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The Establishment of an Organic Farmers' Market as a Training Case Study and Research for Graduate Students of Organic Agriculture at the University of Palermo

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ABSTRACT

Despite the modest regional consumption of organic products, Sicily is one of the most important European regions in surface area per number of companies active in organic farming. The University of Palermo, as early as 2000, to promote the development and success in this industry, the Faculty of Agriculture, introduced two major degree programs in "Organic Farming". The objective of these courses is to train graduates who are technically capable of supporting the organic farmers market, to promote and facilitate the expansion of the consumption of organic products, and to create employment opportunities for young graduates.

At the end of 2009, in the area of these activities, a training and research program involved numerous students in the creation of an "joint consumption" association whose purpose is the expansion of the consumption of organic products through the enhancement of a direct relationship with small organic farms who would be unlikely to penetrate large markets, or have relationships with large distribution networks.

The project aims to assess the ability of the students of the Faculty to transmit the knowledge acquired in the program, and to investigate the relative issues regarding the new phenomenon emerging in recent years in Italy, represented by the spread of various forms of ethically-conscious consumption groups called "Gruppi di Acquisto Solidale (GAS)" or Solidarity Purchase Groups.

Keywords: Sustainability, Critical consumption, Solidarity Purchase Groups

1 Introduction

In recent years, new consumer trends have developed regarding an interest in organic farming and produce, leading to an increase in direct sales. The creation of Solidarity Purchase Groups are a direct result of this new phenomenon. These are groups of organized consumers who collectively purchase agro-food products from producers. These groups have several things in common: a respect for the environment, a respect for human and animal health, support for energy efficiency and of products of local origin (short chain), as well as the quality of work production etc, and a willingness for ethical and informed consumption.

Solidarity Purchase Groups, are developing rapidly. In Northern Italy there are about 70 only the city of Milan. Yet, Sicily is the foremost national producer of organic produce. On the European level, it is one of the regions where organic farming is most widespread. There are a total of about 7,417 organic production facilities (approximately 15% of the national total) of which 6,921 are dedicated to farm production, 495 are processing plants, 174 are production and processing facilities, and 8 are companies

specialized in production, processing and importing. In 2009, the total was just over 206,500 hectares of certified land, representing 22% of Italian organic agroforestry cultivation (Table 1).

However, organic products are still very limited and almost exclusively entrusted to a few specialized stores or supermarket chains. Pricing limits consumer purchases and local product consumption.

Table 1.
- Distribution of Sicily for organic cultivation (hectares)

Crops	**Hectares**
Cereals	43.831
Protein crops, legumes, grains	11.973
Root crops	425
Industrial crops	696
Horticultural crops*	6.145
Feed Crops other Arable Crops	42.943
Grapes	10.531
Fruit**	3.187
Citrus	12.968
Dried Fruits	5.722
Olive	16.056
Other permanent crops	487
Permanent meadows (graze fields)	58.085
Unused land	4.099
Fallow land used in rotation	1.496
Organic farming total surface area:	**218.647**

* Strawberries and mushrooms are included ** Small fruits are included. *Source*: Ministry of Agricultural Politics , Food e Forests. Source: Regulation Administration - SINAB.

2 Background (research and education)

Since 2000, based on this information, the Faculty of Agriculture of Palermo has offered a first level degree course in Organic Agriculture, as well as a Masters Program. It has initiated a training and research program in 2010, funded by the Department of Agriculture and Food Resources in the Region of Sicily, which also participates in the National Institute of Agrarian Economics. Among the activities planned for the project was the establishment of a Solidarity Purchasing Group by the Faculty, to be used as a model to address the potential as well as possible problems regarding the function of group relations and organic farms which operate through direct sales and to investigate the characteristics of consumer satisfaction of its members.

The initiative is based on the ability of Faculty students to transfer their knowledge and skills, in becoming active participants through the establishment and the direct management of a special kind of business, being a non-profit. This involves managing a group of consumers with certain characteristics and specific expectations regarding agro-food companies and food suppliers.

The first step in launching the project was to conduct a small student survey involved in the Organic Agriculture Course and to verify student availability to join the initiative. At this stage there have been eighteen subscriptions, including graduates from the first and second level.

Years of experience and knowledge acquired during training, structured workshops and thematic working groups, led the course participants to constitute themselves as the Student Solidarity Purchase Group, known as GASualmente, which began in the Spring of 2009, in its experimental form which then became officially operative in September 2010.

It should be noted that on the national level, the Solidarity Purchase Group under the Faculty of Agriculture by standards of similar groups in many ways is atypical, both in the manner which it was created, as well as the prototype that ensued as its role as a research project. What also makes it unique are the particular skills that characterize the core members, consisting of graduates and undergraduates specialized in organic farming. In addition, the interaction between the Solidarity Purchase Group and the research project, is configured in part as a continuation of training in an operational phase in which members are called to solve concrete problems, through the knowledge acquired in the field and during research, extending to all Solidarity Purchase Groups in the region and to businesses that supply them.

The formation of a Solidarity Purchase Group under the Faculty of Agriculture, have led to three other

Solidarity Purchase Groups in the city of Palermo. These groups have become active players in the creation of a regional network of a Sicilian Solidarity Purchase Group, in direct contact and collaboration with all 34 groups surveyed in the region during field research (Schifani and Albanian, 2010). This greatly facilitated the collection of data and led to a better understanding of the internal dynamics of the phenomenon.

The survey regarding the members of the Solidarity Purchase Group, which will be subsequently extended to the regional level, a contribution is limited to the Faculty of Solidarity Purchase Group, within these fields of study which are designed to investigate emerging aspects and new consumption patterns related to political consumerism and the prevalence of critical elements such as the drive for greater sustainability in the agro-food systems (Cembalo et al, 2011).

In general, Solidarity Purchase Groups are organizational forms of consumption in response to the increasingly evident crisis of the traditional food system (Brunori et al., 2011).

The consumer members of a Solidarity Purchase Group, are unique consumers in many respects, (Verme and Verbeke, 2006), whose behavior is influenced by particular social motivations and strong ethical codes (Schifani et al, 2009, Best, 2010, Best and Schifani 2011). These elements, which predominate, come into conflict with the assumptions of neoclassical economic theory where the consumer is *homo economicus* as a representative agent, whose behavior, rational and maximizing (Shotter, 2002), neglects the moral consequences of their actions (Cembalo et al, 2010).

What emerges, in fact, is a "responsible" individual regarding society and the environment. This sentiment is expressed through their consumption behavior (De Pelsmacker et al, 2003), tracing, in fact, the profile of a new subject sociological literature that defines *informed citizens* (Norris, 1999)

3 Objectives

The research project was launched within the activities of the DEMETER Department of Economics of Agro- Forestry Systems[*]. This hosted the first stage in the didactics and organization of the first stage of the Solidarity Purchase Group, with core objectives: 1) to check the ability of students of the Faculty of Agriculture of Palermo to transfer their skills into the operative commercial world; 2) to provide new knowledge to improve and streamline the relationship between Solidarity Purchase Groups and producers with more efficient logistics and group relations between groups;

3) analyze the profile, the direction and level of satisfaction of members of the Solidarity Purchase Groups; 4) analyze the problems of companies and their ability to adapt to the needs of the "informed consumers"; 5) to provide useful knowledge to public policy decision-makers for the orientation of new policy measures for rural development.

The activated lines are: scenario analysis and function of the phenomenon within its context, the regional analysis of the profile and the consumer satisfaction of members of Solidarity Purchase Groups; business analysis to verify the adaptation of needs of companies to short chain and direct sales to Solidarity Purchase Groups.

4 Data and methodology

Planning the work program during the training period, meetings, seminars and working groups were established to study the various issues to be addressed. A brief survey developed scenarios, which examined essential aspects of the organization's activities such the suppliers' selection and product distribution, legal forms best suited to the formation of the association, as well as logistical problems. A small market survey on product availability and pricing was also in place where the first companies were contacted and visited. (Figure 1).

[*] Research Project "The Development of Solidarity Purchase Groups in Sicilia and its Realization withe the Production World", Professor Giorgio Schifani.

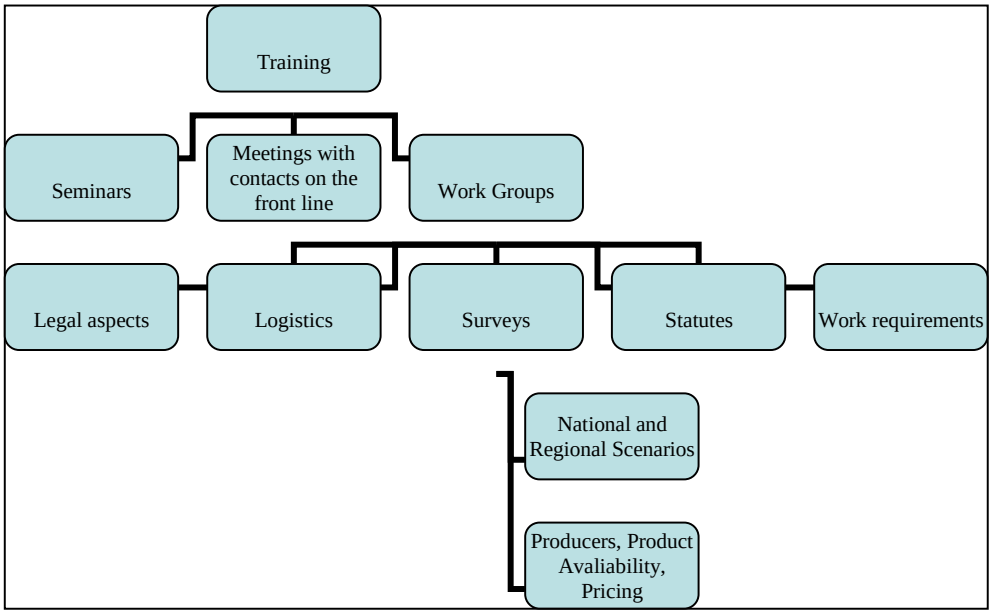

Figure 1.

This first exploratory phase allowed the newly-formed parallel research team to focus in greater detail on the objectives and methodologies of surveys related to the different phases of the project. The industry meetings put the group in connection with the Solidarity Purchase Groups in the Sicilian region, with the intention of creating working synergies between groups and between Solidarity Purchase Groups and companies, and to facilitate the realization of a true integrated regional network.

In an order granted by the Presidency of the University of Palermo, the association made its base operations at Lecture Hall of the Faculty of Agriculture. It is comprised of about 70 core members, consisting mainly of Faculty employees, teachers and administrative staff, students and several producers, who pay a small fee of 20 euros.

The collective purchases represent the main activity of Solidarity Purchase Groups, which currently supplies 12 companies: 10 organic farms including 5 cooperatives, a cooperative processing plant that produces organic pasta, and a small company that produces ethical and environmentally-conscious footwear. (Figure 2).

Food producing companies with one exception all fall within the province of Palermo. They have been selected based on direct knowledge from research developed by the professors of the Faculty, and in some cases, these are farms that host students for practical training provided by the University degree courses.

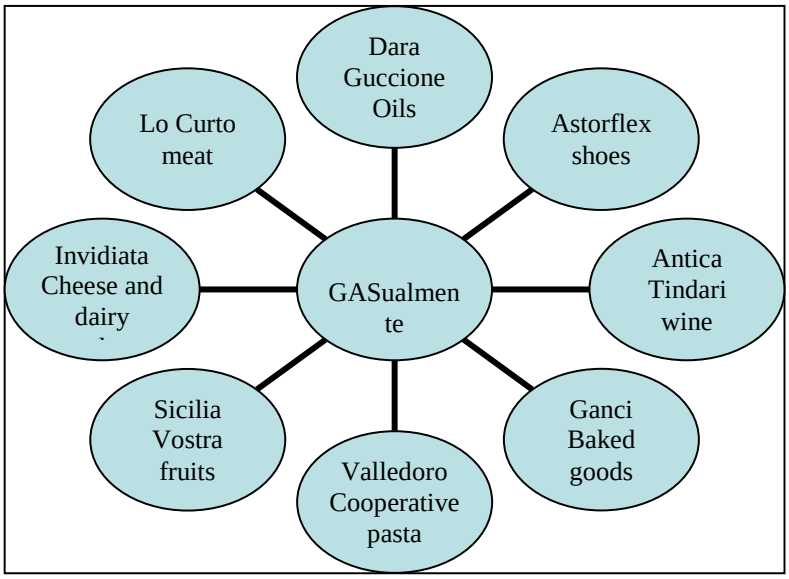

Figure 2

The choice of organic farms and products to be included in the "bread basket" of Solidarity Purchase Group is supported by a special "Quality Commission", where product characteristics are evaluated and compatibility assessed with the supply requirements of organization.

The introduction of agro-food products has been gradual. The first collective purchases focused only on fruits and vegetables, then was followed by meat, and then pasta, oils, wine, cheese, bread, biscuits and other baked goods, and finally shoes.

The selected companies currently provide the following products: two farms provide zootechnics, one farm produces dairy products (part of the Slow-food concept), while the another produces meat products. Seasonal organic produce is supplied by companies that belong to the cooperative. Another company provides organic wine, while another provides baked goods, while another provides oils. Then there is a cooperative which processes pasta, while another produces shoes which are then sold to a company in Northern Italy.

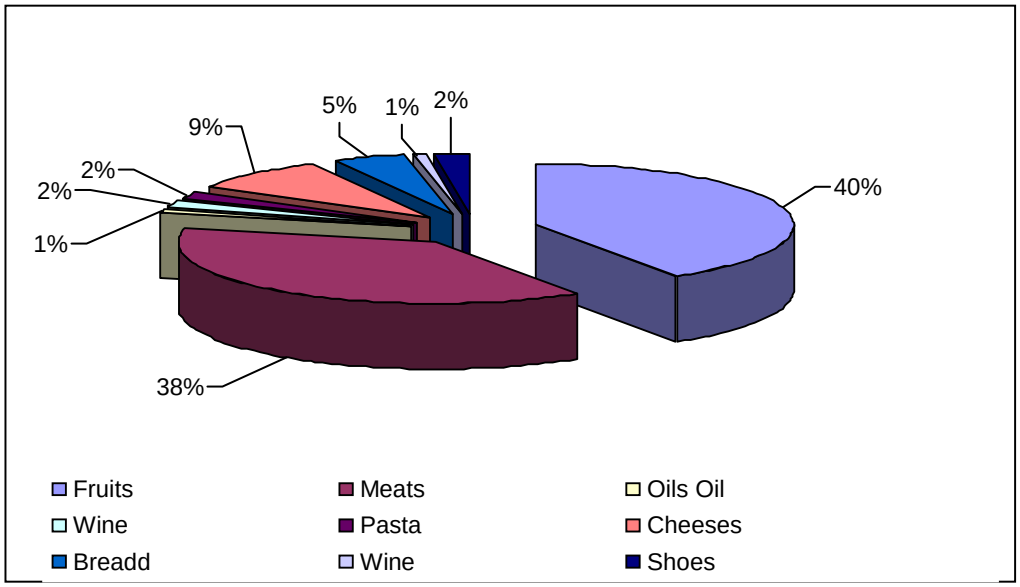

Chart 1. Gasualmente: Distribution of total purchases in value by product category (% values)

Orders are made by members via email: suppliers submit a weekly (Sunday night) with the costs and list of products available (in a custom spreadsheet). The head of the Solidarity Purchase Group, then sends them the next morning to members. They fill the orders and then it is sent back within the following Tuesday, the Solidarity Purchase Group then sends the forms the same evening to the suppliers, who then deliver the products, accompanied by a receipt, then two days later it is delivered to the Faculty of Agriculture Lecture Hall.

From 13:00 to 15:00 partners pickup the ordered products, which are checked and pre-sorted by 5 volunteers.

The service managers ensure payment collection for suppliers the following week.

In order to test the Solidarity Purchase Groups in relation to the satisfaction expressed by its members, a survey was conducted using a questionnaire administered directly to the purchasing managers and the core members of the Solidarity Purchase Group.

The questionnaire, consisting of 32 questions, gave the profile of its socio-economic partners, including the frequency and the amount of purchases by its inner core which also measured, using Likert scales (1-5), the attitudes, judgments and motivations for the purchase of organic products. In order to highlight the variables that influence consumption patterns, and identify homogeneous groups of consumers, Principal Component Analysis (ACP) †

and Cluster Analysis was implemented.

5 Results

In this first phase of the project, surveys were planned and initiated as well as monitoring of the activities of the association, which covered both the needs and functionality of the group and organization participation at important external events.

The results of the surveys, conducted on 34 active Solidarity Purchase Groups at a regional level and consumer survey results, have allowed us to verify and evaluate the most appropriate operational and organizational choices.
The volume of purchases of Solidarity Purchase Groups have reached about 1,400.00 Euro per week for a total of slightly less than the last quarter of 5,700.00 euros per month, of which about 40.0% were fruit and vegetables, 38, 0% were meat and cheese and 9.0% were other products.

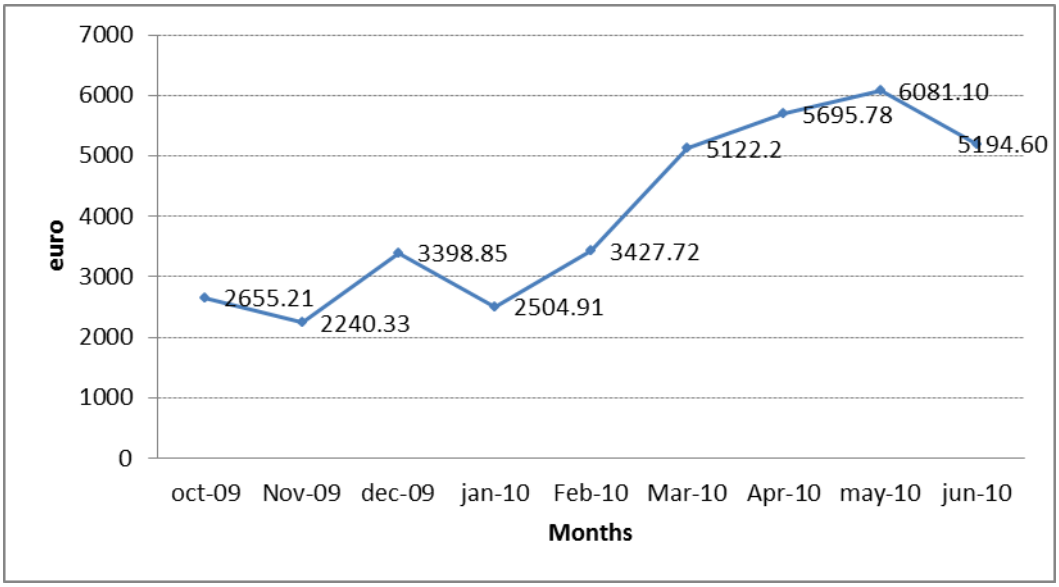

Chart 2. Gasualmente: Total purchases from October 2009 to June 2010

† The Principal Components Analysis, linear transforms into the original variables into new variables, by the general formula:

$$Y_{i} = w_{i1} X_{i} + w_{i2} X_{2} + ... + w_{ip} X_{p}$$

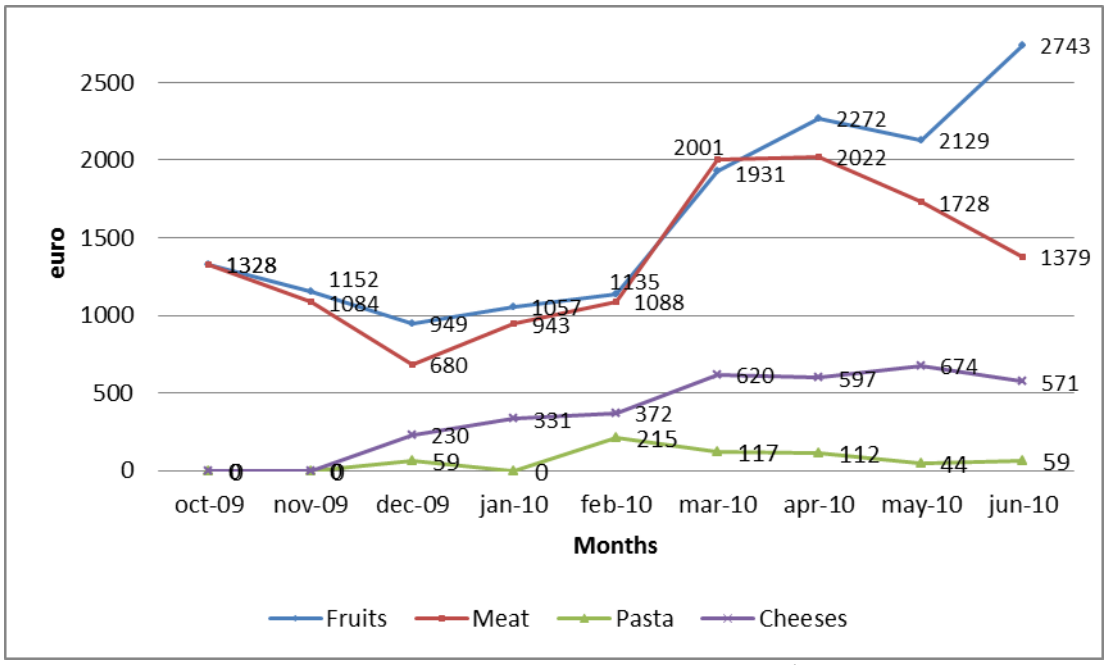

Chart 3. Gasualmente: Purchases by main product categories - 2009/June-October 2010

The entry of Gasualmente into the world of regional Solidarity Purchase Groups initiatives have encouraged interest. The organization of an event of considerable importance to the city is the "Organic Trade Fair", a regional level trade show, held monthly in the city of Catania, Messina and Caltanissetta.

The event, organized with the support of four other associations including the Italian Association of Organic Agriculture, is currently hosted on a monthly basis at the headquarters of the University of Palermo, where the Solidarity Purchase Group has entered into an agreement with the institution. There are roughly 50 producers, some of which are also active in organizing the event. The event is also an occasion for holding seminars on specific topics moderated by the Faculty of Agriculture and the Offices of the University of Palermo.

Consistent with the objectives of the research project, the event also tries to broaden access to informed consumption and ethics. For organizational reasons, the orders cannot be delivered the same day from the Solidarity Purchase Groups of the Faculty or from other seven Solidarity Purchase Groups in the city. But a project was recently launched which involves companies and some members of the Solidarity Purchase Groups, to offer a service of home delivery.

5.1 The main features of the members of the Faculty of Solidarity **Purchase** Groups

Of the 70 families enrolled of the Solidarity Purchase Group[‡], only 50 have completed and returned the survey questionnaire.

From the data it was possible to highlight several features: 85% of purchasing managers are college graduates, with a medium-high household income, showing a high level of satisfaction regarding the quality of products and prices, as well as the organization of deliveries. A modest level of their participation in the Solidarity Purchase Group activitiy may be in part represented by the age of the recently-formed group.

Purchases are made mainly by members every week and a fourth of cases every two weeks. In 44% of households spending through the Solidarity Purchase Group account for less than 20% of total agro-food household spending, in 40% of cases between 20% and 50%, and 16% of cases over 50% .

Membership of the Solidarity Purchase Group is primarily driven by factors closely related to environmental sustainability, socio-economic and factors. As seen in Table 2, the value judgments related to the topics just mentioned and expressed in a Likert Scale 1-5 (1 corresponds to the lowest value judgment and 5 the highest). Overall opinion is rather high.

[‡] Data from 2010

Table 2.
Opinions expressed by members of **Solidarity** Purchase **Group**

variables	average
Solidarity towards farmers	3.7
Ethically responsible consumption	4.2
Trust relation with farmers	3.7
Food safety	4.3
Environmental sensibility	4.1
Attention towards organic food certification	4.1
Attention locally sourced products	4.2

5.1.1 The variables that characterize participation in the Solidarity Purchase Group

The main variables that characterize members Gasualmente were determined by applying Principal Component Analysis[§] to extract 6 key components that summarize the factors clearly related to participation in Solidarity Purchase Group[**].

In order to verify the quality of the initial data for the application of the model, two statistical tests were performed. The Kaiser-Mayer-Olkin (KMO) and Bartlett test of sphericity, which in both cases have given positive results.

The first component characterizes families with a strong feeling of environmental sustainability and social awareness and is in fact, represented by the high levels in environmental sensitivity, solidarity and trust in producers, food security, and responsible consumption.

The second factor highlights the interest in the company visits and tasting product which is manifested mainly by older members (component loadings -521).

The third component includes households whose incomes are larger than average . The core is characterized as two-income and low spending and a lack of attention to organic certification.

The fourth component characterizes the share of households with high spending and a high interest in cultural initiatives. The core supports the principals of Solidarity Purchase Groups since its inception.

The fifth factor characterizes a core involved in more activities organized by the Solidarity Purchase Group. In these cases the core is characterized by a high emphasis on locally-sourced food products and a high educational degree for purchasing managers.

The sixth and final main component features members of Solidarity Purchase Groups which express high satisfaction with the quality of merchandise and the prices of organic products purchased under the Solidarity Purchase Group (Table 3).

[§] Given the statistical method used, it would not be considered appropriate to describe this methodological detail as De Lillo et al (2007).
[**] Initials of the 32 variables determined through the questionnaire, only 21 were taken, this choice worked well into the small number of cases which were submitted to the Factor Analysis and the low value expressed by some variables in the main 6 components.

Table 3.
Components matrix. Extraction method: (PCA) with Varimax rotation.

	Component					
	1	2	3	4	5	6
Environmental sensibility	**.812**	.020	-.082	.046	.126	.030
Etically responsible consumption	**.746**	.237	.130	-.152	-.284	.054
Solidarity towards farmers	**.696**	.022	.266	.310	.198	.057
Trust relation with farmers	**.499**	.100	-.082	.055	-.025	-.423
Food safety	**.490**	.070	.001	.161	-.023	.161
Food testing interest	.144	**.800**	-.008	.198	.034	.000
Interest in visiting farms	.264	**.790**	.032	-.025	.190	-.071
Age	.412	**-.521**	-.141	.134	-.004	.079
Number of income in the family	.056	-.071	.712	.273	.207	-.143
Spending frequency	.013	.323	**.682**	-.168	.097	.085
Income	.291	-.157	**.643**	-.146	.270	.199
Attention towards organic food certification	.253	-.230	**-.596**	.016	.131	.043
Family members	.048	-.237	**.581**	-.134	-.346	.161
Spendingpercentage	.050	-.064	-.256	**.841**	-.115	-.144
Cultural interest	.306	.330	.105	**.699**	.088	.051
Adherence from costitution of GAS	-.011	-.523	-.097	**-.553**	-.093	.035
Education	-.004	.010	.158	-.125	**.806**	.067
Attention locally sourced products	.172	.266	.076	.070	**.626**	-.132
Organizational activities	-.139	.429	-.285	.268	**.523**	.305
Price satisfaction	-.076	.003	-.042	-.036	.084	**.844**
Quality satisfaction	.258	-.034	.151	-.064	-.056	**.778**

5.1.2 Gasualmente Partner Typology

Through the application of Cluster Analysis, extracted from 6 members, 3 were identified as homogeneous groups of members of the Faculty of Solidarity Purchase Group (Table 4).

Table 4.
Influence of the main components related to members of the Cluster Solidarity Purchase Group

	Cluster		
	1	2	3
Component 1	-.80394	-1.31934	.40864
Component 2	.57753	.13166	-.24555
Component 3	-.26211	-.31014	.12617
Component 4	.41465	-.02942	-.16901
Component 5	.20957	-2.66622	.07054
Component 6	-.57866	1.42147	.15466

The first cluster, which contains 20% of members. It is characterized by families who show limited experience regarding social and environmental issues, but support Gasualmente for reasons of convenience. They devote a large part of household spending to food purchases from Solidarity Purchase Group. It is more often that households with higher incomes are also larger. They appreciate the quality of organic products and their moderate pricing.The second cluster comprises 12% of members. This core is characterized by the youth of its purchasing managers. They have a median monthly income and show a disinterest in the activities of the Solidarity Purchase Group. Yet they also show high satisfaction with quality produce and product pricing, but care little about their local origin.The third cluster concentrates on 68% of the partners. In this case they are more motivated towards the core of Solidarity Purchase Group, which are characterized by high sensitivity to environmental issues, food security and the work methods of its agricultural producers.

Within this cluster there are also young individuals who have been a part of the Solidarity Purchase Group since its inception. They however show little interest in company visits and product tastings, but show high satisfaction with product pricing and the quality of its organic products.

6 Final remarks

The analysis proposed in this study has highlighted the main strengths and weaknesses that characterize the overall experience of Gasualmente.The critical points are evidenced in the requirements of the core business of the Solidarity Purchase Group. These associations are managed on a voluntary basis by members who provide all necessary organizational requirements. The high number of diverse members with the Group, including students and young unemployed graduates, the selection of products purchased, the complexity of managing purchases and deliveries, poses problems of finding adequate solutions to keep the non-profit association running effeiciently.

There are also problems concerning logistics. A need for a dedicated area available all week to diversify the product distribution over several days, and to develop a refrigerated area for keep products fresh, is at the moment essential. A holding area for certain products such as pasta, olive oil, wine, etc. as well as a small operational office and work area is also needed.

The strength of the Solidarity Purchase Group is its core. Its founders, are primarily agronomists, university graduates or students with a Bachelor of Science in Organic Farming. Group skills, the training courses, the location of the Solidarity Purchase Group, have significantly contributed to the growth of Solidarity Purchase Group and its success. It has become a model for similar projects.

Another strength is the purchasing power of the group in relation to individual suppliers. The volumes justify the product transport costs from neighboring towns for deliveries in the city. This allows manufacturers to supply even small orders and from other smaller groups.

In addition, working with suppliers to streamline and better logistics, stimulates business relations with these companies and its association with Solidarity Purchase Group.

Other groups have been developed in parallel with the Solidarity Purchase Group. There are other Solidarity Purchase Groups in Palermo. For two years trade fairs have been active on a monthly basis and have become a very popular city event. It involves the participation of a large groups of producing and processing companies, as well as numerous non-profit organizations. Recently, home delivery of organic products is available, which is managed by the founding core of the Solidarity Purchase Group. This may represent a valuable opportunity for the creation of new jobs.The Solidarity Purchase Group is committed to the establishment of an Palermo Inner-City Solidarity Purchase Group, which represents the first step towards the realization of an integrated regional network.

Regarding member analysis, there is wide satisfaction regarding quality and product pricing. There is a high cultural level of sensitivity to environmental issues and especially food safety. There is widespread attention to producers, which confirms the influence of the ethical component in their choice of membership to the Solidarity Purchase Group.Also to note, is the fact that the main reason for membership is for matters of "convenience". In about 20% of the sample, in fact, convenience and product freshness outweigh ethical and social solidarity.This element confirms the usefulness of direct purchases (short chain) as a tool to reduce product pricing and in particular, to increase organic food purchases in general .

The three profiles outlined by Cluster Analysis helped to clear several aspects, which show different motives and levels of interest within the group. The vast majority (approximately 68% of the sample) show high attention and interest in Solidarity Purchase Group activities.

In all three clusters, certified organic food is crucial to motivate purchases. The emphasis on locally-sourced products is important. In clusters 1 and 3, while it is not crucial for members of the second cluster, which together account of only 12% of the total membership.

Overall we can say that in these kinds of associations show a strong desire for social participation and strengthens the consumer relations within the territory (in particular with organic agricultural production and locally- sourced production), in an attempt to "re-establish" the values of community and solidarity. (Delinda and Bingen, 2008).

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