

AGRIBUSINESS NETWORKS IN BULGARIA – DESIGN AND CREATIVE PROBLEM-SOLVING¹

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Summary

With the increasing integration of the global economy and the complex challenges of the business environment it is becoming crucial to focus and gain a full understanding on the role of the value chains' structure and functioning. This particularly refers to the countries from the post-communist Europe and their transformation and progress achieved in marketization and democratization.

The present paper is purposeful towards providing an overall framework for assessment of the different forms of network structures in the agricultural sector and to identify as well their capacity to counteract market restrictions, and to benefit from the opportunities of the agribusiness development.

The methodological framework bases on the transaction costs economics and the 4C concept. The paper presents methodology at two stages, where results of expert assessment and evaluation at national and regional level led to selection of three case studies to be presented in certain sectors of agribusiness.

Keywords: *networks, agricultural sector, business, chain management, network theory*

JEL: *Q13, L14*

Introduction

Bulgarian history draws on different forms of collaboration and cooperation in agri-

- 1 The research leading to these results has received funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA Grant Agreement No. 611490 (PIAPP-GA-2013-611490).
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culture – before and after the period of centralized economy. Regardless of the conditions, which define agricultural development, cooperative and network organizational structures, have persistently adding value within the supply chain. Reforms after 1990 brought about significant transformations not only for political and economic situation, but also the essential conditions for functioning of these organizations.

While a common argument for organizing family farm economic activity through the use of the cooperative business form is the creation of economies of scale, the possibilities of collective action may go much further, having been shown to negotiate social, cultural and economic transformations that may adversely affect family farmers; provide a stronger political voice; organize production and improve quality; and build “social capital”.

With the slow process of land reform, marginalization and land abandonment that came as result from liquidation of the previously existing organizational structures, one of the negative results from the transition period was the disrupted relationship within the value chain (Zaimova, 2011; Terziyska, 2015). This led to increase of the market, financial and economic risk for agricultural producers, while the general assessment of this transition period revealed significant problems regarding: vague structural strategy, production decline, financial instability of enterprises, limited investment opportunities, decline in customers’ income and diminished monetary reserve as well.

SAPARD programme and the Rural Development Programmes hold out significant opportunities to the positive change in the organizational rate, so as to re-establish the relationships within the value chain, increase value added in the primary production and decrease the market risk for the individual producer. Unfortunately results achieved were far from the expected ones. 26 were producer organizations created within the framework of the first programme, most of these have ceased their activity with the end of the project financing. For the programme period 2007-2013 the target number of 150 producer organizations was barely reached. Despite the initiated changes to improve legal basis and financial requirements, only 4 organizations were financed for this period. If compared to the organizational level and the success rate of the newly established organizations in the other European member states, the same problems were detected in Romania and Malta.

The agricultural sector in Bulgaria is still to deal with problems such as mistrust in the collective form, lack of management and administrative skills, still higher financial requirements to be achieved by the already established producer organizations. At the same time more than 254 thousand is the number of agricultural farms (2013), of which 78,9 thousand are classified as small farms with production volume of 2000 to 7990 euros. Insignificant is the number of the farms that are being part of some form of cooperation. The basic cooperative form in the agricultural sector is the producer cooperative, while the other cooperative types e.g. marketing, supply cooperatives, which are traditional in the other countries, are generally with more limited impact in Bulgaria. Therefore cooperativism is still important issue to deal with.

The purpose of this paper is to provide an overall framework for assessment of the different forms of network structures in the agricultural sector and to identify their features and opportunities for the agribusiness development, based on:

- Design of the network structures in agriculture in Bulgaria;
- Production typology and its assessment as decision-making factor;
- Practical exposure and work to embed commitment to rural community and problems, and over time to build trust, when consolidating new learning and continued action to address emerging constraints by cooperativism.

The paper presents methodology at two stages, where results of expert assessment and evaluation at national and regional level led to selection of three case studies to be presented in certain sectors of agribusiness.

Theoretical basis

Although networks have been the object of intensive scientific research for many years there is still no consensus on characteristics such as the number of actors required to constitute a network or the autocracy of a network's companies. This disagreement on the definition of what a network actually is translates in varying interpretations on essential aspects of networks. Definitions based on transaction cost theory view virtually every hybrid firm system as a network, while sociology-based definitions view networks as a stand-alone organisational form.

The concept of "network" is often associated with a set of economic agents linked to a set of repetitive interactions of formal and/or informal connections. As economic term, network is seen mostly related to the flow management in a territory, as defined by Curien (1992): „the network corresponds to the structure of spatial correlation of complementary interaction equipment cooperating for transportation and directing the streams“. Within this conceptual framework the value of the network usage depends on the economic utility of the user being connected to infrastructures utility (Curien, 2000), which is proportional to the number of potential interconnected individuals and organizations.

According Visser (2004) networks should be viewed as a system of strategic, targeted, repeated cooperative interactions between firms and other organizations, however, they may not work in close proximity. As ones of the main characteristics of the network are pointed: identification of the participants in the network is easy and relations are based on trust; save transaction costs; wider opportunities for investment; not limited to a particular location and can go beyond specified limits.

The economic literature is definitive towards the benefits that individual farmers acquire from being a member of producer organization (Williamson, 1985). By pooling their agricultural output farmers may: strengthen their bargaining power vis-à-vis potential buyers ("downstream") and input suppliers ("upstream"); reduce risks, typical for farming activities; benefit from economies of scale; reduce the average fixed

cost associated with the investment, and reducing transaction costs by pooling their output. Finally, in addition to the benefits above mentioned, that lead to higher incomes for the members of the producer organizations compared to a situation where farmers act individually, there are also a number of intangible benefits associated with the membership in a producer organization, such as improving social cohesion, partnership and trust among its members and the development of specific skills, such as the ability to resolve conflicts and reconcile individual interests.

The concept of networks expands the chain, emphasizing not only on vertical relationships, but also on lateral and horizontal links between independent persons (Farina, Zylbersztain, 2003). In networks, when compared with chain, interactions are governed not only by the market or through formal mechanisms, but through the use of informal and mutual mechanisms (Brown, Locket, 2004) perceive the network as a highly developed form of collaboration, which has a high degree of structure and integration.

Several empirical studies examining the networks in agriculture using the theory of transaction costs, ascertain the relationship between asset specificity and vertical coordination and importance as a means of collaboration and cooperation between manufacturers. To these we refer the research of Mondelli and Klein (2014), dedicated to the analysis of the use of external equity finance by enterprises in agricultural production; Guo and Jolly (2008), Mello and Paulillo (2010) who assessed the relationship between contractual agreements and their implementation. In the same context, with an emphasis on vertical coordination is the research of Banterle and Stranieri (2008) focused on the chain of beef in Italy.

There are a number of researches evaluating the effects of participation and linkages between producers in different networks. An example of such research is that of the European Commission represented by Kristine Van Herck (2014), which focuses on the effectiveness of membership of producer organizations, backed up with the results from in-depth interviews and a case studies.

Methodological framework

These present research testes the hypothesis that asset specificity, frequency of transactions and uncertainty largely determinates the type characteristics, mechanisms of management and problems of functioning of the formed chains and networks. In our research model, different factors are hypothesized to affect the choice for being a member in a particular network governance structure. These factors include socio-economical characteristics of the farms and the actors, transaction attributes and institutional environment.

Our working hypothesis are defined as follows:

1. Participation of farmers in network structures improves their level of awareness about the business environment, expands their opportunities to access different markets and positively impacts their economic performance.
2. Network structures significantly improves development of the sub-sectors that

are in frequent relationships with the network and increases specification of the assets.

3. Lack of trust and commitment among agricultural producers, processors and traders is prevailing over the will to build successful relationships within the value chain in the form of network structures, and regardless the stimuli provided from the European Commission.

Formulated thesis and purpose of the article are determined towards the effects of participation in network structures on farms. Table 1 represents methodological framework.

Table 1. Methodological framework

Characteristics of organisation	Type of organisation			Business environment and research methods
	Production organisations	Processing organisations	Trade organisations	
Uncertainty Specificity of assets Frequency of connections				Economic environment Common agricultural policy Expert assessment (Internet-based survey)
Network objectives	Limited objectives (protection of common/ similar business interests)	Partial objectives (limited /partial benefits)	Complete objectives (comprehensive benefits and effects)	Expert assessment (Internet-based survey)
Type of relations and interactions	Communication collaboration	Collaboration coordination	Coordination cooperation	4 C concept
Network design	Network membership, network structure, network position, network functions, benefits, problems, opportunities			Likert scale

Source: Work of authors.

Based on the transaction costs economics, the 4C concept (Lejeune, Yakova, 2005) and the particularities of the business organizations and agricultural production, we apply expert assessment. Within this framework are tested statements and opinions on the main characteristics and differences of networks, provided by agricultural experts and managers of network structures.

The questionnaire and the Internet based survey among experts are performed to select and justify the objects of study, and to approbate as well some of the working hypotheses. The questionnaire consists of 13 questions, grouped into three main thematic areas: motivation to create networks, differences of network structures, reasons for low level of networking in Bulgaria. Evaluation of opinions is at Likert scale. By the questions in this section is tested the hypothesis that the high level of the three main characteristics of the transaction: frequency, assets specificity and uncertainty, is the key motivator for the creation of networking structures.

Assessment of the three case studies is based on the applied methodological approach 4 C's concept in chain management Lejeune and Yakova (2005). It is based on the theory of relation forms (Fiske, 1990, 1992) and the concept of interdependence (Kelley and Thibaut, 1978) and defines four types of relationships between participants in the networks and the process of decision making. These configurations are defined as communicative, coordinated, collaborative and co-operative and differ in the way of implementation of the managerial process, trust between the participants in the network, the similarity of purpose, frequency and nature of links and more.

The communicative configuration is characterized by shallow dependence. Some authors (Mentzer et al., 2001) describe it as a supply chain that is "not managed" but "exists", and involves "as-needed", shortterm relationships for obtaining parity with competitors. Each of the entities is independent and fully autonomous; there is no set of commonly pursued global objectives. The lack of relationship between entities and the absence of competency and goodwill trust results in sporadic information exchange and interaction between entities (Lambert, Cooper, 2000).

The second, coordinated configuration is characterized by deep dependence and is related to Fiske's authority ranking. This chain can be viewed as a hierarchy of entities in the supply chain, which is captained or dominated by a supply chain leader (Munson et al., 2000; García-Dastugue, Lambert, 2003).

The collaborative configuration is characterized by shallow interdependence and is related to Fiske's equality matching. The development of a dyadic parity-based decision-making process with focus on a particular function also requires a certain form of goodwill trust.

The last, co-opetitive supply chain configuration is characterized by deep interdependence and is related to Fiske's communal sharing.

Each one of these four configurations describe different forms of relationships between participants in the network and suggests specific forms of management. The latter is embodied in different organizational forms, which are selected by members of the networks - an association in a relationship of communication and cooperation; cluster with a predominance of relations of cooperation and coordination and trading company - in relations of coordination and cooperation.

Subjects to evaluation are the type and sustainability for network structures and the understanding that the contractual relationship are more suitable for the functioning and management of networks compared with organizational structures registered under Commercial Law, Law on Cooperatives and the Law on non-profit legal entities.

Results

Expert assessment

The survey was in september 2015. The web-based questionnaire involves 19 experts - professors and associate researchers and (or) doctors of Economics and Management of the agricultural sector, with over 5 years of research experience.

Responses received show unanimously that the type of network (formal or informal, contractual or institutionalized) determine the manner of its functioning. With this totally agree 63% of the experts, while the reminder of 37% agree to a certain extent.

At the same time expert opinions are not that definitive about the impact of how the network is to be created. According to 37% of respondents the way the network is created - spontaneous or induced by policies, has no effect over its functioning. On contrary is the opinion of 41.1% of the experts, who identify that the way the network emerges as important factor for its functioning.

The critical dimensions of agrarian transactions, namely the high degree of frequency of connections, asset specificity and the uncertainty, are prerequisites for creating network structures. Among expert opinion, 84% is the share of the experts who rate the highest frequency of connections. Next is evaluated uncertainty, which is identified as very significant and important according to 63% of respondents. Of the three dimensions of agrarian transactions with the least effect is evaluated assets specificity. When interdependence of assets is in place, the economic agents are interested to develop forms to overcome the uncertainty and profit from the transactions.

Product processing, characteristics of the particular type of production process and production dependence on the rhythm of deliveries are three other factors motivating networking. Among these, the highest estimates are received for the need for processing of production, followed by the peculiarities of the production process (Figure 1).

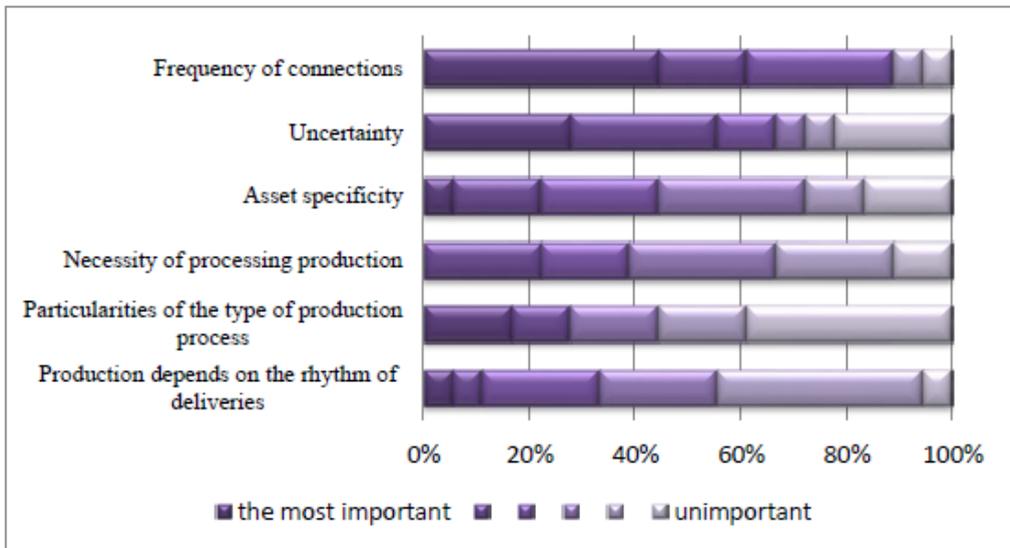
When assessing the dimensions of agrarian transactions in various sectors of agribusiness and in particularly the frequency of connections (relationships), the experts are unanimous about the hypothesis that these are more relevant for producers and processors of milk and fruits and vegetables compared to grain producers. This is the opinion of 78.9% of the experts backed up either with the specifics of the production process and the durability of the end product, or the ability to store and high stability of transport.

According to 52.7% of the experts frequency of links (relationships) with the manufacturers and processors of fruits and vegetables is higher compared to grain

producers. Here in the foreground stand out many of the characteristics of the final product, the characteristics of market organization and others.

According to the responding experts, contractual relationships are more appropriate to organize as a network structure instead of organizational structures, registered under the Commerce Act, Law on Cooperatives and Law on non-profit legal entities. “Strongly agree” are 31.6% of respondents, and “agree” are 52.6%.

Figure 1. Allocation of the factors motivating the creation of network structures



Source: Work of authors.

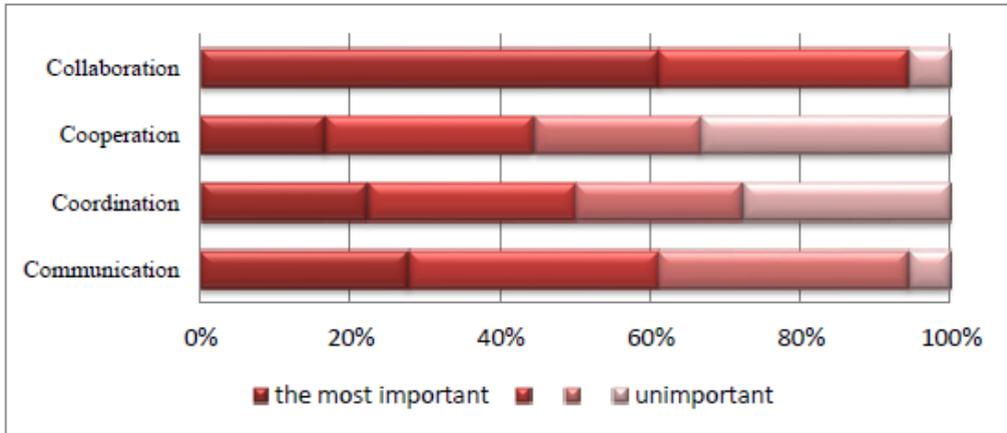
Evaluation of the respondents of the characteristics of the functioning and management of networks reveals interesting points. When ranking relationships in network structures based on cooperation, communication, coordination and collaboration, interviewed experts are united that the most important is the collaboration between farmers (Figure 2).

This is supported by 89.5 percent of respondents, 52.6% of respondents put it in the first place, and 36.9% - in the second. On the next places are placed communication and coordination, respectively by 57.9% and 47.4%. The lowest evaluated is cooperation - with only 42.1 percent support. It is placed in the first place by only 15.8 percent of the experts and second - of 26.3%.

The main reason for the limited distribution of networks within the Bulgarian agribusiness and rural areas, according to the experts is the lack of trust between farmers, processors and traders (89%). This is largely predetermined by the specific development of agribusiness in Bulgaria over the last 25 years of broken links between production, processing and marketing, as well as the broken tradition of private farming. Higher requirements for volume of sales and administrative procedures of the SAPARD program for rural development (2007-2013), also referred to as a reason for

the low level of motivation of farmers to set up producer organizations, associations and others. This is the opinion of 73.7% of respondents. Similar opinion of the experts raises questions about the quality of the criteria used to finance network structures - whether they are suitable for the conditions of Bulgarian agriculture and why it had to be cut several times in recent decades.

Figure 2. Ranking relationships in network structures



Source: Work of authors.

Case studies

Further to extend our work a case study research brings us closer to the understanding of the networking in agricultural sector. Provided examples of networking structures add strength to the questionnaire results and expert assessment already explained. Case studies are used to emphasize on the aggregated expert opinions and to analyze and evaluate practical impact of the factors: Establishment; Object of activity; Type of participants; The chosen form of network structure and legal basis of the functioning and management; realized benefits for participants in the network (Table 2).

Table 2. Types of network

Type of network and legal framework	A sector, object of activity	Network structures	Type of participants
1. Association (Law on legal entities with non profit purpose)	Production, processing and marketing of wine	Association “Danube wines“ Pleven	Private business structures- wine farms and processing enterprises
2. Producer organization (Commerce Act)	Production and marketing of milk	“Farmer’s milk” Ltd, Rakovski	Private business structures- agricultural farms

3.Cluster (Obligations and Contracts Act)	Production of cocoons, processing and marketing of silk fabrics	Textile cluster „Silk” Rousse	Public-private partnerships with municipalities Private business structures- farms and textile companies
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Source: *Work of authors.*

Association „Danube wine“ was established in 2013. It is headquartered in the city Pleven, registered under the Non-profit legal entities act working in the public interest. Members of the organization are companies and organizations working in the field of wine production and associated services, including: four wineries, vineyard, hotel with private tasting room, trading company, consulting firm, Research Institute and NGO. The total amount of arable land to participants in the cluster has 430 hectares vine plants on the territory of 5 farms. Some of them (50 ha) are grown organically. Other crops (about 100 ha) are in transition to organic production.

The cluster was created as a result of the project “Wine Road” Program CBC Romania-Bulgaria 2007 -2013. Therefore efforts are unified for registration of a common brand “Danube wine” for the national and European market. Currently it is developing a strategy to use this brand.

Due to the relatively short period of existence, the functions of the network structure are still limited. The first group of functions connected with the preparation, organization and conduction of various forums, as well as organizing the participation of members of the cluster formation of international exhibitions, fairs and more. The second aims to increase the level of information of members in terms of innovation and market developments, and in terms of investment opportunities and financing of various practices. Evaluation of these functions of the cluster with the methodological toolkit 4C concept warrants the conclusion that various forms resulted in relationships in a wide range of communication (information on prices, markets and good marketing practices) and cooperation (for common activities on regulation and sales of products).

Over the past three years trust between members and efforts to overcome the opportunism have been increasing. The main priorities are set in the first place, developing new markets, followed by product advertising, product modernization and technological innovation.

In 2009 was established **Textile cluster „Silk“** „as a company under the Obligations and Contracts Act. It was created by representatives of seven companies and a natural person to implement a common business objective - to build a cluster project to recover the industry „Silk-worm breeding and silk“ and therefore its realization in Bulgaria and the EU.

Short-term goals were related to the creation of new mulberry gardens - 7000 ha and construction of 6 processing enterprises equipped with modern drying systems and lines for reeling in the 8 regions. Purpose of the cluster is to cover both the founders and owners of silkworm farms 7 acres, and large 20 and 50 acres, companies with municipalities, sewing companies, training organizations secondary and higher

education institutions that are located in regions of the cluster and training courses needed in the future enterprise cluster network.

The Company pursues its goals through the implementation of the Strategy for Development of the cluster for the 2010-2020 year. The main focus is on creating public-private partnerships with municipalities to provide better conditions for the functioning of businesses and the attraction of participation in the cluster of local family farms.

The main efforts of the management team are focused on collaboration and sharing of good management practices and expedite their transfer to other regions of the country. Further, within the cluster are developed different activities for coordination and introduction of innovations in technology and processing of silk cocoons.

Association „Farm milk“ Ltd. was founded in 2012 and unites 8 producers of cow’s milk, whose farms are located in the municipality of Rakovski. Legal status is a limited liability company and is managed by Manager and founding members have an equal number of shares.

The main reasons for starting the cooperation refer to the small market share of the individual producer, followed by the low competitiveness of agricultural holdings, financial difficulties, insufficient market information and the ability to create added value.

The total area in 2015 is 555 hectares. The number of dairy cows in 2015 was 552, with an increase in their number by 26.6% compared to the year of creation of the organization.

The general objectives of the realized benefits and effects are mainly related to coordination of logistics and transport processes and cooperation in the selection, deployment-enhancer activity and raising animals.

The manager of the company defines as strategic priority of the organization the increase of the annual profit of the members. Also, the network structure has been managed in a way to develop and improve farm profitability of their members. The level of trust among members has increased thanks to the collaboration and observed stability in their relations.

The main advantages that are created in the process of functioning of the producer organization are the increase the income of farmers and their competitiveness, representation at the state and municipal level, reduced production and transaction costs and the level of the economic risk as well.

Discussion and Conclusions

Network structures discussed in Bulgarian agricultural sector showed that their network design and management tools directly related to the type of the purpose of their operation and objective relationships and dependencies that arise in the course of their business. Significantly greater the opportunities and strengths of clusters and companies registered under the Obligations and Contracts Act and Commerce Act in comparison with those associations registered under the Law on legal entities with

nonprofit purpose.

Studies gave grounds to conclude that the reasons for the low distribution and network design of network structures in the agricultural sector in Bulgaria are mainly reluctance to associate of producers and the limited experience in managing network structures. There is a process of reducing the importance of traditional production cooperatives, the number of which during the years of membership in the EU e decreased by more than 37.5% (2013 versus 2007).

On the other hand, insufficient impact has the measures and funding sources of the Common agricultural policy, regardless of the mechanisms of direct payments, national sectoral policies and programs for rural development. Their support towards network structures are not sustainable and have a short-term matter.

Logical result of the low level of cooperation of farmers are the limited opportunities for processors to create additional value in traditional Bulgarian agriculture sectors such as fruits and vegetables, dairy sector and others. These are sectors where continued negative trends in production and economic performance.

The high concentration of small and medium sized agricultural enterprises has initiated building a competitive agro-industrial network on the base of specific product or geographical region and creating certain advantages through specialization and cooperation. Networks are supported by the European and national policy in different sectors and regions. With these structures is sought creation of sustainable interrelation between similar, connected and dependent competitive companies within same geographical region, with active channels for business activity, common specialized infrastructure, labour and service markets, etc.

The new programme period (2014-2020), which started with delay in Bulgaria in 2016 again provides stimuli for establishment of network structures. Based on the analysis on the results achieved in the previous funding periods, the new Rural Development Programme envisages decreased requirements for minimum anual turnover when establishing producer organizations, without taking into account also the type of production, which could range from grain production to bio-fertilizer and california warms.

A particular focus on network development is placed with the Measure 9 “Producer groups and producer organizations”, where as beneficiaries are pointed producer groups or producer organizations, which fulfill the requirements for small and medium enterprised and are officially recognized until 2020 based on business plan provided.

Opportunities are also provided by the Sub-measure 4.1. “Investments in agricultural farms” through the financial support provided for investments in producer organizations. Value added activities are stimulated by the support planned under the Sub-measure 4.2.”Investments in processing and marketing of agricultural products”.

Measure 16 “Collaboration” is to provide incentives for collaboration and integrated

approach for innovations within the agricultural sector, forestry, processing industry, academia and business organizations. These incentives are to merge with the aims of the European innovation partnership and to stimulate as well short supply chains, local markets and local product chains.

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