



European
Rural
Development
Network

**Evolution of Producers
Organizations
as organizational model
for the development
of services, district
networks systems,
managerial skills
of agri-food SME,
technology transfer
and internationalization**

Editors:

**Piermichele La Sala
Mariagrazia Perri**

EUROPEAN RURAL DEVELOPMENT NETWORK

INSTITUTE OF AGRICULTURE AND FOOD ECONOMICS - NATIONAL
RESEARCH INSTITUTE

INFOTECH LTD. - INNOVAGRITECH SPIN OFF OF THE UNIVERSITY
OF FOGGIA

Editors: Piermichele La Sala and Mariagrazia Perri

Evolution of Producers Organizations as organizational model for the development of services, district networks systems, managerial skills of agri-food SME, technology transfer and internationalization



Ministero Politiche Agricole
per lo Sviluppo Rurale



Fondo Europeo Agricolo per lo Sviluppo Rurale
L'Europa investe nelle zone Rurali



Regione Puglia



Programma di Sviluppo Rurale
della Puglia



Warsaw-Foggia 2015

European Rural Development Network
Conference proceedings series

The work was carried out thanks to funds by the Local Action Group 'Ponte Lama', leader of the transnational cooperation project 'Quality agri-food District 'Terre Federiciane - products chain of Apulia-Basilicata' funded by the measure 421 of the RDP 2007/2013 of the Apulia region.

Edited by:
Piermichele La Sala
Mariagrazia Perri

The several studies were revised and evaluated, with the scientific supervision of Dr. Mariantonietta Fiore, within the Euromed Conference, hosted by University of Verona - Department of Business Administration, Verona, Italy, September 16-18, 2015 under the auspices of the Presidents, Prof. Demetris Vrontis (University of Nicosia, Cyprus) and Prof. Yaakov Weber (College of Management, Israel).

We would like to thank dr Irene Monasterolo (Boston University) for her contribution to making this publication happen by creating the contact between the conference scientific team and the ERDN.

The printing of this volume was carried out by ERDN - European Rural Development Network, www.erdn.eu.

Editor-in-Chief
Paweł Chmieliński

Publishing Editor
Krzysztof Kossakowski

Managing Editor
Leszek Ślipki

Printed by the Institute of Agricultural and Food Economics – National Research Institute, Warsaw, Poland.

ISBN 978-83-7658-598-7

European Rural Development Network (ERDN), www.erdn.eu
Secretariat of the ERDN: dr Paweł Chmieliński, IAFE-NRI, Świętokrzyska 20, 00-002 Warszawa, Poland;
phone +48 22 50 54 774, fax +48 22 827 19 60; erdn@ierigz.waw.pl, chmielinski@ierigz.waw.pl.

Contents

<i>Foreword</i>	5
Piermichele La Sala, Mariagrazia Perri	
<i>Preface.</i>	
<i>The role of the producers organizations in the local development</i>	7
Primiano Di Nauta, Biagio Merola, Donatello Caruso	
<i>A2A relations in agribusiness: a service systems perspective</i>	17
Julius Ramanauskas, Rimantas Stašys	
<i>The Lithuanian Retail Cooperatives</i>	29
Angela M. Andriano, Carlo Ingraio, Caterina Tricase	
<i>Considerations on the role of POs: analysis of a case study</i>	37
Carmela Robustella, Raffaele Savino, Sara Djelveh	
<i>Investigating the EU and national regulations for Producers organizations (POs) and associations of POs</i>	51
Emilia Lamonaca, Alessia Scarinci, Raffaele Silvestri	
<i>Producers organizations and knowledge transfer: a way for farms competitiveness?</i>	59
Pierpaolo Magliocca, Claudio Zaza	
<i>Producer organizations in fair trade agri-food supply chain</i>	69
Giustina Pellegrini, Nicola Faccilongo, Salvatore Camposeo	
<i>The role of PO in the promotion of economic and environmental sustainability: the case study of Aproli Bari</i>	77

Foreword

The issues related to producers' organisations have come to the fore of European policy debates as a result of the internationalisation and globalisation of agri-food markets. Cooperation of agricultural producers enables them to achieve many benefits connected with the building of the competitive advantages by increasing the concentration and specialization of agricultural production, as well as facilitating the adjustment to the effective demand on the market. Horizontal integration processes cause the long-term effects that are not only the rationalization of the production process of agricultural products, but also it can have a positive impact on the extent of vertical integration in the primary wholesale area. In this context, the agricultural producer organisations are a tool to stabilize the situation in the agricultural sector and form the basis of well-functioning agricultural markets. For this reason, the European Union has supported the creation and the development of producers' organisations in agriculture, since they constitute an important factor of competitiveness of the agricultural sector.

This book is a result of cooperation of the participants of the EuroMed 8th Annual Conference "Innovation, Entrepreneurship and Sustainable Value Chain in a Dynamic Environment", hosted by University of Verona, Italy, September 16-18, 2015, and the European Rural Development Network (ERDN) that was established in 2002 to integrate efforts and competencies of various European research institutions in the jointly conducted work on the state and the paths of transformation of the rural areas and agri-food sectors in EU Member States and neighbourhood countries.

The ERDN brings together agricultural economists, rural geographers, rural sociologists and others to address such challenges through collaborative research designed to identify new approaches to agricultural and rural development that can be applied in European countries. We welcome all initiatives that are close to our scientific interests of development of rural systems and would allow for linking researchers from eastern and western European countries. We also invite new members that are close to the European Community's idea of building European Research Area for agriculture and rural development.

Paweł Chmieliński
European Rural Development Network

Department of Economics, University of Foggia, Largo Papa Giovanni Paolo II,
1 - 71121 Foggia (Italy)

¹ piermichele.lasala@unifg.it

² mariagrazia.perri@unifg.it

Preface

The role of the producers organizations in the local development

Introduction

Producers Organisations (PO) are, to date, one of the main tools that sectoral policies identified to increase the competitive advantage of farms. The theme of the aggregation of producers, whether territorial or functional, plays a decisive role in the scientific debate, political and technical support for the development of modern agriculture.

The preface to this volume introduces the main features that give such importance to PO: from the policy context in which POs were born and have established themselves, stressing the role that they play within branches food especially for the benefit of the production steps; as part of the agricultural extension services; for the development of the territories and, in general, in the processes of local development.

The PO in the CAP

The Common Agricultural Policy (CAP) has introduced for the first time the instrument of Producers Associations with the EEC Regulation n. 159 of 1966 as part of the Common Market Organisation (CMO) for fruit and vegetable sector.

CMOs are the fundamental instrument of the common agricultural market under the CAP and governing the production and trade of products or groups of products (cereals, vegetables, pork, eggs, wine, etc.) in order to ensure a stable income to farmers and a continuous supply of European consumers, through a number of mechanisms:

- Intervention in the markets (buyback of surplus production, storage aid, pricing governing the market, market withdrawals);
- Limiting production;
- Support for specific programs;
- The trade measures (customs duties, quotas).

Consequently, the CMO were born with the aim to promote exchanges and to direct the development of the agricultural sector in accordance with a framework of common standards and shared.

With Regulation 159/1966 are asserted, the Association of Fruit and Vegetable Producers, seen as a group form, on a voluntary basis, in receipt of Community aid and toward concentrating the offer so that the production side would oppose the growing power demand.

However, it is only with the entry into force of the EEC Regulation n. 1035 of 1972 that, in fact, you can create a real stimulus to the creation of Producer Organizations (POs). In the same Regulation, at the article n. 13, it states that any PO, established on the initiative of the producers themselves, was created in order to promote the concentration of supply and make available to member producers appropriate technical means for the packaging and marketing of the products concerned.

For associated producers this implies the obligation to sell, through the PO of belonging, all production for the product or products for which or for which they joined the PO and to apply, in the production and marketing, the standard adopted by the organization to improve product quality and volume of supply and to adapt it to the needs of the market.

The ineffectiveness of the producers associations in achieving the objectives of the EEC, as well as the pressing need to make the sector competitive, impacted decisively in the formulation of new rules of the fruit and vegetable CMO.

In 1996, the EEC Regulation n. 2200/96 was issued, a basic regulation of the CMO Fruit and Vegetables. Such reform work continues with the EC Regulation n. 1234 of 2007, when it is becoming increasingly clear the need for the Community to modify the arrangements of fruit and vegetables in order to

achieve those goals that, in its opinion, the United States could not implement due to the nature of the market for fruit and vegetables.

These objectives are identified in: improving the competitiveness and market orientation of the sector; reducing fluctuations in producers' income resulting from crisis on the market; increase consumption of fruit and vegetables in the Community and continuing the efforts made in order to safeguard and protect the environment; allow aggregation for product facilitating and promoting adherence finalized and not generalist.

Therefore, it is obvious that to qualify for the financing of operational programs of POs and other means provided by the CMO, operators of the fruit and vegetable sector were "obliged" to stay together. This "requirement" is useful to concentrate supply in a sector that suffered more than others sectors, formed by the time an important cultural change in the world of agricultural cooperation.

This evolution has promoted the POs and in effect, the CAP invests a lot on the PO and the role of such associations for the benefit of the world's production. With EU Regulation n. 1308 of 2013 the process of reform of the sector policy reinforces POs. In fact, besides preserving the role of fundamental instrument for price support and the markets through the CMO in I Pillar of the CAP, support to POs, meanwhile extended to other production sectors in addition to fruit and vegetables, is also present in II Pillar of the CAP aimed in the rural development that, for the first time, encourages and supports the start up of such forms of cooperation in the primary sector.

The PO and the agro-food chains

The issue of relations and the distribution of value in the food chain is extremely relevant in the scientific literature and in sectoral policies. The evolution of the food industry has led, over the years, to a profound modification of the commercial channels and distribution systems. Agriculture seems to find it hard to keep up the structures that are found in the other stages of the food chain.

The need to solve problems such as the pulverizing of the offer, the low bargaining power of farmers and the poor quality of the products is becoming more urgent and indispensable.

With economic development and the extension of the commercial circuits, various economic players have appeared in the stage of production and that of consumption, transforming the demand for agricultural products from the "direct" to "derived" (Scola, 1992).

In this new condition, the demand for agricultural products at the farm, exercised by wholesalers, the processing industry, from the collection centres, has forced farms to specialize in a few products that meet the requirements of these new sales figures. It is at this point that begins to be felt the problem of fragmentation of supply.

Farmers, in fact, are often at a disadvantage in negotiations with wholesalers and processing industries and most of them do not manage to adapt their production to the new business needs.

The change in the way and the place of purchase have concentrated much demand for food products for the benefit of modern distribution outlining a new set of trade where the demand for food and agricultural products is carried mainly by two figures: the processing industries and the organised distribution.

This concentration of demand has increasingly emphasized the need to increase the size of the offering, through the reorganization of larger dimensions than the current ones, to meet the new characteristics of the demand and not to lose bargaining power.

Features and technical-economic dimensions of the adjustments required, however, tend to exceed the capacity of action of the individual farms and define areas of activity in which they can operate only groups of companies, in order to achieve substantial benefits in use of resources financial and management of commercial relations.

In this context, the POs are the only solution to try to adapt to these new scenarios, through: the planning of production, the concentration of supply and the pursuit of economic results more efficient as a result of optimizing production costs and the maximizing sales revenue.

The PO and the extension services

The modernization of agriculture and the subsequent growth of the role of industries and, at the same time, the policies of restriction of public spending led to a sharp decline of public services of technical assistance for the transfer of information and a process of commercialization and/or privatization of the same (Contò et al., 2012a).

In this context, the EC Regulation n. 1698 of 2005 on Rural Development has taken an important role to revive the Agricultural Development Services (ADS), recognizing the role of importance for the improvement of human potential employee and the profitability of companies, and more generally to the attainment of strategic development of the competitiveness of the primary sector.

The establishment of the system of the extension services was, therefore, envisaged in the context of a set of measures which are complementary and competitive. These measures are intended to intervene directly on the development of human capital, such as education and information (Measure 111) but also to assist the entrepreneur for the use of advisory services (Measure 114), cooperation for the development of new products, processes and technologies (Measure 124) (Contò, La Sala, 2010).

Above mentioned EU Regulation on Rural Development clearly indicates objectives such as cost reduction, quality improvement, diversification of production, agro-environmental measures. The complexity of the problems related to food safety and environmental protection requires increasing cooperation within the systems of knowledge in agriculture (research, training, dissemination) and between these and the different actors, from producers to consumers and policy makers.

In a logic of continuity with the previous regulation, the new UE Regulation no. 1305 of 2013 on Rural Development requires a profound change in the behaviour of farmers, assigning a strategic role to the ADS in order to:

- ensure the production and the transfer of innovations;
- develop communications systems, especially those that promote networking among individuals and between the AES and businesses;
- train the new professional skills needed to promote and assist new organizational models (PO, food chains, districts, local production systems, consortiums, etc.);
- promote the integration of the development projects of the territory;
- organize the promotion and protection of traditional products (Contò et al., 2013).

The new regulation, in particular, seems to recognize how these functions cannot depend solely on individual ability farmer to benefit from the tools provided by the RDP. In this context, the POs can, by their very nature, more than other facilities to support the farmer in the acquisition of knowledge and skills relevant for the purposes of the business.

Access to innovations of product, process and technology is an important source of competitive advantage for farms, especially in a global context and in constant evolution where production costs are higher and higher and profits tend to be reduced significantly. But access to new technologies is rarely possible to individual farms outside of partnerships with other companies of the sector and with research and development. For this reason, the CAP supports the instruments of the II Pillar to the opportunities offered by the PO to meet the needs of technical, innovation and knowledge of the member farms.

The PO for the local development

The globalization, changes in demand and the economic and social challenges that characterize the last years have influenced the local development strategies and policies at Community level, focusing on a variable considered most of the other condition for overcome the difficult times of economic crises and structural economy and in European society: the territory (Contò, La Sala, 2010).

Any policy that acts locally, if it is to be effective, must start from the territory, which plays an active role in regional development processes and is an overview of opportunities and enhancement of specific resources.

The objectives of the CAP are focused not only on agriculture (modernization of production facilities, income support for farmers), but in the rural context where agriculture and the other sector interact with each to define the identity of the territory of which they are part.

The rural area plays a central role in EU policies and other institutional levels in the basis of own resources (endogenous) and set of social relations and combinations entrepreneurial and institutional, whose protection and development are key to the growth and integration social and economic territory.

The Leader initiative, launched in Europe at the end of the eighties, have opened the way for a program for the development of rural areas of the EU that provides the regionalization of public actions, the creation of local partnerships with public and private character for design and implementation of interventions, support for integrated projects.

These elements are particularly evident in the current programming period of the Rural Development Policy of the EU, which gives continuity to the experiences of participatory planning at the local level promoted by the Leader initiative (Contò et al., 2012b).

Programs and projects focusing on the characteristics and needs of the territories are the main theme of the future cohesion policy at Community level and sets the rules for the implementation of the CAP 2014-2020. In this sense, territorial cooperation plays a key role and it represents a breakthrough methodology aimed at achieving the objectives underlying the reform of sectoral and economic policies.

Some fundamental aspects characterize the Leader approach: territorial approach, bottom-up approach; partnership approach; innovation; integrated approach; the networking and cooperation between areas; financing and lo-

cal management. Cooperation can help to empower the local business, bring innovation and can improve social skills and decision-making.

From the economic point of view, the cooperation provides access to tools, resources and technologies otherwise inaccessible. Successful cooperation increases the capacity building (Calabro et al., 2004), the wealth of knowledge (human capital) and the network of relationships (social capital) between local actors, between these and local governments and among members of the collaborative partnership.

For this reason, the contribution of POs to the processes of local development and cooperation between the territories cannot be overlooked. As part of the strategies and policies for local development, the POs, as a partnership between companies belonging to one or more production systems of the agriculture are an indispensable tool for business growth.

Yet, they may also represent, primarily through the Local Development Strategies of the LAGs, a fly in the processes of regional and transnational cooperation. The main benefits are therefore configured in the exchange of ideas and experiences, which lead to the acquisition of skills and expertise and contributing to the strengthening of the share capital of the territory by creating lasting change over time.

Conclusion

As mentioned in the previous paragraphs, reflecting the importance of the instrument aggregative analysed in different forms in which it contributes to the improvement of social and economic development of agriculture and consequently, of rural areas.

The extension of the POs to other productive sectors, in addition to the fruit and vegetable, it institutionalizes its role as a determinant of the normal evolution of the farm forced to move in an organized settlement.

To cope with the structural crisis in the agricultural sector, uncompetitive in the food chain and penalized by excessive fragmentation and low of capacity for innovation, the European Union has seen the establishment of associations of producers and POs before then, as the best solution to the problem.

However, although numerous, the POs that concentrate the offer and give the other service (assistance services, greater market orientation) are few.

Unfortunately, even today, the rate of farmers associated in PO is low compared to the total number of farms and, even worse, all too often, POs end up

making only formally the concentration of members, but in reality the commercial activities are undertaken by the initiatives of individual producers.

Therefore, the functions carried out by POs actually prove still too far from good intentions for which they were created. In this sense, the reform of the CAP 2014-2020 is called to work with great attention, especially with reference to the tools of II Pillar, in order to prevent this risk could establish itself as operating practices in all productive sectors.

In fact, all the operational tools and prospects of development of the sector, in the new CAP, are very relevant.

Therefore, we can't imagine a strong role of the aggregations of farmers in particular in the context of: food chain projects, the development of partnerships for local development and for the promotion of production PDO, PGI, organic farming through the consortium, in the 2014-2020 period.

Neither can we underestimate the role of POs in growth of the heritage of knowledge of the operators in the food industry through the transfer of innovations in the form of new products, new processes and new technologies.

This transfer, promoting the development of regional partnerships and increasing the level of knowledge on innovations produced by research, is a key element for the participation synergistic Groups Operating (GO) of the European Innovation Partnership (EIP). A model that is also a point of contact with virtuous goals that POs and territorial policy makers should not underestimate to promote the effective aggregation productively.

References

- Calabrò T., Marcianò C., Vigetti E. (2004), Il ruolo della capacity building nelle governance rurali: un caso applicativo nel Leader Plus in Calabria, XXV Conferenza Italiana di Scienze Regionali, Novara, 6-8 ottobre.
- Contò F., La Sala P. (a cura di) (2010), Approccio territoriale e sviluppo locale. Il programma di sviluppo del Distretto Agroalimentare di Qualità del Meta-pontino. P. 1- 384, MILANO: FrancoAngeli, ISBN: 9788856836165.
- Contò F., Fiore M., La Sala P., Papapietro P. (2012a), The role of education, knowledge and human resources for the agricultural development in the perspective of new CAP: an hypothesis of change in Basilicata. Applied Studies in Agribusiness and Commerce (APSTRACT), 6 (1-2), 123-129, ISSN: 1789-221X (print), ISSN: 1789-7874 (electronic version), available online at <http://www.apstract.net/node/292>.

- Contò F., Fiore M., La Sala P. (2012b), The Cross Border Cooperation Programs: Human Capital and Relational Capital. TIMIȘOARA JOURNAL OF ECONOMICS AND BUSINESS. Vol. 5, Issue 18. ISSN 2286 – 0991.
- Contò F., Fiore M., La Sala P. (2013), The role of agricultural development services in territorial development, in Conference Proceedings of 3rd International Scientific Conference 'Whither Our Economies', Vilnius (Lithuania), 24-25 Ottobre 2013, pag. 237-248. ISSN (online) 2029-8501.
- Regulation (EEC) No 159/1966 of the Commission.
- Regulation (EEC) No 1035/1972 of the Commission.
- Regulation (EEC) No 2200/1996 of the Commission.
- Regulation (EC) No 1234/2007 of the Commission.
- Regulation (EC) No 1698/2005 of the Commission.
- Regulation (EC) No 1305/2013 of the Commission.
- Regulation (EC) No 1308/2013 of the Commission.
- Scola G. (1992), Le associazioni di produttori nella filiera ortofrutticola: un confronto Italia-Francia. *Medit*, vol 3, n.4, (December 1992), pp. 52-55.

Department of Economics, University of Foggia, Largo Papa Giovanni Paolo II,
1 - 71121 Foggia (Italy)

¹ primiano.dinauta@unifg.it;

² biagio.merola@unifg.it;

³ donatello.caruso@unifg.it

A2A relations in agribusiness: a service systems perspective

Abstract: *The purpose of this paper is to propose a service perspective of relations and interactions in agrifood supply chains. The contribution moves from the concept of A2A relations developed in the Service research framework (Gumesson, 2008; Vargo and Lusch, 2011), particularly valorizing network and systems theories. Recent Service research advancements highlighted the importance of value co-creation and integration processes (Service Science, Service-Dominant Logic, Many-to-Many). The paper aims to propose a reading of the research stream through the lenses of Viable Systems Approach (Golinelli, 2010; Barile, 2008), intended either as an observation and interpretation perspective for phenomena, or a path for governance and management of producers organizations. The paper proposes a conceptual analysis, through a relational perspective within Service Ecosystems, which shows a networked open vision respecting economic and social actors. In this latter vision, each producers organization can be considered as an Actor (and as a Viable System), actively operating in the process of value creation, through a resource integration process, overcoming notions such as user, producer, enabler, and so on. A2A then, seems to challenge the spread literature based on B2B/B2C/C2C, moving to a wider and specific concept of H2H relations or, in a vSa perspective, VS2VS. The contribution focuses on agri-food supply chains and producers organizations.*

Keywords: *Viable Systems, Service System, Supply chain*

The business world is more and more interested and oriented toward the research on complexity as it is evident that, to face new situations and to survive the new challenges of the modern dynamic context, the traditional interpretational schemes, which are often based on predefined and standardized solutions, shows their inadequacy (Barile, 2009a).

Management and organization theories promote the adoption of structured or semi-structured models in order to facilitate the decision-making process but many researchers have just observed this evolution and they recognize the importance to broaden the horizons of the research when they approach issues of government.

Particularly, these themes have been studied in recent research streams field belonging to systems thinking (Von Bertalanffy, 1956, 1968), applied to social and economic contexts, starting from the assumption of organization considered as viable systems, and proposing a methodological system approach as a perspective through which new interpretative schemes for the management of complex contexts can be extrapolated. This research perspective is known as Viable System Approach (VSA), (Golinelli, 2000, 2008, 2010, 2011; Barile, 2008, 2009a; Saviano, Di Nauta, 2011). From a theoretic point of view, VSA offers several potential connections between the most important approaches to the Service Research: Service Dominant Logic (Lusch, Vargo, O' Brien, 2007; Vargo, Lusch, 2008a, Vargo, et al. 2006); Service Science (Spohrer et al., 2007, 2008a, 2008b; Maglio et al., 2006; Maglio, Spohrer, 2008, Maglio, et al. 2010; Katzan, 2008); Many-to-Many approach and the system theories. This paper analyzes the approach to the interpretation of relationships for the purposes of government and support decision making, with the aim to synthesize and provide a common methodology for government business dynamics.

Hints on Service research

The growing importance of the services compared to goods doesn't permit us to continue to consider goods-services relationship in a traditional way. As a matter of fact, there are many attempts of a goods-services relationship inversion (especially present in the conventional paradigms), in order to analyze and examine in depth the considerations related to their exchange and use, to re-examine the concepts of value and its creation and to interpret again the meaning of interaction, relation and loyalty.

The study of the international literature on the services themes, allows us to learn that, nowadays, the intersection between demand and supply occurs at different levels and with several modalities, especially according to the features of the product that is demanded and supplied. This intersection depends on the capability of mobility and accessibility that the resources have (both connected to the relocation); it depends on the information and com-

munication capability (connected to the knowledge and that nowadays are favored by the coming of the Internet); on the fruition modality (connected to the quality and innovation of the allocation systems); on the efficiency granted in terms of procedure, reliability, image, competence, adaptability. In this sense, taking back definitions by Gronroos (1990) and Gummesson (1987), it is possible to state that “a service is a process which consists of a series of activities, of a more or less tangible nature, that normally, but not necessary, take place in the interaction between the customer and the employee and/or between physical resources or products and/or systems belonging to the service provider, that are provided as solutions to the customer’s problems”. Furthermore, a growing presence of services in all the productions (far-back Service Economy is discussed – see Levitt, 1981), and the traditional dichotomy between goods and services gradually leans to lose its tone and meaning (Kotler, 1977; Normann, 1991; Rispoli, Tamma, 1992; Cercola, 1996).

Companies, including the industrial ones, more and more take into consideration the possibility of enriching their own supply through the addition of services, looking for opportunities of interaction, respect and loyalty, traditionally not always implied in the physical product in itself, in order to revise the business role and its relationship with the market (Gronroos, 2000).

Nowadays the activities related to the service are not looked at as something secondary, complementary or supporting, but they appear more and more frequently as a core elements (at least from a conceptual point of view) of many organizations. Companies seem to orient their own core toward the service, paying particular attention, in all the company function, to the culture of service and basing their competitiveness also on the quality of the service performance and innovation.

We can point out a common effort with the aim of sensitizing the international public opinion of the utility, the importance, the role and the application of “services” in all the productive sectors and their revealing influence in the value creation process (Carrubbo et. al., 2012).

The classic logic, based on the separation between consumers and producers and on the simple distinction between goods and services, is now defined a “yesterday logic” (Drucker, 1993), as it is considered totally contrasting with the most recent interpretations based on network relationships, continuous interactions, value co-creation (Gronroos, 2008), all elements which are considered more close to the modern economy (Rust, 2004). Although this idea of transversal and omnipresent service is not completely new (Rullani, 1997), it appears definitely in line with the changes of the global markets that are more and more interconnected, dynamic and characterized by a strong turbulence.

According to the S-D logic the service is seen as “the application of competences, through actions, processes and performance, with the benefit of another entity”; it represents “the increase of value for physical goods” (Vargo, Lusch, 2006; 2008b). In general “services are intangible activities customized according to the single request of well-known customers” (Pine, Gilmore, 2000); the relative customizations take to co-production relationships, considering the customers as the real participant of the process and the real key component able to distinguish a specific model of service system from the traditional economic one.

Systems thinking contribution to service comprehension

The VSA represents a scientific stream that proposes a key methodology for the analysis of complex phenomena. It is focused on original representations of behavioral entrepreneurial approaches and on the related interactions between individuals and/or organizations, here meant as ‘systems’, and their own referring context (the literature is wide, and is available in the Association for Research on Viable Systems – ASVSA web site, www.asvsa.org). For this reason, VSA is strictly connected with the network theories and is based on the systems general theory, on the social sciences and on many others disciplines concerning cognitive spheres, while the main application framework are economics studies. In VSA perspective, any individual/organization (that is to say, every ‘viable system’) action is contextualized in a dense group of relationships which are branched off within the structure of a company-system (so considering that also its sub-components – sub-systems), stretching to its external side and relating itself to all the possible system over-structure (significant or not – over-systems) that, in a direct or indirect way, can influence the action, the strategies and the outcomes of an organization. So, VSA encourages the analysis of the relationships between the inner elements that constitute a company besides the relationships between companies and other system entities inserted within the same context. From this point of view a system, to be so defined, must be characterized by: i) many tangible and intangible sub-components; ii) interdependence and communication between these sub-components; iii) necessity to activate the relationships in order to achieve the system finality (Barile, 2000).

Observation and interpretation of relationships through service and systems thinking

One of the most interesting contributions that the VSA can offer to the relationships governance theme is just the observation and interpretation of the systems evolution.

In order to grant an adequate recognition of the other subjects and parts role in the value creation, Gummesson (2008) enhance therefore the “many-to-

many” approach (Gummesson, 2009) that extends the value creation notion to the interactions between the supplier networks and the consumer communities. According to this perspective, the value is generated through valuable proposals and the value actualization within: (i) the business-to-business relationships (B2B); the customer-to-customer relationships (C2C), and (iii) the interactions between companies and customers (B2C and C2B) (Gummesson, Polese, 2009). Moreover, because the supplier networks are not limited to the B2B relationships, but they extend to the relationships with a series of other interested subjects (or interested parts), it has been suggested to widen these relationships (B2B, C2C, B2C/C2B) to the many-to-many approach integrating also the important relationships existing between the company and its stakeholders (B2S/S2B). A final improvement of the model shows that the consumer communities live in relation with the various interested parties (C2S/S2C), and that these relationships are able to influence the value creation process.

The complete model is therefore represented by a sort of a “value pyramid” (Gummesson, Polese, 2009), where it is represented a variety of relationships (B2B, B2C/C2B, C2C, B2S/S2B, C2S/S2C) which are managed within a system of value proposals (that are offered by the companies to possible markets, and so, expression of the potential value) and a system of value actualization (that are materialized by the market every time that the interaction occurs as result of choices and decision-making processes, therefore connected to the concrete and effective value) in order to co-create value (Gummesson, Polese, 2009).

The model indicates the reality in which supplier and customers are incorporated within complex relationships that comprehend exclusively its own network and communities, but also other interested subjects – which are able to influence, sometimes by force, the value creation within a service experience.

Moreover, the model describes the dynamics existing between actors when one of them (usually a service supplier) offers service proposals that, in the end, are accepted and give rise to the effective co-creation of value, through the value realization due to the choice of a second actor (usually a customer). This recursive process interests, actually, a lot of actors because in its representation it is not dyadic at all. This model is challenged by the most recent progresses done by the research on the service that, gradually, have obscured the social-economic differences between the entities involved in the value creation process suggesting that all the relationships can be defined as A2A relationships (Vargo, Lusch, 2011; Wieland, Vargo, Lusch, Polese, 2012).

The VSA represents an important source for the research on the service logic (Polese, Di Nauta, 2013), with reference to this please note that the theoretical proposal of the VSA is based on the relationships governance and

management. As a matter of fact, the interesting suggestions coming from the VSA are connected to the capability that the system has to promote the relationships management through the evolution of satisfactory company dynamics. This seems to be absolutely in step with the value co-creation concept introduced by the S-D logic, which essentially refers to a process where all the actors must be satisfied in a widespread win-win interaction. However, the value co-creation occurs within dynamic interactions between several actors, and represents a status that is hard to realize by the decision-makers belonging to the entrepreneurial modern world. Although there is the recognition of the relationship importance – fundamental elements of value creation and sustainable behavior – neither the S-D logic nor the SS, are mainly focused on the management of these relationships in order to achieve the benefit and the success of the single actor and on the way to do it dynamically, because of the more and more changeable conditions of the service exchange.

It is in this dynamic interaction that the VSA contributes to the design and the governance of positive interactions between entities (Aguiari, Di Nauta, 2012). Companies, individuals and decision-makers have to look to dynamic models based on supporting decision-making systems able to achieve satisfactory conditions with the involved decision-makers, seeking a continuous feedback directed to the productive processes, in order to adjust their features to the customers' needs (Saviano, Di Nauta, 2011). It is co-design, co-production, co-creation. This is what the VSA suggests to introduce a company behavior in search of consonant and resonant interactions between the system actors. So, the VSA propose a useful model for the management of the relationships between actors, resources owners who need an integration for a successful service exchange.

In this perspective, the VSA interprets the relationships between the actors as a continuous research of consonance and resonance (Barile, Di Nauta, 2011). So, it is oriented toward the creation of virtuous network as constitutive elements of the service systems models. Thus, the VSA can be interpreted as a structure and methodology used to understand and to interpret the service system.

Service systems, networks and supply chains

Service can also be defined as a series of activities in which the resources that have a sort of interaction with the customer/final user (employees, material resources, goods, person who offers a service) are exchanged in order to find out some solutions (Gronroos, 2008); according to this perspective, the service can be identified with both the supplier and the customer operations, and their relationship can be considered as a system of parts that interact to carry out

the service. So, services are bargaining chips and they are used as particular point of view in the value creation process, especially in qualitative terms.

So, the service represents a “sort of interaction between the entities of a reticular system aimed at improving the value of the co-creation process outcomes, in compliance with a win-win logic, within a group of processes which are closely related to each other” (Polese, Russo, Carrubbo, 2009).

Once defined and legitimated the service role and its already famed significance, the conceptualization of the space where it is conceived, realized and co-created, has been subjected, over time, to continuous evolutions that have led to many interpretations of the so called service systems. First of all, a service system appears to be connected to supplier/customer interactions and, therefore, it is seen as an open system (Golinelli, 2011), able to enhance its own equilibrium status through the resources acquisition, sharing and supply.

The service systems are defined as system of work, where the actors exchange resources, share knowledge and information within a dynamic, specific and reticular supply chain of the value (Alter, 2008). Suppliers and customers are then complex service systems that lead actions within a certain market in order to obtain expected results such as solution and experiences (Mele, Polese, 2011). So, service systems can favour connections and interactions among the several actors involved into an exchange process by following different communication channels between companies, users and various stakeholders (Gummesson, Polese, 2009).

The supply chain is re-conceptualized as a service system network, and for this reason it shows an a priori definable configuration, but able to be iridescent, to adapt and evolve in respect to the context condition.

The knowledge contribution, the appliance of competences, the configuration and re-configuration capability, the willingness to interweave long terms relationships with subject considered strategic, are elements of a system way to be adaptive.

Successful organizations, and by consequence the network to which they belong, are for example oriented toward the expression and the development of a win-win relational culture rather than assume short terms opportunistic behaviours. So they are oriented toward co-creation processes through the instauration of long period relationships and toward the value sharing, that requires a continuous improvement in the interaction between the network entity, in the research of the resources allocation optimization process and in

the sharing of the advantages deriving from the collaboration and the cooperative strategies (Castells, 1996; Gulati, 1998, Capra, 2002).

In opposition to the traditional conceptualization of the value chain, the networks theory deals with the distinctive resource notion (attributed to the capabilities of a single entity), to embrace the idea that each entity benefits of the capability to re-set up its own service system in collaboration with other entities belonging to the network, in order to realize a valuable network for the service in which the entities are incorporated.

In short, the network theory allows to interpret the service systems as networks where the functional interdependences among the actors exist, in order to face the growing level of ambient complexity (Richardson, 1972; Hakansson, Snehota, 1995). In this perspective, the transactional models and the sequential linear dies, denounce their obsolescence. On the other side, the network interactions can be interpreted as drivers of the value, as the entities (actor) which take part to this process, develop a collaborative process of value creation, creating in this way a competitive advantage just thanks to the relationships.

Concluding remarks

Service Science provides the framework to explain a sort of ‘degeneration’ of the product as a strict concept in favor of a wider conceptualization in which the product becomes a component of the service. This allows us to argue that the challenges agribusiness is facing seem not to be strictly related to the product, but to how ‘network’ relational reference that allows the product to find the proper enhancement (Di Nauta, 2013).

That is, the product ‘does not come’ because it is the company that ‘does not come’, in the sense that, especially in the fragmented world of agribusiness, the reluctance to report to work as a team, to build the network, significantly affects the ability of value co-creation. The product can be materialized as one possible configuration of the evolutionary process of a company in its continuous search for consonant and resonant relations in the context, in which the company has to enable the exchange of resources with all the other actors in the context of a A2A logic.

The value co-creation is then a continuous process of ‘exchange’ of value between two or more parties (in this case all the players in the sector agribusiness) that we could see as actors acting in a network of actors, selecting among many potential relationships. If each actor is able to transform the potential relationships in interactions, it will drive to a higher value co-creation.

It changes the process of creating value and must, therefore, try to develop a way to measure the ability to create value for each actor. The company agribusiness emerges into its constituent parts. The company qualifies for the relationship between individuals/actors that constitute it.

It appears every time in a new system among enterprises, that create value or rather between the actors that make up the agrifood businesses that create value.

It exceeds the traditional standardized view of the relationship between the various companies that make up the agrifood supply chain. It exceeds the consideration that there is a default solution and a magical solution to the analysis of the rapport between the various companies.

References

- Aguiari R., Di Nauta P. (2012), "Governing business dynamics in complex contexts", *Mercati e Competitività*, fascicolo n. 1, p. 39-59, Franco Angeli, Milano, ISSN 1826-7386.
- Alter S. (2008), "Service system fundamentals: Work system, value chain, and life cycle", in Maglio, P.P., Spohrer, J. (eds.). Special issue on Service Science, Management, and Engineering. *IBM Systems Journal*. vol.47. n.1, pp.71-85.
- Barile S., (2000), *Contributi sul pensiero sistemico in economia d'impresa*, Arnia, Roma.
- Barile S. eds. (2008), *L'impresa come sistema. Contributi sull'approccio sistemico vitale*, II ed., G. Giappichelli Editore, Torino.
- Barile S. (2009a), *Management Sistemico Vitale. Decidere in contesti complessi*, G. Giappichelli Editore, Torino.
- Barile S. (2009b), *Diagnostic – Cube – vSa. An interpretative model to solve problems of the organizations*, 1st Journal of Management and Governance Conference, Governing strategy and knowledge: tools and methodologies, Venice: 8-10 October.
- Barile S. (2009c), *The dynamic of Information Varieties in the Processes of Decision Making*. Proceeding of the 13th WMSCI - World Multi-Conference on Systemics, Cybernetics and Informatic, Orlando.
- Barile S., Di Nauta P. (2011), "Viable Systems Approach for territory development", VV.AA. (eds), *Contributions to theoretical and practical advances in management – A Viable Systems Approach (VSA)*, International Printing, pp. 199-243.
- Capra F. (2002), *The Hidden Connections*, London, Harper Collins.
- Carrubbo L., Di Nauta P., Moretta Tartaglione A. (2012), "A2A Relationships in Service Contexts", *China Business Review*, vol. 11, number 10, p. 873-890, ISSN 1537-1506
- Castells M. (1996), *The rise of a network society*, Oxford, Blackwell.

- Cercola R. (1996), "La fine della dicotomia beni-servizi: nell'economia neo-industriale l'impresa deve creare valore per i partner", *Sinergie*, No. 40, pp. 37-68.
- Drucker P.F. (1993), *Postcapitalist Society*. New York: HarperCollins Publishers.
- Di Nauta P. (2013), Il settore agroalimentare in Italia fra tradizione ed innovazione. Uno sguardo alla Capitanata, WIP Edizioni, Bari, pp. 1-142, ISBN 978-88-8459-272-9.
- Golinelli G.M. (2000), *L'approccio sistemico al governo dell'impresa. L'impresa sistema vitale*. vol. I. Padova: Cedam.
- Golinelli G.M. (2008), *L'approccio sistemico al governo dell'impresa. Verso la scientificazione dell'azione di governo*. Padova, Cedam.
- Golinelli G.M. (2010), *Viable System Approach. Governing Business Dynamics*. Padova: Kluwer, Cedam.
- Golinelli G.M. (2011), *L'approccio sistemico vitale (ASV) al governo dell'impresa. Verso la scientificazione dell'azione di governo*. vol. II. Padova: Cedam.
- Grönroos C. (1990), *Service Management: A Management Focus for Service Competition* *International Journal of Service Industry Management*.
- Grönroos C. (2000), *Service Management and Marketing, A Customer relationship approach*, West Sussex, John Wiley Sons.
- Grönroos C. (2008), "Adopting a service business logic in relational business-to-business marketing: value creation, interaction and joint value co-creation", *Otago Forum* 2, pp. 269-287.
- Gulati R. (1998), "Alliances and Networks", *Strategic Management Journal*, vol.19, pp.293-317.
- Gummesson E. (1987), *The New Marketing – Developing Long Term Interactive Relationships*, *Long Range Planning*, 20(4), 10-20.
- Gummesson E. (2004), *Many-to-Many Marketing*, Malmö, Liber.
- Gummesson E. (2008), "Extending the New Dominant Logic: From Customer Centricity to Balanced Centricity", *The Journal of the Academy of Marketing Science*, 36 (1), pp. 15-17.
- Gummesson E. (2009), *Marketing As Networks: The Birth of Many-to-Many Marketing*, Stockholm, Publishing House Djursholm.
- Gummesson E., Polese F. (2009), "B2B is not an island", *Journal of Business & Industrial Marketing*, vol. 24, n. 5.
- Håkansson H., Snehota I. (1995), *Developing relationships in business network*, London, Routledge.
- Katzen H.J. (2008), *Foundations of Service Science Concepts and facilities*. *Journal of Service Science*. Vol. 1, No 1 1.
- Kotler P. (1977), *Marketing Management: Analysis, Planning, Implementation, and Control*, Prentice Hall, Upper Saddle River.
- Levitt T. (1981), "Marketing intangible products and products intangibles", *Harvard Business Review*, vol. 59, pp. 94-102.

- Lusch R.F., Vargo S.L., O'Brien M. (2007), "Competing through service: Insights from servicedominant logic", *Journal of Retailing*, vol. 83, pp. 5-18.
- Maglio P., Kieliszewski C., Spohrer J., eds. (2010), *Handbook of Service Science*, Springer
- Maglio P.P., Srinivasan S., Kreulen J.T., Spohrer J. (2006), Service systems, service scientists, SSME, and innovation. *Communications of the ACM*, n. 49, pp. 81–85.
- Maglio P.P., Spohrer J. (2008), Fundamentals of service science, *Journal of the Academy of Marketing Science*. vol. 36, n. 1, pp. 18-20.
- Mele C. and Polese F. (2011), "Key dimensions of Service Systems: Interaction in social & technological networks to foster value co-creation", in Demirkan H., Spohrer J. and Krishna V. (Eds.), *The Science of Service Systems*, Springer, New York, pp. 37-59.
- Normann R. (1991), *La gestione strategica dei servizi*, Etas Libri, Milano.
- Pine B.J., Gilmore J.H. (2000), *L'economia della esperienze*, Etas, Milano.
- Polese F., Di Nauta P. (2013), "A Viable Systems Approach to Relationship Management in S-D Logic and Service Science", *Die Betriebswirtschaft*, Schäffer-Poeschel Verlag für Wirtschaft-Steuern-Recht GmbH, vol. 73, n. 2, p. 113-129, ISSN 0342-7064.
- Polese F., Russo G., Carrubbo L. (2009), "Service Logic, value co-creation and networks: three dimensions fostering inter-organisational relationships: competitiveness in the boating industry", *Proceedings of the 12th QMOD and Toulon-Verona Conference*, August.
- Richardson G.B. (1972), The organization of industry. *The Economic Journal*, vol. 82.
- Rispoli M. and Tamma M. (1992), "Beni e servizi, cioè prodotti", *Sinergie*, No. 29, pp. 95-115.
- Rullani E. (1997), "Il ruolo dei servizi nella realtà dell'impresa moderna", *Sinergie*, No. 42, pp. 45-59.
- Rust R.K. (2004), "A call for a wider range of services research", *Journal of Service Research*, vol. 6 n. 3, pp. 2-11.
- Saviano M., Di Nauta P. (2011), Project Management as a compass in complex decision making contexts. *A Viable Systems Approach*. *ACM Journal*.
- Simon H.A. (1969), "The Architecture of Complexity", *The Sciences of the Artificial*, Cambridge, MIT Press.
- Spohrer J., Maglio P.P., Bailey J., Gruhl D. (2007), "Steps Toward a Science of Service Systems", *IEEE Computer*, vol. 40, n. 1, January, pp. 71-77.
- Spohrer J., Anderson L., Pass N., Ager T. (2008a), *Service Science and Service Dominant Logic*. *Otago Forum 2*, pp. 4-18.
- Spohrer J., Vargo S.L., Maglio P.P., Caswell N. (2008b), The service system is the basic abstraction of service science. *HICSS Conference*.

- Vargo S.L., Lusch R.F., Malter A.J. (2006), "Marketing as Service-Exchange: Taking a Leadership Role in Global Marketing Management", *Organizational Dynamics*, vol. 35, n. 3, pp. 264-277.
- Vargo S.L., Lusch R.F. (2008a), Why 'service'?. *Journal of the Academy of Marketing Science*. Vol. 36 No 1, pp. 25-38.
- Vargo S.L. and Lusch R.F. (2008b), "Service-Dominant Logic: Continuing the Evolution", *Journal of the Academy of Marketing Science*, Vol. 36, No. 1, pp. 1-10.
- Vargo S.L. and Lusch R.F. (2011), "It's all B2B...and beyond: Toward a systems perspective of the market", *Industrial Marketing Management*, No. 40, pp. 181-187.
- Von Bertalanffy L. (1956), "General System Theory", Emery, F.E. eds.. *General System*, Yearbook of the Society for the Advancement of General System Theory.
- Von Bertalanffy L. (1968), *General System theory: Foundations, Development, Applications*, New York, George Braziller.
- Wieland H., Polese F., Vargo S.L., Lusch R. (2012), Toward a service (eco) systems perspective on value creation, *International Journal of Service Science, Management and Engineering*.

^{1,2} Department of Management, Klaipėda University, KU, Klaipėda, Lithuania

¹ julius.ramanauskas@asu.lt;

² rimantas.stasys@ku.lt

The Lithuanian retail cooperatives

Abstract: *The performance of company is usually measured by several outcomes: profitability, internal rate of return, investment recoupment, labour productivity, etc. However, all those outcomes are predetermined by several or even several dozen factors. By using conventional performance assessment methods that reflect the general factor impact, the managers of companies find it difficult to assess the impact of each particular factor on the results and to take rational decisions. The activities of companies can be diverse; therefore, it is important to have a methodology for the objective assessment of the efficiency of the outcomes and the identification of the causes of ineffectiveness. The paper aims to present and to develop a methodology for the company efficiency measurement by bringing out the activity-characterizing conditions- factors (the input), and the performance outcomes - indicators (the output). The DEA (Data Envelopment Analysis) methodology shall be presented in the paper. The DEA methodology, formally developed by Charnes, Cooper and Rhodes (1978), defines efficiency as a ratio of a weighted sum of outputs to a weighted sum of inputs, where the weights structure is calculated by means of mathematical programming, and Constant Returns to Scale (CRS) are assumed. The advantages of the methodology are especially obvious in the fields where the outputs of the activity do not have monetary expression (land use, hospitals, cooperatives, etc.).*

Keywords: *measurement, efficiency, retail cooperative.*

Introduction

The leaders of the agricultural cooperatives consisting of several farms as well as the large associations consisting of several companies find it important to define the most effective organizations that successfully deal with the funding, management issues, and effective distribution of their companies. Moreover, performance assessments of several companies and the identification of the most efficient one are required by the public authorities when selecting the best candidate for the desired support of the European Union. It is not so simple to use the conventional techniques in the performance assessment. The task requires accumulation of a large amount of the statistical data and the construction of a mathematical model of the economic entity's activity. Such statistical models reflect merely internal activity trends in a production process; therefore, management finds it difficult to assess the impact of each input in the production of an individual product and to take rational decisions. Moreover rapidly changing market conditions cause these statistical models to age; therefore new and properly adapted models need to be developed and implemented. The aim of the paper is to develop methodology to assess the impact of individual inputs on the performance of retail cooperatives. Statistical data analysis, correlation and factor analysis, expert assessment methods, and the mathematical modelling method were applied by using data envelopment analysis. The assessment method used in the paper was based on the use of the Pareto sets. The method was first described by Farrell (1957), and the consequent theoretical studies of the said method could be found in the works of Banker, Charnes and Cooper (1984), Charnes, Cooper Rhodes (1978), and Charnes, Cooper, and Thvall (1991). The method has been widely used in the works of Lithuanian and foreign researchers: Alvarez and Arias (2004), Baležentis and Krikščiukaitienė (2012), Gorton and Davidova (2004), Rimkuvienė, Laurinavičienė and Laurinavičius (2010).

Literature review

When one talks about the company efficiency one usually means its success in producing the largest possible output from a given set of inputs. Provided all the inputs and outputs were correctly measured, the usage would probably be generally accepted. At any rate, the measure of technical efficiency defined below conforms to this usage (Farrell, 1957). A company is considered efficient when it is able to reduce the amount of resources (input) it consumes and still generate the same amount of output, or is able to generate more output by using the same amount of input. Later, the findings may be able to help company managers to come up with the adequate responses for improving and maintaining efficiency (Selamat and Md Nasir, 2013). Porcelli (2009) wrote that efficiency is only one part of the overall performance and proposed a framework for performance assessment (Figure 1).

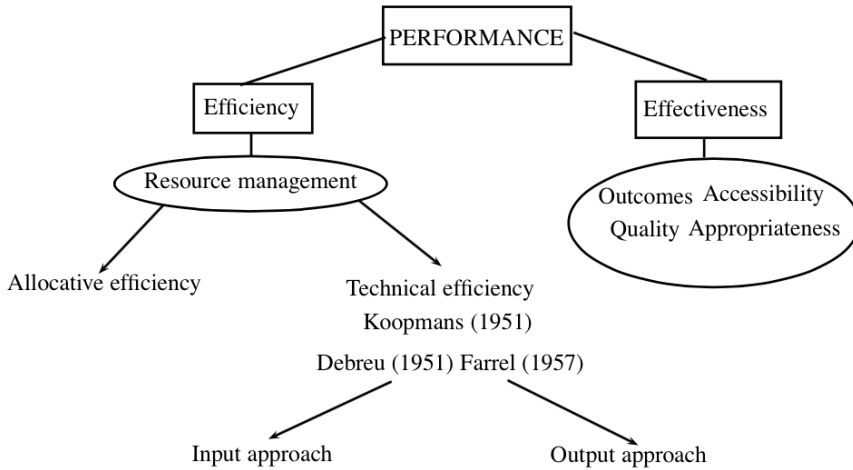


Figure 1. Framework for performance assessment (Porcelli, 2009)

A complete analysis also involves the measurement of effectiveness and the degree to which a system achieves programmes and policy objectives in terms of outcomes, accessibility, quality, and appropriateness (Worthington and Dollery, 2000). Seydel (2006) demonstrates how Data Envelopment Analysis (DEA), a tool that is typically applied more in post hoc evaluations can be also used with some modifications as a prescriptive decision support tool. Bojnec and Latruffe (2008) also used the DEA method for their studies. They wrote that the studies of technical, scale, allocative, and economic efficiencies are rare for transitional farm businesses, especially in Slovenia. Tzouvelekas, Pantzios, Fotopoulos (2002) findings indicate that the organic wheat farms examined are relatively more efficient. They estimate technical efficiency using Kalirajan and Obwona's stochastic varying coefficient regression model.

Methodological framework

The activity of each cooperative (object) is characterized by pairing a factor (input) X and an outcome (output) Y . By placing the pairs of the said values of n objects $(X_i, Y_i), i=1, \dots, n$ on the Cartesian co-ordinate system, we get a picture of the practically achieved outputs Y affected by inputs X (see Picture 2). In case the exact dependence of input X on output Y is identified, i.e. $Y=F_1(X)$, the efficiency of object k shall be calculated in the following way:

$$E_k^0 = \frac{Y_k}{Y_k^*} \tag{1}$$

i.e., the ratio of index value (Y_k) of the practically obtained output with the index value (Y_k^*) of a theoretically possible output is calculated under the same impact of input (X_k).

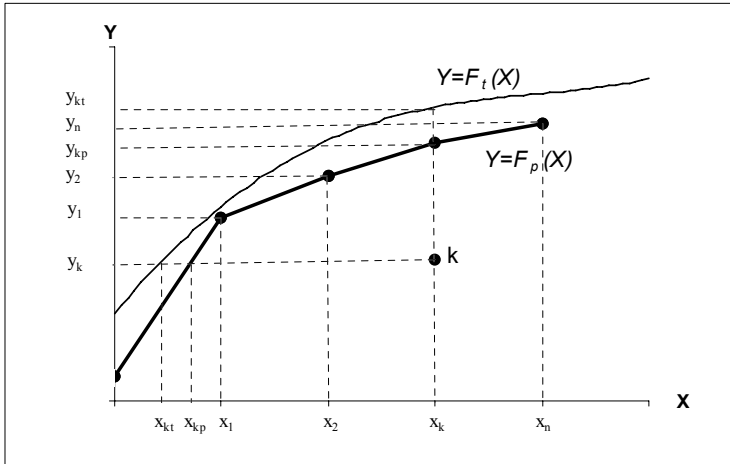


Figure 2. Efficiency evaluation principle

Unfortunately, in most cases the exact dependence E_k^0 does not exist, therefore, a need emerges to get the most accurate possible substitute for it in some way. There are at least two possibilities. One, so far the most used, is to derive a mathematical model for such dependence by means of detailed research. The method requires huge costs; therefore, it is only applied for the establishment of particularly significant dependences. The second option is to work out a practical dependence that would be as close to the precise one as possible. The second option was used in the present paper; the practical dependence was obtained as a broken line, enveloping the actual data and passing through the points of the top-performing retail cooperatives. That way, the dependence $Y=F_p(X)$ was derived, with respect to which the efficiency of any object k could be calculated, i.e.:

$$E_k^0 = \frac{Y_k}{Y_{kp}} \quad (2)$$

The efficiency calculated on such a principle is called relative technological efficiency. It shows how relatively (but not absolutely) efficiently the impact of input X is used.

The so-called relative input efficiency is also calculated in an analogical way: it shows how sparingly the impact of input X is used. In accordance with the value of the said indicator, one can find out what part of the impact of input X should be used (in comparison with the already used) in order to achieve the same efficiency. For object k in the demonstrated example, the efficiency shall be calculated in the following way:

$$E_k^1 = \frac{X_{kt}}{X_k} \quad \text{when } (Y = Ft(x)) \quad (3)$$

$$E_k^0 = \frac{Y_k}{Y_{kp}} \quad \text{when } (Y = Fp(x)) \quad (4)$$

In the formulas, E_k^0 is relative output efficiency of point k , and E_k^1 is relative input efficiency of point k .

We discussed merely the principle of the above-mentioned relative efficiency calculation. In its implementation, the establishment of the broken line is of the greatest significance. When assessing the efficiency of the object performance on the example of several efficiency-affecting inputs X_i ($i=1, \dots, m$) and several obtained outputs Y_j ($j=1, \dots, p$), the explained principle is realized as a mathematical model formulated in the following way: n assessed objects, which use inputs X_i ($i=1, \dots, k$) in their activity, pursue maximum outputs Y_j ($j=1, \dots, l$). To assess the outputs obtained by object p , one has to establish such U_i^p and V_j^p values as to:

$$\frac{\sum_j V_j^p \cdot Y_j^p}{U_o + \sum_i U_i^p \cdot X_i^p} \rightarrow \max \quad (5)$$

$$\text{when } \frac{\sum_j V_j^n \cdot Y_j^n}{U_o + \sum_i U_i^n \cdot X_i^n} \leq 1, \text{ for all } n=1, \dots, N \quad (6)$$

$$U_o + \sum_i U_i^p \cdot X_i^p = 1 \quad (7)$$

$V_j^n \geq 0, U_i^n \geq 0, U_o$ is of any sign.

The efficiency measuring task expressed by the above mathematical model is a fractional programming problem which is transformed into a linear programming problem. To calculate the estimates for all the n objects, one has to solve n linear programming problems with $k+l$ variables and $n+k+l$ restrictions.

Conclusions

This paper aimed to present a methodology proposal for measuring the company efficiency by bringing out the inputs and the outputs. The further step will intend to carry out the efficiency assessment model of the retail cooperative performance by utilizing the data of the correlation and factor analysis of the practical input and output studies. Retail cooperatives (just like other cooperatives) are specific companies whose purpose is not so much to make profit as to create the conditions for the cooperative members to timely and profitably sell their produce. There are not so many retail cooperatives in the

Lithuania (Lietuvos, 2014); therefore, it is very important for their founders to assess the conditions of cooperative formation and the efficiency of the projected activity. A cooperative signs contracts with the cultivators under which the latter start to trust the cooperative company to sell their produce or to sell it to the said cooperative company. The functions of the retail cooperative include several activities as: 1. the collection of the largest possible amounts of produce from the cooperative members and its storage given the character of consumption; 2. sorting and processing of the produce; 3. organization of the produce or the finished products sales; 4. market analysis and provision of the members with the data of the analysis. Then, in order to assess the company performance efficiency by means of a comprehensive examination and assessment of all the indicators, the performance of 23 Lithuanian retail cooperatives will be assessed by 5 assessment criteria and the reserves of the performance improvement will be identified. Now, it was impossible to collect these data in considering incompleteness of data of the retail cooperatives; this step needs major time and accuracy.

References

- Alvarez A., Arias C. (2004), "Technical efficiency and farm size: a conditional analysis", *Agricultural Economics*, Vol. 30(3), pp. 241–250.
- Baležentis T. (2012), "Technical efficiency and expansion of Lithuanian family farms (2004–2009): graph data envelopment analysis and rank-sum test", *Management Theory and Studies for Rural Business and Infrastructure Development*, No. 31, pp. 26–35.
- Baležentis T., Krikščiukaitienė I. (2012), "Family farm efficiency across farming types in Lithuania and its managerial implications – data envelopment analysis", *Management Theory and Studies for Rural Business and Infrastructure Development*, No. 30, pp. 22–30.
- Banker R. D., Charnes A., Cooper W.W. (1984), "Some models for estimating technical and scale inefficiencies in DEA", *Management Science*, Vol. 30, pp. 1079–1092.
- Bojnec Š., Latruffe L. (2008), "Measures of farm business efficiency", *Industrial Management & Data Systems*, Vol. 108 Iss 2 pp. 258 – 270.
- Charnes A., Cooper W.W., Rhodes E. (1978), "Measuring the efficiency of decision making units", *European Journal of Operational Research*, Vol. 2, Issue 6, pp. 429–444.
- Charnes A., Cooper W.W., Thvall R.M. (1991), "A structure for clasifying and characterizing efficiency in DEA", *Journal of Productivity Analysis*, Vol. 2, Issue 3, pp. 197–237.
- Farrell M.J. (1957), "The measurement of productive effectiveness", *Royal Statistical Society. SeriesA (General)*, Vol. 120, No. 3, pp. 253–290.

- Gorton M., Davidova S. (2004), "Farm productivity and efficiency in the CEE applicant countries: a synthesis of results", *Agricultural Economics*, Vol. 30, pp. 1–16.
- Lietuvos statistikos metraštis, *Statistical yearbook of Lithuania, 2014* (2014). Statistikos departamentas prie Lietuvos Respublikos vyriausybės. Vilnius p. 682.
- Porcelli F. (2009), "Measurement of technical efficiency: A brief survey on parametric and non- parametric techniques", available at: http://www2.warwick.ac.uk/fac/soc/economics/staff/fporcelli/porcelli_dea_sfm.pdf (accessed 8 April 2015).
- Rimkuvienė D., Laurinavičienė N., Laurinavičius J. (2010), "ES šalių žemės ūkio efektyvumo įvertinimas", *LŽŪU mokslo darbai*, Nr. 87(40), pp. 29–38.
- Seydel J. (2006), "Data envelopment analysis for decision support", *Industrial Management & Data Systems*, Vol. 106 Iss 1 pp. 81–95.
- Selamat Z. and Md Nasir A. (2013), "Efficiency Measurement of Malaysian Agriculture Firms", *International Journal of Trade, Economics and Finance*, Vol. 4, No. 2, pp. 79–84.
- Tzouvelekas V., Pantzios C. J., Fotopoulos C. (2002), "Measuring multiple and single factor technical efficiency in organic farming", *British Food Journal*, Vol. 104 Iss 8 pp. 591 – 609.
- Vidickienė D. and Gedminaitė Ž. (2009), "Monitoring and evaluation of cooperative movement in Lithuania", *Management Theory and Studies for Rural Business and Infrastructure Development*, Nr. 16 (1), pp. 115–122.
- Worthington A.C. and Dollery B. (2000), "An empirical survey of frontier efficiency measurement techniques in local government", *Local Government Studies*, 26 (2): pp. 23–52.
- Žemės ūkio informacijos ir kaimo verslo centras (2015), available at: [http://www.vic.lt/uploads/file/1\(23\).pdf](http://www.vic.lt/uploads/file/1(23).pdf) (accessed 3 May 2015).

Angela M. Andriano¹, Carlo Ingrao², Caterina Tricase³

Department of Economics, University of Foggia, Largo Papa Giovanni Paolo II,
1 - 71121 Foggia (Italy)

¹ angela.andriano@unifg.it;

² carlo.ingrao@unifg.it;

³ caterina.tricase@unifg.it

Considerations on the role of POs: analysis of a case study

Abstract: *The Italian agricultural sector is facing new challenges and, for this reason, needs to introduce new models of governance that contribute to development of the agro-food chain from the farm. A new opportunity derives by the new 2014-2020 European programs, which allocated funds, aimed at promoting innovation/internationalization in the development of enterprise. In particular, the new regime of the Common Agricultural Policy (CAP) supports the operational programs to be implemented by Producer Organizations (POs) and Producers Organizations Association (POAs) properly recognized by funding contributions from the operational funds of programs according to the EC Regulation. 1308/2013 and the Ministerial Decree n. 9083 of 28 August 2014.*

In this context, it can be significant to establish an POA composed of groups of POs whose members are the POs partners involved in a transnational cooperation project. With this form of internalization, it is possible to create a model of governance between farms, and not of different States that pursue the same objectives in terms of economic and rural development, capable of bringing economic, environmental and social benefits.

Keywords: *Producers Organizations Association, transnational cooperation project, rural development*

The Italian territory is characterized by series of typical high-quality food products that represent a strength for multifunctional agriculture expression of great biodiversity and food culture of our territory. These products also exported the close link with the territory and they will become a promotional tool.

The Italian agricultural sector, and especially that of the southern regions, needs to enhance agricultural producers at the marketing stage that is affected by specific dynamics such as high prices volatility, market structure, strong pulverization and business practices. In light of these considerations, it is necessary to support - in close cooperation with other regional policies aimed at districts and networks - processes of formation of networks and business management models capable of stimulating the potential associations still underused by companies, investing in projects network of regional, inter-regional and trans-national, sectorial, industry and/or cross-cutting. According to the Guidelines for the implementation of the measure cooperation Leader Axis of Rural Development Programs 2007/2013 ¹ and it is considered part of the local development strategy; Cooperation is a way to expand the local horizon and to improve local strategies.

Cooperation projects are an additional significant and ongoing strategy of local development in order to give it completeness, territorial expansion, more and more large capacity for discussion and exchange of experiences with other significant territories. The cooperation project enhances the complementarity of the various territories through a common project in search of critical mass, opening and mutual cultural enrichment and learning based also on experience. It is therefore important to take into consideration networks involving all those actors that can increase the ability to concentrate and participate in the international market.

From this point of view, the POs and their associations have a fundamental role in the agricultural scheme as they don't only represent and protect the farms and their members, they also support production planning, marketing and promotion quality products in order to strengthen the position of producers towards distribution. For this the POAs (Producers Organizations Associations) may be a factor of acceleration of these processes of aggregation and creation of entities that can handle a more significant scale of production in order to become a referent most important markets.

¹ Council Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD).

Case Study: Arca Fruit Soc. Coop Bisceglie PO

Producers Organizations are the major societies that contribute to the valorization of the national fruit and vegetables production. During the last twenty years, the number of Italian POs ² shows a increasing trend (figure 1).

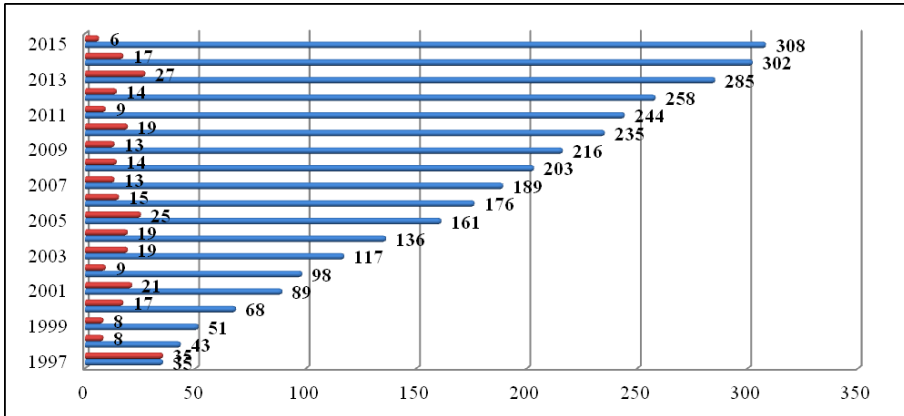


Figure 1. Number of POs in the years, as on 06.30.2015

Source: Mipaaf

Apulia, Campania, Emilia Romagna, Lazio and Sicily are the Italian regions with the high number of POs (figure 2).

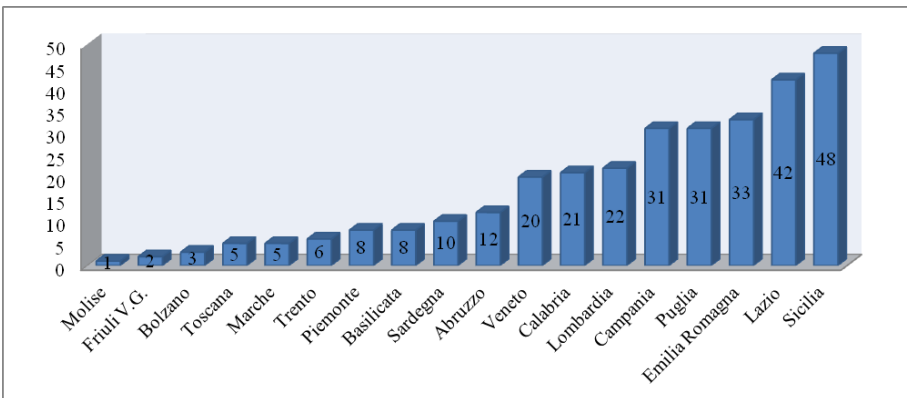


Figure 2. Number of POs in Italy, as on 06.30.2015

Source: Mipaaf

² List of Producer Organizations referred to Reg. (CE) n.2200/1996, (CE) n.1234/2007 and Reg. (UE) Reg. (EU) No 1308/2013 at 06.30.2015

As on 06.30.2015, the Apulian POs are 31.

In this study we carried out an analysis on the evolution of Arca Fruit Soc. Coop of Bisceglie, a local Producer Organization (PO) founded in 2012 through a commercial budget analysis.

According to the reg. CE 1234/2007³, the analyzed PO seeks to obtain the following general goals:

- to ensure planning production and demand adjustment
- to promote supply concentration and to place the associated farms' production on the market
- to optimize production costs and to stabilize production prices

Moreover, the PO seeks to gain the following specific aims:

- production planning
- improvement of products' commercial value
- promotion of production's sale
- improvement of cultivation practices and production techniques that respect environment
- crisis prevention and management.

Through its associated farmers, which are fruit and vegetables producers, PO carries out production and sale activities.

The analysis of the earliest balance sheets highlights any evidences.

In 2013 the turnover was € 7.186.595,00, while it was € 279.483,00 in the previous fiscal year.

As on December 31, 2013 the acreages and types of the associated farms are the following:

Products	Year 2013 (ha)
Table grapes	305,11
Cherry	87,12
Apricot	13,3
Peach	9,66
Other fruit	41,21
Vegetables	42,11

³ Council Regulation (EC) n. 1234/2007 of 22 October 2007.

During 2013, PO essentially sold the following products:

Product	Year 2013 (kg)	Product	Year 2013 (kg)
Apricots	71.220,67	Melons cantaloupe	2.532,10
Watermelons	54.725,50	Quinces apples	286,00
Oranges	722,00	Pomegranates	179,00
Chard	718,50	Potatoes	4.157,00
Brassica oleracea var. italica	10.587,50	Prunus persica	1.927,50
Green Cabbages	692,50	Pears	8.095,68
Locust beans	37,00	Peaches	30.473,20
Artichokes (pieces)	21.704,00	Nectarines	2.410,63
Cucumbers	90,00	Peas	6.204,30
Chicory (Cichorium spp.)	5.407,70	Tomatoes	67.654,14
Cherries	743.160,43	Green tomatoes	5.625,90
Brassica rapa subsp. sylvestris var. esculenta	709,00	Parsley	43.643,40
Citrus clementina	13.714,00	Plums	25.731,10
Cardoons	208,00	Celery	12.446,20
Broad beans	673,00	Spinaches	2.197,50
Figs	11.388,30	Grapes	2.099.121,77
Prickly pear	1.001,50	Vegetables	5,00
Ficus carica	56.260,20	Zucchini	596,00
Mulberry	20,00	Other fresh fruit	375,00
		Total	3.306.701,22

At the beginning of the 2013, the POs shareholders structure was the following:

REGION	PROVINCES	Producer partner (individuals)	Legal person partner (as a producer)	Numbers of partner no producers	Legal person and producers participant	Numbers of producers participant at legal person partner	Tot. partner (a) + (b) + + © + (d)	Tot. Producers (a) + (b) + (c)
		(a)	(b)	©	(d)	(e)	(g)	h
APULIA	BT	11	3	-	3	71	17	85
APULIA	BA	3	1	-	1	2	5	6
TOT		14	4		4	73	22	91

And as on December 31st 2013 the following:

REGION	PROVINCES	Producer partner (individuals)	Legal person partner (as a producer)	Numbers of partner no producers	Legal person and producers participant	Numbers of producers participant at legal person partner	Tot. partner (a) + (b) + c + (d)	Tot. Producers (a) + (b) + (e)
		(a)	(b)	©	(d)	(e)	(g)	h
APULIA	BT	14	4	-	4	78	22	96
APULIA	BA	10	1	-	1	3	12	14
TOT		24	5		5	81	34	110

In 2013 the actions of the operational program, implemented by Arca Fruit PO, have contributed to achieve the goals. The indicators to measure progress in achieving the objectives are following:

Measures

Actions	Operational Program 2013 Accounting		Parameter	Check
	€	%		
1) Production planning	227.283,51	30,91%	Max 70%	Satisfied
2) Improve or safeguard product quality	329.263,30	44,78%	Max 70%	Satisfied
3) Improve sale conditions	5.980,00	0,81%	Max 70%	Satisfied
6) Crisis prevention and management			Max 33%	Satisfied
7) environmental actions	158.394,56	21,54%	Min 10%	Satisfied
	n. 2 environmental actions	At least two environmental actions		Satisfied
General expenses	14.378,63	1,96%	Max 2%	Satisfied
Tot. Operational Program	735.300,00	100,00%		

During the second fiscal year of the Arca Fruit PO, 2014, the turnover was € 5.961.685, while it was € 7.186.595 and € 279.483,00, during 2013 and 2012 respectively. The turnover decreased, due to the high price volatility of the fruit and vegetables products. During this year, PO sold essentially the following products:

Products	Tot. (kg)	Products	Tot. (kg)
Table grapes	5.091.999,60	Mulberry	78,76
Cherries	590.044,24	Almonds	18,34
Figs	104.376,12	Quinces apples	250,23
Apricots	85.947,20	Pomegranates	230,2
Watermelons	7.385,40	Peppers	2.168,86
Asparagus	372,86	Nectarines	120.378,19
Chard	11.205,71	Pears	2.131,28
Brassica oleracea var. italica	13.239,99	Peaches	17.096,79
Cabbages	4.944,37	Nectarines	65.010,39
Locust beans	12,96	Peas	189,42
Artichoke	638,05	Tomatoes	1.743,57
Chicory	58.432,42	Parsley	2.160,39
Brassica rapa subsp. sylvestris var. esculenta	10.571,36	Plums	28.410,08
Cardoons	534,37	Celery	38.890,41
Green beans	258,01	Spinaches	3.363,21
Broad beans	1.583,16	Other fruit	3.245,07
Indian figs	273,86		
		Total	6.267.184,86

As on December 31st 2014, the acreages and types of the associated farms were the following:

Products	Year 2014 (ha)
Table grapes	290,51
Cherry	125,93
Apricot	37,89
Fig	3,59
Peach	9,8
Other fruit	42,25
Vegetables	37,62

At the beginning of the 2014, the PO shareholders structure was the following:

REGION	PROVINCE	POs partner individual producers	POs partner legal person producers	POs partner not producers	POs partner legal person with producers participant	Producers participant at legal person partner	Tot. POs partner (a) + (b) + © + (d)	Tot. Producers (a) + (b) + (e)
APULIA	BT	14	4	-	4	78	22	96
APULIA	BA	10	1	-	1	3	12	14
TOT		24	5	-	5	81	34	110

As on December 31st 2014:

REGION	PROVINCE	POs partner producers (legal person)	POs partner producers (legal person)	POs partner not producers	POs partner legal person whit producers participant	Producers participant at legal person partner	Tot. POs partner (a) + (b) + © + (d)	Tot. Producers (a) + (b) + (e)
FOGGIA	FG					10	-	10
APULIA	BA	24	8		5	156	37	188
BASILICATA	PZ					1	-	1
TOT		24	5	-	5	167	37	199

Once again in 2014, the actions of the operational program implemented by Arca Fruit PO, have contributed to achieve the goals. The indicators to measure progress in achieving the were as following:

Measures

Actions	Operational Program 2014 Accounting		Parameter	Check
	€	%		
1 Production planning	87.485,89	12,69%	Max 70%	Satisfied
2 Improve or safeguard product quality	303.480,11	44,00%	Max 70%	Satisfied
3 Improve sale conditions	25.350,00	3,68%	Max 70%	Satisfied

6	Crisis prevention and management	74.960,00	10,87%	Max 33%	Satisfied
7	Environmental actions	186.291,00	27,01%	Min 10%	Satisfied
		n. 2 environmental actions		At least two environmental actions	
	General expenses	12.100,00	1,75%	Max 2%	Satisfied
	Tot. Operational Program	689.667,00	100%		

As on June 30, 2015 the turnover was € 12.000.000.

The analysis of the PO's data highlights some evidences. The study of PO's products shows an increase in conferment, during the second year. Producers aggregation helps to realize a major production. The major part of the shareholders carry out their activities in the Apulian region. This helps to realize not only an economic development, but also a territory promotion.

PO's turnover of the second year was not higher than that of the first year.

This evidence is related to a set of the agricultural sector facts: risk management derived from climate changes and price volatility due to the high competition of the EU States.

During the third fiscal year, turnover was doubled with respect to the first year. Overall the result is positive in spite of the unfavorable economic situation.

During the analyzed two years, the Arca Fruit POs actions have contributed to achieve the goals of the operational program. Overall required indicators of balance have been respected.

Moreover, in 2015, Arca Fruit PO participated at the EU-program "School Fruit Scheme", according to the reg. CE 1234/2007 and the reg. CE 288/2009 with positive results. This EU-wide scheme provides fruits and vegetables to children of schools, aiming thus to encourage good eating

habits in young people. All these considerations further demonstrate the positive role of Arca Fruit PO.

Conclusions

Although the data analysis refers to a limited period, the POs and their associations have a key role in:

- concentrating supply and improving marketing;
- planning and adjusting production to demand;
- optimizing production costs and stabilizing producer prices;
- carrying out research;
- promoting best practices and providing technical assistance;
- managing by-products;
- contributing to strengthening the position of producers in the food chain, through the supply of risk management tools to their members.

This is a great opportunity for economic development not only for the companies that have chosen specialization, but also for production sites, which would see their common history and their traditions. This type of aggregation of network creates synergies for the benefit of all stakeholders contributing to the development of rural economies.

The advantages of setting up a POA would be multiple:

- protection of the local/national market;
- price stability;
- reduction of risks related to price volatility.

A potential may be represented by the establishment of a POA between POs of different States which are partners in a transnational cooperation project.

So constituted POA could create the basis for a system/network aggregation, able to strengthen relations, and the relations of transnational cooperation between the participating companies through the implementation of a beneficial economic cooperation. The following benefits are worthy to be acknowledged: greater purchasing power; increased market share in a foreign state; greater ability to respond to demand by offering a broader basket of products and protection of the local market/country.

If POAs include "typical" agri-food product companies, their products could be exported without too many burdens and costs for the production enterprises, but at the same time would give the opportunity to reach markets, otherwise not reachable due to weak organization rates of enterprise.

In conclusion, it should be stressed that the cooperation among agricultural producer organizations is of considerable importance both nationally and locally. At the same time there is a need to consolidate and promote initiatives related to the aggregation of agricultural production through the implementation of support tools that can avoid their downsizing to mere "numerical" aggregation, and instead turn them into organizations capable to create value and to products' market.

The establishment of a transnational POA would not only meet the objectives of such projects, but it also would allow the associated participants to better address the challenges posed by the market in terms of product sales.

References

- Bell M., Lloyd S., Vatovec C. (2010), Activating the countryside: rural power, the power of the rural and the making of rural politics, *Sociologia Ruralis* 50 (3): 205-224.
- Bengtsson M., Kock S. (2000), "Coopetition" in Business Networks-to Cooperate and Compete Simultaneously, *Industrial Marketing Management*: 411-426.
- Borgatti S., Everett M.G. (1997), Network Analysis of 2-mode data, *Social Networks* 19: 243 – 269.
- Borgatti S., Foster P. (2003), The new paradigm in organizational research: a review and typology, *Journal of Management* 29 (6): 991-1013.
- Burt R.S. (1992), The social structure of competition, in Nohria, N., Eccles, R.G., *Networks and Organizations*, Harvard Business School Press, Boston: 57–91.
- Castells M. (2011), *The rise of network society*, Wiley-Backwell, New York
- Council Regulation (EC) n. 1234/2007 of 22 October 2007.
- Council Regulation (EC) No 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD).
- Dwyer J. (2013), 'Transformation for sustainable agriculture: what role for the second Pillar of Cap', *Bio-based and Applied Economics* 2 (1): 29-47.
- Esparcia J. (2014), Innovation and networks in rural areas. An analysis from European innovative projects, *Journal of Rural Studies* 34: 1-14.
- European Network for Rural Development (2012), *EU Rural Review – Leader and Cooperation*, no 11 Spring 2012, EU Ecolabels, Bruxelles.
- European Network for Rural Development (2014), *Leader transnational cooperation guide* [pdf].
- Fortunato A., Zumpano C. (2013), *Cooperando fra aree rurali: i progetti Leader e extra-Leader dei Gruppi di azione locale*, Csr Centro Stampa e Riproduzione, Roma.

- Franceschetti G. (2009), *Capitale sociale e sviluppo rurale*, Cleup, Padova
- Gkartzois M., Scott M. (2013), *Placing Housing in Rural Development: Exogenous, Endogenous and Neo-Endogenous Approaches*, *Sociologia Ruralis*: 1-25.
- Leon Y. (2005), *Rural development in Europe: a research frontier for agricultural economists*, *European Review of Agricultural Economics* 32 (3): 301–317.
- List of Producer Organizations referred to Reg. (CE) n.2200/1996, (CE) n.1234/2007 and Reg. (UE) Reg. (EU) No 1308/2013 at 06.30.2015.
- Lowe P. (2006), *Concetti e metodi nelle politiche europee di sviluppo rurale in Cavazzani, A., Gaudio, G. and Sivini, S. (a cura), Politiche, governance e innovazione per le aree rurali*, Edizioni Scientifiche Italiane, Napoli: 81-96.
- Lowe P., Murdoch J., Ward N. (1995), *Networks in rural development: beyond exogenous and endogenous models in van der Ploeg J. D. and van Dijk G. (a cura), Beyond Modernization, the Impact of Endogenous Rural Development*. Van Gorcum, Assen: 87-105.
- Lysgard H. K., Cruickshank J. (2013), *Creating attractive places for whom? A discourse-theoretical approach to knowledge and planning*, *Environment and planning* 45: 2868 – 2883.
- Murdoch J. (2000), *Networks: a new paradigm of rural development*, *Journal of Rural Studies* 16: 407-419.
- Nardone G., Sisto R., Lolopito A. (2010), *Social Capital in the Leader Initiative: a methodological approach*, *Journal of Rural Studies* 24 (4): 63-72.
- Pasquinelli C. (2013), *Competition, cooperation and co-opetition: Unfolding the process of inter-territorial branding*, *Urban Research and Practice* 6 (1): 1-18.
- Ploeg J.D. van der (2006), *Esiste un nuovo paradigma di sviluppo rurale? in Cavazzani A., Gaudio G. and Sivini S., Politiche, governance e innovazione per le aree rurali*, Edizioni Scientifiche Italiane, Napoli: 343-352.
- Ray C. (1998), *Culture, intellectual property and territorial rural development*, *Sociologia Ruralis* 38 (1): 3-20.
- Ray C. (2001), *Transnational co-operation between rural areas: elements of a political economy of EU rural development*, *Sociologia Ruralis* 41 (3): 279-295.
- Ray C. (2006), *Modelli di dinamiche interlocali nell'Europa dello sviluppo rurale*, in Cavazzani A., Gaudio G. and Sivini S., *Politiche, governance e innovazione per le aree rurali*, Edizioni Scientifiche Italiane, Napoli: 353-364.
- Regulation (EU) n. 1305/2013 the European Parliament and of the Council of 17 December 2013.
- Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013.
- Regulation. (EC) n.2200/1996 of 28 October 1996.
- Salvini A. (2006), *L'analisi delle reti sociali: risorse e meccanismi*, Plus, Pisa.
- Saraceno E. (2013), *Disparity and diversity: their use in EU rural policies*, *Sociologia Ruralis* 53 (3): 331-348.

- Saxena G., Clark G., Oliver T. e Ilbery B. (2007), Conceptualizing Integrated Rural Tourism, *Tourism Geographies* 9 (4): 347 – 370.
- Shucksmith M. (2009), Disintegrated Rural Development Neo-endogenous Rural Development, Planning and Place-Shaping in Diffused Power Contexts, *Sociologia Ruralis* 50 (1): 2-14.
- Sivini G. (2006), Occorre una nuova politica per lo sviluppo rurale locale, in Cavazzani A., Gaudio G. and Sivini S., Politiche, governance e innovazione per le aree rurali, Edizioni Scientifiche Italiane, Napoli: 81-96.
- Sotte F. (2006), Sviluppo rurale e implicazioni di politica settoriale e territoriale, un approccio evoluzionistico in Cavazzani A., Gaudio G. and Sivini S. (a cura), Politiche, governance e innovazione per le aree rurali, Edizioni Scientifiche Italiane, Napoli: 61-80.
- Vitale A. (2006), Le politiche comunitarie di sviluppo rurale: empowerment o modernizzazione neoliberista in Cavazzani A., Gaudio G. and Sivini S., Politiche, governance e innovazione per le aree rurali, Edizioni Scientifiche Italiane, Napoli: 97-112.
- Wellmann B. (1988), Structural Analysis: from method and metaphor to theory and substance in Wellmann B. and Berkowitz S. D., *Social Structures: a Network Approach*. Cambridge University Press, Cambridge: 19 – 61.
- Zanetti B. (2009), I Progetti di Cooperazione Transnazionale in Leader+.
- Zumpano C. (2001), Repertorio Progetti di cooperazione, Litotipografia Principe, Roma.

Carmela Robustella¹, Raffaele Savino², Sara Djelveh³

Department of Economics, Department of Humanities, University of Foggia, Largo Papa Giovanni Paolo II, 1 - 71121 Foggia (Italy)

¹ carmela.robustella@unifg.it;

² raffaelesavino@virgilio.it;

³ sara.djelveh@unifg.it

Investigating the EU and national regulations for Producers Organizations (POs) and associations of POs

Abstract: *The agri-food system is facing several challenges affecting both the organization of the entire agricultural supply and the regulation of relations between the farmers in the food supply chain. In the last decade, a growing instability deriving by globalization processes has led to an increased international competition, a prices volatility of agri-food products, as well as an increased level concentration of large retailers with a consequent increase of the asymmetry in bargaining power and, therefore, tensions between operators in the agri-business industry. The asymmetry in bargaining power within the agri-food chain is certainly one of the weaknesses of the entire food system, because it widens the disparity between producer prices and consumer prices so encouraging unfair trade practices. In order to tackle these growing contractual imbalances and the unequal bargaining power between the parties in the food industry, and considering a general agricultural increasingly market-oriented policy, the EU main objectives is to promote and to strengthen the aggregations between producers and between the operators of the supply chain for stabilizing prices, promoting production, facing crises and improving the competitiveness of the agricultural sector. In this framework, the Producers Organizations (POs) and their Associations represent organizational models bringing together more operators of the same food sector for the development of several services aimed at improving competitiveness and internationalization. The aim of this paper is to provide an analysis of the EU and national regulations governing these new organizational models in agriculture by examining the Reg. EU no.*

1308/2013 and the Ministerial Decrees No. 9084/2014 and No. 86483/2014, which regulate and promote the development of POs in Italy, respectively for the fruit and vegetable sector and the olive oil and table olives.

Keywords: *Producers Organizations, EU and national regulations, agri-food supply chain, chain and district contracts*

Introduction

The Producers' Organizations (POs) and their associations (APOs) are legal entities recognized at EU level, bringing together more operators from the same food sector. The POs not only represent farms and protect their members, but also promote quality products in order to strengthen the position of food producers against buyers and the Large Scale Distribution. The POs and their associations, in particular, as well as other tools provided at national and EU level in order to encourage the producers aggregation, can be a crucial drivers for the concentration of the agricultural supply of the Member States of the European Union. In effect these organizations allow a better production and marketing planning of all members producers, enabling the concentration of agri-food supply chain in order to optimize the production costs. They can also promote cultural practices and innovative and environmentally friendly production techniques, thanks to the aids provided at European level for such organizations. The reform of the Common Agricultural Policy (CAP) after 2013 has sought to regulate and stimulate the development of such forms of aggregation, extending them to all agricultural sectors. Interbranch Organizations (IOs), instead, group together entire sections or even the whole supply chain (producers, processors, distributors and retailers) in order to integrate all the actors of the supply chain by playing a key role in facilitating relationships, market transparency and in identifying best practices. The aim of this paper is to investigate and to study the EU regulations governing new organizational models in agri-food systems, deepening the role of the Producer Organizations (POs), the Associations of Producers Organizations (APOs) and the Interbranch Organizations (IOs). A plethora of work highlights the role of the producers organizations at the international level (Bijman, 2007; Camanzi et al., 2011; Gouët et al., 2009; Ragasa & Golan, 2014; Shiferaw et al., 2011; Trebbin, 2014) and gives insight on the strategies and on the effects of the same organizations (Albayrak, 2010; Bourgeon & Chambers, 1999; Ratinger & Bošková, 2013). In the work, a detailed analysis of Reg. no. 1308/2013 "Common organization of Agricultural markets" (which replaces and repeals Regulation (EC) No. 1234/2007 and which came into force on 2 January 2014) and an investigation of the support policies implemented

at the national level to promote and disseminate knowledge and functioning of such aggregations are carried out.

Finally, the purpose of this study is to settle the Community framework to national one that is represented by the recent introduction by the Ministry of Agriculture, Food and Forestry of the Ministerial Decree No. 9084/2014 and of the Ministerial Decree No. 86483/2014, which regulate and promote the development of Producers Organizations (POs) in Italy, respectively for the fruit and vegetable sector and the olive oil and table olives.

Producer Organizations and their associations: the legal framework

The Council Regulation (EC) No. 1234/2007 (Single CMO Regulation) establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products, represents the current reference legislative framework in the area of Producer Organizations (POs) and their associations. The Single CMO Regulation establishes a common organization of the agricultural markets and identifies the POs as the main tool for achieving the Common Agricultural Policy's objectives, such as the strengthening of competitiveness and market orientation, the reduction of revenues fluctuations, the increase of fruits and vegetables consumption and the environmental protection.

The importance of POs has been confirmed by the Single CMO Regulation reformed by the Regulation (EU) No 1308/2013 of the European Parliament and of the Council, which has repealed the previous Council Regulation (EC) No. 1234/2007. The reformed Single CMO Regulation maintains unchanged the support system granted to the POs through the co-funding of specific operational programmes and the introduction of some positive novelties, such as the enhancement of the role of the Associations of Producer Organizations (APOs) thanks to the possibility of establishing their own operational funds, as well as for the possibility of managing an additional share of the aid crisis measures. The Commission Implementing Regulation (EU) No 543/2011 completes the European legal framework in the framework of the POs and their Associations, in particular, regulating the organizations, producers' groups and the interbranch structures, as well as for the marketing standards, and the trade with third countries.

At a national level, the reference legislation still refers to the Legislative Decree (D.lgs.) of the 27th of May 2005, No 102. The D.lgs No 102 disciplines the POs, in particular defining the aims and the financing conditions (art. 2, paragraphs 1-2), the requirements (art. 3) and the recognition modes (art. 4). As about the POs objectives and aims, the Italian national legislature ma-

kes extensive references to the European rules established in the documents commented above.

In particular, in the Italian framework, Producer Organizations have as a main objective the marketing/commercialization of the production of the producer members for which they are recognized, and may perform the following additional functions:

1. ensuring that production is planned and adjusted to the demand, particularly in terms of quantity and quality;
2. concentrating the supply and directly commercializing the POs' members production;
3. participating in the management of market crises;
4. reducing production costs and stabilizing producer prices;
5. promoting cultivation practices and production techniques that respect both the environment and the animal welfare, in order to: improve the quality of the production and the food hygiene, protect the quality of water, lands and landscapes, foster the biodiversity, and support traceability processes, coherently with the Regulation (EC) No 178/2002;
6. ensuring the transparency and fairness of the transactions with the associates in the pricing of product sales;
7. carrying out activities related to the logistic organization;
8. adopting innovative technologies;
9. fostering the access to new markets, including through the opening of branch offices or sales offices.

In order to harmonize the national and European legislations, the Italian Ministry Decrees (MD) No 9084 (28th of August 2014) and No 86483 (24th of November 2014) establish specific provisions regarding the recognition and control of POs and their associations, respectively in the vegetables sector and in the olive oil and olives sector. The formal recognition of POs is under the responsibility of the Italian Regions and the Autonomous Provinces. In the Italian system, therefore, POs are required to have specific requirements in order to be recognized by the Regions, and thus to carry out their activities, roles and functions, as well as to get access to the CAP funding.

First of all, they are required to have one of the following company legal status:

- agricultural cooperatives and their consortia,
- limited companies having the commercialization of agricultural products as their corporate purpose. In this case the company's capital has to be subscribed by agricultural entrepreneurs or their companies, or agricultural cooperatives and their consortia,
- consortium companies referred to in Article 2615 ter of the Civil Code, anyway formed by agricultural entrepreneurs or their companies.

In addition, the POs have to foresee, within their Charter, specific obligations related to the participation to the social and commercial life of the PO itself. In particular, POs' charters have to expressly provide:

1. an obligation on members to adhere to the rules dictated by the organization on production, marketing, environmental protection;
2. the obligation to accede, as regards the production object of the activity of the organization, to only one of them;
3. the obligation of bringing at least 85% of its production to the PO, with the right to sell the remaining 15% to consumers, with the approval of PO (the obligation related to the direct sell of products through the PO is one of the key points of the entire legislation);
4. the obligation to maintain the bond of membership for at least one year and, in case of withdrawal, observe the notice of at least six months. The PO takes a decision within six months from the withdrawal of the request, which if accepted, takes effect at the end of year in the course of the operational program OP (January, the 1st). However, in case of submission of an operational program, no PO member may disclaim his obligations under that program for the whole period of its implementation, unless authorized by the OP itself.

In addition, the charters have to take into account and must include provisions concerning:

1. the rules ensuring the democratic control of the organization;
2. the penalties for failure to comply with statutory obligations, in particular with regard to non-payment of financial contributions and failure to observe the internal rules established by the PO;
3. the accounting and budgetary rules necessary for the functioning of the PO.

Finally, POs, in order to being recognized by the regions, must have a minimum number of associated producers and a minimum volume of commercialized production for each product or groups of products.

In particular, regarding the vegetables sectors, the MD No 9084 (28/08/2014) establishes the minimum dimension parameters of the PO: the minimum number is of 10 associated producers, but it can be lowered to 5 only for the recognized POs that markets certain types of products, compulsorily listed in the MD. In order to achieve the minimum standard parameters, the members of the PO can be producers members participating directly OP (named "direct members") and producers members participating in a PO's partner company, too. Indirect members can be therefore counted for achieving the minimum number of associated producers parameter. In addition, the MD No 9084 (28/08/2014) gives to the regions the power to define, according to independently established criteria, a minimum value of marketed production and the minimum number of members of a producer organization to a higher level than those set at national level, under the obligation of giving the notice

to the Minister. Regions play an important role in establishing the requirements for recognition of POs and APOs, in verifying the proper operation of the PO and APO, in the verification of the operational programs and their modifications (DM n. 12705 / 2013).

In order to strengthen the development of POs, some important novelties were introduced by the Commission Delegated Regulation (EU) No 499/2014, supplementing Regulations (EU) No 1308/2013 of the European Parliament and of the Council and Regulation (EU) No 1306/2013 of the European Parliament and of the Council, concerning the possibility for POs producers members to commercialize the production outside the PO (art. 26 bis of the Regulation (EU) no. 499/2014) and externalizing a part of their activities (art. 27 of the Regulation (EU) no. 499/2014). Coherently with the European legislation and with the possibility for POs producers members of commercializing the production outside the PO, in the Italian national framework, the article No 4 of the MD 9084/2014 establishes that PO's producers members, prior authorization from the PO itself and subject to the conditions laid down by it in accordance with their internal rules, can sell to consumers, for their personal needs, directly or outside of your company, a percentage not exceeding 15% of their production of fruit and vegetables covered by the PO. In particular, the article No 6 of the MD 9084/2014 establishes that the marketing activities can be outsourced within the limit of 40% of the turnover in the previous year, with relation only to the products that have been covered by the PO approval and establishment, thus only for the products that are granted by the producers members.

The inter-branch organizations: the purposes of the European legislator

Unlike OPs, which include only farmers, interbranch organizations collect entire sections or the whole supply chain: farmers, processors, distributors and retailers. The inter-branch organizations are designed to bring together active actors in the whole production chain, playing an important role in facilitating dialogue between supply chain actors. In addition, interbranch organizations have a crucial role in the CAP 2014-2020 and can be defined as a means of "self-determination", which is formed and develops product-specific (also PDO and PGI), with the aim of improving knowledge and transparency of production and market.

Article 157 of Reg. (EU) No. 1308/2013 defines the requirements to be met by the Interprofessional Organization for granting. In particular, it provides that Member States may recognize, on request, interbranch organizations in a specific sector listed in Article 1, paragraph 2, that:

- are constituted of representatives of economic activities linked to the production and to at least one of the following stages of the supply chain:

the processing of or trade in, including distribution of, products in one or more sectors;

- are formed on the initiative of all or some of the organisations or associations which constitute them.

Unlike POs, interbranch organizations cannot perform any operative function: this means that they are not able to directly engage in the marketing of the product, but they can only perform regulatory tasks and promotional in order to concentrate and to coordinate the supply of agricultural products on the market.

In accordance with Art. 157 of the Commission Regulation (EU) No. 1308/2013 these organizations can contribute to an effective coordination on the marketing of products, particularly through research studies by means of increasing the valuation, in order to create an equal division of the value between the actors of the chain. Furthermore, the potential of production is enhanced in an optimal way, even at the level of market outlets, developing initiatives to strengthen the economic competitiveness and innovation; information and the research necessary to innovate, rationalize, improve and adjust production are provided together, where appropriate, to processing and/or marketing towards products more suited to market requirements and consumer tastes and expectations, with particular emphasis on product quality (as the characteristics of Protected Designation of Origin products or geographical indication, and protection of the environment).

Conclusions

The paper gave insight and some light on some aggregation models that can be linked to the business networks as well as supply chain and district contracts in the light of recent Circular No. 558/2012 of the Ministry of Agriculture and Forestry which defines the criteria, methods and procedures for the implementation of these contracts. Conclusions highlight that these forms of association also allow research activity and promotion of best cultivation practices, as well as the provision of technical assistance and risk management tools, thus contributing to the strengthening of the position of individual producers.

References

- Albayrak M. (2010), Organizing against market exploitation in turkey: An analysis of wholesale markets, trade exchanges and producer organizations. *Scientific Research and Essays*, 5(17), 2432-2440.
- Bijman J. (2007), The role of producer organizations in quality-oriented agri-food chains; an economic organisation perspective, in Ruben, R., Van Boeckel, M., Van Tilburg, A., & Bourgeon, J. & Chambers, R. G. (1999). Producer organizations, bargaining, and asymmetric information. *American Journal of Agricultural Economics*, 81(3), 602-609.

- Camanzi L., Malorgio G., Azcárate T. G. (2011), The role of producer organizations in supply concentration and marketing: A comparison between European countries in the fruit and vegetable sector. *Journal of Food Products Marketing*, 17(2-3), 327-354.
- Circular No. 558 20 December 2012 "Characteristics, methods and forms for submitting applications for access to supply chain contracts and district".
- Gouët C., Leeuwis C., Van Paassen A. (2009), Theoretical perspectives on the role and significance of rural producer organisations in development: Implications for capacity development. *Social and Economic Studies*, 58(3-4), 75-109.
- Ministerial Decree No. 9084, 28th August 2014 "National regulations concerning the recognition and control of the fruit and vegetable producers organizations and their associations, funds and operational programs".
- Ministerial Decree No. 86483, 24th November 2014 "National recognition and control of the producer organizations of olive oil and table olives and their associations, as well as adjustment of producer organizations already recognized".
- Ragasa C., Golan J. (2014), The role of rural producer organizations for agricultural service provision in fragile states. *Agricultural Economics (United Kingdom)*, 45(5), 537-553.
- Ratinger T., Bošková I. (2013), Strategies and effects of milk producers' organizations in the Czech republic. *Agricultural Economics (Czech Republic)*, 59(3), 113-124.
- Regulation (EU) No. 1306/2013 of the European Parliament and of the Council on the financing, management and monitoring of the common agricultural policy and repealing Council Regulation (EC) No. 352/78, (EC) No. 165/94, (EC) No. 2799/98, (EC) No. 814/2000, (EC) No. 1290/2005 and (EC) No. 485/2008.
- Shiferaw B., Hellin J., Muricho G. (2011), Improving market access and agricultural productivity growth in africa: What role for producer organizations and collective action institutions? *Food Security*, 3(4), 475-489.
- Trebbin A. (2014), Linking small farmers to modern retail through producer organizations - experiences with producer companies in India. *Food Policy*, 45, 35-44.

^{1,2} Department of Economics, University of Foggia, Largo Papa Giovanni Paolo II, 1 - 71121 Foggia (Italy)

³ Department of Economic Sciences, University of Bari, Largo Abbazia S. Scolastica, 53 - 70124 – Bari (Italy)

¹ emilia.lamonaca@unifg.it;

² alessia.scarinci@unifg.it;

³ raffaele.silvestri@uniba.it

Producers organizations and knowledge transfer: a way for farms competitiveness?

Abstract: *The agri-food sector is much complex, so competitiveness is considered to be a necessary condition. Among the different competitive strategies that can be adopted, the Producer Organizations (POs) try to increase the value of the aggregate production of a region. According to this strategic goal, digital and web-based technologies help to share skills and experiences of the producers. The social aspect of technologies in the companies (sharing, collaborating, communicating, etc.) could rise the interaction workers and the efficiency of work in term of productivity. The paper aims to explore how the POs use digital and web based technologies in improving product/process innovation, in enhancing competitiveness and in transferring knowledge in the agricultural sector. Data were collected by submitting a structured interview to a sample of POs in the southern region of Italy; a descriptive statistical analysis was carried out and a SWOT analysis was performed, in order to assess the competitive environment in which POs' operate. The analysis of the socio-economic context suggests that POs operate in a complex and competitive environment, characterized by high levels of operators' individualism, without a significant aggregation of the distribution chain. Training activities is one strength of the POs' actions, that help to improve associated farms' competitiveness and knowledge transfer, in order to create collaboration network, increase knowledge level and allow a process of experiences and skills sharing between the PO and the associated farms.*

Keywords: *Agri-food innovation, Producers Organizations, Digital web-based technologies.*

Introduction

The agri-food sector is as much varied as complex: agricultural small and medium enterprises (SMEs) compete into a dynamic context in rapid evolution (Wolfert, 2010). Competitiveness is considered to be a necessary condition, because nowadays food supply chains are facing an ever increasing pressure to guarantee high standards in a competitive environment (Bunte et al., 2009). In the current competitive context, the horizontal aggregation of several small players is a strategy to increase farmers' bargaining power toward large retailers networks, to improve their innovativeness and to enhance their products' brand awareness among a larger number of potential consumers: that's the key mission of Producer Organisations (POs), as also defined by the European Commission in 2009, which, by aggregating the farmers' supply belonging to the same regional area, aims at providing better market opportunities to its members and at increasing their competitiveness (Petriccione, 2012). According to this strategic goal, POs should invest in the dissemination and the sharing of knowledge, in order to systemically increase the quality of their networks (European Commission, 2009): for this reason the digital web based technologies can play an important role for the POs in supporting farmers to share skills and experiences.

POs can create niche networks and communities of practices that can contribute to the economic growth, and more extensively, to the social wellbeing of a region (Jonassen, 1994; Wolferta et al., 2010; Wilson, 1996). Studies on the relation between Information and Communication Technologies (ICTs) and farm performance find that there is a positive correlation between the use of digital web based technologies and productivity (OECD, 2003). Researches on the use of ICT in the agri-food sector are developed on experiences from agriculture, industry or retail, experiments in living lab or field trial environments, and moved from scientific contributions related to the food sector. Several scholars studied the different ways of utilizing ICTs for the agri-food sector's needs: precision agriculture in primary production (Zhang et al., 2002; Stafford, 2007; van Henten et al., 2009) as well as tracking and tracing of food products along the food value chain (Trienekens and van der Vorst, 2006) and the identification of product characteristics through labels and logos for consumers support (Sahota et al., 2009) represent the most important research topics in serving the sector's and consumers' needs, emerging by the literature review. A discussed topic in the literature regards the constraints the small farms find in adopting innovative ICT based tools in their processes: agricultural SMEs, which represent the majority of the global agricultural production, are traditionally slow in adopting ICT solutions for several reasons (e.g. not familiar with available technologies, perception of an undesirable cost-benefit ratio, too much information provided without knowing what to do with it; Bewley and Russell, 2010).

According to European strategies 2020 and the rural development policies, SMEs' smart and sustainable growth is supported by knowledge transfer (Reg. (UE) n. 1305/2013, PAC 2014-2020). The OECD refers to knowledge based economies as those "directly based on the production, distribution and use of knowledge and information" (OECD, 1996: p.7). In this context, "knowledge" is often considered as a key resource for the farms competitive advantage (Davenport and Prusak, 1998; Rullani, 2004).

By the literature review it emerges there is a lack of studies concerning the way POs use the web based ICT to transfer knowledge to its small farmers in order to improve their innovativeness and competitiveness. Our research interest is then focused on how the POs use the digital web-based technologies to transfer knowledge to farmers and to promote innovation in the agri-food sector. The study discusses how the POs define their contribution in the innovation of processes and products, how do they help the dissemination and the sharing of best practices, how do they improve farms competitiveness.

Materials and methods

Nowadays, approximately the 50% of Italian farms operate in four regions of Southern Italy (Istat, 2011). Despite the great farms' concentration, the agricultural sector of the South of Italy is highly fragmented and it essentially consists of SMEs. Nevertheless forms of associations are widely spreading (Istat, 2011; D'Alessio, 2013). The paper takes into account, such as case study, some POs localized in the South of Italy.

This work is a qualitative study based on a set on in-depth interviews to opinion leaders in the POs in the South of Italy. A direct survey was carried out by submitting a structured interview to a sample of 10 POs in the South of Italy, during the period July - September 2015. A "call survey" step was performed for the data collection. For the development of this exploratory analysis, evidences were provided for defining variables to investigate. After that, the questionnaire was structured with 17 questions, some of these were built with multiple options, some others were developed to scaling responses; for these latter questions five Likert Scales items have been adopted, using the following Likert rating scales (Allen and Seaman, 2007): Not important at all; Unimportant; Neutral; Important; Most important. The survey was structured in three sections: the first one aims at highlighting the general characteristics of the PO; the second one seeks to describe the ICT tools used by the PO; the last section aims at investigating how PO uses digital web based technologies for training activities, in order to improve farms competitiveness. A SWOT analysis was performed in order to assess the competitive environment in which POs operate. Then a descriptive statistical analysis was carried out.

Results and discussion

The analysis of the socio-economic context shows that POs operate in a complex and competitive environment, characterized by high levels of operators' individualism, without a significant aggregation of the distribution chain. For these reasons POs play an important role in improving farms network. As organization, they present strengths and weaknesses (Table 1).

Table 1: SWOT analysis

STRENGTHS	WEAKNESSES
Production planning	Experimental production
Concentration of supply	Crop insurance
Training activities	
Improvement of products quality	
Optimization of production costs	
Improvement of products' commercial value	
Production prices stabilization	
Products promotion	
Environmental guidelines	
OPPORTUNITY	THREATS
Territorial coverage	Operators' individualism
Partnerships creation	Low aggregation of the distribution chain
Events organization	
Environmental guidelines' creation	

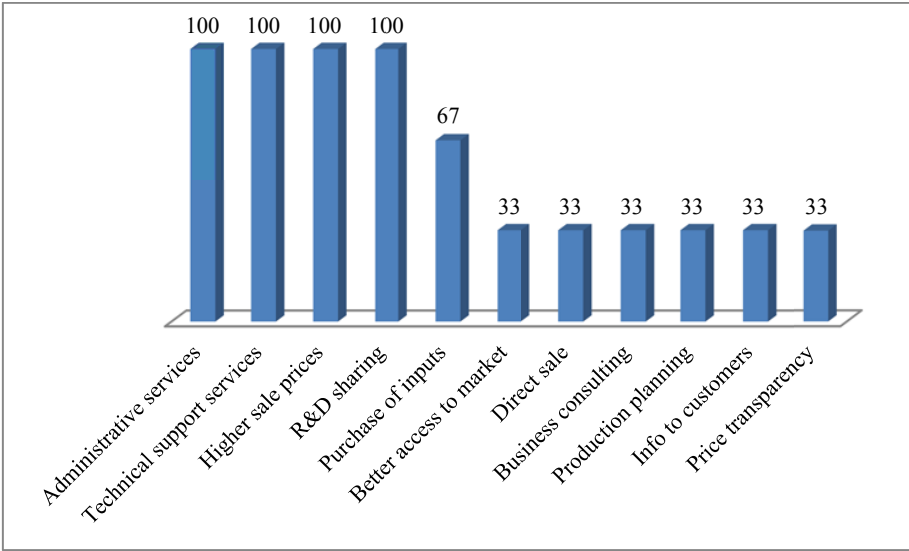
Source: Authors' elaboration

POs could create different opportunities to the associated farms, in order to increase their level of aggregation.

In line with the objectives of CAP 2014-2020 on the necessity to increase agricultural sector competitiveness through knowledge transfer, the analyzed POs improve sustainable growth of the associated farms by way of:

- sharing of best practices;
- knowledge transferring;
- updating of process/product innovation;
- implementing activities for farms' competitiveness improvement.

According to the main purposes of a PO, defined by regional regulations, the analyzed POs achieve their objectives providing a set of services to the associated farms, to support the associated farms (Graph 1).



Graph 1: Support services offered by POs

Source: Authors' elaboration

Regarding the ICT tools used by the farms, all the respondents have an e-mail contact, which they essentially use to:

- receive customers' orders,
- place orders and purchases from other suppliers,
- receive sector updating.

Instead, only half of the analyzed POs have a web site, that they use to make e-commerce and to give information on:

- organization;
- members of the association;
- commercialized products.

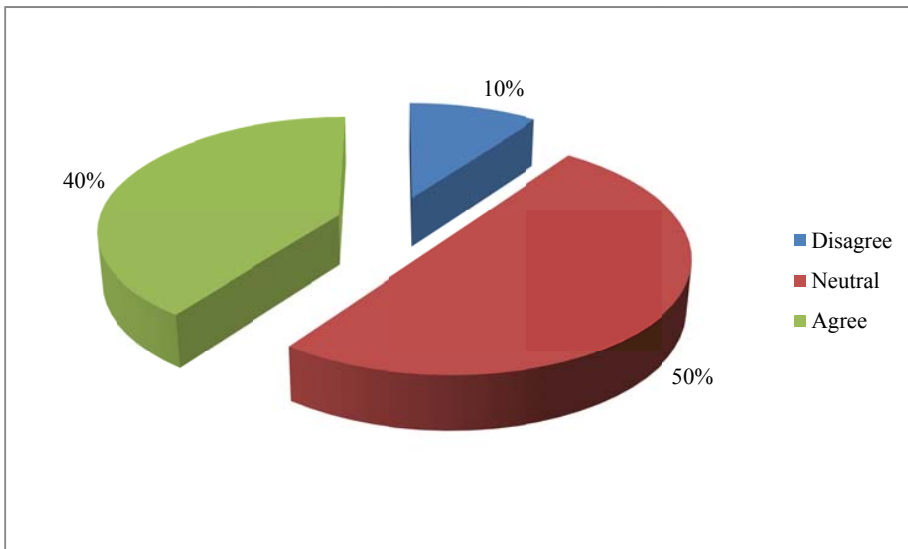
Currently, respondents use the digital web-based technologies (computer, management software, e-commerce platform, etc.) in order to have a better organizational structure and to improve internal communication, productivity level and logistical and distribution networks. Whereas, the decentralization of the PO's function is not yet assigned to the ICT tools (Table 2).

Training activities is one of the strength of the PO's actions (Table 1). The 40% of the POs believe that offering training and/or updating courses to the associated farms can increase their competitiveness and improve the quality of their production (Graph 2). Actually, POs are conscious that attending training courses can help the associated farms to support the introduction of new technologies and to upgrade professional profiles.

Table 2. Intended use of POs' ICT tools Graph 2: POs' training activities can increase farms' competitiveness?

YES	NO	IN FUTURE
Better organizational structure	Improvement of relations with customers/providers	Functions decentralization
Enhancement of internal communication	Penetration of new markets	
Improvement of productivity levels		
Improvement of logistics and distribution		
Enhancement of sale networks		

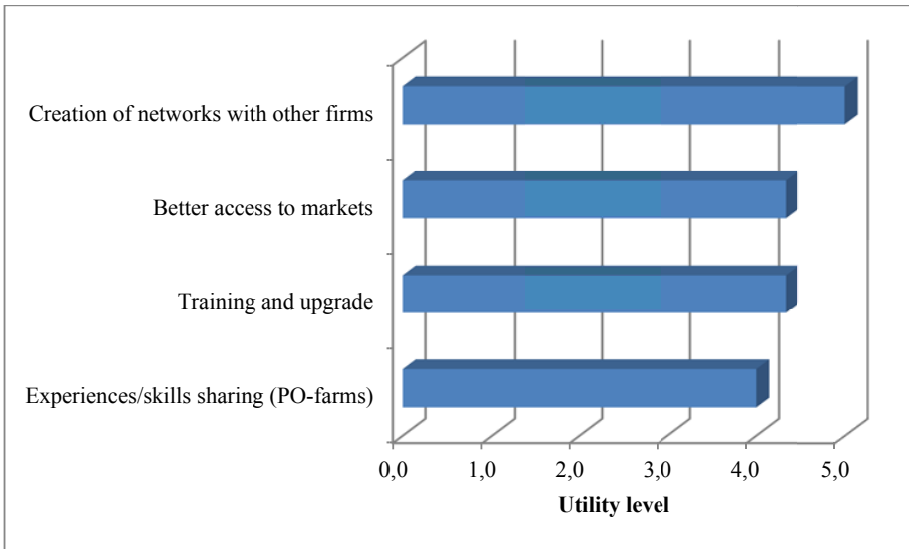
Source: Authors' elaboration



Graph 2: Can POs' training activities increase farms' competitiveness?

Source: Authors' elaboration

POs believe that training activities help to create collaboration network also with external firms and associations. Furthermore training courses not only allow to increase the level of knowledge and upgrading of the associated farms, but they also enable a better market positioning. Finally, these courses aim to allow a process of experiences and skills sharing between the PO and the associated farms, and among the farms (Graph 3).



Graph 3: Purpose of training courses

Source: Authors' elaboration

In the opinion of the respondents, the PO successfully carries out these actions, reaching its objectives of improving farms' competitiveness and knowledge transfer (Graph 3).

Conclusions

The agro-food sector is characterized by increasing complexity: consumption needs change quickly, consumers pay increasing attention to food safety and healthiness as well as to the environment respect; the bargaining power of large retailers networks grows thanks to their large business dimension. These factors have a negative impact on the small farmers competitiveness, which can increase it by pursuing dimensional growth and innovation: the former is achievable, in the medium term, through the horizontal aggregation of producers; the latter is achievable through the knowledge transfer process, whose greatest potential derives from the digital web based technologies, which help to share skills and experiences among the producers. By the literature review it emerges there is a lack of studies concerning the way POs use the ICT web based tools to transfer knowledge to its small farmers in order to improve their innovativeness and competitiveness. This work outlines the importance and the impact of digital web based technologies on the agri-food sector. In particular, it focuses on the relationships between the PO's use of digital web based technologies and its associated farms' performances, in terms of competitiveness, innovativeness and knowledge transferring capacity.

The analysis of the socio-economic context shows that POs operate in a competitive environment, characterized by high levels of operators' individualism, without a significant aggregation of the distribution chain. Training activities is one of the strength of the POs' actions. Most of the analysed POs believe that offering training and/or updating courses to the associated farms can increase their competitiveness and improve the quality of their production. In the opinion of the respondents, the POs successfully reach their objectives of improving farms' competitiveness and knowledge transfer, offering periodic training courses in order to:

- create collaboration network also with external firms and associations,
- increase the level of knowledge and upgrading of the associated farms,
- ensure a better market positioning,
- allow a process of experiences and skills sharing between the PO and the associated farms, and among the farms.

This exploratory research is ongoing and further research and analysis could numerically, but also geographically, expand the sample of POs in order to corroborate our hypothesis.

References

- Allen, E. and Seaman, C. A. (2007), "Likert Scales and Data Analyses", in *Quality Progress*, Vol. 40 No. 7, pp. 64-65.
- Bewley, J.M. and Russell, R.A. (2010), "Reasons for slow adoption rates of precision dairy farming technologies: evidence from a producer survey", paper presented at the Proceedings of the First North American Conference on Precision Dairy Management, 2-5 March, Toronto, available at: <http://www.precisiondairy2010.com/proceedings/s1bewley2.pdf> (accessed 27 August 2012).
- Bunte, F., Dijkxhoorn, Y., Groeneveld, R., Hofstede, G.J., Top, J., van der Vorst, J. and Wolfert, S. (2009), "Thought for food: The impact of ICT on Agribusiness", report 2009-029, LEI Wageningen UR, The Hague, The Netherlands.
- Commissione europea (2009), "Migliore funzionamento della filiera alimentare in Europa", in *Comunicazione della Commissione al Parlamento europeo, al Consiglio, al Comitato economico e sociale europeo e al Comitato delle regioni*, Com (2009) 591 definitivo, Bruxelles.
- European Parliament of the Council (2013), Regulation (EU) No 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005, in *Official Journal of the European Union*, available at: <http://eur-lex.europa.eu/legal-content/it/TXT/?uri=CELEX:32013R1305>.
- Istat (2011), "VI General Census of Agriculture, 2010", available at: <http://www.istat.it/it/censimento-agricoltura/agricoltura-2010>.

- Jonassen, D. H. (1994), "Technology as cognitive tools: Learners as designers", available at: <http://it.coe.uga.edu/itforum/paper1/paper1.html>.
- Lamonaca, E., Scarinci, A. and Silvestri, R. (2015), "Digital web-based technologies: a way for innovation in agricultural sector? An empirical study of Producers Organization in the south of Italy", in 8th EUROMED Conference Reading Book Proceedings "Innovation, Entrepreneurship and Sustainable Value Chain in a Dynamic Environment", Verona, 16-18 September 2015, Euromed Press, pp. 1936-1940 ISBN: 978-9963-711-37-6 [ISI].
- OECD (1996), *The knowledge Based Economy*, OECD, Paris.
- OECD (2003), *ICT and economic growth: Evidence from OECD countries, industries and firms*, OECD, Paris.
- Petriccione G. and Sollazzo R. (2012), "Le Organizzazioni dei produttori nell'agricoltura italiana", in *Agriregionieuropa*, Vol. 8, No. 30.
- Rullani, E. (2004), *Economia della conoscenza*, Carocci, Roma.
- Sahota, A., Haumann, B., Givens, H. and Baldwin, C.J. (2009), "Ecolabeling and consumer interest in sustainable products", in Baldwin, C.J. (Ed.), *Sustainability in the Food Industry*, Wiley-Blackwell, Ames, pp. 159–181.
- Stafford, J.V. (2007), "Precision agriculture '07", in Stafford, J.V. (Ed.), *Proceeding of the 6th European Conference on Precision Agriculture*, Wageningen, 2007, Wageningen Academic Publishers, Wageningen.
- Trienekens, J.H. and van der Vorst, J.G.A.J. (2006), "Traceability in food supply chains", in Luning, P.A., Devlieghere, F. and Verhé, R. (Eds.), *Safety in the Agri-food Chain*, Wageningen Academic Publishers, Wageningen, pp. 439–470.
- Viscusi, G., Cabitza, F., Maurino, A. and Stella, F. (2013), "Determining factors in ICT adoption by MSME's in agriculture clusters: An exploratory case study", in *Proceedings - International Conference on Research Challenges in Information Science*.
- Wilson, B. G. (1996), *Constructivist Learning Environments. Case Studies in instructional design*. Educational Technology Mitpress.
- Wolfert J., Verdouwa C. N., Verloopa C. M. and Beulens A. J. M. (2010), "Organizing information integration in agri-food-A method based on a service-oriented architecture and living lab approach", in *Computers and Electronics in Agriculture*, Vol. 70 No. 2, pp. 389–405.
- Zhang, N., Wang, M. and Wang, N. (2002), "Precision agriculture-a worldwide overview", *Computers and electronics in agriculture*, Vol. 36 No. 2, pp. 113-132.

Department of Economics, University of Foggia, Largo Papa Giovanni Paolo II,
1 - 71121 Foggia (Italy)

¹ pierpaolo.magliocca@unifg.it;

² claudio.zaza@unifg.it

Producer organizations in fair trade agri-food supply chain

Abstract: *The Fair Trade movement seeks to transform international market relations, shaping new consumer/producer links based on trust, equity, and fairness. According to this perspective, Producers Organizations (POs) play a very important role, within the international Fair Trade chain, in not only supplying products from the Southern and the under-developed countries to the Northern and developed ones, but also in helping the local farmers to negotiate and to gain finally a fair share for the total profit generated.*

POs belonging to Fair Trade chains must explicitly aim to provide safe and healthy working conditions and other social benefits to their workers; in doing this they have to emphasize both the cultural identity and the ethical value of the final products, when selling them to the final market.

Depending on the above considerations, the paper examines how the Fair Trade label may be used as a tool of marketing, in order to gain a premium-price by the final customers.

Keywords: *Producer Organisations, Fair Trade, agri-food chain.*

Introduction

Many authors recognize the deep challenges that are affecting, more and more, the agri-food industry. The driving forces of the mentioned changes mainly belong to: a) the liberalization of markets (at both national and international level), that increases competition between and among firms, as well as between and among global supply chains (Bijman and Ton, 2008); b) the growing power of big suppliers and supermarkets that lead to the restructuring of the vertical relations along the chains (Ton et al, 2006); c) the rise of new and different value chains, like, for example, those for organic and fair trade products (Raynolds, 2002; Renard, 2003). In such circumstances, individual producers are not able to compete with buyers and the Organized Distribution, thus impelling the emergence of Producers Organizations (POs) as a way to strengthen their own position within the chain. The most recent World Development Report (World Bank, 2008) makes the case for POs as key actors in agri-food progress. POs play an important role in rural development because of their ability to support economic growth and social cohesion; they help their members to enhance products quality, to guarantee safety and to reduce transaction costs. POs became even more important in Fair Trade chains, within which only the “organized” farmers may grasp a “premium price” (Bijman and Ton, 2008).

Though the labeled (fair trade) products represent only a minor share of the global market, Fair Trade has dramatically grown in recent years. The Fair Trade movement seeks to transform international market relations, shaping new consumer/producer links based on trust, equity, and fairness. Fair Trade networks link consumers in the developed North with producers in the under-developed South via multifaceted market and non-market exchanges. The buying organizations act as importers, wholesalers and retailers of the products purchased from the Southern POs (Raynolds, 2002). POs supply the products and help farmers to negotiate a fair share of the total profit generated.

Theoretical background: the origin of the Fair Trade Movement

The Fair Trade movement is "a philosophy that supports the marketing and sale of products at greater than free trade prices" (LeClair, 2003). In particular, those prices must be high enough to assure producers of agricultural commodities, textiles, handicrafts, etc. in developing nations a living wage, safe working conditions, and human dignity. In fact, developing world commodities, like coffee, tea and cocoa, are now underpaid in comparison to the manufactured goods imported from industrialized nations (Witkowski, 2005). Fair Trade focus in economic development, but also gender equity, human rights, and environmental protection.

The Fair Trade started in North America in 1946 when a Mennonite layperson, Edna Ruth Byler, began to sell Puerto Rican embroidery, Palestinian needlework and Haitian woodenware out of her Pennsylvania home. In the early 1970s, her work grew in the Ten Thousand Villages (Ten Thousand Villages, 2006), the largest fair trade retailer in North America. The Fair Trade marketing in Europe started in the late 1950s when Oxfam shops in Britain began to sell crafts made by Chinese refugees (Bowen, 2001). In 1964, Oxfam UK established this program by founding its "Alternative Trading Organisation". In the Netherlands in 1959, a fair trade importing organization called SOS (later renamed SOS Wereldhandel and currently known as Fair Trade Organisatie) was instituted and, two years later, the first Dutch retail store was opened. In the 1970s, a greater number of fair trade shops began to open in Europe and many industry associations were formed by the 1990s (Witkowski, 2005). "Max Havelaar", in 1988, starts to be the first label to certify fair trade coffee, followed by other seals (Bowen, 2001).

Value of Fair Trade has grown rapidly in the past years. The reports of Fair Trade Federation (2003) showed that sales in the U.S., Canada, Australia, New Zealand, and Japan exceed \$250 million in 2002. In these countries, Fair Trade companies employed 3260 people (68 percent were volunteers). In Europe, total retail sales of fair trade products exceed €260 million and major fair trade organizations employ approximately 1250 people. Food products, mostly coffee, account for 60 percent of the turnover (Jones et al., 2004). Despite its small dimension - Fair Trade is estimated at just .01 percent of all world trade (Bowen, 2001; Nicholls and Opal, 2005) - its promising trends and a suggest for future investigation.

The International Chain of Fair Trade: the role of the actors

Producers and their organizations

Producer Organizations (POs) are legally constituted groups of farmers and growers. The aims of POs are reducing organizational, structural and commercial weaknesses, caused by the high fragmentation of the agri-food sector. POs help their members to enhance products quality, to guarantee safety, strengthening their bargaining power and to reduce transaction costs. Moreover, these organizations significantly support the design of marketing strategies, improving the effectiveness of the individuals' actions. This is the reason why we considered POs strategic choices instrumental in increasing the value generated throughout the chain. Furthermore, in Fair Trade chains through collective bargaining, POs became even more important, mainly because only the "organized" farmers may grasp a "premium price" (Bijman and Tonis, 2008). POs belong to two main categories: formal and informal organizations. Cooperatives, associations and societies that are characterized by an official constitution and by defined rules of conduct are known as formal

POs. In the informal POs, on the contrary, group of producers usually share their experiences or market information, obtain technical assistance or help each other in difficult times (Bijman and Ton, 2008) without referring to any formal structure.

Generally speaking, POs in Fair Trade chains differ from POs acting within traditional chains. According to Moore (2004) POs belonging to Fair Trade chains must explicitly aim to provide safe and healthy working conditions and other social benefits to their workers; they are usually organized as producer-controlled co-operatives, NGOs or community groups that are trading to support social and development programs. In addition to social provision, producers are expected to conduct their production and trade in such a way as to cause the least possible environmental damage. A further emphasis is on cultural identity and in market promotion. For example, in Ghana, a group of cocoa producers created the PO Kuapa Kokoo in 1993 to sell on the Government Cocoa Buying Board. It became a national cooperative involved in the social, economic, political empowerment, the participation of women and environmentally sustainable production processes (Witkowski, 2005). In 1998, Kuapa Kokoo formed the Day Chocolate Company with Twin Trading and The Body Shop from the U.K. (Divine Chocolate 2006). It also provides cocoa butter to the European chocolate companies and The Body Shop, which uses it in their "Africa Spa" product line (Witkowski, 2005).

The Fair Trade supply chain

The Fair Trade supply chain can be divided into four main groups (Moore, 2004). In the first group, there are the POs operating in developing Southern countries that supply the products. In the second cluster, there are the importers, wholesalers and retailers, generally located in the Northern countries that purchase product from the Southern POs. For many times these buying organizations have been known as Alternative Trading Organisations (ATOs). In the third group, there are the umbrella associations composed of the following six organizations.

1. International Fair Trade Association (IFAT) was founded in 1989 and represents over 270 fair trade producers and buying organizations in 60 countries (IFAT, 2006).
2. Fair Trade Labeling Organizations International (FLO) was established in Bonn in 1997 and is the worldwide Fair Trade standard setting and certification organization. FLO includes 18 national and regional labeling initiatives (FLO, 2010). In 44 countries, this organization has trademarked the term "fair trade" and has persuaded numerous companies to stop using this term on non-certified products (Stecklow and White, 2004). Now, FLO fixes standards for the following products: bananas, cocoa, coffee, fresh fruit, honey, juices, rice, sugar, tea and sports balls. In addition, tropical fruit, wines and other tropical products standards are under construction.

To gain marketing advantages, FLO has realized a common label for all products in each countries.

3. Network of European World Shops (NEWS), established in 1994, collects 15 world shop associations in 13 European countries. The aim of this association is to promote a series of “best practices” focused to improve management and marketing of the “world shops” (NEWS, 2006).
4. European Fair Trade Association (EFTA), founded in 1990, represents 11 importing organizations in 9 European countries. It helps member networking, information exchange and lobbies EU bureaucrats in Brussels (EFTA, 2006).
5. Fair Trade Federation (FTF), created in 1994, is an association of fair trade wholesalers, retailers and producers with 145 members (Witkowski, 2005). It covers the U.S. and Canada and promotes goods that bear the TransFair label (Moore, 2004).
6. Shared Interest, founded in 1990, provides trade finance by a “Clearing House” mechanism to the Fair Trade movement promoted in jointly with IFAT but also serving producers certified by FLO (Moore, 2004).

Finally, in the fourth group, there are 43.000 supermarkets across Europe and 7.000 in the U.S. and Canada stock Fair Trade goods. Several supermarkets sell products taken from the above-mentioned Fair Trade supply chain. However, some of these start to sell “own brand” Fair Trade goods sourced directly from POs without involving the ATOs as intermediaries.

Fair Trade label, a marketing instruments for POs

The extraordinary growth in the sales volumes of Fair Trade products has been one of the most notable retail phenomena of the past years (Nicholls and Opal, 2005). Fair Trade products are obtained respecting the Fair Trade principles during the whole supply chain. These principles have been translated by FLO certification into a system of rules regulating the production and trade of labeled products (Raynolds, 2012). These products include coffee, tea, cacao, honey, sugar, rice, bananas, pineapples, mangos, citrus, apples and oranges, fresh juices, nuts, cotton, roses, vanilla and soccer balls (FLO, 2003). The most highly developed products are coffee and bananas.

Consumers tend to evaluate Fair Trade products by some abstract ideas and concepts such as justice, fairness respect for environment or equity in transactions. These attributes can change the perception of value, independently by the product’s actual physical value. For example, the perception of unfair product’s price has been shown to impact negatively on product ratings (Martins and Monroe, 1994). Furthermore, several recent studies have highlighted the attitude of some consumers to pay a premium price for fair trade products (Taylor et al., 2014; Hertel et al., 2009; Rousu and Corrigan, 2008; De Pelsmacker et al., 2005). The fair trade model or quality label has been de-

veloped in order to guarantee to consumers the presence of the above-mentioned social attributes in certain products (Renard, 2005). The information contained in the label constructing a figurative connection between Northern consumers and Southern producers or POs, who are usually invisible in the market (Whatmore and Thorne, 1997; Raynolds, 2002).

The interest shown by POs to the fair trade labelling is related to the higher price offered for their products with reference to the market price. In particular, the label guarantees to the producers a 'fair' price, which provides a minimum price to POs plus a premium price to be dedicated to development programs for the community (Renard, 2005). To obtain the certification the producers must (1) be organized into democratic associations, like POs, (2) subscribe International Labor Organization conventions, and (3) promote environmental sustainable practices (Raynolds, 2012). FLO developed the Fairtrade Certification Mark, a unique international label for all initiatives to avoid competition among different fair trade labels and consumers confusion (Renard, 2005).

Conclusion

The Producer Organizations are an instrument to face the deep challenges that now affecting the agri-food sector. In particular, for a single producer to become a member of a PO is a way to strengthen their own position within the chain through reducing transaction costs and strengthening their bargaining power.

Trust, equity, and fairness are the bases of the Fair Trade movement. The aim of Fair Trade is to transform international market relations, in order to link consumers in the developed North with producers in the under-developed South via multifaceted market and non-market exchanges. In this context, the actions of POs are different. In fact, POs must explicitly aim to provide safe and healthy working conditions and other social benefits to their workers and promote ecologically sustainable practices. These actions are needed to gain access in the certification process for the Fair Trade label. Furthermore, for products labelling is necessary to respect a set of rules obtained by the translation of the principle of Fair Trade by FLO. In our work, we consider Fair Trade label like a marketing instrument that POs can use to obtain a premium price for their products.

Further works are needed to investigate the role of Fair Trade POs in the other classical market policy, such as price, communication and distribution.

References

- Bijman J., and Ton G. (2008), *Producer Organisation and Value Chain*. Capacity.org
- Bijman J. (2006), "International agri-food chains and networks: Management and organisation", working paper, Wageningen Academic Pub.
- Bowen B. (2001), "Let's Go Fair," in *EFTA Yearbook: Challenges of Fair Trade 2001-2003*, Brussels: Fair Trade Advocacy Office, European Fair Trade Association, 21-41.
- De Pelsmacker P., Driesen L. and Rayp G. (2005), "Do Consumers Care about Ethics? Willingness to Pay for Fair-Trade Coffee?", *Journal of Consumer Affairs*, Vol. 39 No. 2, pp. 363-385.
- Divine Chocolate (2006), "Kuapa Kokoo and Ghana," available at <http://www.divinechocolate.com>.
- EFTA (2006), "EFTA Activities," European Free Trade Association, available at <http://www.eftafairtrade.org/efta.asp>.
- Fair Trade Federation (2003), "Report on Fair Trade Trends in U.S., Canada & the Pacific Rim", available at <http://www.fairtradefederation.org>
- FLO (2003), "A quantum leap in the impact of Fairtrade labeling. FLO's strategic plan 2003-2008", available at <http://www.fairtrade.net/>.
- FLO (2010), *Annual Report 2009/2010- Fair Trade Leading the Way*. FLO, Bonn.
- Hertel S., Scruggs L., Heidkamp P.C. (2009), "Human Rights and Public Opinion: From Attitudes to Action", *Political Science Quarterly*, Vol. 124 No. 3, pp. 443-459.
- IFAT (2006), "Welcome to IFAT: The International Fair Trade Association", available at <http://www.ifat.org>.
- Jones P., Comfort D., Hillier D. (2004), "Developing Customer Relationships Through Fair Trade: A Case Study from the Retail Market in the UK", *Management Research News*, Vol. 27 No. 3, pp. 77-87.
- LeClair M.S. (2003), "Fighting Back: The Growth of Alternative Trade," *Development*, Vol. 46 No. 1, pp. 66-73.
- Martins M., Monroe K.B. (1994), "Perceived price fairness: A new look at an old construct." *Advance in Consumer Research*, 21, pp. 75-78.
- Moore G. (2004), "The Fair Trade movement: parameters, issues and future research", *Journal of business ethics*, Vol. 53, pp. 73-86.
- Moore G. (2004), "The Fair Trade movement: parameters, issues and future research." *Journal of business ethics*, Vol.53 No.1-2, pp.73-86.
- NEWS (2006), "Network of European Workshops", available at <http://www.worldshops.org/index.html>.
- Nicholls A., Opal C. (2005), *Fair Trade: Market-Driven Ethical Consumption*, SAGE Publications, London.
- Raynolds L.T. (2002), "Consumer/producer links in fair trade coffee networks." *Sociologia ruralis*, Vol.42 No.4, pp. 404-424.

- Raynolds L.T. (2012), "Fair Trade: Social regulation in global food markets", *Journal of rural studies*, Vol. 28, pp. 276-287.
- Renard M.C. (2003), "Fair trade: quality, market and conventions", *Journal of rural studies*, Vol. 19, pp. 87-96.
- Renard M.C. (2005), "Quality certification, regulation and power in fair trade", *Journal of rural studies*, Vol. 21, pp. 419-431.
- Rousu M.C., Corrigan J.R. (2008), "Consumer Preferences for Fair Trade Foods: Implications for Trade Policy", *Choices*, Vol. 23 No. 2, pp. 53-55.
- Stecklow S., White E. (2004), "What Price Virtue? At Some Retailers, 'Fair Trade' Carries a Very High Cost", *The Wall Street Journal*, (June 8), A. 1.
- Taylor J.E., Boasson V. (2014), "Who Buys Fair Trade and Why (or Why Not)? A Random Survey of Households", *The Journal of Consumer Affairs*, Vol. 48 No. 2, pp. 418-430.
- Ten Thousand Villages (2006), "About Us", available at <http://www.tenthousandvillages.org>.
- Ton G., Bijman J., Omta S.W.F., Trienekens J.H., Wijnands J.H.M., Wubben E.F.M. (2006), "The role of producer organisations in the process of developing an integrated supply chain; experiences from Quinoa chain development in Bolivia." *International agri-food chains and networks: management and organisation*, pp. 97-111.
- Whatmore S., Thorne L. (1997), "Nourishing networks: alternative geographies of food". In D Goodman & M Watts (eds), *Globalising food. Agrarian questions and global restructuring*. Routledge, pp. 287-304.
- Witkowski, Terrence H. (2005), "Fair trade marketing: an alternative system for globalization and development", *Journal of Marketing Theory and practice*, pp. 22-33.
- World Bank (2008), *World Development Report 2008: Agriculture for Development*, World Bank, Washington, DC.

^{1,2} Department of Economics, University of Foggia, Largo Papa Giovanni Paolo II, 1 71121 Foggia, Italy

³ Department of Agro-Environment and Landscape Sciences, University of Bari 'Aldo Moro', Via Amendola 165/A, 70126 Bari, Italy

¹ giustina.pellegrini@unifg.it;

² nicola.faccilongo@gmail.com;

³ salvatore.camposeo@uniba.it.

The role of PO in the promotion of economic and environmental sustainability: the case study of Aproli Bari

Abstract: *Producer organizations (POs) and their association plays an important role in promoting the intrinsic characteristics such as quality, food safety, specific production method, labelling, and overall environmental respect. Furthermore, they use labelling system in order to inform consumers about control system and traceability. The main activities of these organizations are monitoring and administrative management of the market; traceability issues; and, finally, improvement of environmental impact and quality production. This innovative organizational model allows SMEs to concentrate their productions in order to increase their bargaining market power. The study aims to understand how the promotion and control of environmental and economic sustainability can be moved from the regional to the national and transnational scales. The case study of Aproli, an organization of olive oil producers, located in Apulia region, was analysed. A research project called "Definition of reference standard in order to explain the analysis of leaves and fruit for the cultivar "Coratina" in Apulia region", was carried out through the cooperation between the PO Aproli and the Department of Agro-Environmental and Territorial Sciences-University of Bari. The project activities are to acquire information concerning nutritional standards of "Coratina" cultivar, and to elaborate a reference table of nutrients and a specific fertilization plan. The final goal is to disseminate among operators technical-scientific inno-*

vations such as fertilization practices, in order to allow an improvement of environmental and economic sustainability, as well as product and process quality. Association at national and international scales is an important tool to increase the commercialisation and the valorisation of product, reducing the production costs and strengthening the market and bargaining power.

Keywords: *technical-scientific innovations, environment and quality improvement, project activities, nutritional standards for fertilization.*

Introduction

Producer Organizations (POs) and their associations are the basic actors in the fruit and vegetables system, the POs represent productive farms aiming at not only generic representation and protection of its members, but also production planning and marketing, promotion of high quality products in order to strengthen the position of producers than buyers. These organizations have an interface role between the agri food producers and the downstream operators particularly referred to large distribution (LD).

Supporting operational programs becomes a fundamental element in the process of firm's structure improvement. This operational programs allow collective investment such as machineries, R&D, technology, high quality, adaptation of systems that guaranteed food safety and traceability (Malorgio et al., 2013). PO potentially is able to promote quality orientation and adaptation of standard required for the LD.

PO actions include:

- Promotion of intrinsic characteristics such as quality, food safety, specific production method, labelling, nutritional and healthy value, animal well-being, environmental respect.
- Spread action of information about protected designation of origin (PDO), Protected geographical indication (PGI), traditional specialities guaranteed (TSG), organic production.
- Labelling system use in order to inform consumers about control system and traceability.

In order to face challenges owing to greater concentration of demand, grouping supply can strengthen producers' position in the market (Contò, 2013).

The Common Market Organization (CMO) has established for the Producer Organizations (POs) to implement multiannual operational programs, co-financed by the producers and the Commission according to Reg. REG. CE867/08 for olive culture sector. For this purpose, Producers Organization Associations (POAs) were born to support implementation of those programs through actions for enhancement and protection of the natural environment, for increased commercialisation and valorisation of products, as well as for reduced production costs and strengthened market and bargaining power.

Indeed, POAs have already done all of the above in order to reach the “Eco conditionality” associated with the whole supply chains where they are involved. As per Environmental Assessment and Monitoring, as established by the CMO, those actions were mainly intended for: development of good agricultural practices based upon environmental criteria promoted by European Commission; and, implementation of dissemination tools and monitoring systems for improved application and promotion of those practices among growers. Such actions were implemented also by means of demonstration fields in order to test growing techniques, harvesting and processing systems characterized by low environmental impacts. Furthermore, they included implementation of recovery and reuse of agricultural residues so as to enable increased knowledge on techniques being compatible with both environment and landscape conservation. Therefore, the present study arose with the aim of analyzing the action above “Environmental impact improvement” as the starting point to find potential completion and most of all to implement actions for those supply chains that have never been investigated so far in this field, thus contributing to creation of new POAs at national and international scales.

The case study of Aproli project

Aproli is organization of olive oil producers, located in Apulia region. The main goal of this organization is to spread agricultural best practices and the concept of agricultural sustainability among olive growers. The organization realizes initiatives to promote development programs, study and research, implementing projects that improve farm structures, olive oil quality, the environmental and food security.

A research project, named “Definition of reference standard for the interpretation of fruits analysis of the cultivar “Coratina” in Apulia region”, was carried out through the cooperation between the PO Aproli and the Department of Agro-Environmental and Territorial Sciences- University of Bari.

The main project activities are to acquire information concerning nutritional standards of “Coratina” cultivar, which is very widespread in the above-men-

tioned region, and to elaborate a reference table of nutrients and a specific fertilization plan.

The main objectives of the abovementioned project are the investigation of nutritional standard for “Coratina” cultivar, in order to elaborate a reference nutrients table and a specific fertilization plan, as best practices spread among olive growers. In the experimentation, the following activities were realized:

- collection of quantitative information such as nutritional substances that have a positive effects on olive tree physiological functions;
- samples analysis in order to check the nutritional sufficiency levels;
- development of nutritional reference table
- development of fertilization reference plan
- improvement of agricultural practices through environmental performances improvement
- spread of best practices among olive growers in order to improve production process
- provide a tools for the fertilization practices.

Within the scope of Regulation EC 867/08 as amended - Activity 2 and 3 - "Improving environmental Impact and Improved quality of olive oil and table olives" the following activities are included: the transfer of know-how concerning agronomic management, analytical and innovative techniques for nutrients determination, and fertilization plan realization. Through the definition of nutrition variability range, measured by analysis of the fruits, were proposed provisional reference standards related to “Coratina” cultivar and its cultivation areas. For the identification of reference standards, soil, physiological, varietal, meteorological and cultural factors, which introduce numerous causes of variability, were considered.

Material and Method

The activities were carried out from December 2013 to March 2015 in “OASI’s farms” (Aproli’s Olive growers with Integrated Systems). Two pilot areas located in Andria and Toritto were identified. This research focused the attention on “Coratina”, one of the most important cultivar in this region. The study comprises field experimental activities, laboratory activities and data collected processing. The sites are characterized by a typical Mediterranean climate with a long-term average annual rainfall of 560 mm, two third concentrated from autumn to winter, and a long-term average annual temperature of 15.6°C. For each year (2013-2014) and site an agro climatic and soil type characterization was conducted. The morphological characterization of leaves and fruits was also carried out.

Finally for the ripening index a randomized blocks design with 3 replications was used; each replication included a row of 50 plants; within each row 3 trees were used for the experimental measurements. Every 2 weeks 10 fruits from each cardinal points were randomly sampled. For each sampling date the same fruits sample of 180 olives was used for determining the ripening indices in the following order (Camposeo et al., 2013):

- detachment force (DF; N),
- detachment index (DI; N),
- fresh and dry weight (FW; DW; g),
- Fruit color was determined both as pigmentation index (PI) and as colorimetric index (CI),
- Fruit firmness (FF; N).

The laboratory activities include the chemical characterization of olives: hundredth analysis (pulp and kernel) on eight fruit for each pilot field was performed (Failla, et al., 1997; Porro et al., 2002; Stringari et al., 1997).

Results and Discussion

This section contains the preliminary results and discussion obtained in the study.

The comparison between the two sites provides results almost identical. According to the investigated repining indexes, the optimal time of harvesting for of this cultivar in considered area considered can be located between the second and the third week of November. These results emphasize the importance of setting a priority of criteria for choose the harvesting time that will take into account first of all the maximum mechanical efficiency, (the maximum oil yield and then the maximum oil quality) (Camposeo et al., 2013).

The Table 1 shows the fruits' removal of nitrogen, phosphorus and potassium provide by literature. The total amount of nitrogen (kg ha^{-1}) is obtained summing the Crop Removal amount (B) and Basic amount (C) (kg ha^{-1}). B in turn is measured by multiplying Fruits' Removal (A) (kg t^{-1}) and crop production (p) (t ha^{-1}).

The total amount required is 140 kg ha^{-1} of N considering a production equal to 12 t ha^{-1} .

The total amount of phosphorus is equal to 40 kg ha^{-1} considering a production the same aforementioned production. The latter is obtained summing the Crop Removal amount (B) and Basic amount (C) (kg ha^{-1}). In this case B and C are equal. B in turn is measured by multiplying Fruits' Removal (A) (kg t^{-1}) and crop production (p) (t ha^{-1}).

$$\text{Total amount (kg ha}^{-1}\text{)} = B+C \quad (1)$$

$$B= A*p \quad (2)$$

where

A = Fruits' Removal (kg t⁻¹)

B = Crop Removal amount (kg ha⁻¹)

C = Basic amount (kg ha⁻¹)

Following the same equation the total amount of potassium (140 kg ha⁻¹) is obtained. In this case C is calculated multiplying Bx0.6.

In the Table 2 our processing data are reported. The amount of nitrogen is 12.5% lower than the amount reported in literature. The amount of phosphorus is 25% higher than the amount reported in literature. The potassium value is 24.2% higher than the amount reported in literature.

These nutritional standards of "Coratina" cultivar (Table 2), result very important in order to elaborate a reference table of nutrients and a specific fertilization plan. These preliminary results represent reference values for Apulia olive growers considering "Coratina" cultivar.

Table 1. Removal and fertilizers doses

Elements	Fruits' Removal (kg t ⁻¹ fruits) A	Crop Removal (kg ha ⁻¹) B	Basic amount (kg ha ⁻¹) C	Total amount (kg ha ⁻¹)
Nitrogen	8.0	A x p	40.0	140.0
Phosphorus	1.5	A x p	B	40.0
Potassium	7.2	A x p	0.6 B	140.0

Source: Fiorino et al., 2003.

Table 2. Removal and fertilizers doses

Elements	Fruits' Removal (kg t ⁻¹ fruits) A	Crop Removal (kg ha ⁻¹) B	Basic amount (kg ha ⁻¹) C	Total amount (kg ha ⁻¹)
Nitrogen	7.0	A x p	40.0	125.0
Phosphorus	2.0	A x p	B	48.0
Potassium	9.5	A x p	0,6 B	182.0

Source: author's processing data.

Conclusions

The study provides a scientific innovation as implementation of agricultural practices aimed at improved environmental sustainability and management cost optimisation in order to allow an improvement of environmental and economic sustainability, as well as product and process quality. Furthermore, the authors believe that these results could be used as the starting base for implementation of Nitrogen Footprint agricultural in order to assess the environmental sustainability in the olive sector. The POs' activities and the excellent cooperation among the olive growers owners made it possible for the researchers to gather high-quality data, thereby making it possible to develop a scientific-value study that provided reliable and relevant insights (Pellegrini et al., 2015).

The experimentation on pilot field allow to obtaining statistically confirmable results making at least three repetitions for each date and site. The study made it possible to highlight the importance of studies at local scales for improved efficiency of different orchard systems in managing fertilization.

The case study of Aprili's project is an example useful to demonstrate that the association at national and international scales is an important tool to support actions aimed at the enhancement and protection of the natural environment.

References

- Camposeo S.,*, Vivaldi G.A., Gattullo C.E. (2013), Ripening indices and harvesting times of different olive cultivars for continuous harvest ,*Scientia Horticulturae* Vol 151, pp 1–10. doi: 10.1016/j.scienta.2012.12.019
- Contò F., Fiore M. and La Sala P. (2013), The role of innovation in the integrated processes of Integrated Project of Food Chain: the case of cherry cultivation chain in Apulia region. *Intellectual economics*, Vol. 7, No. 4(18), pp 467–485, ISSN 1822-8011
- European Commission , Reg. CE 867 / 08 for oliveculture sector, 3 September 2008 with application of Reg CE) n. 1234/2007 Concerning olive oil producer organizations and their financing activities.
- Failla O., Bogoni M., Porro D., Stringari G. (1997), Soil and leaf analysis: Effect of pedo-climatic, cultural and genetic factors on their calibration and interpretation. *Acta Hort* Vol 448, pp 225-232.
- Mulazzania L., Curtin R., Andrés M., Malorgio G. (2013), Multilevel governance and management of shared stocks with integrated markets: The European anchovy case, *Marine Policy* Vol 38, pp 407–416.

- Pellegrini G., Ingraio C., Camposeo S., Tricase C., Contò F., Huisingsh D. (2015), "Application of Water Footprint to olive growing systems in the Apulia region: a comparative assessment", *J. Cleaner Production*. working paper. doi: 10.1016/j.jclepro.2015.10.088
- Porro D., Comai M., Dorigoni A., Stefanini M., Ceschini A. (2002), Manganese foliar application to prevent leaf drop. *Acta Hort.*, Vol 594, pp 229-336.
- Stringari G., Porro D., Failla O., Möller F. (1997), A method to assess and manage leaf analysis standards according to genetic and environmental variability. *Acta Horticulturae* Vol 448, pp 145–153.

ISBN 978-83-7658-598-7