Paths to developing multifunctional agriculture: insights for rural development policies

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Abstract: The paper proposes to contribute to the growing literature on the practise and significance of multifunctional agriculture, drawing on an empirical study of 50 farms located in Central Italy and Sicily. The paper intends, in particular, to identify and analyse the ways that multifunctionality can be translated into rural development models, and to distinguish the territorial and farm features that favour the development of agricultural practices whose strength lies in supplying non-market goods and services. The results enable us to draw guidelines for public intervention aimed at promoting the diffusion of development models that integrate traditional farming processes and ways to internalise externalities.

Keywords: multifunctionality; state of the art; rural development; Italy.

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1 Introduction

One of the most important issues in the European debate on the future of agriculture and rural areas is the multifunctionality of agriculture (OECD, 2001; Van Huylenbroeck and Durand, 2003). Many authors agree that multifunctionality can be a promising framework of analysis of transformations in agriculture and rural areas (Cairol et al., 2005, 2009; Knickel and Renting, 2000; Renting et al., 2008; Wilson, 2007). The term multifunctionality refers to the role of the agricultural sector which, together with the production of food and fibres, provides a series of social, environmental and ethical services demanded by society but not necessarily remunerated by the market (OECD, 2001, 2003). Its meaning, however, is considerably complex and to this day, there is no universally accepted definition.

This paper proposes to contribute to the growing literature on the practise and significance of multifunctional agriculture, drawing on an empirical study of 50 farms located in Central Italy and Sicily. Our aim, in particular, is to identify the various ways multifunctionality can be translated into rural development models, and to distinguish the territorial and farm features that favour the development of an agriculture whose strengths lie in the supply of non-market goods and services. The results enable us to draw guidelines for public intervention aimed at promoting the diffusion of development models that integrate traditional farming processes and ways to internalise externalities.

The article begins with a review of the state of the art, and draws attention to the difficulties concerning the overall understanding of multifunctionality. The following sections illustrate the methodology that has led to identifying types of multifunctional agriculture. The characteristics of each of these are examined, underlining the factors that have enabled farms to successfully supply services of an environmental and social nature. Finally, the conclusions aim at providing insights for drafting local development strategies based on valorising multifunctional agriculture.

2 Taking a look at the puzzle of multifunctionality

Despite the vast literature dedicated to multifunctionality, no discipline, taken singly, has succeeded in fully analysing the concept, incorporating the many elements necessary to fully understand it (Noe et al., 2008). Consequently, the different disciplinary approaches that have considered multifunctionality – economy, sociology, even ecology – have resulted in a fragmentation of its key aspects which thus remain conditioned by the various epistemologies (Caron et al., 2008a; Renting et al., 2009).

The 'sectoral' approach to multifunctionality has also had repercussions on the methodologies of analysis and evaluation. Zander et al. (2008) points out the absence of an approach that succeeds in treating the concept holistically, as the studies carried out are all conditioned by an excessive specificity of goals. The sectoral approach also results in underestimating the importance that research on multifunctionality has in literature, in that many works dealing with the non-market functions of agriculture have not been included within the framework of multifunctionality (Sumelius and Bäckman, 2008).

Lastly, the concept has been dealt with in various spheres, 'bouncing' from the scientific area to the political area (Caron et al., 2008b). Similarly, multifunctionality has been developed by various local systems. These different contexts have certainly

contributed to determining differences, even today, in the term's definitions (Caron et al., 2008a).

The most complete definition in the scientific debate comes from the Organisation for Economic Cooperation and Development (OECD), which has adopted multifunctionality as one of the inspiring principles of agricultural policy. With its definition the OECD (2001, 2003, 2005) has attempted to address several basic questions concerning the actions governments can take to sustain agriculture's production of non-commodity outputs (NCOs) (Casini and Contini, 2009). The distinctive elements of this approach are the jointness of production between commodities and NCOs and market failure in guaranteeing allocative efficiency in terms of social utility and costs. Another international organisation that has entered the debate is the Food and Agriculture Organization (FAO), whose analysis has focused on the role of agriculture for livelihood in developing countries (Bresciani et al., 2004), associating farming with the possibility to contribute to food security, reduction of poverty, cultural heritage and social well-being. At the EU level, the MacSharry reform introduced the concept that farmers should be sustained by agricultural policy for their role in the conservation of the environment and socio-economic fabric in rural areas. This position derives from society's growing sensitivity towards the role of the farmer (Abler, 2004; Potter, 2004), but also from the need to justify the support for agriculture to the World Trade Organization (WTO) (Garzon, 2005; Potter and Burney, 2002).

On the other hand, different environments have determined different degrees of sensitivity in European countries, with heterogeneous consequences in the various agricultural and rural policy decisions (Sumelius and Bäckman, 2008). In fact, the measures adopted in policies vary according to the importance governments attribute to the functions of agriculture; moreover, relations between local actors and institutional authorities, in their respective domains, can also influence the implementation of certain actions to promote multifunctionality (Dufour et al., 2007).

At the European level, various approaches determined by local characteristics, as well as by a combination of the country's political orientations and the interests of the various actors involved, are thus translated into various modes of support for the environmental and social functions of agriculture (Cairol et al., 2009; Caron et al., 2008a).

In Italy and France, for example, the multifunctional role of agriculture has been promoted above all as a diversification of activities in a strong context of territoriality, that is interrelations between farm and local area (De Roest, 2005; Voiturez,, 2005). In Holland, support for agriculture's non-market functions mainly concerns the conservation of the landscape and nature (Terluin, 2005), also addressing problems deriving from productivism that for decades characterised this country's policy (Van der Ploeg, 2003). In Germany, only recently have agriculture's new social functions been recognised and the concept of multifunctionality has assumed a wider perspective approaching that of sustainability (Knickel and Peter, 2004; Knickel and Kröger, 2008). As for the UK, Mardsen and Sonnino (2008) assert that though multifunctionality is implicitly acknowledged, in the transition from a sectoral agriculture to a wider local perspective, in some states like England, government has failed to translate multifunctional activities into rural area development. Finally, in many countries of Eastern Europe that have recently entered the EU, various socio-economic functions such as employment have especially been promoted in view of improving the quality of life in rural areas (Chaplin, 2005).

This general picture shows that despite widespread agreement among stakeholders about the need to attribute a wide range of functions to the agricultural sector, the multifunctionality of agriculture is not clearly theorised (Wilson, 2007). It is therefore still pertinent to ask what the functions of high-value agriculture are, which should be considered, and how do they influence rural development and society as a whole (Renting et al., 2008). Indeed, in addition to the more established functions relating to environmental and wildlife conservation, it is necessary to give space to other services that are not sufficiently considered, such as the production of renewable energies, various recreational functions (see Barbieri and Valdivia, 2010), gastronomy, or therapeutic functions (Knickel and Kröeger, 2008).

In this context it would seem convenient to consider multifunctionality in relation to society as a whole, and reconsider functions and their inter-relations (Cairol et al., 2008). From this viewpoint, if on the one hand multifunctionality represents a dynamic concept associated with the socio-cultural evolution of society, it is nonetheless crucially important to define a framework that enables us to identify the functions of agriculture in order to analyse their complexity and interdependence (Van der Ploeg et al., 2009).

On the other hand, in the context of relations between agriculture and society (Knickel and Renting, 2000; Knickel et al., 2004), a 'wider' approach to multifunctionality emerges, which contemplates products of the food and non-food market, even those not closely connected with agricultural activity (Renting et al., 2008). As regards the former, attention is focused mainly on food quality, both as an expression of territorial specificity, and as a result of production processes that are respectful of the natural environment, the landscape and animal well-being. The latter includes the production of energy from alternative sources, cultural functions, and tourist, didactic and therapeutic activities. Besides these goods, other types of services that influence the quality of life and the vitality of rural areas are also extremely important (Renting et al., 2008), such as the creation of employment and the effect of agricultural activity on local production. At the basis of the capacity of farms to develop this range of functions, three key elements have been identified: the awareness of the farmer's social role, the reorganisation of farm production factors, and the relations with other stakeholders in the territory (Brunori, 2003; Wilson, 2007, 2008). According to this approach, the reasons and decisions behind the choice to undertake multifunctional agriculture merit particular attention. In this context, greater attention is needed in the analysis at the farm level, for it is at this level that we find the "most direct expression of multifunctional action and thought" (Wilson, 2008). In fact, the distinctive feature of what Wilson (2008) calls 'strong multifunctionality' is the social and cultural transformation that takes place within the farm and that implies a heightened awareness of the farmer's contribution to society.

The various paths towards developing multifunctionality must be considered in relation to the farm aspects, the territory's characteristics and the relational space, that is, the entirety of relations of power, market, competition and collaboration between farms and institutions (Pretty, 2002; Renting et al., 2009; Wilson, 2008). The very concept of multifunctional agriculture, which fulfils a wide range of functions, implies the creation of new forms of collaboration and organisation between the farms and the environment in which they are located. In this sense, relational processes become a key element of multifunctionality, since they play a fundamental role in provisioning some services, and thus influence the farm's success (Brunori and Rossi, 2000).

Our review reveals, in conclusion, that the concept of multifunctionality is still influenced by a sectoral approach, and that the debate continues as to the various expressions of multifunctionality, specific in space and time.

It therefore appears necessary to avail of empirical studies capable of characterising multifunctional practices in the various socio-institutional and natural environments, analysing them in their complexity and interdependence.

This is the context in which our paper proposes to identify the ways Italian farmers respond to the new demand of society, and to identify the territorial and farm characteristics that have permitted the development of multifunctional agriculture.

2.1 Multifunctionality in Italy

In Italy the multifunctionality of agriculture is a strategic factor in agricultural and rural policies (Cairol et al., 2009; Renting et al., 2008). This approach is sustained by an extensive debate in academic circles regarding the relations between farm, territory and rural development, that have contributed substantially to qualifying multifunctionality as an attribute of agriculture and the whole territory, according to a holistic vision (Knickel and Kröger, 2008). In particular, the Italian Government recognises farm diversification as having a strategic role in developing the social, cultural, economic and environmental functions of agriculture. This vision takes form through the promotion of didactic and therapeutic farms, agri-tourism, the production of energy from renewable sources, traditional professions, small crafts and trade. These activities, in synergy with other rural resources, such as typical products, artistic and cultural heritage, landscape and the natural environment, contribute to pursuing development according to an integrated approach (Casini et al., 2010; MIPAF, 2007).

3 Methods

The analysis of successful paths towards developing multifunctional agriculture was conducted by means of a direct study on a sample of farms located in Central Italy (Tuscany, Umbria, Marche, Lazio) and Sicily. Multifunctionality finds a fertile substratum in these areas, given their conspicuous endowment of both landscape and cultural resources, and their considerable reputation in terms of quality of products. Fifty case studies were identified thanks to the information supplied by the professional organisations of farms in the various territories. The case studies were selected on the basis of the high level of multifunctionality, vitality and the favourable future prospects of the farm enterprises, thus concentrating on agricultural concerns that we could certainly describe as ‘successful’, that is, capable of holding their ground on the market in conditions of autonomy. This characteristic was also verified a posteriori from the results of the direct survey, which showed that a high percentage of those interviewed anticipated developing their enterprises in the years following, and over half considered the economic results of their businesses either good or very good. The questionnaire employed includes both open-ended questions and fixed-choice questions, intended to develop two levels of analysis: concerning the farm and the territory. In particular, the first part records the form of management and the manager’s socio-demographic profile. This part also surveys the farm structure (available surface area, cultivation system, production techniques). It then examines the services the farms supply the collectivity,

subdivided into environmental (protection of the landscape, biodiversity and hydro geological equilibrium), services to the person (recreational, educational and therapeutic), and development of territorial specificities (cultural heritage, local identity, typical products). The farmer is then asked to state the most important function that his farm offers society. Then the strategies the farmer has implemented to develop multifunctionality are considered, and his level of satisfaction with the economic results obtained is reported. The motivations, the professional expertise and the methods adopted by the farm that had allowed the enterprise to assert its multifunctionality are then described.

The second part of the questionnaire is aimed at understanding the relationship between farm and territory and analysing the capacity of the rural environment to support the development of multifunctionality. This part of the questionnaire conducts an analysis on the farmer's perception of the quality of life in the area where the farm is located, in terms of accessibility (means of communication and computer infrastructures), availability of educational, social and health services, and economic and recreational opportunities. This section also describes the relations with public and private institutions and the initiatives undertaken to promote local development. The questionnaire was administered to the manager of each farm by means of a direct interview.

The different methods farms employed to attain multifunctional agriculture were analysed by identifying types of enterprises obtained by agglomerative hierarchical clustering (AHC). This is a 'bottom up' type of clustering technique, where the starting point consists in joining data with the highest degree of similarity. Then, the groups formed in this manner are aggregated into larger clusters, where the degree of similarity is lower. The process ends with a single cluster containing all of the data (Cormack, 1971; Everitt, 1974). This analysis was made using the simple matching similarity coefficient applied to a presence/absence data matrix (see Clarke and Warwick, 1994). In particular, the cluster was applied to the strategies the enterprises enacted to develop multifunctionality, which made it possible to identify types on the basis of their responses to the demand of society.

The clusters were then analysed according to the two levels of inquiry (farm-based and territory) carried out with the questionnaires. The analysis of farm typologies was conducted by characterising strategies on the basis of the various categories proposed by Van der Ploeg et al. (2002). These categories presuppose the expansion of the sphere of agricultural activity from 'traditional' to the three dimensions of deepening, broadening and regrounding that respectively incorporate the agri-food supply chain (see Barjolle and Chappuis, 2000; De Roest, 2000; Miele, 2001; Sevilla Guzmán and Martinez-Alier, 2006), the new activities of agriculture (see Baldock and Beaufoy, 1993; Contini et al., 2009; Knickel, 2003; Renting and Van der Ploeg, 2001) and rural integration (see Alfano and Cersosimo, 2009; Bryden et al., 1992; Brun and Fuller, 1991).

The first dimension (deepening) includes the strategies that allow a reorganisation of the production system, strategies designed to develop the product and the process in their entirety. The following questions are considered: the attributes of quality and typicalness that allow product development and exploitation (through certification, including organic certification), on-farm product processing, and establishing more contained and direct relations with consumers (through local markets and setting up a farm sales point). We also consider the farms supplying '0-km' products, a term used in Italy for products of the local area that reach consumers through restaurants and inns without travelling great distances. Finally, more 'ethical and critical' approaches to consumption (fair-trade

buying groups) are considered, along with new types of marketing such as through the internet.

The second dimension (broadening) includes all those services performed by agriculture that go beyond its primary function. These include recreational activity not only in terms of hospitality but also of catering, activities involving wildlife and hunting, and excursions either on foot or with animals. Strategies also embrace didactic farms that promote the enhancement of cultural heritage of the rural environment through visits to the farm, and workshops for schools involving agricultural practices and small crafts activities. Finally, farm therapy involving disadvantaged subjects like the mentally ill and former drug addicts in farm activities. This category also includes the provision of environmental services supplied through contracts for territory management and the sale of energy. Our choice derives from the consideration that these services, though not strictly connected with agricultural activity, are frequently associated with the development of the multifunctional aspects of farms. In this sense, our analysis is to be considered as part of the wider approach to multifunctionality (Knickel and Renting, 2000; Renting et al., 2008; Van der Ploeg, 2003).

The third category (regrounding) regards more extensive forms of integration between the farms with the rural environment: we have considered off-farm incomes, replacing internal with external inputs, and producing energy for farm use with solar and wind installations.

A necessary consideration on the methodology adopted concerns the sample's characteristics. Our sample was formed by farms located in five of the Italian regions with the greatest vocation for developing agriculture's non-market productions, and characterised by good economic results. The subject of our analysis therefore does not represent the Italian reality but only a cross-section, consisting of farms that successfully valorise multifunctionality. The analysis has enabled us to single out the key factors to promote multifunctionality, both on the farm and territory levels. It does not, however, shed light on more marginal situations where multifunctionality finds it hard to become established. A further step of research will be to broaden the sample to involve different experiences, as far as the involved regions are concerned, along with the results attained by the firms. Close examination will enable us to extend the analysis to different development levels of multifunctional agriculture, analysing strengths along with the critical factors that can interfere with multifunctionality becoming established.

4 Results

4.1 Types of multifunctional agriculture

The results of cluster analysis show four different types of multifunctional agriculture (Figure 1), which can be characterised employing the three categories proposed by Van der Ploeg et al. (2002):

cluster 1 opening to the national and international market (7 farms)

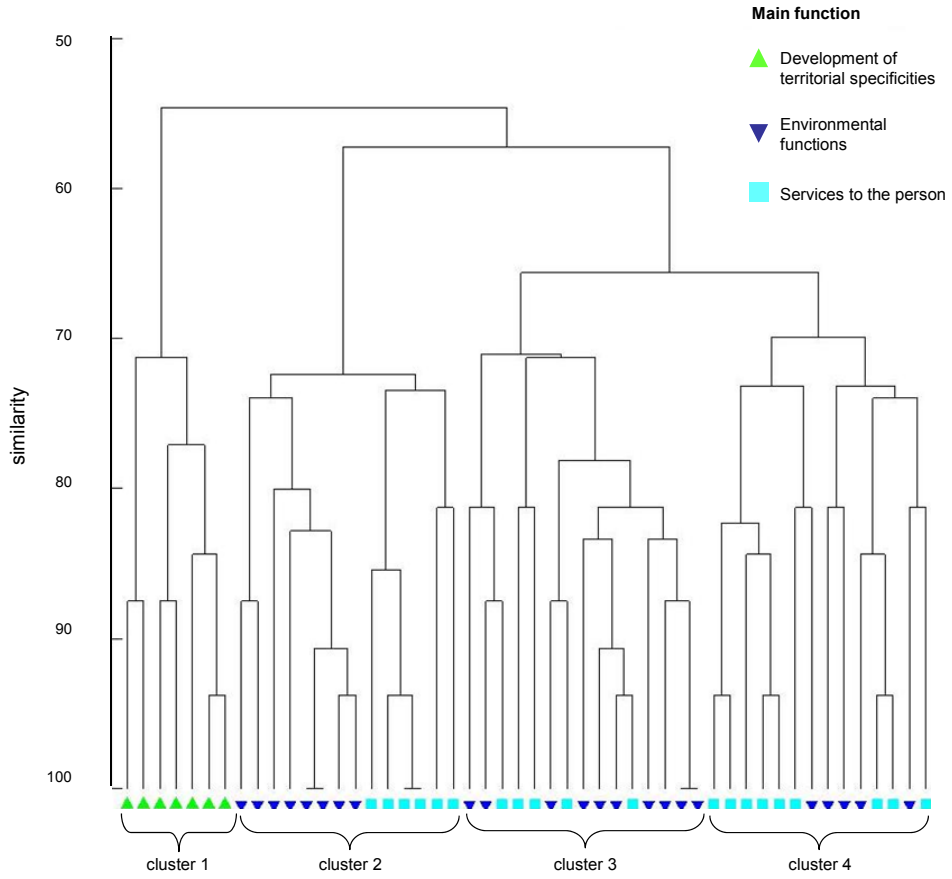
cluster 2 developing new farm activities (14 farms)

cluster 3 integrated approach with environmental aims (15 farms)

cluster 4 making local markets deeper (14 farms).

The first cluster is formed by all those farms that have identified the promotion of local specificities as a main function and have indicated that the conservation and development of the reputation of agriculture and rural areas are among the principal reasons for their activities. The other clusters are formed by farms whose main function is associated with services to the person, and functions of an environmental type. While on one hand, this classification may appear to be a simplification of multifunctionality, given the strong interconnection of its various dimensions, on the other it helps us to analyse the material and non-material characteristics that influence the expression of multifunctionality. In fact, it makes it possible to highlight the farm's prevailing vocation, since it reflects the farmer's perception of his activity in the rural area, in response to the demand of society.

Figure 1 Clusters of the fifty case studies (see online version for colours)



4.1.1 Opening to the national and international market

The first type of farms has developed mainly deepening strategies (76%) (Table 1), aimed at bringing the producer closer to the consumer in such a way as to effectively transmit a specific rural identity. This transmission takes place both at the local level, through farm processing, direct sale, participation in local markets and in promotional initiatives, as

well as in a wider context. These enterprises indeed show marked capabilities to address the national and international market by means of modern instruments of communication, like electronic trading, or through product certification (e.g., PDO, CGDO, organic). Product certification is a particularly valid vehicle of communication when one wishes to obtain recognition of a product on the national and international market, in that it is a guarantee of a strong connection with area's specificities (Casini and Torrisi, 2007).

Table 1 Importance in percentages of the three dimensions of multifunctionality

Dimensions	*Cluster 1*	*Cluster 2*	*Cluster 3*	*Cluster 4*
Deepening	76	24	59	72
Broadening	4	50	21	27
Regrounding	20	26	20	1

Table 2 Percentage of strategies activated in the clusters

Categories	*Farm strategies*	*Cluster 1*	*Cluster 2*	*Cluster 3*	*Cluster 4*
Deepening	Denomination of origin	86	0	13	50
	Direct sale	71	0	93	100
	e-commerce	100	7	13	14
	Solidarity-based Purchase Groups	14	0	13	29
	Markets and fairs	100	14	27	64
	Organic farming	14	21	100	43
	'0-km' products	14	7	33	86
	Farm processing	100	7	100	79
Broadening	Didactic activity	0	36	60	50
	Recreational activity	0	36	73	57
	Therapeutic activity	0	7	0	7
	Environmental contracts	0	43	7	0
	Sale of energy	43	29	13	0
Regrounding	Off-farm income	57	14	33	0
	Production of energy for farm use	29	0	0	0
	Replacing internal with external inputs	29	21	87	7

In this cluster, the principal productions are the ones typical of Italy, like the grapevine and the olive tree. Another significant aspect of the cluster is the capacity demonstrated by farmers to develop new forms of association aimed at promoting the territory's goods and services, for example food and wine itineraries, territorial labels or other communication initiatives. In this regard, the direct survey reveals that 57% of the farmers interviewed in this cluster adopt one of these forms of collective promotion, versus 21% of the second cluster, 25% of the third cluster and 29% of the fourth cluster. These initiatives are the expression of a network of alliances among local stakeholders (producers, distributors, tourism operators, local tourist offices, public administration), which makes it possible to build a coherent system of material elements (products and services) and immaterial elements (culture and traditions), the result of sharing a sense of

belonging and of territorial identity (Becattini and Omodei Zorini, 2003; Belletti et al., 2006).

Typical productions, initiatives of collective promotion, and the very vocation of enhancing the local specificities that the farm enterprises expressed thus appear to be intimately connected elements that distinctively characterise this cluster. They constitute a fertile substratum to define strategies aimed at developing the non-market functions of agriculture, which are precisely the most developed in this cluster (Table 2).

4.1.2 Developing new farm activities

The second cluster consists of farms in which broadening activities prevail (50%) (Table 1). The principal productions are animal farming and grain cultivation, and the enterprises are distinguished by the creation of environmental contracts for land maintenance, while recreational and educational activities are prevalent among the activities involving services to the person. The number of strategies the enterprises employ is markedly inferior compared to all the other clusters (Table 2). This aspect can be placed in relation to the territory, whose reputation has not yet become established as in other areas, despite the value of landscape and environment that in any event characterises these areas. Moreover, most of the enterprises belonging to this cluster are not part of a broader project of territorial promotion that would favour integrating and strengthening individual strategies.

4.1.3 Integrated approach with environmental aims

The third cluster is overall characterised by a higher degree of diversification of the strategies compared to the other clusters, prevalently of the deepening type (59%), but also shows a significant presence of broadening (21%) and regrounding (20%) (Table 1). The enterprises of this cluster are involved mainly in animal farming for both milk and meat production. The strategies implemented seem to be aimed at recovering environmental sustainability also with a view to strengthening recreational and educational activities. Environmental functions are principally expressed through an extensive agriculture that uses organic farming practices, with a wide-scale re-use of farm products, and represents an element of attraction for consumers more sensitive to environmental aspects (Alampi et al., 2002). On the other hand, services to the person carried out through didactic and recreational activities, accompanied by initiatives aimed at shortening the distance between production and consumption (direct sale and farm processing) enable the enterprises to develop their environmental function (Table 2). The participation of these enterprises in initiatives of collective promotion is greater than that of the second cluster, but clearly inferior to that of the first cluster.

4.1.4 Making local markets deeper

Lastly, in farms belonging to the fourth cluster, deepening strategies are dominant (72%), and in contrast to what emerged in the first cluster, they are mainly geared to promoting farm products in the local area (Table 1). No particular production prevails in this cluster which includes enterprises active in grapevine-olive growing, animal farming, fruit and vegetable growing, and grain cultivation. In addition to direct sale and the participation of farms in local markets, sales initiatives are undertaken to develop strategic relations

between these enterprises, local actors, and the consumers, as in the case of selling '0-km' products and creating Solidarity-based Purchase Groups (Table 2). The sale of '0-km' products makes it possible to commercialise products through local restaurants and eating-places, and promotes new synergies between agriculture and eno-gastronomy which encourage the development and promotion of agricultural products and the image of the local area. The Solidarity-based Purchase Groups, in Italian 'gruppi di acquisto solidale', or GAS, develop a direct relation between rural and urban areas. GAS are networks that put city consumers in contact with farmers, through a sales system that involves the consumers themselves in the role of intermediaries, and through the organisation of regular, often weekly meetings, where information is exchanged not only about the quality of the products, but above all of an ethical character (Rossi and Brunori, 2010).

4.2 Conditions conducive to the development of multifunctional agriculture

The four types of multifunctional agriculture just described, however, share several conditions which we feel essential for the success of these experiences.

They concern both the farm and the territory where it is sited. On the farm level emerges the importance of human resources (farmers' motivations, competences) and of the farm size; on the territorial level emerges the importance of the quality of life and of social capital. Furthermore, we must stress the decisive value of resources proper to the territory, such as the landscape, culture and natural environment, which become an important element of attraction for the consumer.

4.2.1 Education

It has been observed that all of the case studies are characterised by elevated education levels compared to the average among Italian farmers. The data of the Italian Institute of Statistics (ISTAT, 2006) show that the Italian farming reality is characterised by more than 10% of farmers with no school certificate, 47% with an elementary school certificate, 24% with a middle school certificate, 16% with a high school diploma, and only 3% of farmers with a university degree. Instead, about a quarter of the persons interviewed has a university degree and in any case half have a secondary school certificate, while only one manager in 50 has only a primary school certificate. It has been observed that certain levels of expertise have been developed also due to the participation of the farmers in professional courses organised by associations of producers and public institutions in various areas, such as farm management (30% of farms), marketing (20%), processing of products (28%), organisation of recreational activities (48%) and didactic activities (32%), computers (26%) and foreign languages (22%). The good levels of expertise available on the farm and their importance in farm decisions has also been confirmed by managers.

4.2.2 Motivations

Another noteworthy factor is represented by the motivations of farmers which go beyond objectives of a purely economic nature. This phenomenon has been noticed both on farms that have developed functions of an environmental character mainly, and on those that have developed social functions. Among the main non-economic motivations associated

with environmental functions is the desire to carry on a family tradition and a lifestyle, interest in the organoleptic and health properties of certain types of product (as in the case of traditional varieties) and the passion for practising quality agriculture in a place where the farmer works and lives with his family. Among the motivations associated with social functions, in addition to the passion and the desire to share the experience of life on the farm, there emerges a marked sensitivity toward issues involving disadvantaged subjects.

4.2.3 Farm size

At the level of the farm enterprise, a relevant factor contributing to an effective development of multifunctionality is the size of the farm. Needless to say, the connection between size and the ability to perform a wide range of functions has already been pointed out in literature (ISTAT, 2006; Salghetti et al., 2007), as has the importance of the useful surface area in attaining appropriate levels of profitability (Brunori et al., 2006; INEA, 2009). Our findings confirm this theory. The case studies are all characterised by a considerable degree of multifunctionality and good economic results, and have an average agricultural area of about 75 hectares, i.e., significantly higher than the Italian average of 5 hectares (ISTAT, 2001). In the case in point, more than a quarter of the farms fall into the category that goes from 20 to 50 hectares, and more than a fifth have an area in excess of 100 hectares.

4.2.4 Quality of life

On the territorial level, a factor that has positively contributed to the development of multifunctionality, and about which the case studies consider themselves either satisfied or very satisfied, is the quality of life. In particular, it regards the availability of educational, social and health services, economic and recreational opportunities, the communications and transport system. In fact, if in the past such situations contributed to limiting the depopulation of the local territory, at present they actually favour the vitality of rural areas, even in terms of job opportunities, especially for young people and for women.

4.2.5 The relational space

Last but not least in terms of importance, is the relational space. From an examination of the case studies, a close connection emerges between the maturity of the relational system and capacity to define strategies that make for an increase of the added value of agriculture's goods and services through forms of product diversification, commercialisation and promotion.

The relational system exerts a positive action in that it facilitates the encounter between the different actors involved in supplying and utilising the service.

For therapeutic activity, for example, it facilitates the connection of farms with the health and social services, family associations, volunteer groups and training institutions that promote the subjects involved to find work (Scarpellini, 2009). In the context of didactic activities, the relations concern farms, schools, universities and tourist agencies. As the latter, in particular, directs its offer toward the niche interested in an educational

experience in the countryside, it represents a very important link in the system (Proietti, 2009).

The same occurs in the sphere of functions of an environmental nature, such as contracts for the surveillance and maintenance of the water supply network, where the relations between farmers and reclamation consortia become essential (Rovai and Galli, 2009; Simoncini, 2009).

Relations become a strategic element also in the area of commercialisation and promotion, as in the case of the so-called '0-km' products where the relations involve agriculture and local eno-gastronomy. Another example is provided by experiences of associationism for the promotion of rural areas through which a wide range of services is supplied, ranging from agri-tourism to activities involving participation in farm work (like olive picking or grape harvesting), from thermal springs to thematic itineraries. These itineraries can be conducted on horseback, by mountain bike or on foot, and enable the tourist to enter into contact with tradition, nature and typical products (Senni et al., 2009).

On the other hand, the relational system creates the particular informational atmosphere that favours the capacity of farm enterprises to regenerate, dynamically modifying their organisation in response to new needs expressed by the market, and facilitates the diffusion of innovation within the territory. In this way, the experiences of 'pioneering' farms that experiment alternative activities or forms of marketing, by virtue of their particular competences and personal contacts, can spread to other farms and further transform, giving rise to new organisational models.

5 Discussion and conclusions

Our study has identified four different development models of multifunctional agriculture: opening to the national and international market; developing new farm activities; integrated approach with environmental aims; making local markets deeper. Analysing the modalities that permitted these models to become established enabled us to identify five basic elements for the success of an agriculture whose strengths lie in non-market functions: education and motivation of entrepreneurs, firm size, the territory's quality of life and the relational space. What emerges from an overall analysis is that the territory is a fundamental issue for a correct understanding of the various ways to promote multifunctionality, in the sense that the character of the region expresses the capacity of the local system to respond dynamically to new demands manifested by society. In fact, each territory has its own supply of resources of a social, cultural, human and natural character that represent the substratum on which new value for the agricultural sector and rural areas can potentially be produced. The development of multifunctionality is a direct reflection of the extent to which local actors succeed in converting local resources into added value for the local system by formulating adequate strategies.

Our case studies are all characterised by a good supply of local resources, but they differ mainly for a heterogeneous interaction with the territory; the one with the most mature relation is the first cluster, characterised by the presence of farm enterprises devoted to the production of products typical of the local area. The motivations expressed by the people interviewed show that this vocation springs from the presence of a strong local identity, manifested also through the establishment of denomination of origin labels

and the presence of activities of collective promotion, which are highest in this cluster. This type of multifunctionality is the expression of an overall style of living, that is to say the totality of the activities, values and institutions strongly tied to the culture of the place (Becattini and Omodei Zorini, 2003). These conditions are not easy to create, and only a small share of our case studies (14%) belongs to this group.

In such contexts, the development of multifunctionality has a strong impact on rural development, not only because it contributes to improving the reputation of the area, but also because the strong interconnection among the local actors, determined by the various activities, stimulates the productive capacity of the entire rural system. For example, the creation of food and wine itineraries involves not only farm enterprises, but also distributors, tourist operators and restaurateurs, with a strong impact on the overall development of the local area. Similarly, the creation of PDOs involves not only agriculture but also local processing enterprises, thereby stimulating the local economic system.

On the other hand, the development of actions to promote the various functions of agriculture results in the expansion of relational networks. These are relations between farms regarding the exchange of information, knowledge, expertise and collaboration, as well as products and clients, in the interests of a more widespread rural development. There is, therefore, a relationship of reciprocity (cause-effect), which means that the success of certain farm strategies that the farmer puts into action also depends on the ability of the enterprise to relate with the local area and vice versa.

The other three clusters, whose farms are devoted mainly to functions of an environmental character and to services to the person, show a different degree of implementation of the strategies to promote multifunctionality. In these contexts, the impact of initiatives for the development of multifunctionality is greater the more the individual enterprises are established within networks. For example, though representing very interesting tools both from an environmental point of view and from the point of view of supplementing agricultural incomes, management contracts for the water supply network do not promote rural development as much as didactic and recreational services, especially when their supply is part of collective promotion activities.

An initial consideration about policy measures to promote multifunctionality concerns the need to contextualise any intervention in its own social, economic and natural environment. This requirement implies a complete analysis of the local area's strengths and weaknesses, starting from its supply of assets and regarding the main social services and the accessibility of the area, also in terms of communications networks and computer-based infrastructures. Other important factors are local experiences that show the degree of interaction among local actors, levels of expertise and motivations.

To develop agricultural multifunctionality to the utmost, it is therefore crucial to have analytical tools capable of distinguishing the various territories, so as to be able to direct support on the basis of local characteristics. One important means is a participative approach, that is, one capable of identifying the needs, priorities and perceptions of the stakeholders. This also allows the involvement of the local population in the decision-making process, a crucial factor in strengthening capacity building that is at the basis of development sustainability. It must be stressed that this type of approach can also heighten the awareness of both citizens and farmers themselves regarding the social and environmental role of agriculture, at the same time gratifying farmers through public recognition of their actions.

To further strengthen multifunctionality, it would seem advisable to undertake actions aimed at rebalancing all the factors relating to the quality of life and the accessibility of areas that are of priority importance for an efficient development of agriculture's environmental and social services that prove fundamental at the local level. At the farm level, it is necessary to develop actions aimed at strengthening human resources, concentrating on the acquisition of expertise and on the motivational sphere.

Lastly, the development of multifunctionality must be planned through the enhancement of local resources by means of new forms of cooperation between farmers and other local actors. In this context, policies aimed at creating conditions for consolidating the specific local identity and the empowerment of stakeholders are an important and concrete opportunity to strengthen multifunctionality.

In this perspective, territoriality becomes a starting-point to identify functions but also the strategic means that guide action. Identifying and developing the distinctive characteristics of the rural system can indeed serve to create local resources that can be converted into added value for the agricultural sector, as well as for the entire area.

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