

## Article

# Multifunctional and Agroecological Agriculture as Pathways of Generational Renewal in Italian Rural Areas

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**Abstract:** Rural regeneration is a transformative process that can be based on multiple possible pathways that are not always clearly distinct and that can be combined or co-exist. We argue that regeneration can be understood as a new framework for socio-natural relations. This paper aims at demonstrating that the combination of agroecology and strong multifunctional agriculture play a central role in re-producing the conditions of socio-ecological wellbeing. The study uses data collected through a qualitative methodology. Two case studies were executed in two Southern Italian regions: the first on farm successors in Sicily and the second on new entrants to farming in Apulia. In total, 41 in depth-interviews, two focus groups, and two restitution meetings were conducted. Findings suggest that agroecology and strong multifunctionality are innovative approaches to farming, allowing new farmers to deal with social, environmental, and economic production challenges, spreading benefits to the rural areas where they operate. The conclusion highlights that policies need to be more effective to support these processes.

**Keywords:** agroecology; strong multifunctionality; rural regeneration; southern Italy



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## 1. Introduction

The problem of ageing in agriculture has been intensely debated in Italy since the 1960s and 1970s. In the last few decades, the discussion has dealt with two issues strictly linked to each other: first, the lack of generational turnover and farm succession and how to deal with it, and second, the focus on what seems a new phenomenon of “return to the land,” including the return of young people, which has attracted extensive coverage in the national press and extensive interest from academic literature. For example, the first two issues of *Scienze del territorio* (2013, 2014), the journal of the “Società dei Territorialisti,” were devoted to the subject. Investigation of empirical case studies [1–5] and videos with stories of direct experiences of young farmers have multiplied. The role that young farmers may have in favoring the rural-regeneration process is acknowledged by many authors [6–10]. Recently, Milone and Ventura [8] (p. 50) argued for the emergence in Italian agriculture of a “new peasants generation . . . young innovative farmers who seek autonomy and personal affirmation by building new relationships with consumers and civil society as a whole.”

Support for young and new farmers [11] (art.6) is also a specific goal of the European Common Agricultural Policy (CAP Strategic Plans). In order to achieve this objective, the Italian CAP strategic Plan 2023–2027, approved by the EU in December 2022, foresees five type of interventions. These are “complementary income support” (art.30) and four interventions related to the “setting-up of young farmers and new farmers and rural business start-up” (art.75). However, implementation instruments (modalities, selection criteria, and eligibility conditions), established by the Regions, have not clearly addressed sustainable-farming methods, not even in the award criteria.

In Italy, multifunctionality, supported by agricultural and rural policies, is growing. In 2018 the value of production achieved by secondary activities and support activities reached almost 21% of the total agriculture value [12]. Young farmers are mainly adopting

a multifunctional perspective. According to a recent survey [13] carried out by Ixè for Coldiretti, Italy's largest farmers association, 56,000 young farmers (under 35) are operating in Italy, with 70% of them operating in multifunctional activities such as processing and direct sales, education and agri-kindergarten, recreational activities, social agriculture, care of the landscape, production of renewable energy, and agri-wellbeing.

Rural regeneration is a transformative process that can be based on multiple possible pathways that are not always clearly distinct and that can be combined or co-exist. We argue that regeneration can be understood as a new framework for socio-natural relations; therefore, agroecology [14,15] and strong multifunctional agriculture [16,17] play a central role in re-producing the conditions of socio-ecological wellbeing [18].

By drawing on the analysis of two Italian case studies, one on farm successors and another on new entrants into agriculture, this paper shows that these innovative approaches allow new generations of farmers to deal with social, environmental, and economic production challenges, spreading benefits to the rural areas where they operate and building "the foundations for a regenerative shift in socio-natural relationships" [18] (p. 709).

## 2. Theoretical Perspective on Agroecology and Multifunctionality

In delineating the history and development of the term "agroecology," Wezel et al. [19] outlined that until the 1960s it was referred to as a scientific discipline rooted in the biological sciences, agronomy, and crop physiology; from the 1970s, agroecology continued to be defined as a scientific discipline but also gradually emerged both as a movement and as a set of practices. Following environmental movements in the 1960s, agroecology became an agricultural practice in the 1980s and evolved and fostered agroecological movements in the 1990s.

These processes led to a new understanding of agroecology, with an attempt to establish a specific field of study and to define conceptual approaches and applicable methods to ecologically sustainable agriculture [20–22]. The common ground is the idea of "co-evolution between culture and environment, both in the past and in the present" [21] (p. 8). The emphasis is put on the complexity and internal dynamic of specific agroecosystems, in which "ecological interactions and synergisms between biological components provide the mechanisms for the systems to sponsor their own soil fertility, productivity and crop protection" [23] (p. 289). In Altieri's vision [15], co-evolution is the interaction between socioeconomic and natural "living systems," each functioning by their own principles and processes. Agrosystems are communities of plants and animals in their physical and chemical environments that have been historically modified by human communities to produce products (food, fiber, fuel) for human consumption and processing.

In the last few decades, agroecology has opened up to the food system beyond the vision focused on agricultural activity, with the whole system approached in terms of ecological principles [24]. Along this path, agroecology has taken a political economy focus in order to develop alternatives to the current agro-industrialization model, broadening its scope and adding multiple dimensions (environmental, social, economic, ethical, and development issues) [25].

Today, the widely accepted definition of agroecology includes three interconnected levels or approaches: a scientific discipline, a set of practices, and a social movement [19,26]. As a science, it promotes interdisciplinarity among social and natural sciences, including different forms of knowledge (local, traditional, and indigenous) [27]; as a social movement, it refers primarily to perspectives developed by the Food Sovereignty movement; as a practice, it encompasses different forms of transformative praxis (peasant agroecology and organic farming, natural farming, biological agriculture, low input, permaculture, bio-intensive, traditional peasant or indigenous agriculture, etc.) [28] (p. 548) or what Vandana Shiva [29] (p. 37) calls "regenerative agriculture,"—that is, regenerative organic farming "beneficial to the soil, water, climate systems, public health and farmer's livelihood."

The concept of multifunctional agriculture (MFA), from the late 1990s, has been linked, in the policy and in scientific debates, to the issues related to agriculture transformations

and rural sustainable development. In broad terms, it refers to the idea that farmers, in addition to producing food, fiber, and other raw materials, can offer various other services, such as those related to tourism, education and care, natural resource management, and landscape maintenance.

Different interpretations of and approaches to MFA have been developed [30–33]. In the OECD analytical framework [32], MFA is interpreted as the production of commodity and non-commodity outputs, highlighting that the latter may have the characteristic of public goods and externalities. The focus is on the market and, consequently, non-productive functions of agriculture, such as those that are not marketable (e.g., social cohesion and social functions in general), are undermined [31].

Focusing mainly on the farm level and on the social construction of multifunctional practices, other scholars have re-defined the concept. Moving beyond trade-related issues alone, farms' strategies of deepening, broadening, and regrounding, as defined by the "new" rural-development paradigm, transform "the farm into a multifunctional enterprise" [33] (p. 44), allowing the re-connection of the agriculture to nature and society in general. Deepening strategies include practices that increase the added value of the product, such as organic production, on-farm processing, or short food-supply chains. Broadening concerns with the connections and relationships established in rural area imply offering new services, such as tourism services and social farming. Regrounding implies the redefinition of the farm organization by employing new resources or using resources differently to maximize the mobilization of internal resources in the production. These three strategies, which can be applied separately or all together, contribute to reducing the costs and the reliance of the farm on the agri-business market and to the re-connection of farmers to citizens. By shedding light on these issues, MFA "can open a new and innovative perspective" [30] (p. 113) on the role that agricultural activities may have in the regeneration of rural areas. In this framework, the focus is also on the creation of synergies between the different functions of agriculture and the development of relationships that are not only marketable between agriculture and society [34,35].

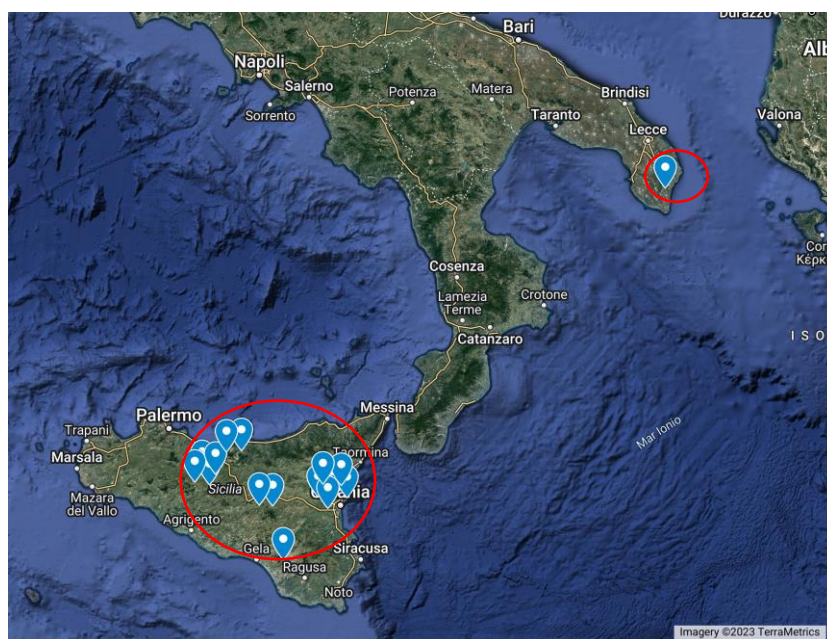
A multifunctionality spectrum (weak, moderate, and strong) has been conceptualized [17,36] based on farm-level transitional trajectories from productivist to non-productivist agricultural actions and thought.

Strong multifunctionality is "characterized by strong social, economic, cultural, moral and environmental capital" [17] (p. 368). Farmers moving toward strong multifunctionality have high environmental awareness, promote territorial agro-food chains, tend to be organic (not necessarily certified), are highly diversified, recognize the value of farm household knowledge, are weakly integrated into the global capitalist (productivist) networks, and are strongly embedded into the locality. More integrated territory-based rural-development policies are therefore required. Weak multifunctional agriculture stands at the opposite end in the productivist logic of agriculture. In terms of policies, the subsidies to MFA are justified by the need to diversify the income of farmers by capitalizing on the supply of positive externalities such as the maintenance of biodiversity and landscape [37].

### 3. Materials and Methods

We analyze and discuss two Italian case studies on promising practices for rural regeneration, both located in the South of Italy (Figure 1).

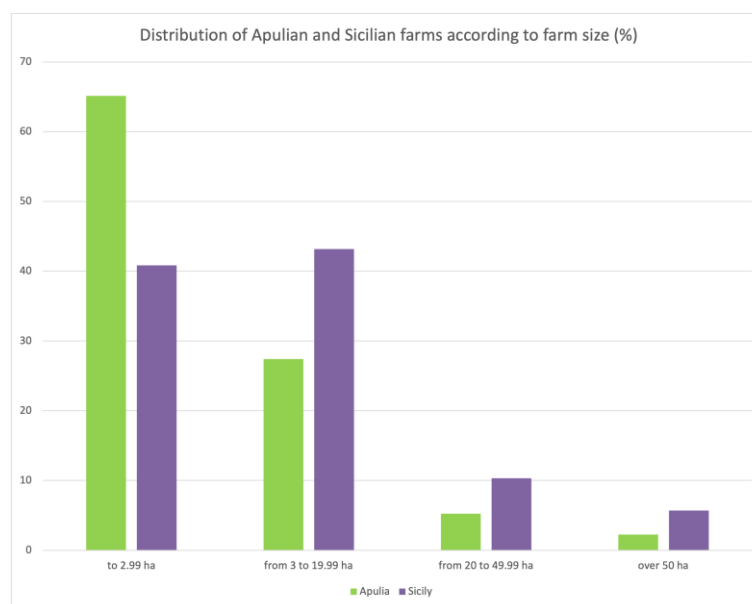
The practices have been promoted by farmers, either successors or new entrants into agriculture, aiming at implementing agro-ecology and strong multifunctionality.



**Figure 1.** Case-study areas (in red circle).

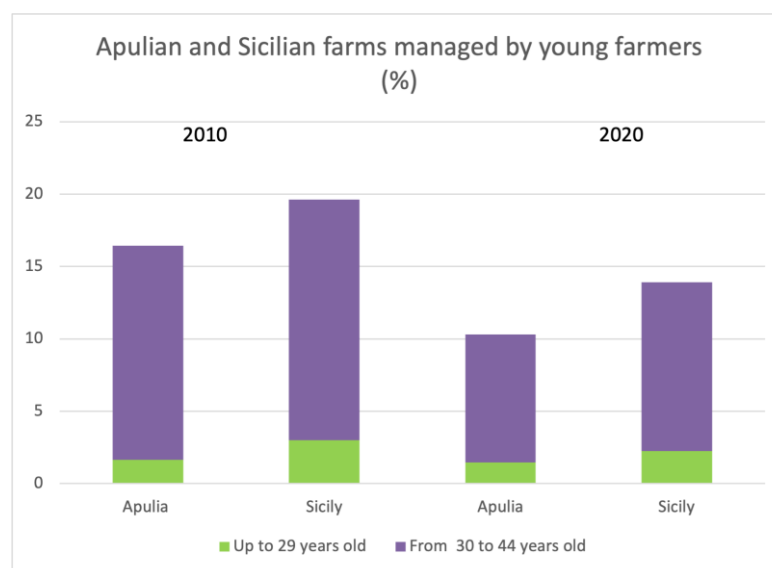
### 3.1. Case-Study Context

The two case studies were carried out in Apulia and Sicily. The land structure of the two regions presents some differences. The former is characterized by a greater presence of small farms (65.14%) compared to the latter (40.83%). On the other hand, there are more farms over 50 hectares in Sicily than in Apulia (Figure 2).



**Figure 2.** Distribution of farms according to farm size (%). Source: Our elaboration on ISTAT census data 2020 [38].

The last census data available [38] show a substantial decrease in the number of farms, in line with the Italian trend. In the last decade, Apulia lost 80,324 farms and Sicily 77,261, over 600 farms per month. In addition, a problem of generational renewal was demonstrated (Figure 3). However, Sicily and Apulia remain the two Italian regions with the highest number of farms run by young people.



**Figure 3.** Share of farms managed by young farmers (% of total by region). Source: Our elaboration on ISTAT data 2010–2020 [38,39].

The first case study examined generational changes occurring in 15 family farms taken over by successors in Sicily, the largest island in the Mediterranean Sea and the widest region in Italy. Together with the islands around it (Ustica, Pantelleria, the Aeolian Islands, the Aegadian Islands, and the Pelagian Islands), it covers 25,714 square kilometers, with about five million inhabitants (4,875,290 residents). Although land use is predominantly agricultural and some 97% of the total area is classified as rural, Sicily is one of the most urbanized Italian regions, with a significant imbalance in the territorial distribution of the population between the coastal area (more than 70% of the population, high population density) and the non-coastal area (characterized by slow but constant depopulation over various decades).

The area under investigation covers three Provinces (Catania, Enna, Palermo) and is located around two metropolitan cities: Palermo, Sicily's capital and the largest town (647,000 inhabitants) on the island; the Catania area, which has the highest population density [40]; and Enna, the third Province, is classified by the Sicilian Rural Development Programme (RDP) 2014/2020 as having development problems. Generally, 86% of the farms operated in what the RDP defines as inner areas, disadvantaged areas, or areas with development problems.

The second case study, in the Apulia Region, presented a practice implemented by new entrants into agriculture in a vision referring to what is called "Agri-Cultures" operating through an association (*Casa delle AgriCulture-Tullio e Gina*) and an agricultural cooperative (*Casa delle AgriCulture*). They are located in Castiglione d'Otranto—a hamlet of the Andrano Municipality—in the Salento peninsula.

Andrano is an aging and depopulating small municipality with less than 5000 inhabitants, of which about 1000 live in Castiglione d'Otranto. The agricultural sector is characterized by a high farmland fragmentation and very small farms, and by a low diversification of crops, with a dominance of olives and cereals. In the last decade, millions of olive trees in the Salento peninsula were desiccated by the *Xylella fastidiosa* bacterium. This has further worsened the situation, as many fields have been abandoned and several farms, run by elderly people, have closed. This has opened a public discussion on the limits of a monocultural and pesticide-intensive agriculture. A web of micro-organizations, associations, and young farmers promoting the agroecological model and practicing strong multifunctionality are emerging in the Salento area.

### 3.2. Data Collection

The first step was a desk analysis of secondary data. The main sources were grey literature, online evidence, website contents of the Apulian association and cooperative and of the Sicilian farms, academic publications, and basic statistical data related to the contexts.

In the field, data were collected through in-depth interviews via the snowball method. The specific questions that guided the data collection were articulated around the following issues: origin and objectives pursued, local/non-local resources activated, activities carried out, innovation introduced, networking and synergies enabled, institutional support, impact, and perspectives.

In Sicily, 16 in-depth interviews with farmers operating on 15 farms and 4 interviews with key informants and actors involved in different social networks active in the territory were conducted from December 2020 to May 2021. In Apulia, 21 interviews were conducted from February to May 2021 with the promoters and members of the association and the agriculture cooperative (9 interviews), other Apulian farmers (3 interviews), representatives of the association and local entities (8 interviews) cooperating with them, and a key informant (1 interview).

Due to the pandemic situation, interviews were conducted online. Prior to the interviews, the research aims were explained to all participants in advance and written informed consent was obtained. All the interviews were transcribed and personal data were pseudonymized and anonymized.

In addition, in June–July 2021 the field work for each case study included one focus group with stakeholders to gather further information, useful also for data triangulation, and a meeting to present the research findings and gather stakeholder feedback.

## 4. Results

Analysis shows that in both cases a common ground of novel practices can be identified. First, there is an agriculture context based on family farms, which play a major role in their commitment to farming and in personal links to the place. Second, a social profile related to education and past experiences was identified. Many new entrants and farm successors have obtained university degrees, including at the PhD level; all of them have experienced urban life and/or worked outside of the agriculture sector.

Different context of origins and experiences have shaped diverse backgrounds for personal and collective trajectories towards agriculture.

The Sicilian successors took over the farms by choice, on the base of different motivations. Sometimes it was the opportunity to change a job that provided no satisfaction or the opportunity to steer their life direction toward a practical experience of the environment; sometimes it was due to unemployment or working-life expectations. However, family—even extended family—plays a relevant role as a main source of assets (e.g., land, work, financial resources to be invested in new activities, relationships, knowledge, emotional support). They look at their farm in a holistic vision and in a completely different approach from their parents, combining tradition and environmental modernity in a way that is more than simply “farming without chemical inputs” [41].

The promoters of the Apulian association went to study and/or work in other Italian areas. Then, they chose to return to Castiglione d’Otranto, driven by the desire to live where they were born. They are young friends, with a strong sensitivity to environmental and social issues and an openness to contamination and diversity. They share the peasant experience of their grandparents and the migration stories of those who, in the 1950s and 1960s, left the country. However, they are aware that they need to create the conditions making it possible for them to stay. The presence of abandoned land represents an opportunity to be seized, and they are conscious that multifunctional and agroecological agriculture can be a viable prospect for their *restanza* (the remaining). Their action is explicitly inspired by the latter concept framed by the anthropologist Vito Teti [42,43]. It refers to the idea that those who stay, and also those who return, by making alternative choices and developing new relationships, contribute to giving new life to localities.

*“Restanza is this idea of staying on the land not with a conservative approach. The view is to binds together past and future, tradition and modernity and builds real alternatives for young men and women who want to stay” (Apulia, int.12).*

*“We want to stay on this territory, but also create job opportunities. Otherwise we will always be forced to leave. We have abandoned lands (...) and we have young people who do not want to leave. Let’s combine the two” (Apulia, int.1).*

In 2013 they organized a trip to learn about one of the earliest experiences of Italian organic farming developed by Tullia and Gino Girolomoni in a small village in the Marche region. Inspired by these experiences, they established the association Casa delle AgriCulture Tullia e Gino. Over the years, the high level of commitment shown by the promoters led to more than 80 people being associated in 2020, including people not living in Castiglione d’Otranto, nor in the Salento area. The participation in the association’s activities is on a voluntary basis. Indeed, 10 people conceive of and promote most of the activities.

After six years, the agricultural cooperative “Casa delle AgriCulture,” which employs three people, was established to manage the agricultural activities in the years the association promoted. As one of the individuals interviewed indicated: *“The cooperative ... represented, let’s say, the agricultural arms ... of everything that we say ... at the association level” (Apulia, int.2).*

Despite different trajectories and social practices, both successors and new entrants have adopted an agroecological approach relying on the rediscovery and use of local biodiversity. Traditional and ancient eco-types, especially landraces, were abandoned because of low yield after the modernization and mechanization of agriculture during the second half of the 20th century.

Motivations are, however, different in terms of social context and access to the land. Although the successors realize that they can be agroecological by re-designing a more sustainable farm style, for new entrants agroecology is the vision that motivate their actions.

Sicilian successors engage in agro-ecology to deal with the more relevant problem they have to face—that is, the takeover of farms that are already structured by past generations, a crop-specific land, with often dispersed and fragmented agricultural units. Although organic conversion represents the initial major change to the farm system, the most relevant step in setting new trajectories is the practice of polyculture, including multiple cropping, one of the many forms of agricultural practices in which agroecology is rooted [44,45]. Working with a mixture of plants and different cultivars in the same field, based on the size and location of the farm units, allows farmers to diversify the range of agricultural production (olive, grain, vegetables) in order to increase profitability. Farmers have rediscovered some of the traditional or local varieties of permanent crops (almond trees, manna tree, blood oranges) that have already been in the orchards for a long time, since they were also grown for consumption within the family.

In the Apulian case, the association promotes many cultural initiatives on the issues of agroecology to contrast the dominant agriculture model based on monocultural and pesticide-intensive use. In the meantime, members experience this way of farming practically, but they need to access the land. The land market is at a standstill and is difficult to access, even if the land is not cultivated. Nevertheless, they discover that *“it is easier [to have land] in free use than in rent. This is because the free use requires a piece of paper that is renewed every year ... and the owner ... feels more secure” (Apulia, int. 3).* Therefore, they start farming on small pieces of land that were abandoned and granted on a free loan basis. Over the years, a strong awareness-raising action towards elderly landowners, who were asked to go to the fields with the association’s activists, has increased trust in the association’s activities and allowed them to have greater access to the land. Today, the cooperative cultivates about 20 hectares. The land is fragmented but all the fields are located within a radius of about 20 kilometers from Castiglione d’Otranto. Recovering and cultivating traditional biotypes, experimenting with mixtures to identify the most suitable species for the area, organic fertilization, weeding with animals, and organic farming are all measures they put in place to protect and revitalize local biodiversity and the ecosystem in general.

The adoption of these styles of farming by applying the principles of organic and regenerative agriculture recovers species and products at risk of extinction. In the Sicilian case, two farmers are directly involved in producing Slow Food Presidia under specific production protocols that guarantee traceability and a label of high quality (criteria and presidia can be found on the Slow Food Foundation website). The first presidium is honey from the Sicilian black bee, which is an endemic species more resistant to parasites and thermal changes, needing few external nutrition operations. As the beekeeper explained, the honey is very representative of the Sicilian territory, due to the floral essence of the place; it has a low concentration of water and more concentrated nutritional properties. It has also a greater quantity of nutrients and enzymes.

The second presidium is Madonie Manna, a typical product obtained by the lymph of ash trees (*Fraxinus ornus* and *F. angustifolia*). As one of the individuals interviewed explained, cuts are made in the trunk, the lymph flowing out is liquid, and when exposed to the sun it solidifies, forming sticks of sugar. Skills and knowledge to stabilize the product and making it as healthy and clean as possible are relevant, since the resinous substance could develop impurities.

The third presidium is Madonie Provola, which is a cheese made within one of Italy's most biodiversity-rich areas, the Madonie mountains. Its quality is derived from milk, which comes from cows raised in wild and semi-wild conditions in the Madonie pastures.

In Apulia, the cooperative is producing several varieties of traditional cereals: spelt monococco and bicocco; barley; several traditional grains, such as *senatore cappelli*, *gentil rosso*, *capinera*, *majorca*, and *saragolla lucana*; and several vegetables. They also breed a few goats and a Martina Franca donkey, a traditional Salento breed. The cooperative makes its cultivation methods visible and transparent on its website, where cultivated plots are geo-referenced, so anyone can go visit the fields and see how they produce. As one of the respondents underlined, *"We have built a lot of credibility by putting our face on ... I wouldn't go out of the house if we did something that's opposite to what we say"* (Apulia, int.1). In 2017, the cooperative also signed the Salento Natural Agriculture Manifesto, promoted by the Salento Km0 Network, working to carry out transformative interventions for the improvement of environmental, social, and economic territorial conditions; the aim is to build a network of a solidarity economy based on respect for the entire ecosystem, the production of a "healthy, fair, and good" food, and a short supply chain (the manifesto can be found on the Salento Km0 Network website).

As the analysis conducted so far has shown, in both case studies a strong multifunctional model was pursued. Broadening, deepening, and regrounding strategies were put in place.

Deepening strategies include processing and marketing through short chains and obviously organic production, even if not always certified. Most of the farm successors (12 of 15) conduct in-farm and off-farm food processing, generating added value for what they grow and diversifying the products they sell (jams, honey, liquor, extra-virgin olive oil, flour, pasta, cheese). Seven of them conduct or will conduct within a few months on-farm processing, closing the circuit from production to sales. Such activities have allowed these farmers to gain control on the whole process and to become independent from the pressure on prices coming from strong actors in the value chains.

*"We have had our own company oil mill since 2003, we have our own line of organic products, which we pack both in cans and in bottles. From this point of view, we are autonomous and self-sufficient. We have increased the market year after year"* (Sicily, int.16).

*"The mill was the turning point. Processing directly in the farm is what makes you free and gives you the possibility to do everything at low cost"* (Sicily, int.10).

Farmers who conduct off-farm processing activities retain all or part of the final product for themselves (flour, artisanal wholemeal pasta, olive oil, vine, almond cream, etc.), thus maintaining control of the process and the marketing activities by innovation. On



one of the farms, for example, all the vineyards are PGI and PDO; the farmer reorganized the olive-production chain by registering a brand for her extra-virgin olive oil, and since then she has sold much better than before and on the farm has increased the olive-grove area by four hectares. Another farmer, about 34 years old, creates a superior-quality extra-virgin olive oil, taking care of the product from cultivation to marketing. In 2020, his extra-virgin olive oil received a trail of prestigious awards, such as the “5 Bibenda drops” (Italian Sommelier Foundation), the A.I.R.O. (International Association of Oil Restaurants) award as the best PGI in Italy, inclusion in the Gambero Rosso “Olive Oil Guide,” the Slow Food award, and recognition in “Grande Olio Slow Food 2020.”

In the Apulian case, the association and the cooperative are aware that a relevant step in their pathway towards a sustainable regeneration of the area would be the possibility to process cereals locally. In 2019 they decided to open a community mill that has a machine for cleaning cereals, a spelt dehuller, and a packaging machine. It was financed through crowdfunding (raising EUR 37,000), a regional contribution of EUR 50,000, and a loan of EUR 110,000. This new service, managed by two employees of the cooperative and supported by the association volunteers, fulfilled a strong local demand for local processing infrastructures.

*“We didn’t start by asking the region or the European community for funds, but we started by crowdfunding... from the bottom up... the territory has expressed the will to build this infrastructure” (Apulia, int.13).*

The availability of local processing infrastructures impacts farmers’ production choices. For example, the dehuller has allowed for the resumption of spelt cultivation in the area, which had been abandoned due to the high transport costs associated with its processing. As clearly stated by one interviewee, *“the purchase of a dehuller is a political issue, not just a question of . . . agronomic needs ... It’s a matter of changing the farming production system. In the past, spelt was not sown because the processing industry was not interested in it because it cost too much” (Apulia, int.2).*

The community mill has become an important meeting place for farmers of the area, allowing the producers to exchange experience and knowledge.

*“I used to bring them the grain to grind ... When you meet several times you begin to talk. My problems are their problems. We share the same idea of local development” (Apulia, int.5).*

Furthermore, the association has promoted the creation of a Popular Purchasing Group (GAP) to facilitate the access to healthy and good food and to encourage the creation of a network of small Salento organic producers. The products are ordered weekly, based on the availability indicated by the farmers, using a WhatsApp group. Over 100 families participate in the GAP, not only from the small village of Castiglione d’Otranto but also from neighboring areas. It is a way to connect producers and consumers, which in Italy is more widespread in cities and much rarer in rural areas. Most of the cooperative’s products are marketed through the GAP and in the shop opened in the community mill.

Broadening strategies include offering new services. Apulian new entrants are focused on educational and environmental services primarily devoted to the local actors. Farm successors are also focused on the opportunities offered by the tourist sector.

In the Apulian case, broadening includes educational services, such as those carried out in the Inclusion Plant Nursery (Vivaio dell’inclusione), which includes seed-reproduction plots, a catalogue field of traditional varieties, and parcels where new mixtures are tested. Many events, workshops, and activities are organized involving disabled people, in collaboration with a local social cooperative; migrants, in cooperation with a local association managing a “Reception and Integration System” (SAI) project; inactive young people; elderly people, with the support of a retirement association; and school groups, in collaboration with local primary schools and extra-regional secondary schools. Furthermore, environmental services are provided to the Regional Natural Park (*Parco Naturale Regionale d’Otranto Leuca e Bosco Tricase*), carrying out several initiatives related to the recovery of

local biotypes and the care of the landscape, such as, for example, organic weeding with the grazing of goats and donkeys.

*“In some cases, the Association has done things that the Park itself should already be doing . . . The Park and Casa delle AgriCulture have been two entities that have somewhat fed off each other. In many cases they [Casa delle AgriCulture] have provided the contents and the proposals that we [the Park] have included in our planning” (Apulia, int.14).*

Five Sicilian successors have successfully combined organic agriculture with sustainable agro-tourism, ranging from simple accommodation with home cooking to full accommodation with meals. They have focused on specific resources supplied by their agro-ecosystem, cultural heritage, and culinary traditions to organize various on-farm activities such as special events (i.e., weddings, cooking courses, yoga classes), farm tours to teach the sustainable methods of farming and processing employed, outdoor recreational activities (picnicking, swimming), and educational activities (farm- and ranch-work experience, camps, classes, petting zoos, etc.). Three of them have diversified by producing clean energy (photovoltaic systems on the roof).

The regrouping strategies are mainly related to the reduction of external inputs in the case of the Sicilian farm successors. In the Apulian case, since it is a new farm, from the beginning the production has been based on an efficient use of internal inputs.

High networking capacities characterize both experiences. Most of the successors interviewed are involved in and refer to three major Sicilian networks. The first is the association of farmers called “Simenza—Cumpagnia Siciliana Sementi Contadine,” which plays a very relevant role in supporting organic farmers in enhancing on-farm biodiversity, especially landraces, as many of the respondents underlined. Founded in 2016, it promotes the protection and enhancement of the vast heritage of Sicilian agrobiodiversity as embedded in cultural traditions and local knowledge. Different social actors (farmers, breeders, processors, advisors, communicators, researchers, chefs and other stakeholders) belong to the association. In 2020, there were 181 firms associated, of which 129 were farms, 13 were mills, 10 were bakeries, 3 were small–medium pasta factories, and the rest conducted other types of business [46].

The second network is the Sicilian consortium “Galline Felici” [47], which is a “galaxy” of producers and consumers associated with Solidarity Purchasing Groups (GAS, which is the acronym for the Italian expression “Gruppi di Acquisto Solidale”). The latter is a group of people who decide to reflect collectively on their consumption and to buy food (and also other products), adopting as choice criteria concepts such as justice and solidarity, which, for them, define the social quality of a product. The consortium refuses to sell to the large supermarkets and favors neighborhood shops and GAS, both Italian and foreign, especially in France. It has signed a solidarity economy pact with the non-profit association “Les Givrés d’Oranges” of Lille, France, and other Italian Solidarity Purchasing Groups.

The third network is the participatory water management of the Simeto River Valley Agreement. It includes one Solidarity Purchasing Group (GAS), promoted by a group of young women, and one bio-district working for the creation of an alternative food system.

In Apulia, both the association and the agricultural cooperative are embedded in a wide network system. A partial list of these subjects includes NGOs, associations, and other social cooperatives involved either in cultural activities, in hosting refugee, in supporting disabled people, or in the promotion of international cooperation projects or participatory planning projects, and public entities, such as the municipality of Andrano, the Regional Natural Park, schools, and educational institutions. They are part of “Farmers for Change Network,” connected to the Salento Km0 network.

These networking capacities have been helpful in mobilizing resources, overcoming local limitations [48,49], and allowing the exchange of knowledge, information, and services and the development of new skills.

*“The question of the network is always present in the action of Casa delle AgriCulture . . . We have grown, because we have this constant ability to take energies from outside*

*and bring them here . . . there is this idea of building important networks based on many common feelings” (Apulia, int.13).*

*“Being able to be in contact with other farmers who do the same thing ... the same way of growing, the exchange of opinions, ... of information and also the possibility of helping each other with equipment is what made me stay in the network . . . it’s something useful . . . important collaborations were born” (Apulia, int.3).*

*“We have a WhatsApp group [with the farmers of Salento km0], we have regular meetings...to exchange problems and ...knowledge... Being together always gives strength” (Apulia, int.4).*

These impressive networking capacities allow for the development of many activities, such as social-practice arts residencies involving artists from all over the world (Armenians, Canadians, Mexicans, Americans, Argentinians, etc.) and the “Collective sowing,” involving children, families, elderlies, refugees, and asylum seekers. The latter is an initiative that *“becomes a means of fostering knowledge and know-how intergenerational exchange and allows children, but also adolescents, to experience work in and with the land” (Apulia, int.4).*

A well-known initiative is Green Night and the so-called Preludes, held at the end of August, which deal with issues of natural agriculture, biodiversity protection, and social inclusion. Concerts, a market of local products, and debates are organized with the participation of speakers from abroad. Participation has grown over the years to reach peaks of 30,000 visitors. These activities are *“aimed at reactivating a different relationship with the everyday urban spaces ... it is a way to take care of the village. It is first and foremost made for those who live here” (Apulia, int.8).*

An openness to cooperation between farmers emerged in both case studies.

Some of the Sicilian farmers interviewed jointly decided to create networks composed by the different actors working within the chain (farms, custodian farmers, mills) to collectively sell their organic products. For example, one of the networks, promoted by Simenza Association, involves a water-powered stone mill that, thanks to an innovative milling technology, supplies high-quality Sicilian wheat to pizzerias and bakeries all over Italy. The consortium Galline Felici has strongly supported the creation of a Sicilian short supply chain (FICOS, Filiera Corta Siciliana, Catania, Sicily, Italy) among farmers that signed a business-network contract to promote their products using an open-source platform dedicated to ethical supply chains (the Open Food Network).

The Apulian association and the agricultural cooperative, instead of increasing their production of grains by accessing new fields, choose to promote what they call “Supply-Chain Pacts” (*Patti di filiera*) with other farmers and the Natural Regional Park as the guarantor of the pacts. These foresee the collective purchase of traditional grain seeds, the introduction of melliferous plants to encourage the return of bees to the fields, natural (organic) cultivation methods, and land rotation. The production is purchased by the cooperative at a price almost three times higher than that of the commodity market. About 30 hectares are farmed within the five pacts signed in 2020. In order to give more farmers the opportunity to participate, it was decided that each of them would cultivate no more than 8 hectares under the pact. This innovative action, with a collective feel, shows the willingness to overcome the productivist agricultural model, opening up a new idea of agriculture and supporting the recovery of traditional biotypes. As pointed out, *“We could have started asking for new land ... or change the discourse ... the supply chain pacts guarantee that more people will return to agriculture, not just Casa delle AgriCulture” (Apulia, int.2).*

## 5. Discussion: Impacts and Perspectives on Rural Regeneration

In the previous section, we illustrated how the agroecological and strong multifunctionality vision open a new perspective to rural areas.

First of all, farmers relying on a natural system of crop maintenance are lowering the costs of external-input requirements (chemical fertilizer, pesticides, herbicides). At the farm level, traditional crops and landraces adapted to local agroecological conditions show

a high level of competition against weeds and resistance to stresses, pests, and disease than modern cultivars. Our interviews confirmed what has been pointed out by other scholars [16–29].

*“We really realized how nature works by itself . . . these grains really soared upwards. The ancient grains have this wonderful power upwards, a root system very strong which is able to destroy weeds”* (Sicily, int.13).

*“What immediately fascinated me about the officinalis is that simply . . . with minimal processing, without any type of input. Thanks to the good exposure of the soil, to the good texture of the soil, to our microclimate . . . , we have started to obtain perfumed products without any kind of input”* (Sicily, int.18).

At the territorial level, increasing awareness of agroecology may allow for landscape maintenance, avoid pollution of soils and water, boost the cultivation of traditional biotypes, and decrease pesticide use.

*“We are noticing in recent years that there is a significant decrease in the use of pesticides and this is very important”* (Apulia, int.4).

Even more relevant is the social effect of farmers’ practices. In fact, they are concretely proving that the use of traditional biotypes is a viable way of farming. Acting as social interfaces of knowledge sharing and agroecological-technique diffusion, these actors can be interpreted as path-breaking innovators, producing a multiplicative social effect.

*“We grow tomatoes in arid culture. We only water them when transplanting, then they grew only with water from the sky. It’s the variety that allows me to do so.... His [neighbor farmer’s] tomatoes were dead, attacked by downy mildew, which killed them. We did treatments with nettle, garlic ... So he [the neighbor] saw the results ... and when you are faced with something that is concrete, you can’t say no, you have to say yes. And the following year he started to come and get the seedlings from me”* (Apulia, int.4).

Both Apulian new entrants and Sicilian successors are playing a significant role in putting the agroecological perspective at the center of public debates. By showing practically that overcoming the agro-industrial model of agriculture is not only possible but also viable, they are contributing to the spread of this approach among farmers and youths. In the Apulian case, for example, a pact called “Patto delle Saragolle” (Saragolle Pact) has been signed with an association operating in the neighboring region of Basilicata for the cultivation of traditional grains. The Saragolla seeds were donated by Casa delle AgriCulture. The ultimate goal of the pact is to create another community mill in order to grind wheat locally.

Beyond food production, farmers innovate by internalizing value-added activities (food processing, short supply chains, on-site and online sales) and by offering new services (education and agri-kindergarten, recreational activities, social agriculture, production of renewable energy, agri-wellbeing, rural tourism, environmental services). These activities are implemented in an agroecological framework [41]. The productive use of local biodiversity has a key role in the reproduction and improvement of local agroecosystems and cultural landscapes, thus enhancing biodiversity conservation and soil and water-quality preservation. In this sense, strong multifunctional farming creates public goods, though rarely recognized, developing synergies between the farm and the wider rural economy [17,33].

Even if gender questions are not directly addressed by the debate on multifunctionality, our research shows that the adoption of this approach has opened a new perspective and fosters young women in being involved in agriculture, especially in activities related to social farming, processing, and agritourism.

Practices tend to operate as local cooperation catalyst among many different actors. They are generating new economic opportunities for other farms in agricultural and non-agricultural spheres, supporting the consolidation of the local economy (for example, by creating positive conditions for the reactivation of abandoned land) and creating new services, jobs, and sources of income.

The cases also illustrate the importance of non-technological innovations in rural regeneration and generational renewal. Innovation is linked to a wider more systemic framework of actors. They tend to develop strong linkages with the territory. Participation in and promotion of cooperatives/associations provide the opportunity to stimulate local social and cultural life (organization of events, cultural actions, farm visits, public debates). This, in turn, tends to set conditions for the involvement of new and different groups of people (children, young people, the elderly, migrants).

The Apulian experience is significant. The association works on two interlinked levels: narration and action. On one side, it acts to build a new imaginary [18,43] of the agricultural practice, not a nostalgic one, focusing on the inclusive capacity and environmental sustainability of the agroecological and strong multifunctional agricultural model. Safeguarding the landscape and the production of healthy and good food, caring for the land, and organic/natural farming are all elements of this new narrative. On the other side, the association is aware that concrete actions should be put in place to show the opportunities offered by this new model of agriculture.

*“We have understood that the world could be changed by examples, it is almost always necessary to combine narration with concrete examples” (Apulia, int.13).*

*“It has to be a bottom up change, otherwise it won’t work and it won’t stand up” (Apulia, int.4).*

Several quotes from our interviews confirm the consciousness of re-imagining socio-ecological relationships able to promote a new agricultural model rooted in a regenerative framework [18].

*“We realised that without all that work on cultural action we would not have been able to carry out that development action ... of economic sustainability. They are completely connected.... We created the cooperative, the community mill, very concrete examples of economy.... Of course we know, and people who look at the complexity know, that without the previous work of sowing the seeds of utopia we could not reap the reality” (Apulia, int.13).*

Many researchers [6,10] have highlighted the role that newcomers, entering agriculture or not, can have in the production of a new, radical imaginary of rural areas. Our research shows that local people that choose to return or to remain in rural areas, either as farm successors or new entrants, may play a relevant role in shaping the idea of a new rurality that is more inclusive and sustainable. The concept of *restanza*, to which many of our interviewees explicitly refer, means the “capacity to link the past with the future” and being able to build “here and now a new world, also stating from the ruin of the old one” [42] (pp. 23–24). Staying is often more difficult than leaving. It is an act of courage to get involved and work to preserve places by giving them a new meaning. It is a dynamic and creative act, a collective “utopian thinking,” that imagining the future identifies the ways to get there and dislodges the status quo [50].

One issue is the ability of policies to catch and foster the complex processes of transformation taking place in rural areas. The following major issues emerged from the study.

The agro-ecological approach and small-scale farmers are not adequately supported. *“From my point of view, the CAP cannot look only at large landowners but must start to take account of those who produce in a certain way. It cannot reward ... those who have a water well and consider those who start working in drylands farming as second class farmers” (Apulia, int. 2).*

Among the main complaints are the difficulties in accessing information on the Rural Development Plan (RDP) opportunities.

The resources allocated to young farmers, either successors or new entrants, are considered insufficient. According to one Sicilian farmer, *“[it] has certainly favoured a more realistic start-up and this has been positive. However the number of request is higher than the resources allocated. As a result, some young farmers is unable to enter in the list. Decision-maker should pay more attention to the next programming, putting additional resources to favor this generational change” (Sicily, int.16).*

Furthermore, the RDP measures are not effective in overcoming the various obstacles young farmers have to face before and after accessing the funds they apply for. The transfer of resources only takes place after the investments have started, so farmers have to advance the expenditure with their own funds. Considerable expenses are also needed for the fees to be advanced to the technicians who help draw up the project. This implies that young farmers who access the grant need a strong financial basis of their own, or their families do. As one of the few young farmers funded by a start-up grant said, *“I consider myself very lucky. Fortunately the financial strength of my family allowed me to take a few steps faster than my other peers (Sicily, int.18).*

Meeting all the regulatory requirements and filling in all the required documents is a highly time-consuming activity. As one respondent underlined, *“A great job would be to eliminate a lot of bureaucracy ... I am more in front of the computer than on the fields” (Apulia, int.2).* In short, for small farmers a different regulation system is needed.

In addition, the organic-certification system in many cases is weighed down by the excess of documentation to be produced, which takes time away from the most pressing farm work. In addition, the current system does not seem to meet the needs of those who choose to adopt an agroecological model and work on recovering ancient seeds. If ancient seeds are non-certified, farms have to opt out of certification.

Public education and training systems remain anchored in many cases to the modernized large-farm model. Many farmers willing to adopt an agroecological approach turn to courses through associations that are self-organized and promoted by the producers themselves.

Public green-food procurement is an important issue, especially in rural areas. It is not simply a matter of promoting zero-km and/or organic canteens, but rather of supporting local producers adopting an agroecological approach. A significant example is provided by a pilot project implemented by the Municipality of Melpignano, an Apulian commune of about 2000 inhabitants located more than 20 km from Castiglione d’Otranto. The nursery-school canteen is supplied by the farmers belonging to the Salento km0 network. Similar actions can support local agroecological farms contributing in the meantime to raising awareness in the local community about local and healthy food consumption.

*“We [the Municipality of Melpignano] choose Salento Km0 Network, because we needed a criterion for certifying the products that could not be organic, because it would have excluded many micro realities that have land in conversion; it could not be zero kilometer because it would have included many realities that have nothing ethical and organic... So we have made the choice of a group of people who had signed a Manifesto in which they discipline themselves ..., both in ethical terms and in terms of production, ... choosing to produce in a sustainable way, in an ethical way, also re-using abandoned land” (Apulia, int.19).*

The role that local institutions can play in supporting rural regeneration and generation renewal is also demonstrated by the initiative of the Sicilian Region called “Terra ai giovani” (“Land to Young Farmers”) in the wake of Sicily’s primacy as the region with the largest number of under-35 young owners of farms. Part of uncultivated or abandoned land (430 hectares) owned by the region was granted to young farmers under 41 for 20 years under easy payment terms. The tender call required the submission of a land-use and an enhancement-project plan.

Public investment in rural services is particularly scarce. Respondents complained about the quality of services for the elderly, youths, and children and internet connectivity. A vision of more integrated and wider territorial policies is needed.

## 6. Conclusions

The objective of this study is to clarify the potential of agroecological and strong multifunctional pathways in regenerating rural areas. To collect data, two case studies were carried out in two regions of Southern Italy, one on farm successors and the other on new entrants into agriculture. In both cases advanced innovations in farm-business organization

had been adopted, such as conversion to organic farming or agroecology, shorter supply chains, and/or diversifying into other sectors such as education and tourism.

Wider social innovations stem from greater networking capacities that are able to shape more intense relationships in the localities, giving new meaning to the place and improving rural livability.

Farmers organize social and cultural events and promote quality products and biodiversity for a new social model of farming and consumption working, as well as the cultural heritages embedded in each specific rural landscape. Arts and cultural activities can be a tool to reframe the narrative and contribute to building a new radical imaginary.

Therefore, rural regeneration within this vision is based on socially inclusive and environmentally sustainable actions. It opens new perspectives to people with different skills and interests who are motivated to remain in the area. It may also foster an increase in new entrants into agriculture. It shows that remaining in rural areas is not a utopia but a concrete possibility.

The case of Apulia is paradigmatic. The modernization of agriculture has led to the desertification of the countryside, as exemplified effectively by the arrival of the *Xylella fastidiosa* bacterium, which has destroyed entire olive groves. Young people in Apulia, starting precisely from abandoned land, demonstrate that new life and new sociality can be breathed into the human–nature relationship. This is precisely the meaning of agro-ecology.

Significant implications emerging from this study are related to issues that show the inadequacy of most agricultural and rural policies in fostering innovative pathways of regeneration. First, accessing the measures of the RDP and the still-insufficient resources allocated to young farmers is difficult due to the high level of bureaucracy, poor dissemination of information, and delays in receiving funds. Second, the existing organic-certification system does not seem to meet the needs of those who choose to adopt an agroecological model and work on recovering biodiversity. Third, sustainable agriculture methods, local food networks, and strong multifunctional agriculture as new income opportunities are not fully integrated into formal educational curricula and training systems. Fourth, most local authorities are not aware of the central role they play in shaping localized food policies and public procurement schemes in order to support sustainable farming. Finally, investment in social services, mobility, and digital infrastructures in rural areas is still scarce.

In short, research findings show that regeneration of rural areas needs a radical new imaginary [18] (p.712) and a new narrative regarding the role of farmers, citizens, and policymakers can be in promoting a sustainable, inclusive rural development. Issues such as social inclusion, agroecology, strong multifunctionality and *restanza* arise in the local public discourse, also framing the negative idea that is still associated in many rural areas with farming: “Now there is also an economy of return . . . We are used to the idea that we are nothing, that we have nothing, we are convinced that we are worth less than zero... We have brought new themes, that of depopulation was a theme that was completely ignored in Salento” (Apulia, int.1).

Local people returning to or remaining in rural areas, by making alternative choices, are breathing new life into the localities. Even if this choice seems to be utopian or crazy, the spread of a collective perspective on agroecology and strong multifunctionality may contribute to the regenerative renewal of rural areas. As stated by one farmer, “If you dream alone it is only a dream, if more people dream it is a reality that begins” (Apulia, int.5).

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