001a; Normile and Bohman, 2002). And it is not clear that more active government policy can either define, or bring about, a better mix of outputs than currently exists.

## **Explanations of U.S. Skepticism**

Given its long experience with multiple-use, an obvious question is why has the United States not embraced multifunctionality? It is clear that there is not a lot of difference between multiple-use and multifunctionality as far as concepts go, but there are important differences in the evolution of the two ideas as distinct pieces of public policy. Multifunctionality is a recent term that came out of European discussions of sustainability in the early 1990s. It reflects efforts to operationalize the ideas of sustainability in the context of farming practices. In this case the concept or theory came first and there is now an effort to take the concept and implement it as an auxiliary element in a largely private sector, agriculture. As Abler puts it: "The primary function of agriculture is to supply food and fibre. However, agriculture can also be a source of several non-commodity outputs and negative externalities." (Abler, 2001b; p.4).

By contrast multiple-use developed as a management practice in forests in the 1900s as demand patterns shifted in ways that made outputs other than timber more significant in the surrounding communities. Individual forests were managed according to plans that reflected the local interests in specific outputs. Thus multiple-use originated as management practice grounded in specific resource endowments and specific demands. Over time certain practices were established as agency policy and in the 1960s were codified as legislation. In the 1970s as notions of sustainability and ecosystem management developed, multiple-use was redefined in the context of sustainability.

This difference in the way policies develop has been recognized in other contexts as being significant. In comparing the U.S., and European approaches to rural development Jean Francois-Poncet noted that in Europe there is a tendency to first develop a conceptual structure capable of analyzing the policy that can then be used to develop a holistic strategy to address it. By contrast in the United States there is tendency for individuals or small groups to seize the initiative and develop their own pragmatic solutions which over time are assembled into a larger program (OECD, 1997; p.13).

While multifunctionality is seen by its proponents as an innovative new option to address current problems in the farming sector, multiple-use in the United States is a time-worn policy that has been modified extensively to suit changing conditions in the management of public resources. This difference in perceptions and fundamental differences in the nature of agriculture and the policy environment can provide a set of reasons for American skepticism and European enthusiasm.

First, multiple-use in the United States has been a tool to manage public lands and waterways, not private property. Altering property rights in the United States is an exceedingly sensitive issue and while there is considerable precedent for government to modify property rights when the public interest is clear, there is

also a considerable reluctance to use this power frequently. In particular because farmers have worked hard to build and maintain an image as sound stewards of the land, there is an additional presumption that farmers, with few exceptions, manage land in an environmentally sound manner. This makes it an uphill battle to argue there is a federal role in the management of farm land. Second, U.S. policy has tended to address adverse environmental consequences of agriculture on an issue by issue basis. For example, there are incentives for farmers to adopt conservation plans that involve whole-farm management practices. there is legislation to limit “sod-busting” and “swamp-busting” which is intended to keep land that should not be converted to crop land out of production. The “Conservation Reserve” has as part of its purpose the removal of low productivity, environmentally sensitive land from production. Over the last few decades various farm bills have made significant amounts of federal money available to farmers to modify their production practices in ways that should reduce the adverse environment consequences of farming. The positive externalities associated with farming have generally not been significant national policy issues..

Third, land-use management in the United States is generally seen as a local issue, not a state issue and certainly not a federal issue. When states do get involved in land use issues it is generally through enabling legislation that provides local governments with the authority to adopt requirements for land use. The separation of powers in the Constitution places major limits on federal authority; except on federal lands which constitute a huge percentage of the western half of the country.

At a local level it is possible to find many of the tools being considered to implement multifunctionality in use. Various jurisdictions have established zoning regulations that block the conversion of farmland to other uses, other places have established funds to purchase development rights from farmers, still other places employ lower tax rates for farmland but recoup the difference if the property is developed. In each of these cases the community has determined that it has a local interest in preserving a landscape that includes agriculture.

Fourth, given the physical size of the United States and the relatively high and growing degree of urbanization (76% of the population in 1990), most agricultural production takes place well away from where most people live. Agricultural production is concentrated in the middle of the country while the two coasts are experiencing the fastest population growth. Not only are most people urban residents, very few have any close relatives engaged in agriculture. Consequently, while most people have general concerns about agricultural production it is largely an abstract concern; not a concern with practices on specific farms or the well being of particular farmers.

Recent USDA analysis shows that commercial farms, those with gross sales in excess of \$250,000, account for just 8% of all farms but produce 68% of total

agricultural production and receive 47 percent of government payments, primarily from commodity price support programs (USDA 2001; Appendix 1). Their average total household income is \$135,000 which is 2.7 times larger than the average U.S. household income of just over \$51,000 and their net worth, or wealth, is far in excess of the average American family (Table 1). It is hard to argue that these individuals are deserving of more subsidies. Similarly the largest group of farmers, the rural life-style group account for 62% of farms and have an average household income of more than \$67,000. While they do not currently get a large share of government payments it is equally difficult to argue they should be the recipients of government support. Only the intermediate group with average income of just over \$43,000 might qualify as somewhat disadvantaged, but a more targeted program would make better public policy.

Despite the relative success of farm organizations in continuing to perpetuate the myth of small family farms being the bedrock of the nation (Hanson), many people now see farming as a commercial enterprise that may already receive too many government subsidies and not too few. One manifestation of this is the lack of concern with farm abandonment and rural decline. For some urban residents an increase in the amount of “wilderness” because of farm abandonment may actually be considered an improvement. Recall desertification is not an issue in the United States. As a result farming is now more a part of the popular culture of the past and not the present. This means that there may be a real reluctance to fund programs for the group of mostly wealthy people engaged in agriculture when there are competing demands for public funds, especially when the average citizen receives no visible benefits from the outlay. Thus one of the main premises of multifunctionality – a desire to preserve a rural way of life does not fit well with a major part of modern American culture.

Fifth, embracing multifunctionality would require a major rethinking of U.S. agricultural policy. During the development of the 2002 farm bill there was a strong effort in the House of Representatives to refocus federal support on smaller farms and on environmental and amenity values, but it was soundly defeated. U.S. farm policy remains organized on a commodity basis to a large extent because those large farmers who produce the bulk of the commodities and receive the bulk of payments have a strong incentive to maintain the status quo. Arrayed against them is a large, but loose, coalition of environmentalists, small farm advocates and people concerned with waste in government. But the members of the coalition want different alternatives and for the most part lack the financial and political resources to compete effectively with the commodity groups (Freshwater).

The policy process in the United States does not start from a single coherent statement of objectives and work through to the development of a set of coordinated policies that have clear links to the objectives. Rather than being a “rational” top-down structure where policies are evaluated in terms of their potential to affect various objectives in the context of all the other existing and

proposed policies, the system in the U.S. is based upon a consensus-based “ad hoc” political process. Policies are developed by legislative subcommittees for each commodity and policy issue independently, generally without much attention being paid to what is already in place or what is being proposed in other groups. While there is ultimately an effort to reconcile the pieces into an aggregate agricultural policy that does not have major internal contradictions, the resulting farm bill never achieves the degree of coordination and integration that is implicit in the full sense of multifunctionality.

For example, in U.S. farm bills among other things there are: commodity titles that establish price and income supports, there are conservation titles that determine allowable production practices and regulations for land use, there is a rural development title that provides support for small communities, and there is a food safety title. Each title deals with a specific aspect of agriculture, but each deals with just that aspect of agriculture and there is no general set of rules that links the pieces into a comprehensive whole. The entire farm bill is developed piece by piece, with individual sub-committees in the House and Senate having responsibility for creating their part of the bill (Hansen, 1991). At the next stage the pieces are assembled and each aggregate bill is brought out of the two Agriculture Committees for consideration by the two legislative bodies. At this stage each proposal can still be significantly amended. The final piece of legislation reflects a further process of negotiation, where the House of Representatives and the Senate create a conference committee to find a compromise that they can both accept, and the President will agree to sign. Thus farm bills are never conceived of, nor developed as, comprehensive and coherent policy initiatives.

In addition the current structure of U.S. agriculture has reached a stage where multifunctionality is not an appealing option to most farm households. Families on small farms derive little income from agriculture. Indeed the most valuable government policy to them may well be the ability to shelter other income in their farm enterprise due to preferential tax treatment agriculture receives. In addition operators of small farms make greater use of programs that withdraw land from production, further reducing their role in total agricultural output. For this large group of farm families, the farm is already a lifestyle decision and arguably they are already operating their farm in a way that maximizes its non-market outputs.

The relatively small number of commercial farms on the other hand have a vital stake in preserving the existing structure of commodity programs, because they account for a significant share of their income. Commodity programs have led U.S. farmers to organize by commodity interest rather than as a single group. Members of each commodity group believe that any shift in payment structure can only leave them worse off, because the total level of payments is unlikely to expand enough to cover the amount going to new recipients. Further, membership of the House and Senate Agriculture Committees, where legislation originates, is dominated by individuals from states and regions where the existing

farm policy system is both important and beneficial. It is hard to imagine why they would embrace policies that if adopted would harm key constituents and their re-election prospects.

From a national perspective, the simple fact that the United States produces far more food and fiber than it consumes and requires export markets to absorb the surplus also leads to a concern with how multifunctionality develops as a policy. Historically a U.S. policy that was geared to increasing production required a parallel policy to stimulate exports. Even if policy becomes neutral in terms of promoting increased output, there will still have to be steady growth in world markets to absorb residual increases in farm output. One of the lessons of past U.S. policy of decoupling payments from production is that farmers at an individual level respond to lower incomes by increasing their own production. In price inelastic markets the resulting increase in supply makes everyone worse off because prices fall faster than output grows (Galbraith, 1995, pp. 75-76). Further there is a perhaps unfounded impression in the United States and other countries that much of the support for implementing multifunctionality currently comes from countries with a relatively high cost agricultural sector that want to continue to support output rather than farm income (Freeman and Roberts, 2001).

A sixth reason relates to the way the concept of multifunctionality developed. Because many of the strongest initial advocates of multifunctionality have been countries with a high cost agriculture and high levels of subsidies there has been a natural suspicion about their motives. Multifunctionality creates real problems for those seeking more open and transparent agricultural policy because it starts by linking non-market outputs to market outputs through joint production. Such a structure has obvious potential to be manipulated in a way that allows farmers to effectively be paid for their commodity output because it is associated with some desirable non-market output. To date many of these nations do not appear to be strongly committed to the major restructuring of agricultural policy that is required to truly implement the concept. Thus it is likely that if multifunctionality is simply grafted onto an existing system of policy measures there is a good chance that it will lead to more trade distortions. This means that it is important to separate multifunctionality as a concept from the way multifunctionality has been proposed as a policy adjustment in practice.

A seventh explanation for the lack of enthusiasm with multifunctionality can be found in the experience with multiple-use on public lands. Despite considerable effort over a long period of time to implement multiple use management on public lands there is still little agreement on how it should be done. Public forests have experimented with multiple-use management in various forms for over 100 years (Thomas, 1992). While much of the experience has been positive in the sense that social welfare is probably higher than it would be if timber harvesting had dominated forest management, the difficulties of introducing a management policy that involves both market and non-market goods should not be minimized

(Prato, 2000). The essential problem with valuing non-market outputs is that no method can claim broad support and so any plan can be easily challenged.

Arguably the concept of balancing multiple outputs should be easier on public lands because while there are some outputs that have market prices the public sector is rarely under pressure to operate its enterprises to maximize profits. Further it is easier to have a policy implemented by employees of an agency than by independent agents who have their own set of objectives. Farmers have a long history of taking government money and using it to implement actions that are in each individual's best interest. While it is possible to monitor compliance and penalize those who do the wrong thing, this can be an expensive process and raises the price of the policy.

Returning to the development of multiple-use and multifunctionality policies, it is important to think of the scale at which they are to be operated. It is easy to say that agriculture is multifunctional, but at the farm level what outputs should be produced and who makes the decision? Are all outputs required on all farms, and if not how much specialization is allowed. Unless outputs occur in fixed proportions, which is an uninteresting case, how do you provide appropriate signals to individual producers so they produce the optimal mix of market and non-market outputs? If farms can specialize, can regions? At what level of geography do we require a mix of outputs and what outputs are part of that mix? Another potentially serious source of conflict could be the interests of land owners as opposed to farm operators. Since roughly half of all land operated in the U.S. is rented or leased, and particular parcels can move from one condition to another unpredictably it will be important to find ways to reconcile the different interests of these two groups. Who is responsible for ensuring multifunctionality objectives are met on a parcel of land and what incentives do they have to fully comply?

Experience in the national forests shows how difficult this is. Each national forest in the United States has a management plan that tries to ensure that all outputs are considered and produced in the appropriate proportions. Several decades ago the Forest Service experimented with large quantitative optimization models in the hope that the process of developing the ideal plan could be converted to a series of equations that would defuse conflict. Not surprisingly the resulting plans were opposed by as many people as supported them. This reflected the unfortunate reality that in many cases a desirable output for one group is an undesirable one for others. For example, in the Forest Service experience off-road vehicles and snowmobiles are very popular uses for one group of people but an anathema to another. If both groups have standing as part of the public constituency, how can both their interests be reconciled? Every management plan invites litigation by a group that believes the outputs it favors are being under produced or the outputs it dislikes are being over produced. The result is huge expenditures on legal fees and court imposed moratoriums on implementing the plans. Perhaps the United States is unduly litigious, but it is

probably a mistake to assume that there will be unanimous enthusiasm in any country over the way multifunctionality is implemented.

### **Prospects for a Multifunctionality Based Farm Policy**

On the other hand there are forces that favor the adoption of a new approach. If a growing number of people believe that existing farm policy is truly not working then it will eventually have to change. In that process at least some part of the ideas underlying multifunctionality will emerge as potential elements in a new set of policy.

While critics of multifunctionality point to its potential to be used to prop up production in countries with limited agricultural potential, they ignore the possibility that basing agricultural policy on multifunctionality may lead to a reduction of commodity output in countries where subsidies are currently high. Whether payments induce or reduce output is a great extent a function of how they are implemented. If farmers are required under multifunctionality based policies to adopt production technologies that increase the relative quantity of other outputs and reduce commodity output there should be less concern about trade distorting effects. If people only want to see crops in a field they are just as a happy with lower planting rates or lower yield varieties. Once again, the critical issue is whether a completely new approach to agricultural policy is implemented, or whether multifunctionality payments are simply added on to the existing set of price support policies.

Shifting support to mechanisms that discourage increases in output would provide a way to reduce production while protecting the farm population in those countries that are currently criticized for dumping their excess farm output on global markets. Bohman, Cooper, Mullarkey, Normile, Skully, Vogel and Young, (1999) developed a list of potential outputs of farming that is reproduced as Figure 1. Upon examining it, I suggest that virtually all the positive outputs in the list are more clearly identified with small farms and that most of the negative outputs are more likely to be associated with large farms. Positive signs in the figure indicate there is a positive relationship between higher levels of commodity output and the specific noncommodity output, negative signs indicate the opposite and no sign indicates no clear relationship. As others have noted many of the noncommodity outputs are associated with the land being in farming, not with the level of commodity production (Abler, 2001b, p.19; Freeman and Roberts, 1999, p.6)

However the arguments for recognizing that agriculture produces multiple outputs go well beyond possible improvements in trade relations. I argued earlier that trade concerns are usually relatively minor issues in framing U.S. agricultural policy and were particularly irrelevant in the most recent farm bill exercise. And, if it is true that it is domestic policy that drives the farm bill, then the starting place for analyzing FSARI and any other agricultural policy should be

its domestic policy implications. In particular a central tenet of U.S. farm policy has always been that it should help preserve family farms and allow these households to earn a reasonable return on their investment and labor. Other important considerations are that there should be a safe, stable and reasonably priced supply of food and fiber for consumers; and that agriculture should not adversely affect the natural environment. Thus the desirability of a particular farm bill should be assessed in terms of how well it achieves balance among these goals.

This begins to raise interesting questions of farm structure. To date most analysis of multifunctionality has approached the subject from an aggregate or sector production function. In reality there are many different production technologies in place at any point in time, and the mix of inputs and outputs may vary considerably across technologies. An obvious way to escape the trap of arguing over the degree of jointness in production is to accept that even if a given technology results in a fixed proportion of outputs, there are other technologies in use that produce different proportions of outputs. Thus a large array of output and input combinations is achievable by varying the mix of technologies that are applied. By choosing a technology that is appropriate to the resource endowment of a farm and the specific blend of outputs desired in a given region it should be possible to produce in aggregate a better mix of outputs.

In essence this is the approach that underlies the Contrat Territorial d'Exploitation (CTE) in France where regional goals for agriculture are implemented through individual farm contracts (Leger, 2001). This approach recognizes that each farm has unique conditions and that some farms may choose to produce more or less of some outputs. The CTE is similar in concept to U.S. policies that were used to improve conservation at the farm and regional level including, Soil Conservation Service farm plans and resource conservation districts, and the farm programs of the Tennessee Valley Authority. U.S. experience with multiple use also suggests that individual parcels of land can only be managed to produce a small number of outputs and that the full mix of outputs is only achievable at a larger geographic scale.

In both France and the United States some farms choose to participate in these programs and others do not. For some farms the benefits of specialization in traditional commodities dominate the returns from moving to a broader mix of outputs even if subsidies or taxes are in place. But once we accept that multiple outputs, including those without market prices are possible, we then have to be careful in defining what constitutes an efficient farm enterprise.

From a strict comparison of market prices, large farms are typically more efficient than small ones, but they often produce more negative than positive environmental, social and cultural externalities. For example, a small cattle farm that raises cattle with a high ratio of land per animal produces positive visual amenities and the cow manure is likely to be a positive environmental amenity

because it provides a useful fertilizer function. In contrast a large confined feeding enterprise may produce meat at a lower unit cost but provides no visual amenities and the volume of manure produced is a major negative environmental consequence because there is too much to be assimilated. Further, small farms have a clear advantage in preserving traditional farm culture and contributing to the broader rural community. Obviously if we change both the mix of farm outputs and relative prices then we are likely to revise our description of an efficient farm.

At present the perceived efficiency of large farms is based upon specialization of output that results in underproduction of socially desirable outputs. If a broader set of outputs, including positive and negative externalities is considered large farms may not be seen as being clearly more efficient. Given that existing farm policy has encouraged the shift toward larger, more specialized farms, a comprehensive shift in farm policy that encouraged multiple outputs could over time result in fewer large specialized farms and more small mixed farms. Decoupling government payments from production and lowering the maximum payment per farm is a first step in this process. FSRIA continues decoupled payments and tightens the payment limits. However the increase in countercyclical payments offsets this change by continuing to reward large producers. To the extent that price supports encourage the expansion of production by reducing the level of risk associated with specialization and expansion there is an incentive for farmers to find ways to increase output.

Such a change would likely to lead to a reduction in aggregate commodity output and higher unit costs of production for commodities that have received the most support in the past. But a major point of multifunctionality is that the current set of farm policies under-values the non-commodity outputs of agriculture by linking payments to production, so for domestic consumers an increase in other outputs may more than offset the higher costs of market commodities. This type of change could be desirable both domestically, if it increased the production of non-market goods, and internationally, if it created opportunities for developing countries to expand their agricultural exports. In principle farm income could even increase if the demand curve is inelastic because price increases would more than offset the fall in production.

If multifunctionality is to become the basis for developing farm policy in the United States it will have to come from a recognition that the existing way that farm policy is defined and implemented is not adequately serving the broader interests of the American public. For American agriculture to really be responsive to a larger constituency than the commodity interests that now dominate its development, a significant shift in orientation will be required. A similar point has been made by Blandford and Boisvert (2002b), Randall (2002) and Regidor (2002). Their argument is that many of the non-commodity outputs of agriculture are territorially specific and provide local benefits that can only be enjoyed in that space. Consequently, national policies that are based upon

supporting agriculture through payments for the production of commodities have little hope of ensuring that the resulting spatial distribution of commodities will result in a desirable mix of all outputs.

This means that agricultural policy should not be based upon a small set of national commodity policies but has to be formed at a local level. In essence appropriate agricultural policy becomes more like other forms of rural policy - something that can best be defined at the local level. In the United States this is how the original farm policy of the 1930s was defined (Cochrane, 1993). County committees were given considerable discretion in how policy was implemented at the local level. At the time this reflected the impossibility of managing policies with even a limited degree of flexibility from a national office. Over time the degree of local control and flexibility has declined as technology and a declining number of farms allowed centralization.

As noted earlier, one of the lessons from the U.S. experience with multiple use is that only local managers can decide what mix of outputs is best suited to a specific site. Variability in local conditions that affect both demand and supply characteristics make external decisions on types and levels of output unlikely to meet local needs. Since most of the external effects of agriculture are local in nature this is an important issue. Because farms cover a large share of the territory of the United States a second implication of a growing concern with non-market outputs is the distribution of payments. If farm policy is to induce increased attention by farmers on non-market outputs they will have to be directly affected by the policies. But even at the local level the task of reconciling appropriate levels of market priced commodities and non-market valued other outputs will be a major challenge (Randall, 2002).

At present less than 40 percent of all farms receive any government payment and payments are disproportionately concentrated on large farms producing a small number of crops, most of which are far from population centers. If government payments are needed to increase the volume of non-market outputs and the demand for these outputs is local in nature, then the geographic distribution of payments will have to change to one that is both more widely dispersed in the sense that more farms are recipients and one that increases the supply of non-market outputs more in areas where the demand is highest. Logically this should make farms in close proximity to population concentrations more likely to receive higher payments, but other farms with unique output opportunities, such as endangered species or historic features, may also benefit.

Advocates of public support for agriculture in the U.S. and other countries always base their argument for government programs on: preserving small farms as part of the national culture, helping maintain a pristine natural environment, sustaining agriculture's contribution to a traditional rural way of life and ensuring a wholesome food supply; not on subsidizing wealthy, large scale, mechanized farms that are part of an agro-industrial complex and that treats food as a

commodity. These advocates neglect to point out that over the period of time that price support programs have been in place there has been a significant reduction in those attributes we were supposedly protecting. The FSRIA clearly reinforces the traditional set of farm policies and therefore cannot be seen as contributing to acceptance of multifunctionality as a way to think about agricultural policy.

Any farm policy ultimately alters the environment in which farms operate, favoring some regions, commodities and farm types over others. It does this because the point of farm policy is to change the conditions under which agriculture operates. The question for policy analysts is whether the changes that result are the intended ones and whether the benefits from the change exceed the full set of costs associated with the policy.

Over time the cumulative effects of farm policy have important effects upon the structure of agriculture - determining the number and size of farms, the mix of outputs they produce, and how farm output is produced and marketed. In both Europe and the United States there is a growing interest in how farming is organized and whether agriculture is providing an appropriate mix of outputs. As public funds have become an increasingly large share of total cash receipts in farming, there has been a steady increase in the number of people on both continents who argue that farm policy should be shaped by more than the interests of farmers, and that what is best for farmers may not be best for society.

A number of factors drive this concern. The first is a simple fiscal interest – if the public is providing a significant share of the funds going to farmers then there should be some degree of public input in how these farms are operated. The second is a more specific manifestation of this oversight right. Farmers have historically argued that they are wise stewards of the environment, yet it is increasingly clear that a number of common agricultural practices can have clear adverse environmental consequences, including manure disposal, soil erosion and loss of wildlife habitat; while others have questionable effects, including pesticide use, broad use of hormones and antibiotics in feed, and genetic modification. As a result there is a strong sense that public policy should compel farmers to recognize the externalities associated with their activities and induce them to take the full set of outputs into consideration. The final element is a recognition that farming has consequences that go beyond market outputs and environmental impacts. These include impacts on developing countries, visual amenity issues and a desire to maintain cultural aspects of farming.

The interest in multifunctionality can be seen as a reflection of these questions about the role of agriculture, and as the interest increases there is a greater chance that more of the basic elements that define multifunctionality will become more relevant to agricultural policy. In both Europe and the United States interest in multifunctionality has increased as the share of household income spent on food declines and as the volume of farm output continues to expand at a rate above growth in domestic consumption. As a result social and cultural values

provided by farms have become almost as important as traditional food security and conservation issues in many places. The point that has not been as clearly made is that the structure of agriculture, that is the specific types and sizes of farms and the technologies that are employed, is central in how well the farm sector meets these goals.

In both the USA and the EU, farm policy has not kept up with the change in public attitude. For a number of reasons farm policy has remained narrowly focused on the financial returns to farmers from producing specific commodities. In both instances farm policy was structured to provide support through payments per unit of output. Consequently larger farms received larger payments and over time there was a tendency for large farms to displace small farms. In part this phenomenon reflected technological change that favored larger establishments, but it also reflected the effect of farm policy that reduced the risks associated with specialization and expansion by providing payments that stabilized or enhanced income.

And in both Europe and the United States there is a growing recognition that farming is more than the production of agricultural commodities, and that current trends in agriculture, which increase output while reducing the number of farmers, have undesirable consequences in terms of environmental impacts, and in terms of social and cultural effects. Not only are many of the outputs of agriculture not priced, but many of them have public good aspects and their values are determined within a given socio-cultural context. While the average American may place little value on preserving small farming communities in Nebraska, there is no reason to believe that the average Frenchman similarly values small farm villages in Burgundy. This means that there is likely to be even larger differences among national farm policies if they shift to meeting demands for the full set of agricultural outputs.

## **Conclusions**

For multifunctionality to become accepted as a principle for organizing agricultural policy in the United States two major changes will be required. The first is to recognize that the concept is more than a device for creating trade barriers and that it is a way to think about balancing the multiple outputs of agriculture in a way that increases aggregate social welfare. The second and more difficult change is that the United States would have to fundamentally alter the way it develops farm policy to fully implement the approach.

Prospects for a broader acceptance of the concept seem stronger with each succeeding farm bill as: the costs of the traditional policy mount, its ability to support farm household welfare declines, and alternative claims on scarce federal funds become more pressing. Within the farm community more farmers are realizing that only a minority of farm families directly benefit from income and

price support programs which has led to splits within agriculture about how policy should be designed.

Prospects for a change in how policy is formed are less likely. For multifunctionality to provide a better approach to policy there will have to be a more coherent and unified policy development process. At a minimum this will mean that the various subcommittees of the Agriculture Committees will have to give up their lead role in developing specific titles of the farm bill so that individual programs can be more closely aligned to achieve balance in the policy signals that are provided to farmers. In reality the entire process of periodic farm bills that must be passed in order to avoid the disaster of the permanent legislation coming into effect will have to change. The prospects for this are much less likely, although the agriculture committees are far less influential than they were ten years ago and lose power each time redistricting occurs.

Historically what has been good politically in the United States has generally been more important than what is good policy. It is hard to see why elected representatives would willingly give up their influence over policy to the executive branch of government. The history of farm bills shows that political influence of key individuals is a critical factor in explaining legislative outcomes. And these outcomes are typically what best serves the short term re-election prospects of individuals and political parties.

However the largest impediment is the widely held belief in the United States that an active role by government in management decisions of firms of any type is likely to be undesirable. There is a widely held suspicion of the ability of government to perform better than the market. By definition multifunctionality demands a more proactive government role because of the existence of non-market goods and joint production. Even if it possible to argue that markets might be created for some of the current set of non-market outputs, the simple fact that markets do not currently exist suggests that government will have to help create and maintain pseudo-markets until they are large enough and developed to the point that they become self-sustaining.

Because this change in the policy process could not be restricted to only agricultural policy, it would entail a radical change in the way all policies are developed in America. Without broader policy reform it is unlikely that multifunctionality can be fully implemented in the United States.

However there are better prospects for agricultural policy to be further broadened to make it more responsive to the demand for non-market goods. USDA policies have often been implemented at a local level through county officials and county committees. It would not be a large leap to take existing conservation programs and broaden them to include more amenity concepts as factors in farm plans. The FSARI act already provides increased funding for conservation and environmental measures and targets them at high impact areas. While this

approach fails to incorporate jointness in production, it may get the United States a long way closer to providing a better balanced set of agricultural outputs and address critical structure issues in agriculture.

On balance FSARI probably is a step backward in the development of a U.S. agricultural policy that recognizes a broader set of outputs for agriculture. But even so FSARI contains important elements that could be part of this type of policy. A broader agricultural policy in the United States is inevitably going to be different than the type of policy implemented in Europe because geographic, social and political conditions are different. American agriculture is not part of society in the same way that it is in Europe and physical distance and the size of the land base allow and perhaps require a different approach. Nevertheless both societies seem to want the same broad set of outputs from agriculture and existing policy has not shown it can produce them. This leaves an opportunity for future change, but to be successful in altering how agriculture operates the change in policy will have to be more than incremental or cosmetic.

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**Table 1: Farm Characteristics**

	Rural residence	Intermediate	Commercial
Number of farms	1,356,047	655,812	175,091
Share of Farms	62.0%	30.0%	8.0%
Avg. Value of Production	\$10,074	\$64,117	\$687,065
Share of Production	8%	24%	68%
Gross Farm Income	\$17,952	\$76,237	\$609,810
Net Farm Income	\$2,310	\$12,998	\$115,832
Gov't Payments	\$1,437	\$9,254	\$41,218
Share of Payments	13%	40%	47%
Total Household Earnings	\$67,371	\$43,390	\$135,397

Category Definitions

Rural residence: Gross sales below \$250,000 and farming is a secondary activity for the operator

Intermediate: Gross sales below \$250,000 but farming is the main operator activity

Commercial: Gross sales above \$250,000.

Source: USDA Food and Agricultural Policy

## Some Nonfood By-products of Agriculture

### Environmental

#### Positive

Open space  
Scenic vistas -  
Isolation from congestion  
Watershed protection  
Flood control  
Groundwater recharge -  
Soil Conservation  
Biodiversity -  
Wildlife Habitat -

#### Negative

Odor +  
Nutrient/pesticide runoff +  
Watershed protection  
Flood control  
Soil erosion  
Biodiversity loss +  
Wildlife Habitat +

### Food Security

Elimination of Hunger +  
Assure Availability of food supply +

### Rural Development

Rural income and employment -  
Viable rural communities -

### Social

Traditional country life -  
Small farm structure -  
Cultural heritage -

the + and - signs denote the effect of intensity of output  
on the amount of the by-product

from Bohman, Cooper, Mullarkey, Normile, Skully, Vogel and Young  
*The Use and Abuse of Multifunctionality*