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Beyond food: Towards a multifunctional agriculture

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- Research and analyses on agricultural policy, food industry, commodity trade, economics, farm management and rural development.
- Documentation of economical results in the agricultural sector at national and farm level. This includes acting as secretariat for the Budget Committee for Agriculture and publication of annual Account Results in Agriculture and Forestry.
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Preface

This is a revised version of a paper presented at the *Joint Annual Meetings of the Agriculture, Food and Human Values Society and the Association for Study of Food and Society*, June 7–10 2001 in Minneapolis. It was prepared in collaboration with Desmond Jolly, director at the Small Farm Center at University of California Davis (UCD), during Anne Moxnes Jervell's research stay at UCD in 2001.

The aim was to provide a review and discussion of how the multifunctional aspects of agriculture are related to different scales and intensities of agricultural production. The authors suggest that small-scale farms, that may be unable to compete in the commodity markets, have the potential to provide a number of goods and services to consumers or society.

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Contents

Abstract

The policy changes to account for local environmental effects, and the way farmers have developed new livelihoods, are parallel examples of the multiple functions and values of a localized, small-scale agriculture. Recreation and entertainment are rapidly growing sectors of post-industrial economies. Local farms profit from the growing demand for diversity in products, entertainment, education and recreation by providing more than food commodities.

The biodiversity, cultural heritage, landscape, food security and rural community effects of agriculture are used as arguments when developed countries defend their right to support and protect agriculture. The different value aspects of agriculture have been given the label 'multifunctionality' and include what is called 'non-trade concerns' in a WTO context.

While large-scale agriculture may be efficient in producing food and fiber as commodities, small-scale farms can be competitive as suppliers of services that are valued at a local level.

1 Introduction

Small-scale agriculture generally operates at a disadvantage in a global food system. Small volumes are more costly to handle in a standardized food processing industry and capital intensive technology is often inaccessible on a small scale. While the number of small farms has decreased in all developed countries over the last 50 years, they still represent a large segment by numbers and there are regional signs of stabilization and revitalization of small scale operations near urban areas (Pfeffer & Lapping, 1995). The persistence of small family farm units has been explained by flexible and cheap family labor (Gasson and Errington 1993), pluriactivity of the farm households (Shucksmith et al., 1989) and the development of alternative food systems and local markets for food and other farm services (Evans et al., 1989; Lyson et al., 1995). All of these explanations indicate multiple values of the farms as residential, recreational, environmental and cultural assets.

The aim in this paper is to show that the potential values of a small-scale agriculture can increase the sectors' viability, and have a positive effect on the relations between agriculture and society. Realization of this potential however, depends both on local initiative and on a policy climate where the role of agriculture is recognized as more than commodity production.

2 Production in a global food system

2.1 Efficiency and trade

The logic behind development of large-scale monocultures in agriculture is efficiency in producing major food and fiber products. The possibility of trade allows commodities to be produced where there are relative advantages of production. Standardized and uniform products reduce transaction and marketing costs. High levels of purchased inputs, capital and transport, processing and packaging in the finished product are factors that make production susceptible to size and scale economies.

In the context of a global market small farms therefore face increasing difficulties. Exclusion from market channels and competition from cheaper imports threaten their viability and survival. This exclusion can occur regardless of production systems, climatic conditions or policy systems: Small-scale fruit producers in a favorable climate like California may face problems because packers do not want the cost of handling small volumes. Dairy farmers in marginal regions in Europe depend on high levels of state support that are threatened by international trade provisions of the World Trade Organization (WTO).

The evolving reality in the markets for food and fiber is one of limited growth and reduced levels of returns to farmers relative to processors, wholesalers and retailers in the food chain. The developed economies have more than met their need for food. Relative prices are decreasing or at best stable. If small scale producers are to survive they will have to do so on the basis of other advantages than comparative advantage in production of food commodities.

2.2 Local externalities of commodity production

One reason for the ascendancy of larger scale production units is that production efficiency is evaluated without concern for the possible negative effects of intensive agriculture. Such effects are called externalities when they affect the outside environment and not the firms costs. An agricultural system that aims only at producing food or fiber in the cheapest way possible, tends, in general, to have some negative effects on its environment. Buckwell (1989) suggests that the primary relationship between the production of food and rural environment is one of competition: "Economically efficient food production, as judged by private entrepreneurial farmers, and the achievement of rural environmental goals are, and always will be in fundamental conflict" (p 158). Negative externalities are often focused on when a large scale capital intensive agriculture is criticized (Potter 1998). But there may also be a loss of positive effects of a traditional small-scale and diversified agriculture. Monoculture and intensification of production often leads to the "… simultaneous appearance of negative externalities and the cancellation of positive services provided by agriculture" (Le Goffe, 2000, p 397). While externalities are by definition irrelevant for the producer, there is a possibility that they may affect demand if or when consumers are informed and show concern. Demand for organic products, local food and the development of movements like Community Supported Agriculture can be explained by distrust and dissatisfaction with the development of conventional agriculture. Consumers in general seem to care increasingly about the production process: how goods are produced (Torjusen et al. 2001). Their concern may be for the environment or for their own health and safety or for both. Knowledge and information about production are more readily available for local products, and in situations where producers and consumers meet, as in direct sales and farmers markets.

Consumers, whose food consumption needs are adequately met, will also evidence increased demand for goods other than food, and for the cultural elements of the food product. In the case of negative externalities, consumers may be better off with less local production. But there is increasing evidence that agriculture may produce positive externalities and represent amenity values, at least locally. While food and fiber may be traded, such localized amenities can not be exchanged in a globalized market (except through tourism). The welfare effects of local agriculture and the demand for farm-based amenities will primarily materialize on a more local scale.

3 Agriculture as a provider of public goods

As early as 1960 Lewis Mumford in "Landscape and Townscape", argues that the government might subsidize farmers and the near countryside function as collective park;

> "The government might well offer subsidies to individual farmers and landowners for participating in larger public landscaping schemes, as well as by paying outright for widened rights of way and providing the gates and stiles and fences needed to keep the urban visitors within bounds." (Mumford 1963, p 228).

While recreation and tourism are the fastest growing sectors in developed economies, there is still a lack of markets for and provision of the type of recreation that rural landscapes can provide. In spite of evidence of amenity and recreational values of agriculture, market failure—inability to profit from these—puts pressure on commodity markets and often favors non-farm development options. Policy mechanisms that can pay farmers for recreational services or compensate farmers for environmentally motivated restrictions are poorly developed. One of the problems is to quantify the value of agricultural services in different local contexts.

3.1 Valuation of farmed landscape

Quantification of the non-agricultural amenity values of farmland has been attempted in studies from different regions, indicating significant value of features of agricultural landscape. Swedish citizens preferring open farmland to spruce forests were willing to pay an average of 78 ECU per person per year to prevent the conversion, and would pay more for traditional pastures with trees than for fields of grain crops (Drake 1992). Using contingent valuation, Bonnieux and LeGoffe (1997) estimated that French households would each pay 200FF per year to restore scenic hedgerows to the farm landscape in Lower Normandy. Kline and Wilchelns (1996) use qualitative information from focus groups and survey data to distinguish between preferences for different amenities.

But according to a US study Rosenberger et al., (1997) "… results suggest that non-market benefits of open space, environmental and cultural heritage values are not suffi-

cient to override the price for development uses in the market." Some of the problems in such valuations are the combination of diminishing marginal value of farmland and the problem of non-user valuation. Rosenberger et al. (1997) recognize these methodological problems and suggest that adding general public and tourists, all relevant populations of interest, may increase estimates.

Besides having a public good nature and giving non-marketed contributions to welfare, agricultural amenities such as scenic cultural landscapes can be used as inputs in other industries. Both the visual landscape and the access to agricultural land may increase the value of tourism services. Bostedt et al. (1995) have estimated how the open access to forest land in the north of Sweden contributes significantly to the tourism value of the region. Another case study of how agriculture and tourism may interact is found in Wood et al. (2000) where they have attempted to quantify the value of an agricultural working landscape on tourism in Vermont. More than 80% of the visitors surveyed valued the agricultural landscape and more than 50% said they would be less likely to visit Vermont if this landscape disappeared. In an article about strategic alliances between tourism and food production in Canada (Telfer et al., 1996) points to how:

> «"The relationship between tourism and agriculture is complex ( ) as the agricultural sector not only provides input into the tourism industry, the rural landscape can also evolve into a tourism product" (p 73).

The agricultural landscape is, of course, not always an asset for tourism. The amenity value depends on how the land is managed, the intensity of production, the diversity of production and the interplay with natural landscape. LeGoffe (2000) uses hedonic pricing of cottages to estimate the value of agriculture and forestry in Brittany and finds a negative value of animal husbandry. Several studies of the landscape effects of organic and conventional farms in different regions in Europe (Kuiper, 1997; Rossi et al., 2000; Clemetsen et al., 2000) suggest that organic farms can have more positive effects on landscape values than conventional farms.

3.2 Farmland preservation

Agriculture on the urban fringe may be especially valuable as a recreational and environmental asset, but it is often intensively farmed or threatened by urban development. The value of production of agricultural products alone can not compete with alternative uses, and the public non-crop values, seldom enter the decision process for the individual farmer. Without any action to influence urban fringe land Bryant (1986) envisions three types of land development: agricultural development; agricultural adaptation; agricultural degeneration.

Planning and zoning represent localized attempts to preserving the public amenities of farmland. But these attempts can not operate outside the boundaries of profitability of farmland use. Degradation is sometimes the result, but higher land values in the near urban areas may also result in smaller farm holdings, residential farms and a higher proportion of higher value crops such as horticulture.

Private non-profit organizations like Land Trusts in the US (Sokolow et al. 2000) and Carts in the UK (Hodge, 1991) attempt to preserve farmland by compensating farmers for some of the potential development value of their land. Local governments also purchase land for public purposes or for restoration to a natural environment. These interventions may have purely environmental purposes or may also aim at increasing public

access to recreational areas. However, the funds available for such purposes are still small compared to the land values in alternative development uses.

3.3 Access to farmland and recreation

One of the problems in measuring and quantifying the amenity values of agriculture is unequal access and the problems of measuring hypothetical and non-user values. Access to the countryside for recreation, leisure and vacation in not evenly distributed. Relatively few people live in the countryside. In some areas access to nature or a non-urban natural or farmed environment is scarce. Even the Nordic countries, that have free public access to an abundance of forested or uncultivated mountain land, can experience local problems of access to recreation in a natural environment (Hornsten et al., 2000; Lindhagen et al., 2000). In urbanized and cultivated areas the scarcity of access to a natural environment for recreation is even greater.

Lopez et al. (1994) discuss a model of supply and demand for agricultural land where the amenity derived demand for land decreases with supply. But often the amenity value will not enter the supply function, since the decisions of the farmer is more dependent on economic rent or the profitability of agriculture. The policy challenge is to find ways to enable the demand for the partly public land amenities to influence their supply. Since "A rise in the population increases the demand and decreases the supply for land in agriculture" (Lopez et al. 1994, p 61), it is highly probable that the value of agricultural land is underestimated – and growing. Urban residents with limited access are often non-users, while rural residents have ample access and therefore attach a lower marginal value to land.

3.4 Residential farms and rural in-migration

Survival and persistence of small farms on the urban fringe or even in more remote areas may in itself be the strongest indication of their value. Far from being a way out of agriculture, off-farm work or more widely termed, pluriactivity, has proved an integral part of farming in many areas (Streeter 1988; Hallberg et al. 1991; Bryden et al. 1995; Jervell 1999; Knickel et al., 2000). Pluriactive households often have higher incomes than households that depend on farming alone (Hill 1996). Owner operators of small farms may appreciate their amenity values, often to the degree that they forgo other income opportunities, or subsidize their farm operation and rural living from other income sources (Streeter 1988; Sumner 1991). The valuation of farms as residences may explain the persistence of large groups of farms with very little income from farming and large off-farm incomes, as well as the phenomena of continuing entry into small-scale farming. The USDA uses the term "residential farming" to classify a group of farmers that represented more than 40 percent of the Heartland farms in 1997 (USDA 2000b). The residential value of farms are often large and have been estimated to be greater than the value of farm products in areas of the UK (Gasson, 1999). The entrance of newcomers to agriculture and/or rural communities in general can be taken as a support to the hypothesis of rural amenities (Lewis, 1998). The attractiveness of rural, agricultural landscapes has in some areas resulted in a process of rural in-migration (Dahms et al., 1999).

Residence may be important for maintaining viable rural communities. Lockeretz (1988) points to how: " .. proximity to a population center can offer some strong advan-

tages that help local farmers without any active intervention or expense at all." (p. iv). Even second-homes which increase the local population mainly during the holiday seasons, have impacts on the local economy and in some cases evolve into permanent residences for retirees. Rural settlement increases the demographic basis for both the enjoyment of local agricultural non-food amenities, as well as for the markets for amenity related goods and services from which farmers may profit.

4 Support for a multifunctional agriculture

4.1 Multifunctionality: political recognition of non-food values

The appreciation of local or regional agriculture for the food security, landscape amenities, cultural heritage and environmental effects it can produce, has in connection with the trade negotiations of the WTO been argued as legitimate reasons for public financial support. This argument comes chiefly from countries where agriculture is small-scale, marginal and at a disadvantage in a globalized marketplace (OECD 2000, European Commission 2000).

While marginal agriculture is at a cost disadvantage in the production of food and fiber, governments argue that they need to support this production for the public goods that it provides. The pressure towards reducing what is seen as trade distorting support, is forcing governments to attempt to exemplify, describe and quantify the value of the goods and values produced that are not traded.

The political focus is now on how to protect and increase the positive effects of agriculture. The conceptualization of multifunctionality and the development of policy measures that can take multiple values of local agricultural activity into account is still in its nascent.

According to a recent attempt to create a common analytical framework for the discussion joint production of commodities and non-commodity values is an important aspect of multifunctionality:

> "The key elements of multifunctionality are: (i) the existence of *multiple* commodity and non-commodity *outputs* that are *jointly produced* by agriculture; and (ii) the fact that some of the non-commodity outputs exhibit the characteristics of *externalities* or *public goods*, with the result that markets for these goods do not exist or function poorly." (OECD 2000, p 9).

It is the joint production aspect, where some amenities are (only) produced jointly with agricultural products, that can most strongly legitimize the need to support agricul-

tural production as such. Examples could be the visual aesthetic value of a flowering orchard as a by-product of fruit production, or the accessibility both visually and physically, of a grazed landscape compared to one covered in shrubs. These outputs of agricultural production may be valued as public goods, or as inputs to the production of a tourism product, and would not be available without some joint agricultural production of fruit or beef. In a globalized competitive market such production might be privately unprofitable and therefore lost, even though the total value of the joint product might be larger than the production cost.

The relationship between the production of food and other amenities will depend on geography, demography, production systems and scale. Where agricultural land is scarce, agricultural production will often increase biodiversity. In areas with large scale monoculture a reduction in agricultural production might have the same effect.

Public support to a local small scale agriculture, where it exists, is increasingly rationalized not by the needs of the diminishing farming population but rather by the public (or semi-public) goods delivered to the society at large. The appreciation of local or regional agriculture for the food security, landscape amenities, cultural heritage and environmental effects is recognized as legitimate reasons for public financial support (OECD 2000, European Commision 2000). But this support can not be a support aimed at food commodity production alone.

4.2 Developing policy measures for a diversified and multifunctional agricultural sector

An agricultural policy that subsidizes commodity production will most likely harm the provision of other amenities. It has been suggested both to reduce such incentives and, more strongly, to redirect the incentives towards the promotion of environmental benefits (Hodge, 1991).

According to Hodge (1991), there are two principle ways to stimulate the production of non-food agricultural goods; regulation and economic incentives. Regulation can zone land use, restrict development or production practices. Economic incentives (or disincentives) can stimulate the adoption of more environmentally friendly practices by taxing inputs, subsidizing outputs or by establishing contracts for the provision of public access and environmentally friendly practices.

> "The difficulty remains of defining a suitable output measure or proxy to which the payments can be linked. The payments which are made are often related to inputs rather than outputs, for instance for planting trees and hedges or for building stone walls. The outputs, improved landscape quality and conservation, are not so amenable to quantification" (op.cit., p 377).

Other analysts have suggested a wider range of policy measures. Black (1995, p 130) suggests four categories of policy instruments (to foster sustainable agriculture); educational measures, regulatory measures, fiscal measures and institutional measures (redefining resource rights).

In his evaluation of early attempts at nature and landscape conservation in the Netherlands, where land is scarce, Slangen (1992) describes how the policy resulted from a development where: "… rural landscapes were losing many of their attractive features, the general public's appreciation of these landscapes was growing" (p 334). By 1990 management agreements involved 16300 haa and 2600 farmers in the Netherlands. Na-

ture reserves and maintenance agreements were other measures. Slangen (1992) suggests a regional rather than a general approach.

In a description of the development of agri-environmental policy in the US and in Europe, Potter (1998) describes the greening of agricultural policy as: "… a profound public reassessment of farmers and the relationship between agriculture and the environment." (p 103). But he also notes that regulation and control is seldom used and that "… too many schemes are barely more than disguised income control schemes for farmers." (p 103). He envisions a further development where " –all support to farmers is delivered through environmental schemes."

Romstad et al. (2000) discuss multifunctionality and its policy implications and include also the cases where there is complementarity and/or competition between agricultural production and public goods. Examples of goods where there may be complementarity but also competition are landscape qualities and biodiversity.

The joint production of agricultural products and landscape is one of the arguments used by governments to defend subsidies to local agriculture; by supporting agriculture not only food, but also public goods such as landscape will be provided (OECD, 2000; Romstad et al. 2000).

A globalized food system based on the principle of free trade and competitive advantage in food production alone, will not account for the local non-commodity aspects of agriculture and may therefore reduce social welfare. OECD (2000) states that global organizations can not be expected to be overly concerned about local negative impacts of (changes in) agricultural production, but they should not prohibit such 'non-trade concerns' from being addressed at regional or local levels. The discussion is of course whether the multifunctionality of agriculture makes it necessary to support agricultural production directly or whether measures that have little effect on commodity markets could be sufficient (Potter & Burney 2002). The more food and other amenities are joint products, the more difficult it might be to make this distinction.

Attempting to analyze the complexity of the relations between agricultural and public goods provision Romstad et al. (2000) note that both detailed regulation and the fine-tuning of economic incentives implies large transaction costs.

> "It seems important to formulate policies where conflicts between producing private and public goods are reduced." (Romstad et al., 2000, p. 17.)

One suggestion is to work with the farmers to attempt to modify and develop norms for farming practices that include the provision of public goods. While national support schemes have increasingly been tied to production practices there is still a long way to go (Potter 1998; Brouwer, 2000). Reasons for this are both the complexity of the relations between agriculture and the environment, and the transaction costs involved (Romstad et al., 2000).

4.3 Semi-public goods as inputs in marketable products and services

One solution to the problem of sub-optimal provision of public goods, is to find ways to increase the private interests in providing them. Pure public goods are characterized by non-excludability and non-rivalry in consumption. Because of this characteristic public goods will be under-supplied through the market; there is no incentive to the private actor. While pure public goods may be hard to identify, most goods can be characterized in the rivalry and competition dimension. Food would be an example of a private good

with extreme rivalry. Once it is eaten by one person a food item can not be enjoyed by any other. Environmental goods are often public in the sense that excludability is difficult, but often recreational goods exhibit some rivalry in consumption. Case studies have shown that environmental goods of a public good character produced in agriculture and forestry may be transformed to marketable goods or services (Merlo et al. 2000). Increased consumer awareness, a growing market for recreational products, but also political initiatives have stimulated marketing of new types of agricultural products. The development of agritourism, organic farming and niche products can be seen as ways to privatize and capitalize on some of the values or semi-public goods that till now have scarcely been commodified (Marsden et al. 1992).

The realization of how the non-food components of the small farm agricultural system adds value to consumer goods is central to development of new value-added products, agritourism and new marketing channels for local farmers. Initiatives such as Farmers' markets, Community Supported Agriculture and organic farming, are all based on the notion that consumers care about other aspects of farming than volumes and price. Farm shops and farm tourism offering attractions and/or accommodation on farm profit from the rural landscape, farm cultural assets as well as farm products and services. Marketers with experience in direct marketing find that farm produce is a declining proportion of total sales, while more sales are generated through added value, including the entertainment value (USDA, 2000a).

When farmers can capitalize on cultural aspects of farming the provisioning will increase, both because more farms can survive and because each farm will increase its supply. The supply of landscape and cultural goods should increase more in the regions with larger populations (residents or tourists) to appreciate them. The landscape and environmental amenities goods created or maintained to serve visitors will still have a public good nature. Often the visitor receiving farms will not charge admission fees, but receive remuneration indirectly through sales. This process of rural agricultural development towards greater diversity in products and even more important, services, may prove to have greater impact on the possibility of retaining rural landscapes than subsidies and political support.

To be more specific: When a farmer achieves his farm income from selling produce to packers or processors his profit will increase by volume as long as costs of production per unit are lower than price. The possible landscape amenities produced by keeping large trees or waterways on his property will be of no relevance for his income, or could even compete with the volume of goods for sale. If the same farmer decides to begin selling directly off the farm, the landscape of the farm may influence his income through his ability to attract visitors and the price he can ask for services. A survey of farm tourism providers in Spain (Garciaramon et al., 1995) confirms how the farm women start paying more attention to and valuing the farm environment more highly after engaging in farm tourism.

The situation is more complicated when it is not the farmer, but some independent tourism industry or the local community that benefits from the amenities created by an agricultural landscape. In such situations it might be necessary and rational for the national, regional or local government (or the tourism industry) to find ways to support and secure a level of production that secures these amenities. Because tourism is consumed locally, the local social and economic impact of tourism will often be larger than that of agriculture (Lindberg et al., 1997). This might also imply imposing restrictions, or conditioning support on environmentally and landscape friendly agricultural practices through environmental contracts (Hodge, 1991). It could also be necessary to take a regional rather than an individual farm approach.

4.4 The example of farm-tourism

Farm buildings, forests, pastures, trees and field crops may all be important inputs in creating a tourism product. Human capital and resources is crucial for success, and both family and others may be drawn into the operation. Food may be part of the product offered, but is combined with other values.

Farm-based tourism has been defined as "... all types of farm accommodation and recreational ventures and is used as a general description for the phenomenon of attracting people onto agricultural holdings" (Evans et al., 1989).

The development of agritourism is dependent on access to or the ability to attract a market. Distance to urban markets is one delimiting factor. Ilbery (1991, p.211) based on British studies suggests different development possibilities for 3 types of areas:

- Prosperous agricultural lowland, with little experience of farm diversification, where woodland, unconventional crops and livestock and a limited demand for farm based accommodation and recreation could be developed.
- Marginal fringes, where farm tourism could be further developed, especially in scenically attractive rural areas.
- Urban fringes, which have many opportunities for farm-based recreation and adding value.

Through cooperation groups of farmers have been able to share marketing costs and develop an attraction in their region (Ilbery, 1996). Examples are found in different parts of the developed world. Successful wine districts exist in France and Italy as well as in California and Canada (Jolly and Moratorio 2000, Telfer 1996). While many initiatives may be related to policy changes and surged during the 1990s, others have developed over decades and it is suggested that this trend is primarily a self-driven process (van der Ploeg et al., 2000). One such example is the Apple Hill case (see box).

The Apple Hill case shows that while specialized crop production would be economically unviable in a region, agricultural activity can still be the fundament for a rich day tourism product generating local activity and income. This kind of development is often helped by networks and regional cooperation.

The Californian Apple Hill case is an example of a self-driven process of agri-tourism development (Jolly and Moratorio 2000). Farm hikes, apple pies, museums and picnic areas are among the products offered that yearly attract day trip visitors from as far as the San Francisco Bay area (2–3 hours drive). Thirty six years after the original 16 ranchers formed the Apple Hill Growers Association, the now 50 ranches receive more than 30 000 visitors a year. Through cooperation that started in the early 1960,s ranchers whose survival was threatened have made their area a major attraction for day tourists.

Growth to meet the increasing demand, as the public become aware off and accustomed to this type of service, has primarily taken place through new farms joining the network. New products and services are added in line with feedback from visitors. Over time these local fruit producers have developed a rich variety of products, services and entertainment. What started as a search for new opportunities, in a situation when major crops (pears) were threatened by disease and economic failure, has developed into something vastly richer than crop production. City dwellers are invited to roam the scenic countryside by car and foot to visit, run, see, eat apple pie and buy fruit, pies, cider and even Christmas trees (Apple Hill, 2000).

Box: The Apple Hill Case

4.5 Diversification to serve local markets

While the global food market requires volume and standardization, niche markets are by definition small and specialized and do not require large volumes to create profit. Farms can profit from the growing local demand for recreation by providing access to farmed nature and natural landscapes. For the provision of specialized products and tourism services, a smaller scale is both competitive and appropriate.

Individual farms will vary according to sub-local differences related to geographic situation, landscape amenities etc. adding additional variation to the potential for growing in the recreation and direct marketing sector. This implies a diverse and localized development.

Buttel (1995) among others, has envisioned a more diverse agricultural structure in the future "These bases of diversity will be multiple, and their reflections in agrarian structure strikes me as difficult to predict." (p. 15). The Applehill and numerous other agritourism development examples demonstrate that non-food amenities of agriculture can be combined with food, cultural values and other services to create innovative and marketable farm-based amenities. Such systems can exist in parallel with systems that are commodity based, and may prove to be less vulnerable to market uncertainties. Different production systems in different localities can serve different segments of the market, or different combinations of functions (needs and wants) for the same consumer. The concept of multifunctionality could help us describe and understand the existence and survival of different systems as they perform different combinations of valued functions.

While the local food system may not, for physical reasons, be able to supply food like rice, or oranges or shellfish, the global food system will not be able to supply local landscape amenities, local recreation or a basic food security. Welfare will therefore be largest if local communities can get their provisions from both local and global agricultural systems. As buyers in the global market, consumers and their middlemen will primarily look for the cheapest products (at a given quality). In a local market the possibility for adding value to the products by adding extra attributes is infinite.

The amenity values of agriculture, as well as the negative externalities will vary regionally and locally with natural (soil, slope, climate etc.) and social conditions (population density, settlement patterns etc.). Together these variations indicate that a large variety of agricultural systems might be socially efficient, provided that all costs and gains are taken into account.

5 Conclusions

While the negative externalities of intensive agriculture was admitted in the 1980s, thinking is now shifting to the positive effects of retaining land for agricultural use, and of modifying the production system. The term multifunctionality makes it possible to recognize the value of production, while insisting that these values must be weighed against and balanced with other, non-productivist values.

A better understanding of the different values of agriculture could increase the contribution of local agriculture to social welfare. Even those who are involved in promoting alternative, local food systems, need to look beyond food to see the extent of values that are created. The public goods created or supported by local agricultural activity, and by systems that take environmental considerations into account, are seldom valued in the global market for food. Policy intervention on a local level is often required and legitimate because the markets for the public good functions are non-existent.

The contribution of this paper is mainly to connect the multifunctionality concept and policy discussion to the observed perseverance of small farms and the growth of agricultural systems directed at local markets. While it is methodically difficult to measure the extent of non-commodity values of agriculture, agritourism development and the large number of residence and pluriactive farms can be taken as evidence of the appreciation of amenity values of small-scale agriculture. Correspondingly; residence and tourism in rural areas can both increase the diversity of agriculture and the demographic basis for access to countryside amenities. The landscape and environmental effects of agriculture may thus at the same time increase the value of rural areas and these same areas' contribution to social welfare through provision of accessible public and private goods.

Local agricultural systems are supported by consumers as well as by governments, and survive based on different combinations of food commodities and agricultural amenity values. We believe there is a potential for increasing the welfare contributions of agriculture to society further as an increasing number of academics, farmers, consumers and policy makers look beyond food.

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