



The changing relations between school, food and agriculture. The case of the educational farms in Sardinia

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Abstract

Educational farms are a relatively recent form of activity for agricultural operators, aimed at spreading the knowledge of cultivation techniques, promoting healthy food products and supporting rural culture and natural heritage. They generate additional revenues for farmers and combine active learning and nutrition education, enhancing the awareness of the social and environmental role of the rural world. The Italian experience is mainly based on regional and local initiatives. The author critically analyzed the pedagogical offer of the network of the registered educational farms of Sardinia and conducted a survey on a sample of selected and representative ones in order to understand their views on the advantages and disadvantages of engaging in the educational activity, and to evaluate the current trends in this sector. The survey revealed significant strengths, related to their widespread distribution, their diverse offer and the ongoing educational training of their operators. However, several weaknesses, owing to modest revenues, competition by unregistered farms and lack of specialized educators, seem to hamper their further development. Proposals excessively focused on descriptive approaches and merely local features are also still very common.

Keywords: Agriculture, Educational Farms, Local Development, Sardinia

1. Introduction

As the need for a solid relation between school, agriculture and territory is considered crucial for cultural, environmental, economic and health reasons, it is useful to investigate this topic at the general and local level. Educational farms offer key opportunities to bring the rural world closer to urban or urbanized children and families, ultimately and ideally building a diversified, synergic and structured training and

educational system able to promote healthy nutrition and environmentally friendly agriculture (Maldague, 1990).

The advantages in terms of didactic opportunities and results clearly go beyond the specific theme of environmental and nutrition education and encompass geographical education, according to the related renewed methods of systemic territorial analysis and experience (Gerber, 2003).

The pedagogical principles of teaching in farms are based on a practical and active approach. In fact, these educational principles had already been theorized, among others, by Bailey (1909), Montessori (1912) and Dewey (1915).

Montessori, in particular, had sensed the special bond that exists between children and nature, recognizing its immense educational potential. In her book "The Discovery of the Child", published in 1948, she devotes an entire chapter to "Nature in education", considering it one of the most important elements to be used in schools.

Schools, complete with gardens, often prescribed basic farming as a powerful means of education already in the early XX Century. The contact with nature and the responsibilities arising from the care of flowers, plants and animals were considered important ways to promote the personal autonomy of children (Desmond, Grieshop and Subramaniam, 2004). The spread of mass education during the XX Century coincided with the end of rural civilization and the growth of globalization, thus calling for a closer and renewed relation between education and agriculture (Rilla and Desmond, 2000; Zavalloni, 2010).

Experiential education is a process through which a learner constructs knowledge, skill, and value from direct experiences. According to Kolb's experiential learning model (Kolb, 1975 in Weatherford and Weatherford, 1987) concrete experience leads to observations and reflections. These, in turn, result in the formation of abstract concepts and generalizations of these concepts as well as the capacity to test the implications of these concepts in new situations.

Developmental psychologists have attempted to study children's relationships with nature and whether an innate sense of kinship with nature manifests itself by the time they reach a certain age (Tuan, 1978). Edith Cobb (1969) wrote that middle childhood (from approximately five to twelve years) is when the "natural world is experienced in some highly evocative way." Tuan (1978) additionally suggests that children have to be taught by adults about their natural environment, as "nature is an inarticulate teacher." Children show a natural curiosity about the world, but this curiosity may be easily repressed if adults fail to nurture it.

School gardens have been widely used to teach children about nutrition and how to make healthier food choices, but direct experience of the agricultural world can produce effective results, too (Morris, Briggs and Zidenberg-Sherr, 2000).

Manual activity, direct observation, investigation and discovery allow the child to actively live the educational experience. Visiting a farm also helps in building a network of relations between school and territory, between consumers and producers. Support for local products, increase in consumer awareness, endorsement of health and nutrition education and promotion of territorial identity are important connected objectives. Multidisciplinary educational approaches, including, among others, geography, history, ecology, technology and ethnography, are particularly appropriate (Disinger and Monroe, 1994; Drake, 1998; Skelly and Zajicek, 1998).

The Italian Governmental "Regulations on the National Guidelines for the Curriculum" (2012) recognize educational and territorial laboratories as methods of fundamental importance in schools: "[...] The laboratory is the best way of working that encourages research and planning, involving students in thinking, evaluating and implementing activities lived in a participated and shared way, and can be activated within the school as well as promoting the territory as a resource for learning [...]" (<http://www.istruzione.it/>). This implicitly recognizes the high pedagogical value of educational farms and the importance of the relations between schools, territory and producers.

These conditions contributed to the consolidation of multifunctional farms, which include education within their service offer, and often show great capacity for innovation, developing their proposals beyond the traditional paths of nutrition and environmental education. New and increasingly structured and differentiated educational proposals, ranging from painting with natural colors to archaeology camps, including multidisciplinary approaches and themes such as multiculturalism and global issues, are quickly spreading in many Italian contexts (Bertazzoni, 2005; Sofio and Natile, 2013).

However, widespread weaknesses due to the generally and relatively modest economic

benefits linked with educational activities are well present (Marsden and Sonnino, 2008; Ohe, 2012).

The experience of educational farms in Italy followed a somewhat different path from other European countries. Their birth, while finding its roots in the older experiences of Europe and the United States, only occurred in the second half of the XX century, when the technological, cultural and social context changed the relations with food and rural territory (Brusa, 2004; Dematteis, 2001).

The early steps for opening farms to visitors can be traced back to the 1960s, when events such as the “Open Gates” and the “Days at the Farm” appeared in Northern Italy, to promote contacts between city and countryside.

Only in 1997, though, did educational farms become an organized stable reality. The first active region in this regard was Emilia-Romagna: in that year *Alimos* (then called *Centrale Ortofrutticola*), a not-for-profit corporation consisting of agronomists and agro-technicians, organized the first permanent group of educational farms with the help of various farmers of the province of Forlì-Cesena, forming the Network of Educational Farms of Romagna. The network was soon expanded through the project “Open Farms and Educational farms”; this initiative included an accreditation process with an obligation to sign a charter of quality and attend specialized training courses (Canavari et al., 2011).

Following this example, other regional administrations, such as Piedmont, Lombardy, Veneto and Friuli-Venezia Giulia, set up their own networks and quality charters.

In recent years, the phenomenon has rapidly grown, from 1,936 educational farms surveyed by *Alimos* in 2010 to more than 2,500 in 2015.

Educational farms are concentrated in particular in the North of Italy, but their number is expected to grow in the whole country, because they respond to a widespread need for schools to introduce children to the world of agricultural production and food chain, supporting environmental and nutrition education (Guigoni, 2006; Montanari, 2004; Russo, 2009).

The reasons that prompted farmers to undertake such initiatives are both social and economic. On the one hand, there was a clear need to bridge the gap between urban and rural

culture that had widened between the 1950s and 1980s, following the process of industrialization of the country and the massive exodus of workers from the countryside and from agriculture to industry and services sectors. On the other hand, there was a need for farmers to promote farm products and find additional sources of income. The ultimate mission is to promote a new food culture (Boschetti and Lo Surdo, 2008; Casini, 2009; Nazzaro, 2008).

The Universal Exposition held in Milan between May and October 2015, focused on the multifaceted links between agriculture, nutrition, health, environment and technology, stirred renewed interest for the theme within the Italian schools, resulting in a potential boost for the educational farm sector (Conti, 2015).

To qualify as an “educational farm”, quality standards apply, related to security, training, competence, and pedagogical setting. In the absence of a specific national law, the regional governments establish their own registers of educational farms and their associated quality charters, which define the rules and parameters that farms must follow to be accredited.

2. Research methodology

In order to investigate the matter at the local level, a mix of qualitative and quantitative methods was adopted. The study incorporated the three main sources of information recognized in qualitative research: consultation of secondary sources, observations and interviews (Merriam, 2002; Patton, 2002). Prior to entering the field, a range of secondary sources was consulted. A review of literature on the relation between agriculture, gardening and education, part of which has been cited above, was undertaken to provide a broad academic context for the research. The present state of the agricultural sector in Sardinia was also analyzed through official data.

The following step consisted in a critical survey on the services offered by the registered educational farms in Sardinia, through the official Register, followed by a total of 10 semi-structured interviews with owners of educational farms located in the provinces of Nuoro and Oristano, selected by the author in order to represent the main different landscapes and

cropping systems of the island (Table 1).

Farm owner	Province	Main productions
Luigi	Nuoro	Wheat, wine, cheese
Franca	Nuoro	Oil, fruits, vegetables
Giovanna	Nuoro	Cheese, honey
Massimo	Nuoro	Meat, milk, cheese
Patrizia	Nuoro	Wheat, honey, fruits
Antonio	Nuoro	Oil, wine
Simona	Oristano	Fruits, vegetables
Pietro	Oristano	Wheat, meat, cheese, wine
Gianni	Oristano	Cheese, wine, meat
Salvatore	Oristano	Rice, vegetables

Table 1. Surveyed educational farms. Elaborated by A. Corsale.

The interviews were held by telephone between March and June 2015. The objective of the survey among the selected farmers was to understand their views on the advantages and disadvantages of engaging in the educational activity, and to analyze the current trends in this sector.

3. Educational farms in Sardinia

The system of registered educational farms in Sardinia developed in the late 2000s, together with increasingly strong investments on nutrition education programmes by the Regional Government, particularly through its Agency for Agriculture (ERSAT, *Ente regionale di sviluppo e assistenza tecnica in agricoltura*, today LAORE, *Agenzia per l'attuazione dei programmi regionali in campo agricolo e per lo sviluppo rurale*). Experiences of school group visits to farms and food processing facilities had already been common since the 1980s, but a recognized net-work of institutionally certified educational structures was only created in 2008 (www.sardegnaagricoltura.it).

The creation of a stable, certified and recognizable network of educational proposals within the agricultural world, following the model of other Italian regions, was expected to produce multiple benefits: for farmers the opportunity to diversify the activities and increase business visibility; for students the

experience of “learning nature” on the ground and get in touch with the world of work; for the institutions the chance to promote territorial systems, local development and healthy nutrition (Corsale, Iorio and Sistu, 2009).

The Charter of Quality was adopted by the Regional Government with the Resolution 33/10 dated 5th September 2007, which contextually established the Regional Register of Educational Farms. The document defines the educational farm as “an agricultural or agro-tourist enterprise, either single or associated, which offers educational and environmental services, whose goal is the rediscovery of local, traditional and quality products of Sardinia, knowledge of agricultural and livestock production cycles and the strengthening of the links among agriculture, land and food, for schools of all levels and, more generally, for all consumers”.

Clear guidelines are provided on how to run the activity, on structural and production characteristics, on safety, hygiene, organization and logistics. The Quality Charter also defines the aspects of communication, the use of the logo, the fees and the obligations that the operator must subscribe to. Among the basic requirements, the activity has to be conducted by a farmer or an agricultural entrepreneur. These farms must play a real activity of agricultural production according to either organic production systems or low environmental impact ones, respecting ecosystems and animal welfare, in order to highlight the links between agriculture and nature and between agriculture and healthy nutrition.

The educational farm operators are required to develop specific pedagogical skills through a qualifying training course of 90 hours, organized on a provincial basis by the Regional Agency for Agriculture (LAORE), which must be followed by periodic refresher courses of 30 hours, every two years. A specific certificate is awarded after the successful attendance of the training course, and its possession is a requirement for membership in the Regional Register of Educational Farms since 2007.

The courses are focused on the ability to transmit agronomic and nutrition knowledge, environmental values and rural cultural heritage to visitors of different age groups. Operator training includes, in addition to strictly agronomic and ecologic skills, specific modules on management,

coordination and design of educational programmes to be implemented in the farm.

Since many farmers and agricultural operators do not always have a solid education background themselves, the main aim is to promote teaching methods based on simple and understandable concepts, conveying activism, curiosity and emotions. Educational proposals must be diversified according to the different age groups and preparatory materials for schools should be provided.

Particular attention is paid by the Charter to the structural characteristics that the farms should have to meet the specific needs of users. They must have comfortable indoor spaces as well as equipped outdoor areas. Safety and hygiene are also regulated by the Charter. Operators must be trained in safety at work and first aid; special attention is placed on the prevention of all risks and insurance against civil liability is mandatory. Guest registers and procedures for auditing and monitoring activities must be present, too.

Registered farms are awarded the collective brand logo “Educational Farm of Sardinia” since 2008 (Figure 1). In order to strengthen the initiative and protect both participating farmers and visitors, specific procedures and systems of control, with appropriate penalties for lack of compliance with the rules, exist. Farms which do not respect the regulations and quality standards can be cancelled from the register and prohibited from using the logo.



Figure 1. The logo of the educational farms of Sardinia. Elaborated by A. Corsale, 2015.

Since the creation of the network, the increase in the number of participating farms has been considerable: from 78 units in 2008 to 128 in 2010, to a record of 172 in 2014, followed by a decrease to 165 in 2015.

They are particularly widespread in the inland areas of Sardinia. The province of Nuoro holds the largest number of farms (39, representing 23.6% of the total), followed by the provinces of Sassari (18.2%), Oristano (14.2%), Cagliari (11.5%), Carbonia-Iglesias (8.5%), Ogliastra (8.5%), Medio Campidano (7.9%) and Olbia-Tempio (7.3%). Among the registered farms, 58.8% are run by male farmer and the remaining 41.2% by female farmers (www.sardegnaagricoltura.it).

The most recent statistical data about the agricultural sector of Sardinia show critical and evolving features. According to the latest Census on Agriculture (2010), 60,812 businesses were active in the island, with a significant drop from the previous census of 2000 (107,442 units). Sardinian farms have the largest average surface in Italy (19 hectares, up from 9 hectares in 2000), but 60% of the utilized agricultural area is used as pastures, compared to the national average of 27%. The number of workers in the sector also dropped significantly, from 215,097 in 2000 to 119,305 in 2010. About 85% of the work is done by the owners and their families (www.istat.it).

In 2012 agriculture and food processing produced 6% of Sardinian GDP and 4% of the region's export. The balance of trade shows a consistent deficit; in 2014 agricultural and food imports reached € 309 million, while exports were € 180 million (www.crenosterritorio.it). Of course this means that, in spite of these negative data, the agricultural sector of Sardinia has wide margins of potential recovery and growth, first of all considering its internal market.

According to the data provided by the Regional Government in 2012, within the periodical national governmental survey on children's nutrition and health called “Okkio alla Salute” (slang for “focus on health”), 25.4% of children aged 8 and 9 are overweight (the national average is 32.8%); 24.1% eat fruit less than once a day, and this percentage reaches 39.1% for vegetables. Among the primary schools of the island, 81.6% includes nutrition education in their programmes; in the vast majority of cases (82%)

the topic is taught by the schoolteacher alone (<http://www.regione.sardegna.it/scuolaesalute/>).

Educational farms may thus clearly play a significant role in the improvement of the awareness of the link between nutrition and health and in the development of territorial systems where agriculture can find a renewed social, economic and cultural centrality.

4. Services offered to schools

The registered educational farms offer a wide and dynamic range of proposals, constantly evolving in response to changing demands, needs and lifestyles. The activities offered to schools basically fall into three categories: educational programmes, workshops and supplementary activities.

- Programmes are normally related to food and other products, as well as environment, farming and rural culture, ranging from production to transformation, from sustainability to working methods and techniques, from past traditions to new evolutions. A guided tour of the farm is usually included, followed by a collective discussion and question-time between guests and hosts. Several farms organize excursions in the surroundings, too.
- Workshops include mainly manual activities, product processing and sensory laboratories. The bread laboratory is among the most common because it is one of the bases of the Mediterranean diet and strongly recalls rural culture and traditions. Its length is relatively short and children can taste their own bread within the same day. Workshops on bread-making often include elements of history, archaeology and ethnography.
- Supplementary activities are offered in addition to the strictly educational ones and include sports and services directed at persons other than students, including children's families.

The programme generally includes a focus on the farm itself, the natural and cultural context, biodiversity, the cultivation techniques, the processing of the products, and the knowledge of typical crafts. Nutrition education is exemplified through the presentation of sample food chains (e.g. wheat-bread, milk-cheese,

olive-oil, bee-honey, medicinal plants-spirits, fruit-jams) and the organization of multisensory workshops.

Different farming systems are involved, from commercial and industrial agriculture to organic, biodynamic and synergic ones. Traditional crops and livestock, such as sheep, goats, pigs, horses, donkeys, cows, red oxen and bees, are shown to visitors alongside new trends such as biogas stations, medicinal plants and ostrich breeding. Only two fishing activities have joined the network so far.

The educational offer tends to periodically change depending on the season and the weather conditions. The activities can last from one morning to a whole day and can include meals.

While the transformation of wheat, milk, olives and grapes into bread, cheese, oil and wine are the most common activities offered to the visitors, creative and innovative workshops are also present, from scarecrow making to alternative energy demonstrations, from aromatherapy to pet therapy.

The substantial absence of protected areas in the inland regions of the island, due to local ongoing conflicts about their creation, make educational farms, together with the visitor centers run by the Sardinian Forestry Agency, the main hubs of environmental education in such areas.

The adjustment to the required quality standards represents a significant burden for the operators, also considering that similar educational activities can be carried out by farms which are not included in the register, without attendance at training courses and observance of specific measures. Several schools still bring their classes to visit farms and food processing facilities which are not part of the network and do not therefore guarantee specific educational skills and spaces.

In order to avoid this disincentive effect, the Regional Government of Sardinia offers financial support for the investments of farmers and operators on the restructuring of farm buildings to be used as socio-educational spaces. The support is realized through investment aids for the rehabilitation or construction of buildings with materials, shapes and construction techniques compatible with the rural landscape of Sardinia, and through the purchase of furniture and equipment.

In order to further support the network, the Regional Government and other local administrations periodically launch campaigns and projects to favor systematic collaboration between schools and educational farms.

An ambitious project called “Pipius-Med”, whose name comes from the Sardinian word “pipius” (children) and the abbreviation for “Mediterranean”, was launched by the Regional government in 2007. It involves primary and secondary schools, families, local communities and farms. An international dimension was introduced, aiming at the development of regional and interregional co-operation among schools, technicians and organic agriculture operators in the Western Mediterranean, stressing the common heritage of the various peoples who inhabit the region, with a diachronic approach which involves history and archaeology.

The focus is on organic production, and children are assisted by agronomists from the Regional bodies, teachers and owners of the participating educational farms in the direct cultivation of a vegetable garden. Thus, they prepare the ground, dig, plant, water, weed, recognize beneficial and harmful insects, create compost and harvest fruits and vegetables.

Other nutrition education programmes have been launched in recent years by the Regional Government, involving educational farms. The project “Satu po imparai” (Sardinian for “Countryside to learn”) has been implemented since 2010 in the province of Medio Campidano. It is a project on nutrition and environmental education promoted by LAORE, the provincial administration and the local health agency, involving nursery, primary and secondary schools together with registered educational farms within the territory of the province. The project aims to bring the world of education closer to rural life enhancing the multifunctional role of agricultural enterprises, offering a new way of teaching in the country involving children in themed games and practices. Among its aims, the promotion of local identity and heritage and the introduction of local certified food in school canteens (particularly bread, cheese, honey, yoghurt, fresh fruit) were most prominent. The project also focused on waste reduction, water and energy conservation, and the use of ecological detergents.

Its success led to the extension of the project, from 2012, to the provinces of Oristano, Nuoro and Carbonia-Iglesias, where it is called “Campu Maistu” (Sardinian for “Teacher field”).

The main aims of the programme were confirmed, focusing on the education of children and families for a correct and healthy diet, awareness of the value of local heritage and food, introduction of these products in school canteens and strengthening of the network of educational farms.

Within the project, schools and farms are invited to systematically collaborate in all the phases of planning and realization of the educational experience, in order to experiment focused and targeted actions and practices.

In spite of these good practices, analyzing the offer at the general regional level, several weaknesses emerge. The Register does not work as a real network and synergies between participating farmers are limited. Besides some exceptions, the offer is rather repetitive and standardized. Dedicated websites and promotional brochures are still rare and hamper target expansion. Moreover, the patent focus on local traditions, identity and heritage can weaken the long-term educational value of the proposal when this is not appropriately linked with related global-level issues and the growing ethnic and cultural diversity of the Sardinian population.

5. The survey

The interviews with the farm owners and operators led to an in-depth analysis of the characteristics of the offer, its economic role and its perspectives. Direct interviews by telephone were compared with their publicized proposals, through websites and brochures, in order to better set their features within the system.

The ten farms surveyed produce some of the most common and typical agricultural and livestock products of the island, ranging from durum wheat to pecorino cheese (Table 1; Figure 2). Eight of them also work as agro-tourist farms providing meals and accommodation. Seven of them open all year round, two of them open in autumn and springtime, and one of them only in the springtime period. All of them are family-run businesses.



Figure 2. An educational farm in inner Sardinia.
Photo: A. Corsale, 2015.

Their educational proposals range from very traditional ones, consisting in showing children their animals and their cultivation techniques, to more active approaches, including workshops where children learn how to process food and cook simple recipes, to innovative activities dealing with ecology and sustainability. Descriptive approaches, however, tend to prevail (Figure 3).



Figure 3. Traditional sheep milking in an educational farm in inner Sardinia. Photo: A. Corsale, 2015.

Considerable stress on the value of local cultural heritage is present in all the educational proposals, usually directly linked with agriculture and rural life (local food varieties and recipes, crafts, customs, mythology, music, language, folklore etc.). Some of them include landscape

observation, biodiversity studies, sightseeing to local cultural and architectural highlights. Integration with prehistoric archaeology, linked with the widespread presence of Nuragic sites, often emerges in their proposals; one of them built a reconstruction of a Nuragic village and focuses on Neolithic agriculture and life.

Since seven of these farms have an organic certification, this form of agriculture is normally presented and explained to the young visitors, while the others tend to stress the value of quality, tradition and localism.

The educational proposals are usually standard, albeit diversified according to different age groups, but three of the surveyed farms declared having had experiences of collaboration with schools on customized activities after prior agreements with teachers and families. Primary schools are the main targets, but nursery and secondary school groups are relatively frequent, too, as well as external users such as adults, families, people with disabilities and tourists.

Their views on the educational activities and business are mainly positive. The number of visitors ranges from 200 to 800 per school year and the applied rates vary from € 2 to € 8 per person for a short visit to € 20 for a full-day visit with meal. Participation in focused workshops and excursions has additional fees ranging from € 7 to € 15.

Most surveyed farmers consider the activity as a promotional opportunity, stating that many children often come back with their families to eat meals and purchase the company's products.

At the same time, several critical points emerged through the survey.

The income generated by the visits is generally considered modest, compared with the costs of complying with the strict regulations and regulations contained in the Charter of Quality. Competition from unregistered farms was mentioned as a serious problem by several interviewees, and the participation in the mandatory periodic refresher training courses is considered as a burden by most of them. Since the business is run at family level in all the cases surveyed, attending the courses and organizing high-level educational proposals is considered particularly time-consuming. According to the interviewees, modest revenues do not justify the employment of specialized educators.

6. Conclusions

Educational farms are a new form of activity for agricultural operators, aimed at spreading the knowledge of cultivation techniques, promoting food products and supporting local rural culture. They generate additional revenues for farmers and endorse active learning, respect for nature and familiarity with the territory.

The spirit that animates the educational farm is to enhance the awareness of the social role of the rural world and to promote natural, historical, archaeological and cultural heritage. These farms mainly work with school groups but the general public can also benefit from their activities, including tourists.

The Italian experience is rather recent and mainly based on regional and local initiatives. The educational farms of Sardinia, organized as an institutionalized network since 2007, show significant strengths, related to their widespread distribution, their diverse offer and the ongoing educational training of their operators. However, several weaknesses, owing to modest revenues, competition by unregistered farms and lack of specialized educators, seem to hamper their further development. Proposals excessively focused on descriptive approaches and merely local features are also still very common. These features were confirmed by the results of the survey.

Several initiatives launched by regional and local administrations aim at overcoming these critical issues encouraging a more consistent collaboration between schools and farms, both in terms of educational projects and supply of local food. Wider perspectives, including a Mediterranean cultural and environmental dimension, are also encouraged, but still sporadic.

Overall, according to the existing literature and the survey results, educational activities in agriculture are still often regarded as a social investment, rather than a profitable economic one, particularly for small producers.

Possible keys for a further growth of the sector in the island may include more innovative educational approaches, links to global issues experienced through the local dimension, a more proactive role of school and teachers, openness towards multiculturalism, and a stronger integration with tourism, including incoming school tourism from other Italian regions and from abroad.

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