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"Multifunctionality" and Agriculture:

# Do Mixed Goals Distort Trade?



## What's the function?

Attractive, pastoral scenery can be considered a multifunction (a side benefit not related to the primary function) of agriculture.

*Photo courtesy of USDA.*

## How do you place value on non-trade objectives as you reduce trade-distorting policies?

BY DANIEL MULLARKEY, JOSEPH COOPER AND DAVID SKULLY

Is multifunctionality of agriculture a reason for government intervention, or an excuse? This contentious question is high on the agenda for the next round of agricultural trade negotiations. The 1994 Uruguay Round Agreement on Agriculture (URAA) liberalized trade in agricultural products. It also placed enforceable limits on the agricultural policies and trade regimes of World Trade Organization (WTO) members. Article 20 of the URAA encourages WTO member countries to make "substantial progressive reduction in support and protection ... [while] taking into account ... non-trade concerns." Agricultural officials in some countries think that policies designed to meet non-trade concerns should be exempt from the Uruguay Round's limits on agricultural protection. Others contend that while Article 20 recognizes the importance of non-trade concerns, it does not create a loophole for protection and domestic support.

The non-trade concerns are sometimes vaguely specified, but can include legitimate domestic policy objectives like preserving family farms and rural landscapes or ensuring food safety, food security, and animal welfare. These concerns reflect a fear that freer markets and glob-

alization may undermine the provision of valued non-market amenities and cultural traditions associated with agriculture. These anxieties have coalesced and are often generalized using the term "multifunctionality."

Multifunctionality refers to the many secondary functions agriculture performs. Producing agricultural commodities for the market simultaneously produces many by-products. A primary function such as milk production often produces scenic pastures. Scenery then becomes one of the multifunctions of agriculture. Multifunctionality can also refer to an attitude or policy position supporting domestic agricultural production as a means to a variety of non-trade ends. Political use of the term appears to have originated in Austria in the late-1980s. It then spread into policy conversations in the EU in the early 1990s.

The leading proponents of using multifunctionality to escape the constraints of the Uruguay Round include several countries that would be highly limited by the regulations — Japan, Norway, South Korea, Switzerland, and others. The EU is not fully in the multifunctionality camp, but its Agriculture Commissioner, Franz Fischler,



**But more is not better...:** Cows in a sunny pasture might provide a positive multifunction to those who like to look at that sort of thing, but a muddy feedlot has a different effect (and a negative multifunctional component).

*Photo courtesy of USDA.*



pledges to support the “European model of agriculture”—a notion that can be interpreted as broadly as full blown multifunctionality, or as narrowly as targeted support to family farms in marginal regions. Most exporting countries, and all developing countries that have taken public positions, oppose using non-trade methods to weaken the URAA commitments. The opposing perspectives are contrasted in statements from EU Trade Commissioner Pascal Lamy and former U.S. Agriculture Secretary of Agriculture Dan Glickman (see Figure 1 on page 33).

One challenge facing WTO negotiators is how to allow for legitimate non-trade objectives, without compromising the progress made in reducing trade-distorting policies. Most non-trade objectives can probably be achieved with minimal trade distortion. However, in some cases this may require abandoning agricultural production as the means to the non-trade end. We contend that virtually all of the desirable functions of agriculture are not unique to production agriculture; there are almost always other, less trade-distorting means of supplying the amenities and other goals sought under multifunctionality.

### Externalities and Public Goods As Byproducts

Multifunctionality is most often a normative concept that considers only the positive, welfare-enhancing ameni-

ties that stem from agriculture. It seems to ignore the negative side effects. Figure 2 on page 33 lists some of the positive and negative environmental byproducts of production agriculture. A given farm operation will provide different levels (including zero) of these byproducts. Whether a byproduct is considered to be positive or negative is partially subjective. Determining whether agriculture is a superior means of providing an amenity requires comparison with all alternative uses of the land. Farmland might provide more wildlife or flood control than urban development, but less than woodland or other natural states. Agriculture is not the unique source of rural or environmental amenities, but advocates can make it appear

so by excluding all but inferior alternatives. When considering policy, the analyst should determine whether agriculture provides more or less of the amenity than the land use pattern that would exist without the policy.

In general, the byproducts of agriculture are externalities that are not fully accounted for in markets. Farmers do not bear all the costs associated with agricultural production. Examples include soil erosion, water depletion, surface and groundwater pollution, and loss of wildlife habitat. Nor do they generally reap all the benefits of recreational amenities, open space, and flood control. Many of the externalities have the characteris-

tics of public goods — no one can be excluded from enjoying them, and use by one individual does not preclude use by any other individual. Furthermore, some of these amenities, such as wildlife, open space, and sustaining a cultural heritage, may generate non-use values. Some people value the continued existence of

these amenities whether or not they actually use them.

These multifunctions, or byproducts, of agriculture are often the target of domestic agricultural policy because conventional markets will not usually provide them at the desired levels. Appropriate policies can foster the development of markets for previously unvalued goods. Markets for pollution permits and wetlands mitigation banks may encourage producers to generate more posi-

### Some Frequently Cited Multifunctions of Agriculture

#### Environmental/Social

- Scenic vistas
- Traditional country life
- Wildlife habitat
- Small farm structure
- Flood control
- Cultural heritage

#### Rural Development/ Food Security

- Rural income and employment
- Elimination of hunger
- Viability of rural communities
- Secure food supply



# Figure 1. Perspectives on Multifunctionality and Trade

Pascal Lamy, EU Trade Commissioner, Press Conference of December 2, 1999, World Trade Organization Ministerial conference, Seattle:

“The EU position on agriculture is extremely clear. Agriculture is not an economic activity. Agriculture has other functions such as protecting the environment and rural family circles, and these functions should be taken into account.”

Press Briefing by then United States Secretary of Agriculture Dan Glickman at the World Trade Organization, November 16, 1999:

“Every country wants to help its farmers survive. Every country wants to preserve a structure of agriculture which permits as many farmers as possible to stay in business. That is a given. It is not called multifunctionality everywhere. But that is basically what it is. ... That is a legitimate aim for every country. What is not legitimate is to use that aim to maintain programs which are trade distorting. ... [C]aring about your farmers is one thing, but trying to hurt other farmers in other countries — that is not good.”

tive externalities and fewer negative externalities. However, government intervention can also increase the severity of negative externalities. A production subsidy that encourages producers to make more intensive use of fixed resources (for example, conversion of wetlands to crop production), may increase negative externalities. Developing appropriate policy depends on the characteristics (such as excludability, potential for non-agricultural supply, and non-use values) of the amenity or negative externality being targeted.

## Function, Multifunction and Policy Alternatives

“The value of the agricultural landscape is related to its genuine farming origin. The agricultural landscape is by definition closely related to agriculture’s primary function of producing food and fiber, from which it cannot be detached. Its aesthetic and recreational values are closely contingent upon the landscape’s authenticity as a food producer. This public good is a joint product of agricultural production.” (*Norway Ministry of Agriculture web site*)

Some countries argue that various agricultural multifunctions are joint products of agricultural production; they can only be provided simultaneously. This claim is significant because countries may argue that they need production subsidies to maintain the jointly produced desirable multifunctions.

On the surface, jointness seems to be a logical characterization of mul-

tifunctionality. Close scrutiny reveals a different story. It is true that many multifunctions are by-products of agricultural production. This does not mean that agriculture is required (or is required in its present form) in order to provide them. Moreover, increased agricultural production does not necessarily increase the supply of amenities. A scenic landscape may be no more lovely with 40 cows than with 30. Thus, jointness is not generally an accurate or complete explanation of the relationship between agriculture and amenities. If this is true, production subsidies will not guarantee the desired level of amenities.

Policies that target amenities and negative externalities are likely to be more effective in terms of allocating resources and increasing social welfare, and less likely to violate WTO commitments. Land set-aside payments can reduce erosion and improve wildlife habitat, and tax incentives can be used to foster investment in rural areas. Figure 3 on page 34 provides examples of policy instruments targeted to provide various categories of domestic objectives. These policies should be more effective and less trade-distorting than indirect policies such as price supports and production subsidies.

In many cases, policies that combine public and private market mechanisms can accomplish domestic objectives more effectively than government-based policies. Government programs that provide payments to farmers who adopt best-management practices (BMPs) to reduce negative environmental impacts may subsidize farmers who are using the BMPs without the

Figure 3. Positive and Negative Externalities of Agriculture

Positive	Negative
Scenic vistas	Odor
Open space	Noise
Watershed protection	Nutrient/pesticide runoff
Flood control	Reduced flood control
Soil conservation	Soil erosion
Biodiversity gain	Biodiversity loss
Wildlife habitat gain	Wildlife habitat loss



incentive payments. The government then pays too much to achieve adoption of these practices. A market-based approach that relies on private insurance may be able to achieve the same level of adoption at less cost. For example, private insurance programs, like the Agricultural Conservation Innovation Center's BMP-Plus program, can be designed to compensate farmers who adopt environmentally friendly practices if such practices lower yields. It should be noted that market-based schemes often require continuing government involvement to maintain environmental control.

Public agencies and private conservation organizations

are cooperating to purchase and manage land and conservation easements. Federal and State income tax and property tax laws have been designed to facilitate assist conservation groups like The Nature Conservancy and Ducks Unlimited as they attempt to purchase ecologically important lands. Similarly, land trusts might buy property and subsequently sell or convey the property to federal, state, or local governments to provide enhanced public access to open space.

### Figure 3. Examples of Targeted Policies

Environmental  
Rural Development  
Food Security  
Cost share payments  
Investment tax incentives  
Food stockpiling  
Land set-aside payments  
Universal service policies  
Research, extension, training  
Land buyouts  
Structural adjustment programs  
Disaster relief payments  
Urban growth boundaries  
Trade liberalization

### Can Multifunctions Be Quantified?

With WTO member countries committed to reducing trade barriers, multifunctionality is becoming one of the new frontiers in agricultural policy. In the absence of markets for agricultural externalities, governments—under pressure to protect domestic agriculture yet constrained by international trade agreements—must find effective ways to promote or inhibit production of farm-related amenities and negative externalities.

Among the challenges is how to define and measure the multifunctions of agriculture. The list of potential amenities and negative externalities is long, and it is likely that countries will not agree on what should be added to or omitted from it. For example, food security is frequently cited as a multifunction of agriculture, but some analysts, ourselves included, question whether it is better thought of as a primary function of agriculture.

Determining the appropriate amount of a nonfood output requires a trade-off between all benefits and all costs, including impacts on trade. Application of fertilizers can result in runoff and polluted water. However, the cost of totally eliminating pollution from fertilizers may outweigh the benefits. The same principle applies for positive externalities. Beneficial externalities should be

increased until the cost of the increase is equal to the benefits of continuing to produce more.

The costs of implementing policies aimed at either positive or negative externalities are generally easier to measure than the benefits. Measuring the benefits requires putting a value on amenities and attributes that are not specifically valued in the market. There is very little empirical information on the demand for the nonfood functions of agriculture. Kline and Wichelns have provided some estimates in the United States; Drake has done the same in Europe. Hopefully, the recent (June, 2000) OECD workshop, "Towards Policies for Rural Amenities: Valuing Public Goods and Externalities" will prompt increased interest in this area. A top priority should be to learn what nonfood functions are important—both positive and negative. With this information in hand, we can design various ways of supplying these functions and targeted policies can emerge.

### For More Information

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Organization for Economic Co-operation and Development, Directorate for Food, Agriculture and Fisheries, Committee for Agriculture. *Multifunctionality: A Framework for Policy Analysis*. AGR/CA(98)9, 1998.

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The views expressed in this report are those of the authors and do not necessarily reflect the views of the U.S. Department of Agriculture.

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