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Review

A Systematic Review of EU-Funded Innovative Agri-Food Projects: Potential for Transfer between Territories

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Abstract: This article presents a systematic review of innovative projects funded by EU Rural Development Programs that were designed and implemented in rural areas of the European Union to facilitate the territorialized production of foodstuffs and their sale through alternative networks. On the basis of the results obtained in this review, we designed a model for the transfer of knowledge to the local community in the Alpujarra Granadina (Granada, Spain) within the framework of the LifeWatch project. This study uses two consecutive methodological approaches. We began by developing a protocol for the systematic search and analysis of successful rural development projects carried out in the European Union between 2007 and 2020. After that, we created a model for the transfer of results using a participative methodological approach. The results of our analysis of the group of projects selected for review show that the main innovations were made in different aspects of the product, process, sales and distribution. These innovative ideas were implemented by rural communities with a high degree of collective initiative and intelligence and could potentially be replicated in other areas. The sample analyzed contains a wide array of novel, alternative formulas, which are transversal to the projects, so provide significant contents that could be used to activate a space for participation and debate, which could itself become fertile ground for the creation of new projects. In conclusion, this study provides the stakeholders in rural areas, in particular farmers, with a wide, systematically organized knowledge base that proposes solutions to shared challenges.

Keywords: agricultural networks food; short supply chain; agrobiodiversity; transfer of knowledge; systematic review

Citation: Ibáñez-Jiménez, Á.; Jiménez-Olivencia, Y.; Mesa-Pedrazas, Á.; Porcel-Rodríguez, L.; Zimmerer, K. A Systematic Review of EU-Funded Innovative Agri-Food Projects: Potential for Transfer between Territories. *Land* **2022**, *11*, 519. https://doi.org/10.3390/land11040519

Academic Editors: Rafael Mata Olmo, Carolina Yacamán Ochoa, Nieves López-Estébanez, Rocío Silva Pérez and Jorge Hermosilla-Pla

Received: 21 February 2022
Accepted: 31 March 2022
Published: 3 April 2022

1. Introduction

During the second half of the 20th century, the world's agri-food systems were transformed by the process of globalization, with a shift towards a production-based, highly specialized system, which led to the intensification of agriculture at an industrial scale [1–4]. These changes had enormous repercussions on rural areas, in particular, on mountain areas [5–7], whose limited capacity to adapt to the new demands of the market led to the rapid abandonment of large swathes of cultivated land. At the same time, on the land that remained in production, traditional crops were replaced by other more productive crops that were easier to harvest and more attractive for the customer [8], all of which had a significant impact in terms of the loss of agricultural biodiversity and the degradation of cultural landscapes of huge heritage value [9–11]. This sharp reduction in the number of

crop varieties and the disappearance of farming practices that were environmentally and landscape-friendly [12] was combined with the deterioration of the agri-food systems at a local level, the progressive breaking down of the links between the producers of food and its consumers, and the growing risk of food security crises associated with a manufacturing model at a worldwide scale [13–15].

In the current context, new approaches to food production and consumption have appeared, together with a wide array of initiatives that are searching for more sustainable environmental, economic and social models in the agri-food sector [16,17]. These innovative responses, known as Alternative Food Networks (AFNs), have been growing continually since the 1960s in a whole range of different forms, all of which have little to do with conventional distribution channels, and which aim to provide real alternatives to the dominant globalized agri-food system [18,19]. AFNs have a shared commitment to territorialized locally sourced products [20,21], the rebuilding of relations of trust between food producers and consumers [22] and the will to recover lost agricultural biodiversity [23,24] by promoting new models of association and market governance [25]. This innovative perspective encompasses all the different phases of the agrarian production cycle throughout the value chain, from the product and the production processes, to dissemination, sale and distribution [16,26].

Within this context, there is an increasing need to rethink and redesign development strategies in which food and agriculture would act for the first time as a basis for the promotion of sustainable transition processes [27,28]. Given the increasing interest in agricultural biodiversity amongst different social and scientific actors, many of these strategies revolve around this key concept, together with that of alternative food systems [29,30]. Understanding the overlap between local farming systems and food supply chains is a fundamental step that public and private stakeholders must take for the management of local genetic resources and their associated traditions, not only from a social and environmental perspective but also as an opportunity for the economic development of rural areas around the common assets of the territory [31–33]. Alternative food networks can play a central role in rural development projects in that they are orientated towards the territorial identity and local quality of the products, building trust and connectedness between producers and consumers and strengthening commercial relations at a local level [34–36]. The European Union has shown a strong commitment to policies based on these principles, as was demonstrated in its Food Security Polices, the EU Biodiversity Strategy for 2030 and the EU Rural Pact. It is clear that innovative projects in agri-food systems can play a crucial role in the future challenges that the European Union has set itself, in particular, those affecting rural areas [37], which, in addition, receive significant funding.

One such project is the LifeWatch project, otherwise known as "Thematic Center on Mountain Ecosystem & Remote sensing, Deep learning-AI e-Services University of Granada-Sierra Nevada". This is a European science and technology infrastructure for biodiversity research and promotion, in which we, the authors of this article, are directly involved. Our research focuses specifically on the field of conservation in situ of agricultural biodiversity, putting the spotlight on the study of the cultivation of local varieties and their sale and distribution through alternative formulas promoted by the farmers. This involves a strong two-pronged commitment to social innovation as a motor for the development of local communities in mountain regions. Firstly, it requires the joint efforts of the local community and the research team to design a model for direct connection between their products and potential consumers through an AFN. Secondly, the need to communicate and transfer knowledge within the group of researchers and local actors, via creative participation models. In this article, we will be referring specifically to the role that the innovative experiences carried out across Europe can play as a starting point in the design of our own project.

The project centers on the Alpujarra de Granada, a *comarca* or small region in South-East Spain. This region is made up of 24 municipalities and covers a total area of 78,788 ha. It is situated on the southern slopes of the Sierra Nevada mountain range, which forms

part of the Sierra Nevada Protected Space and of the Sierra Nevada Biosphere Reserve. Since the middle of the last century, the population of this Mediterranean mountain reserve has declined sharply and there has been a gradual abandonment of farming. These trends are manifestations of the severe crisis affecting the traditional socio-territorial model and of its marginal situation, which is only partially being overcome by the development of tourism-related business activities [38,39]. The objective of this project is to recover the biodiversity associated with agriculture in the Alpujarra and is based on the premise that the promotion of these differentiated high-quality products and their sale and distribution through alternative networks could provide opportunities for sustainable local development. It is therefore necessary to explore innovative approaches to food production and distribution models, in this case, by building on the knowledge acquired in successful projects in other parts of Europe, in particular, those promoted in rural areas and funded under the auspices of European Union Rural Development policies. These experiences can serve as a guide for both researchers and local actors.

AFNs are widely regarded as useful solutions that comply with the objectives of agricultural biodiversity and sustainable development. With this in mind, various research studies, such as those by Kumar et al. [40], Michel et al. [41], Prima et al. [42], Medeiros et al. [43] or Goodman [44], have provided valuable information about innovations in the agri-food system and AFNs by reviewing the scientific literature referenced in databases such as Web Of Science and SCOPUS. In our case, we analyzed the innovative projects in this field contained in specialized websites or platforms for the exchange of information, where users can share the ideas and practices implemented within the framework of innovative projects promoted by actors from rural areas.

This research offers a systematic review of successfully implemented projects in the agri-food sector funded by EU Rural Development Programs. Our review has three main objectives: (i) to identify the main innovations in the different phases of the food chain within the framework of these projects; (ii) to highlight the organizational methods applied through AFNs to overcome the limits of the conventional system for the sale and distribution of food products; and (iii) to use the knowledge generated by these practical experiences to create a model for the transfer of this knowledge and citizen science that could be applied in the Alpujarra de Granada (Spain), thereby facilitating the design of a specific project for the development of the agri-food sector based on the recovery of local crop varieties.

We will now explain the methodology applied in this research (Section 2), clarifying the protocol followed in the systematic review and the selection criteria for the projects (Section 2.1). We also explain the conceptual framework within which we analyzed the selected cases (Section 2.2). We then present the results of the systematic review (Section 3), describing the basic characteristics of the projects (Section 3.1) and providing a summary of the evidence regarding the behavior of the different types of AFN used in these projects (Section 3.2). On the basis of these results, we then describe the design of an initiative for knowledge transfer and citizen science in the Alpujarra Granadina (Section 3.3). Finally, in the conclusions (Section 4), we discuss and summarize the knowledge obtained in the systematic review and its potential for transfer to the area of application, together with the limitations encountered and possible future lines of research.

2. Materials and Methods

2.1. Review and Selection of Innovative Projects in the Agri-Food Sector

In order to standardize the process of searching for innovative projects in the agri-food sector funded by EU Rural Development Programs, we devised a specific review protocol that was customized to our needs. This was based on the general approach established by PRISMA [1] 2020 [45] and other earlier project review studies of a similar nature to ours, such as those carried out by Koumpuros and Georgoulas [46], Zasada et al. [47], Guimarães et al. [48], Petra Herout and Elisabeth Schmid [49] or the European Food Safety Authority [50].

The search for projects was performed between September and November 2021. We began by consulting the main online data sources in this field at European level, i.e., the European Network for Rural Development (ENRD) and the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI). Our second port of call was the Spanish National Rural Network (RRN) in a bid to include a large number of projects based in Spain, which we considered might be particularly relevant for the purposes of our project. We decided to consult the ENRD and EIP-AGRI databases because they are the most important open data sources at EU level in terms of the presentation of innovative projects aimed at rural development and agriculture. At a Spanish level, the RRN is the most complete, standardized, integrated platform on rural development at a national level. Its database, which is accessible to the public, contains a large number of innovative projects carried out in rural areas. The projects on the RRN website all received European funding, as did those on the EU-wide websites. We searched the three databases using various keywords, which are set out in Figure 1. Users searching the ENRD and EIP-AGRI databases have to choose between preselected keywords. From the selection offered by each database, we therefore tried to choose keywords that were as similar as possible on both websites. The RRN database, however, allows users to search for any word they want, and there is no preselection by the website itself. We therefore decided to search for keywords in Spanish that were as similar as possible to those we used in the European databases. By the end of this search process, we had obtained a total of 884 projects.

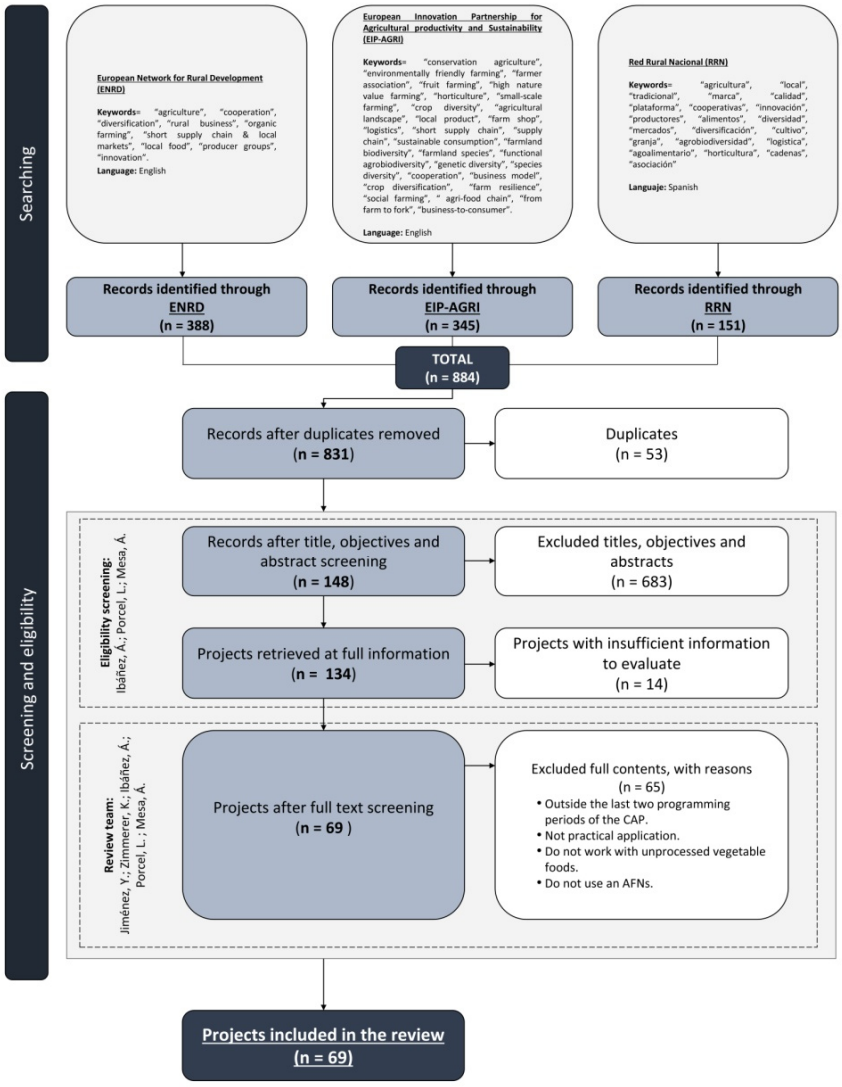

Figure 1. Methodological procedure: flow chart describing the selection and review process.

The next stage was to select the projects of specific interest for our research. This stage had two phases. After deleting any repeated references to the same projects, we applied filters on the title, objective and summary of the project in order to ascertain whether its content might be relevant. This filtering process reduced the total number of projects to 134. In the second phase, we took this group of 134 projects and made a thorough assessment of the available information about their contents and application, applying the following inclusion criteria: (i) falling within the last two Common Agricultural Policy (CAP) programming periods, i.e., from 2007 to 2020, (ii) an action/research project with a practical application, (iii) working with non-transformed plant products for food purposes and (iv) the use of one or more alternative food networks (AFNs). Once these criteria had been applied, a final selection of 69 projects was obtained (see Figure 1).

A list of the projects that were finally selected for review appears in the "Supplementary Materials" section. The list includes some basic standardized information about each project: project name, country, source, start date, main funding body and scale. In addition to these basic data, we also processed all the other information that was relevant for the analysis. The following aspects were considered: aspects in which the project made innovations, types of Alternative Food Network (AFNs) used and type of actors directly involved in the project. A map showing the geographic location of the 69 projects analyzed appears in Figure 2.

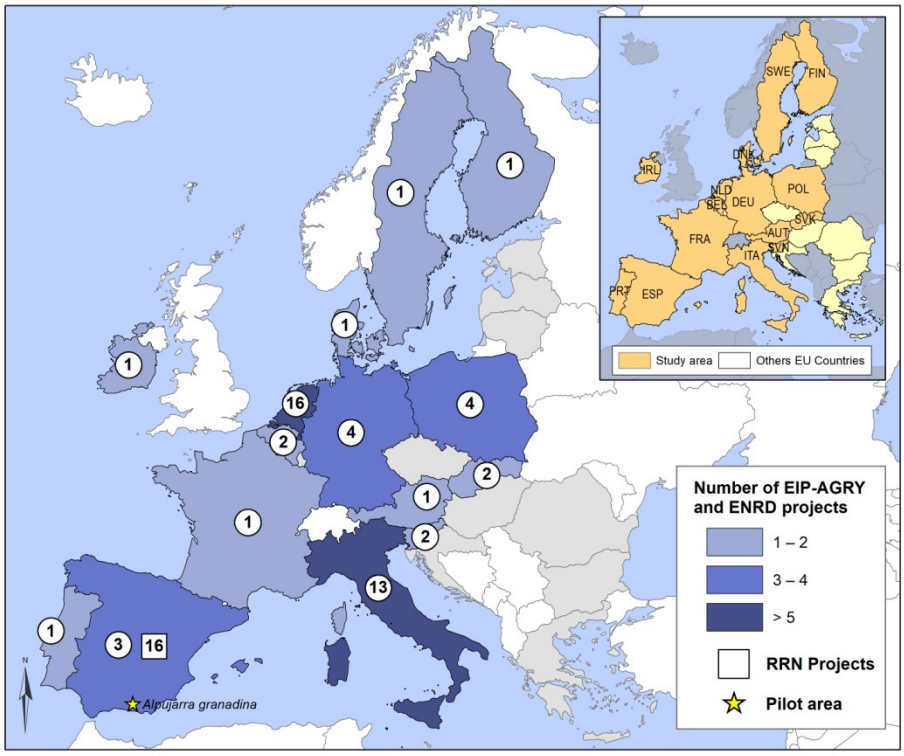

Figure 2. Location of the rural development projects analyzed in our review.

2.2. Analysis of the Information

Our analysis of the information began with an initial review of the aforementioned basic data. We then focused on three key aspects of each project: area of innovation, the Alternative Food Networks used and the type of actors directly involved in the project. When looking at the area of innovation, we analyzed which phase or phases in the agri-food value chain (product, production process, sales and distribution) were linked to these innovations.

The next stage was to identify the Alternative Food Networks or strategies developed by the projects that went beyond the confines of conventional sales and distribution systems. The complex nature of the AFN concept itself, the different perspectives from which

researchers have approached this subject, the constant emergence of new formulas in alternative agri-food markets and their rapid development and evolution, mean that no definitive classification of AFNs has so far been made. However, research studies such as those by Ammirato et al. [51], Sánchez [35], Venn et al. [52], Watts et al. [53] and Renting and Marsden [54] enabled us to identify the most frequent types and served as a basis for classifying all the various alternative production and sales strategies implemented in our sample of 69 projects (see Appendix A). In this way, we identified 10 different types of AFN: geographical indications of food quality, agri-food brands, organic foods, local varieties, consumer associations, farmers' markets, farm-gate sales, supplying institutions, direct supply to local shops and restaurants and digital platforms for the sale of local products online.

Finally, in order to better understand the role played by the different territorial stakeholders in each project and in each type of AFN, we identified the stakeholders that were most often mentioned in relation to the launch and development of the projects: institutions, producers, hospitality/restaurant sector, retailers and consumers. For each project, we also identified the type of territory in which it had been applied (rural, mountain or protected area) and its local, regional or supra-regional scope.

The results obtained in this systematic review have been used as a knowledge base of successful innovative formulas on which to design a participative experience with the local population of the Alpujarra Granadina, aimed at transferring this knowledge and encouraging open citizen science. The conceptual framework of analysis of the information can be observed in Figure 3.

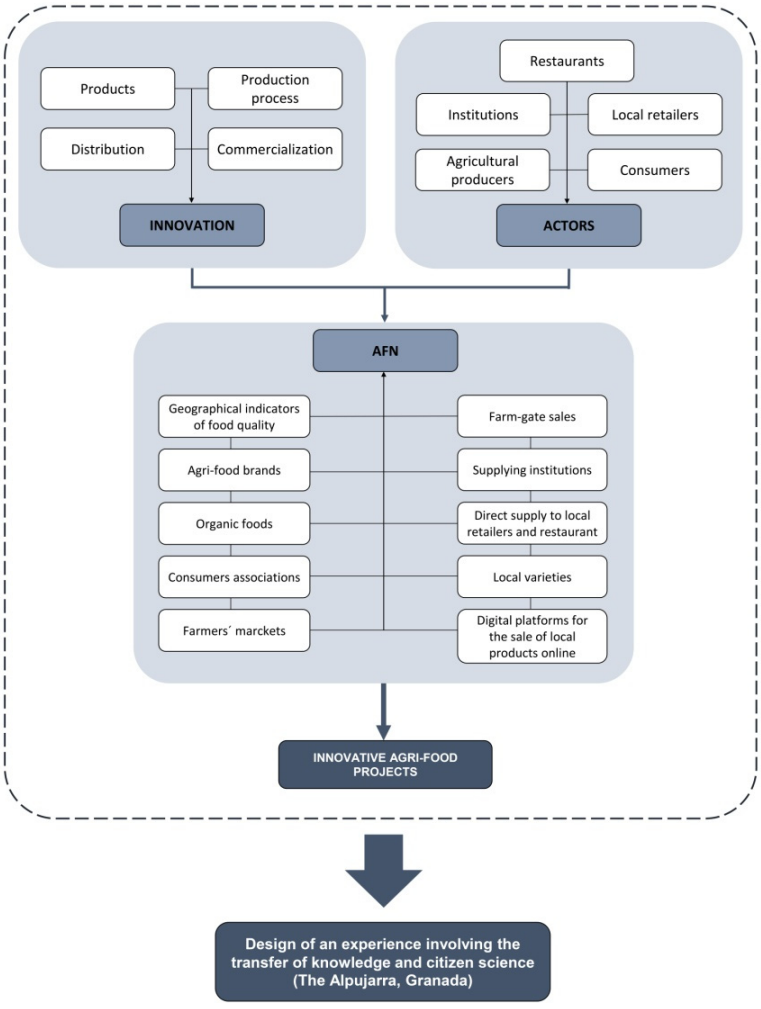

Figure 3. Conceptual framework for the research.

Within the conceptual framework described and illustrated in Figure 3, our results (see below) reveal how the AFNs work in a range of different initiatives launched under the auspices of EU rural development policies and focused on the production, sale and distribution of fruit and vegetables.

3. Results

3.1. Characteristics of the Projects

Our review of agri-food projects involved the analysis of 69 projects implemented in a total of 15 European countries (Germany, Austria, Belgium, Denmark, Slovakia, Slovenia, Spain, Finland, France, Ireland, Italy, Netherlands, Poland, Portugal and Sweden). If we observe the results of our initial search in the two European databases, the two countries that most stand out are the Netherlands and Italy with 16 and 13 cases, respectively, far ahead of the rest. Spain was in a much more modest position with just three projects, just below Germany and Poland and above Belgium. In a bid to find projects that might be particularly relevant for the LifeWatch project, we then carried out an additional search in the RRN (a Spanish database), in which we uncovered a further 16 Spanish projects. As expected, the addition of these 16 projects distorted the Europe-wide selection to some extent, in that Spanish participation was now excessively large, with Spain appearing as the country with most projects (19).

The notable lack of projects in Eastern European countries is also striking given the important role played by the agricultural sector in their economies. If we consider the group of projects as a whole, including the three databases consulted, the database from which most projects were obtained was the EIP-AGRI, which produced almost half the cases (49.3%), followed by the ENRD European database (27.5%) and the RRN (23.2%). Most of the projects were implemented during the CAP 2014–2020 programming period, which concentrated 63.7% of the cases, in particular, the year 2014, in which 24.64% of all the projects were started. The most frequent territorial scale on which the projects were implemented was local (43.5%), followed close behind by those at regional level (40.6%). The least common scales were supra-regional and national, whose combined total came to just 15.9%. As regards the source of funding, most projects received funding from European funds such as the Rural Development 2014–2020 for Operational Groups (42%) and FEADER (23.2%). Funding of up to EUR 100,000 (total budget) was provided in 31.9% of the projects and between EUR 250,000–500,000 in 20.4%. Very few projects obtained funding of one million euros or more (7.3%). This information is set out below in Figure 4.

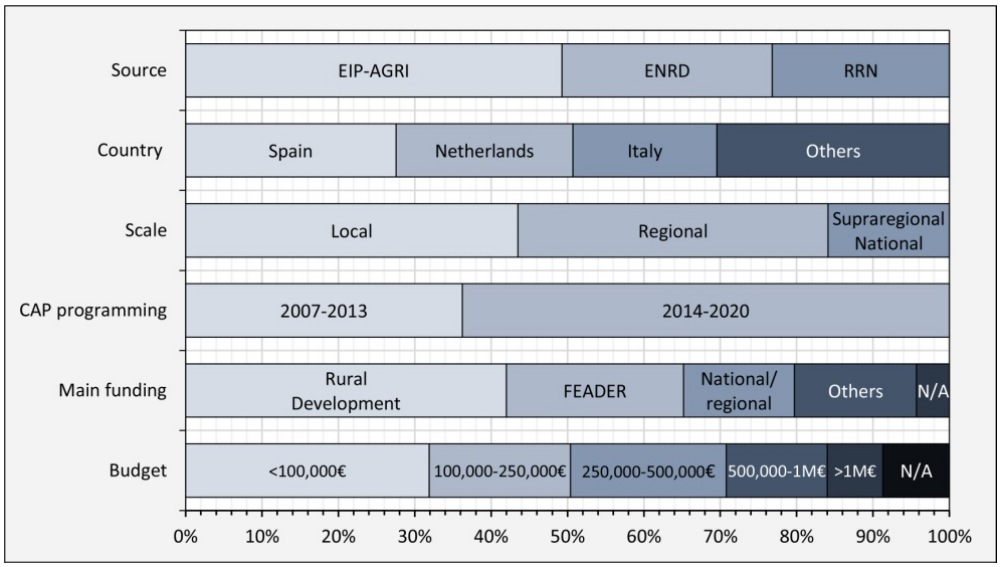

Figure 4. Analytical approaches used in the selected case studies (%).

The projects we analyzed introduced innovations in two main aspects of their business models, namely the creation of innovative sales and marketing models (94%) and the creation of differentiated products (65%) that could compete in conventional markets (Figure 5). We also identified a large number of projects that innovated in their production process (55%), most of which also introduced innovations in the product itself. Finally, innovative distribution methods based on improving short sales channels were used in 42% of the projects.

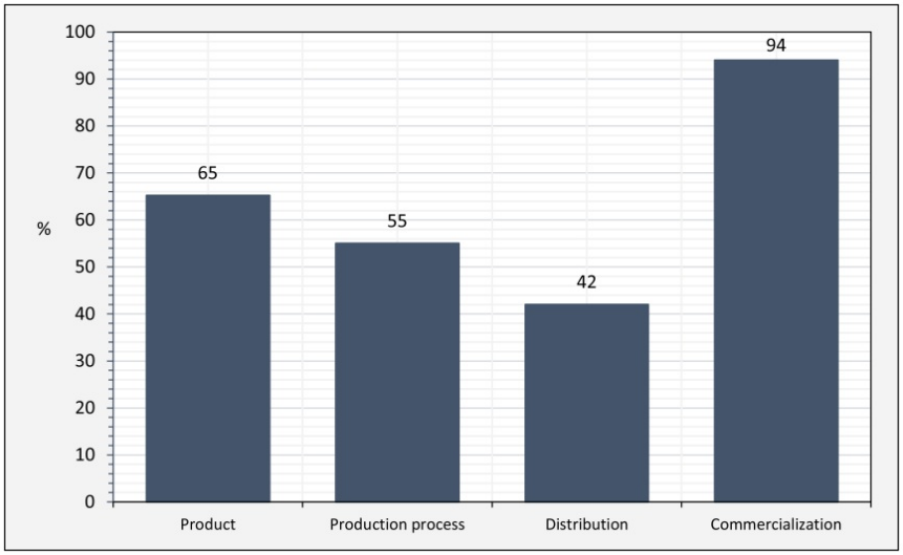

Figure 5. Aspects in which the projects introduced innovations (%).

Our analysis of the AFNs used within the different projects revealed that in almost all cases, they opted for the application of various complementary AFNs. In other words, the projects adopted a transversal approach to sales and distribution in which most used between two and three types of AFN (average of 2.68 AFNs per project), some of them using combinations of as many as six AFNs. Of the 69 selected projects, only 9 (13.6%) focused their distribution on one single AFN. The most frequent AFN used by the projects in our review was *supplying local shops and restaurants*. This method was used in 65.2% of the cases, even more than *digital platforms for the sale of local products online* and the creation of *agri-food brands*, which were each used in 34.8% of the projects. The least used strategies were *geographical indications of quality* (7.2%), *supplying institutions* (8.7%) and *consumers associations* (10.1%), as can be seen in Figure 6.

Given the variety of the combinations of AFNs used in each project, together with the different scales and spaces of application, the participation of different actors in the development of the project was also very varied. However, the results indicate that in all the selected projects, producers were key actors in the different phases of design and application. Consumers, however, were less important actors in the proposal and design of the projects as can be seen in Table 1. In addition to the important role played by producers, we can also see that the vast majority of projects involved the participation of two or more actors (96% of cases), so encouraging relations that improve collaboration and re-connection between the whole set of actors that make up the agri-food value chain in each territory.

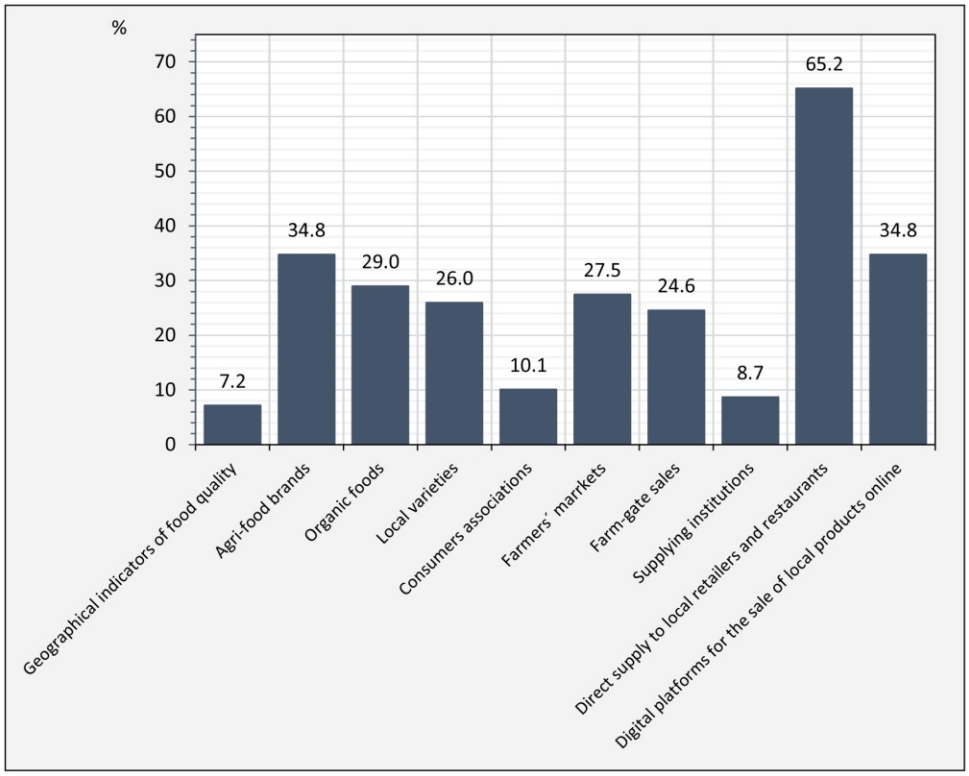

Figure 6. AFNs used in the projects we analyzed (%).

Table 1. Direct participation of the different actors in the selected projects.

	Institutions	Producers	Hospitality/Restaurants	Retailers	Consumers
Number of projects	54	69	33	48	27
Percentage	78.3%	100%	47.8%	69.5%	39.1%

3.2. Descriptive Analysis of the AFNs Used in the Projects

3.2.1. Geographical Indications of Food Quality

Projects involving geographical indications are just a small percentage of the total (7.2%). In most cases, institutions play a very important active role, acting as the principal source of finance in 80% of these initiatives. Another important factor is that almost all these projects are located in protected areas, which means that the objectives and regulations that typically apply in these areas also figure highly in the design of the projects. However, the projects themselves are normally proposed by the local Farmers Associations or nonprofitmaking organizations (such as for example the Small Farmers Union or the Global Nature Foundation in the two Spanish cases), in a bid to differentiate their products and promote their high quality. These initiatives are supported by the Management Boards of these protected areas, which lay down rules to encourage innovative production methods using traditional practices that contribute to the conservation of nature. These methods also promote agricultural biodiversity and environmental preservation. The aim is for this commitment to quality and the environment to be compensated with prices in line with the efforts being made by the farmers. It is striking that half the projects we analyzed are working to recover local varieties (basically wheat and legumes), and that these are the projects that receive most finance (more than one million euros). These projects include *Innovapane* (Innovative practices to produce Tuscan bread with natural yeast–Italy), the only project to launch a Protected Designation of Origin (PDO) Scheme. In this project, local universities played a key role in the experimental trials aimed at selecting the most suitable varieties of wheat, in terms of both sustainability and economic performance. It is important to point out that most of the products that are sold under *geographical*

quality schemes have been processed in some way. In addition to the certification of the products, these projects use alternative distribution networks, in most cases promoting and selling their products through specialized/associated retail outlets or directly to the consumer online, so minimizing their dependence on wholesalers and distributors. Another interesting scheme is the *Agrinew* project (Gaume Natural Park, Belgium), which has a diverse range of objectives and has made various innovative changes to the food supply chain. In addition to creating a geographic quality indication scheme for the products from the Natural Park, the organizers are also trying to promote the recovery of abandoned fields and the inclusion of young farmers. The Park Authority establishes the rules for growing crops within its perimeters and facilitates the sale of the products through the Natural Park's own cooperative.

3.2.2. Agri-Food Brands

This is one of the most widely used AFNs (34.8%) and it is promoted above all by Operational Groups [2] and Local Action Groups [3] acting within the framework of EU Rural Development Programmes. As happens with the geographical quality indications, the aim of creating agri-food brands is to differentiate the products in the market and enhance their value. The main values in support of these brands are the geographical conditions in the territories in which they are located. In many of the projects, the name of the space in question forms part of the brand name, as happens for example with "Sierra Espuña", "Ecos del Tajo" or "Karsticum". However, unlike the geographical quality indications, in general, these brands do not apply such strict standards regarding production processes and product quality. In about half the projects, the product differentiation being sought by the brand is linked to standardized innovative production methods involving the use of environmentally friendly practices that favor conservation (projects such as ES Garrover, Ancient Grain or ARCO). In most cases, these projects are located within a protected area, although the management authority does not always take part in the creation of the brand. They often work with local varieties and apply organic production models. The products marketed under brands of this kind are generally processed products or cereals and their derivatives, although there are some projects focused exclusively on fruit and vegetables, such as the *Sviluppo di una linea commericiale legata alla biodiversita'e ai prodotti ortofrutticoli del territorio* (development of a line of products linked to the biodiversity and the fruit and vegetable products of the territory). The main AFN with which food brands are associated is the direct supply of retailers and restaurants (62.5%), within which retailers account for a much higher percentage than restaurants. Another popular method for direct sale used by products with a certified brand are farmers' markets (29%).

3.2.3. Organic Foods

This is the fourth most common AFN and is used in 29% of the selected projects. The key actors in the implementation of these initiatives are the producers, who sometimes form organic farmers associations. Most of the projects are promoted by Local Action Groups. In organic foods, the most important innovations are in the production process. These come in the form of sustainable farming practices in harmony with the surrounding environment, the use of organic fertilizers, etc. This production model is diametrically opposed to the conventional model based on maximizing production. By adapting their production methods, the farmers can obtain differentiated products for specialized markets. Of the 20 projects that work with organic foods, 6 specialized in local varieties. Almost half the projects with organic products also created their own brands to differentiate their products even further. For example, the *Es Garrover* project in Spain uses its own brand to promote its organic production of local varieties. Half of the projects also rely heavily on digital platforms as a sales outlet for their products rather than farmers' markets (above all in periurban areas and market towns) or farm-gate sales. There is a strong overlap between the projects specializing in organic foods and those supplying institutions. Of the six projects that supply institutions, four specialized in organic projects, with the *Ecos del*

Tajo project (Spain) standing out. Perhaps surprisingly, the organic food projects tend not to get involved in setting up buying clubs.

3.2.4. Local Varieties

The cultivation of local varieties is promoted in around 26% of the cases studied. These projects have substantial budgets, as might be expected given that the EU regards the conservation of biodiversity and food security as issues of strategic importance. There is a high level of institutional involvement in these projects, in particular, of national and regional governments, although universities also play a valuable role, through research work aimed at identifying local varieties and studying the potential for the conservation of these varieties in situ. The main objective of the projects that focus on the production of local varieties is to protect and promote local agricultural biodiversity as an economic, social and cultural resource in the face of increasingly standardized food products. They also seek to recover traditional cultivation practices that are less harmful for the environment. They are most innovative at product level given that these varieties have very close links with specific cultural and environmental conditions, which bestow on them a certain identity and authenticity. Furthermore, in most of the projects there is a strong commitment to establish rules and standards for the production processes, so encouraging good practices. In the cases we analyzed, we observed that the majority center on the recovery of local varieties of vegetables, with 11 projects out of 18, and of cereals and legumes, with six projects. Initiatives of this kind are normally associated with the creation of food brands (in 11 cases to be precise) and occasionally with *protected geographic indications*. It is interesting to observe that local varieties feature in just 33% of the organic food projects. These include projects such as the *Huertas Moriscas* project in Spain or the Grano Monococco project in Italy. In both cases almost the same principles are followed, although local varieties are normally cultivated using traditional farming methods rather than according to strict organic principles. Another important network with which the promotion of local varieties is often associated is the direct supply to local shops and restaurants. We have seen for example that the projects that work with cereals mainly channel their sales through specialized shops and also create processed products, as happens with the bakeries in the *Ancient Grain* project in Poland and the *Innovapane* project in Italy. Other local variety products that are used in processed food products include legumes and garlic, one example of which is the *Veroaglione* project in Italy. In addition, most of the projects aimed at recovering local varieties of fruit and vegetables, established close links with local gastronomy through local restaurants and shops, as happens for example in the following projects: *Orti di Napoli* (Italy), *Sviluppo di una linea commericiale legata alla biodiversita´e ai prodotti ortofrutticoli del territorio* (Italy), *Nuevos horizontes* (Spain) and *BiodiverSO* (Italy) among others. In spite of the important backing they receive from institutions, these projects do not seem to be interested in getting the local varieties they produce into the supply system for public dining rooms. Lastly, it is also worth highlighting that these projects rarely use online sales.

3.2.5. Consumers Associations

Consumer associations, or buying clubs, are poorly represented in our selection of projects, with just 10.1%. This is the AFN that puts most emphasis on digitalization (85.7% of cases), with the creation of digital platforms by which orders can be placed directly with the producers, who set the prices and provide information about their production processes. In spite of the important role played by consumers and local agricultural producers in the design of these strategies to connect the two ends of the food chain from farm to table, small retail outlets are also often actively involved as members of these buying clubs. It is also interesting to note the geographical areas in which they operate, in that in spite of the fact that the projects spring essentially from rural areas, almost all the consumers associations are based in periurban spaces with denser populations as a means of guaranteeing their success. Examples include the projects in Kraków in Poland (*Malopolska*

project), Nuremberg in Germany (*Hofladen Box* project) or the Metropolitan area of Arnhem-Nijmegen in the Netherlands (*Online marktplaats-tool Food Value* project). The aim is to create direct links between producers and consumers at a local scale, with priority being given to environmentally friendly procedures. This innovation in a sales model formalized in orders, is accompanied in almost all cases by innovation in the distribution model by reducing the number of food miles, when the producers are responsible for their own logistics and distribution. Perhaps the best example is the *Smart Village Remmesweiler* project, in which the regional government finances the hiring of delivery personnel. Socialization is another important objective in about 50% of the projects. The orders are delivered to community houses once or twice a week, and relations between the locals are encouraged by organizing breakfasts and other activities.

3.2.6. Farmers' Markets

This method of direct sale was used in 27.5% of the cases we studied, fundamentally as a complement in initiatives with wider objectives. These projects were presented above all by Operational Groups, although Farmers' Associations and Nonprofitmaking Foundations also often take the initiative in projects of this kind. Although, in most cases, farmers' markets have a complementary function, in 5 out of 19 projects, they are an essential part of the design and execution. These include projects such as the *Joint work organic market development* (Slovenia) and *Promotion and sale of Slovak traditional products on farmers´ markets* (Slovakia). The main objective of these projects is to promote local producers and raise environmental awareness. To this end, they create a physical space in which farmers and consumers can strike up close, direct relations, so strengthening their mutual trust on the basis of a fair price. The farmers, who often operate jointly, are the main stakeholders, although Local Councils are also closely involved in that they provide a public space in which to hold the markets. As regards the geographical settings in which these markets normally take place, these are divided almost equally into two main types, rural market towns as represented, for example, by *Territorio Sierra Espuña* (Spain), and the towns and cities near the production areas, where the aim is to reach as many consumers as possible, such as Madrid (*Madrid Km-región*), Bratislava (*Promotion and sale of Slovak traditional products on farmers´ markets*) and Frankfurt (*Local Village Shop-Germany*). It is interesting to note that over 60% of these projects work with either organic products or agri-food brands. Another interesting finding is that farmers' markets are often combined with online sales (42% of the projects).

3.2.7. Farm-Gate Sales

In spite of being mentioned in 24.6% of the projects, in their practical application, this form of sale is almost always complementary to others and is never cited as the main distribution method. This AFN is closely associated with the regular supply of local products to local retail outlets and restaurants through short distribution channels. The main actors are farmers, who establish direct contact with the consumer through the sale of the food that they produce on their farms. However, in addition to being a channel for the sale of farm products, in many cases, farm sales can also act as a tourist attraction, in which the farms offer educational demonstration activities for both consumers and visitors, explaining the cultivation techniques they use, how their products are obtained, etc. In this way, as well as developing consumer confidence in the quality of the food by carefully explaining the process by which it is obtained, close personal links can be established between farmer and consumer, so building trust in and commitment to a model of work that respects the local environment and cultural heritage. Projects of this kind can connect farming with tourism, and they normally farm organically, as happens in projects such as *Herbs in the Zielawa Valley* (Poland) among others. It is interesting to note that, for two of the projects, *Huertas moriscas* (Spain) and *La Tournerie* (France), this is the only AFN used to sell their products. A more complex, more innovative strategy is being implemented by the *Food and People* project in Denmark, where an emblematic farm building within the estate

is being restored as a facility for food processing and a shop for direct sale to the public. The building can also be used as an event venue where the catering options include their own products.

3.2.8. Supplying Institutions

This is the least popular AFN, in that it is used in just 6 out of 69 projects. The institutions themselves are the fundamental pillar of these initiatives in that they participate in or lead their design and execution. Most of them are promoted by Operational Groups. The sphere of application is important in that they are normally implemented at a local level in predominantly rural areas. The objective is to promote the sale of agricultural products from the same town or village as a means of satisfying the demands of the local institutions, so creating short distribution channels, an essential part of a self-centered development model. The relationship between producers and these institutions is articulated above all through catering services with menus based on local products that are served in collective dining facilities. These collective dining facilities include schools, nursery schools and medical institutions, as can be seen in the following projects *Ecos del Tajo (Spain-Portugal)*, *Korte Voedselketens Brummen (Netherlands)* and *Promoción del Desarrollo Rural mediante la introducción de productos agrícolas locales en comedores públicos (Promoting Rural Development by introducing local farm products in public dining facilities–Spain)* and, to a lesser extent, day centers or retirement homes for elderly people. A lot of these projects work with organic products (60% of the cases) and have drawn up manuals for good agricultural practices in the production processes. They are often accompanied by environmental awareness-raising campaigns. There are also a diverse range of projects for which supplying institutions is an additional distribution channel for their products. There was only one project for which the supply of public dining facilities was the main AFN.

3.2.9. Direct Supply to Local Retailers and Restaurants

This is the most transversal AFN in that it is used in a vast majority of the projects covered in this review (45 out of 69 cases—65%). This method seeks to create short supply chains that connect producers with local retailers, specialized shops and local restaurants, so creating local bonds and a sense of belonging. Short distribution chains have a number of social, economic and environmental advantages. The most common practice in these projects is to set up associations between the producers and the specialized shops and local retailers in the region, so as to supply these shops with local products, so reducing the costs of middlemen and enabling fair prices for both parties. In the case of supply to restaurants, the connections are enhanced through the use of these products in local gastronomy. It is important to make clear that we do not have precise information about the type of agreements reached between producers and the retail and restaurant sectors. The institutions play a leading role as facilitators, as they are normally active in the market research studies required to assess the viability of the project. As regards their relationship with other AFNs, a clear overlap can be observed with food brands, although this relationship is more evident in the case of specialized shops and small retailers, where projects such as *Bio-economie Drentsche Aa* (The Netherlands) or *The local product from Malopolska* (Poland) stand out. On many occasions, these short supply chains work with local varieties and organic products, in 26.7% and 24.5% of the cases, respectively. Occasionally, the small retailers stock their shelves exclusively with local products. A case in point is the *Local Village Shop—Germany*, where the local shops guarantee the supply of locally produced goods by associating with small regional producers.

3.2.10. Digital Platforms for the Sale of Local Products Online

These methods, which are used in 34.8% of the projects, are generally promoted by Operational Groups, as a part of the European Union's concerted drive towards the digitalization of the rural world. The innovative aspect of these projects lies above all in the design of digital platforms, which, in addition to operating as an online marketplace, also

provide a channel for communicating with consumers. The websites provide information about the project itself, and about the producers and their products, their commitment to the environment and the events that they organize. This direct distribution method, which does not require a face-to-face relationship between producers and consumers, allows the food to reach the consumer together with a great deal of information. In addition, in many occasions, these projects are linked to innovative distribution models based on minimizing the number of "food miles". This helps reduce harmful emissions and financial costs by using more functional, efficient delivery methods. In each project, these distribution models are put into practice via the design of tailormade logistics solutions, as occurs, for example, in the *Hofladen Box* and *Smart Village Remmesweiler* projects in Germany, or by engaging the services of B2B logistics companies, as in the Distrikempen project in Belgium. It is interesting to note that most of the food products sold on these digital platforms are processed in some way, such as honeys, jams, etc. This AFN has strong links with all the other AFNs and is widely used in most of the projects that focus on organic food production, creating agri-food brands or setting up associations between consumers and producers.

3.3. Design of an Experience Involving the Transfer of Knowledge and Citizen Science

3.3.1. Knowledge Transfer and Citizen Science

The traditional system by which the results of university research were unilaterally disseminated has changed. The manner in which science is produced and disseminated is currently being adapted to the realities of the information and knowledge society [55]. This new approach has recently become one of the bases for the multi-sector evaluation of scientific research, as demonstrated by the emergence of different public policies created to facilitate the transfer of results from the scientific community to a wider audience via a range of different channels [56]. In this way, the Horizon Europe Strategic Plan indicates that the program will focus on "*transferring the developed knowledge and innovative solutions to real-life environments where they can generate impact and serve citizens*" [57]. The current Spanish Strategy for Science, Technology and Innovation 2021–2027 (EECTI) also includes one of the main objectives of this Plan, namely promoting Research, Development and Innovation (RDI) and its transfer via collaboration between different social actors, so as to enhance the impact of science and innovation in society [58]. Within the field of agriculture, there are various recent precedents of knowledge transfer, as noted by González-Moreno et al. [59] for the farming sector in Almeria.

One of the transversal aspects of the EECTI is the promotion of open science by providing society as a whole with open access to the data produced by scientific research. This is closely linked to one of the principles of the LifeWatch ERIC platform, namely the generation of open data as a tool with which to "*explore new frontiers in ecological science and support society in addressing planetary challenges*" [60]. As regards open science, the EECTI includes citizen science as one of its fundamental principles, as part of the social and economic responsibility of RDI.

Fressoli and De Filippo [61] argue that citizen participation is an essential prerequisite for open science. They trace the origins of citizen science back to participative research-action, which, since its early days in the 1940s, has been a common feature of Social Sciences. The term "citizen science" was first coined some thirty years later and is applied today in all fields of knowledge, covering, according to these authors, a "wide spectrum of activities that range from projects designed by scientists in which the public take part via the collection of data (contributive projects), others in which the public are offered tools and opportunities to participate in the design of the project, the collection of data and their subsequent analysis (collaborative projects) and others in which the public participate in all the different phases (co-creative projects)".

The results of the review will be offered to the community in the Alpujarra Granadina within the framework of the LifeWatch project, responding in this way to a challenge with many different dimensions, and in particular the multi-directional transfers of knowledge and open, citizen science.

3.3.2. Design of a Participative Experience for the Transfer of the Results of the Systematic Review

The experience proposed here is the continuation of a series of contacts with the different stakeholders in the Alpujarra de Granada within the framework of the aforementioned project, which, according to the typology established by Fressoli and De Filippo [61] could be classified as a contributive project, in that it was designed by a research team from the University of Granada, and included various tools for citizen participation. These tools have been used by the research team in the past and appear in different guides to participative methodology, such as the one we followed in the design of this experience [62]. In particular, they were applied within the methodological framework of participative research–action [63], which shifts the position of the study population from that of a passive object to that of an active subject [64]. These social participation tools can also be used for the transfer and creation of knowledge.

In addition to an ethnobotanical investigation into local varieties in which a team of experts collected seeds donated by local farmers, the first phase of social exploration and diagnosis consisted of five main tasks carried out simultaneously. The first task consisted of a territorial analysis and diagnosis of the situation in this area, based on statistical sources and recent studies such as the Agenda Urbana 2030, carried out in 2020. The Alpujarra Granadina is a region with a strong sense of identity rooted in its history and its long isolation imposed by its steep, mountainous terrain. This identity has been very important in the process of converting this region into a tourist destination that is easily recognizable from the outside. In spite of its strong sense of identity, the Alpujarra Granadina has a weak social and associative fabric, especially in the farming sector. One of the objectives of our participative project is to help solve this problem by creating a community. To do so, it is necessary first of all to identify collective interests, facilitate communication between the stakeholders in local society, and above all, bridge the gaps (more social than physical) between the different valleys in this region. The aim is to inform them about the current situation in the region, integrate the practices being developed by new residents and share them with the "native Alpujarrans", all of this within the framework of a common strategy covering the whole region. As regards the cultivation of local varieties, both earlier studies and the information gathered in the first meetings with farmers revealed that many of these varieties had been lost, largely after being replaced by more profitable alternative varieties.

Another important task was to draw up a plan for the dissemination of the project. This proposes the creation of various online communication channels: a blog, a Facebook page and a Twitter account, where local people can express their interests and concerns. These channels will help create a community through dialogue and will also serve as an experience of open citizen science, as the data arising from the project will be collected and published.

We also began to search for and analyze research studies relating to AFNs in Europe and Spain. These were then subjected to a systematic review, as explained above, in order to build a platform on which to develop participative activities for the transfer of knowledge, such as the one described below.

Lastly, we designed and carried out a series of interviews and meetings with different actors who might potentially be interested in implementing AFNs in the Alpujarra Granadina: namely farmers, shopkeepers, the hospitality sector and institutions. As regards the first group, meetings were held with farmers on an individual basis or in small groups. On the basis of these meetings, the farmers were classified into different profiles: commercial, traditional, organic, retired and new farmers. Although in some cases, the different profiles have different interests and opinions, a generalized willingness (practically unanimous) to explore the commercial possibilities of growing local varieties was observed. Even the most skeptical groups of farmers, the commercial and organic producers whose products are already well positioned in the market, offered to participate in the project, by agreeing to the experimental cultivation of small quantities of a local variety.

For the next phase of the project, two meetings with identical format will be held to cover the whole of the Alpujarra Granadina region, grouping the towns and villages together along an east–west axis. The meetings will be open to farmers from all the different categories, both at an individual level and in representation of their associations or similar entities. Preferential invitations will be issued to the people who were contacted for the interviews and meetings held earlier, and at a more general level, the rest of the farmers in the area will also be invited through institutional channels (local councils), posters and social networks. The intention, after holding these meetings, will be to create a "motor group" to drive the project forward. This will involve a team made up of project technical staff and farmers, who will remain in continual contact with each other and will form the core of the project [62].

These meetings will be attended by the technical teams from these institutions, as well as by the research team, who will organize and chair the meetings and collect the data that emerges (either on paper as the minutes of the meeting, and/or by recording the proceedings, after first consulting those attending). Although there is no fixed, pre-set figure regarding the number of people that can attend these meetings, their assembly format means that over and above a certain number of participants, communication may become difficult [62]. We therefore propose that, if more than 15 people attend the meeting, some phases be carried out separately in independent working groups. Each meeting must be attended by at least one researcher.

The meetings will preferably be held in halls or other common spaces lent by the local councils. These should be large spaces with chairs and seats that can be moved around in case it is necessary to reorganize the hall. They should also have audiovisual equipment such as a projector and screen. The hall will be decorated with illustrative posters that present the information obtained in the diagnosis. This information will be presented in a clear, visually attractive way. Samples of the seeds of local varieties will also be presented, given their success in generating interest and participation during the earlier meetings. Focusing the meeting on the seeds makes the farmers, the real experts on this subject, the center of attention. This leads to a spontaneous exchange of ideas and opinions (about the use of these seeds on their farms, their relationship with family traditions, their origin, the colloquial names for these varieties or how they were traditionally used in local cooking, among other subjects). This creates a favorable space for the transfer of knowledge between local actors, especially amongst the farmers. As mentioned earlier, there are no business advantages from growing local varieties compared to the other varieties normally grown in this area. However, they are a common link about which the farmers have direct or indirect experience and information.

The first part of the meeting, which will last for about 30 to 45 min, will involve a presentation of the main results of the review presented in this research. To this end, we will select some of the most interesting experiences analyzed on the basis of the following criteria. The first stage will be to identify a central project that will be explained in detail, with which the people attending the meeting can identify. This will therefore involve a project implemented in a region which, like the Alpujarra Granadina, has strong identifying features but lacks a strong, complex associative fabric. The project will focus especially on products differentiated on the basis of their quality and their authenticity as products from a particular place. Other projects will also be selected for a shorter presentation that centers on aspects of their design that complement those used in the central project, and in particular those aspects related with selling their products through various different short distribution channels. This selection will try to respond to two of the main concerns raised by the farmers: the commercial (economic) viability of these products, and the need to differentiate the products of the Alpujarra Granadina in general, which they consider to be of higher quality and deserving of their own brand. Other criteria for selecting the projects that might be emulated include the following: the selection must include some projects from Spain, and if possible, from territories of a similar size and characteristics to the Alpujarra; projects that have managed to keep going after an initial effort of collective

action, something at which the Alpujarra has generally proved unsuccessful; projects about which there is sufficiently detailed information and in particular information that can be presented in a visually attractive way so as to guarantee the attention of those present. Ideally, it should also include projects centered on the recovery and conservation of local varieties, given that this is a central feature of the project to be implemented in the Alpujarra. Projects in which they have promoted the creation of a distinctive brand or other certification initiatives should also be included, given that as mentioned earlier, this was a frequent concern of many of the farmers we consulted. Preferably, the selection should also include initiatives in which a successful relationship was forged between farmers and the hospitality sector, given the fact that the Alpujarra is a popular tourist destination. Finally, we should ignore projects that do not involve a close collaboration between the agricultural sector and the management of a protected area, as in the Alpujarra the relationship between these two stakeholders is often complicated.

After the presentation of the projects and their most important innovative aspects, questions will be welcomed from the public, so as to clear up any doubts they may have.

The second part of the meeting will involve a collective response to the following questions:

1. Which project(s) do you think could be replicated in the Alpujarra, and why?
2. Which products (local varieties) could be chosen as a means of emulating in the Alpujarra one of the projects presented at the meeting (and why)?
3. Which AFNs would be most suitable for starting up a project of these characteristics (and why)?
4. What would be the main advantages and disadvantages of carrying out a project of this kind in the Alpujarra?

This part of the meeting will last about an hour, so about 15 min will be given to each of the four questions above. If a large number of people are attending the meeting, they will be divided up into work groups. In this case, a further 15 min must be allotted for sharing the conclusions of each group (either by adding an extra 15 min to the total or by subtracting it from the time assigned to each phase of the meeting).

After this information has been shared between all present, a few minutes will be spent assessing the meeting and detailing how the results will be "returned" to the local community. The "return report" is an essential aspect of the participative methodology as it makes the participants aware that the information they have provided still belongs to them, and that they can validate the conclusions obtained by the research team, so exerting real influence on the investigation process, and in this way, helping to continue building knowledge on which to base future action. Therefore, after the meeting, the research team will analyze the information obtained and will compare it with other related knowledge. It will then design the next phases of the investigation (if there are any) and will draft a partial report setting out the results obtained.

The conclusions will be used as a basis for the next meeting in which further progress can be made in the creation of a common strategy to extend the cultivation of local varieties and a short chain distribution model aimed at the local or regional market.

4. Conclusions

This research was based on the premise that the experience and the knowledge accumulated after the implementation of different rural development projects can be transferred to other territories. To this end, we conducted a review of the innovative projects contained in various databases that compile and disseminate these projects. After conducting a systematic search of these databases (ENRD, EIP-AGRI and RRN), we found that there was indeed a long list of projects with great potential as models for the design of new initiatives adapted to specific territorial realities. These initiatives focus on the production of territorialized food products and their distribution through short supply channels. In our case we discovered a wide range of projects that shared some of the specific objectives of the LifeWatch project, the framework for our current research. In particular, Lifewatch seeks to promote the conservation of agricultural biodiversity via the cultivation of the

local varieties used traditionally in the Alpujarra and the use of alternative networks for their sale and distribution.

The final sample group contained 69 successfully applied projects that used one or various AFNs and worked with unprocessed plant-based foods. This group spans 15 EU countries, although most of the projects are concentrated in Western Europe with a much lower, more scattered presence in the Centre and East of the continent. Although fewer projects were carried out in these countries, the strategies they applied were very similar to those observed within the sample group as a whole [65–67]. If we focus exclusively on the EIP-AGRI and ENRD databases, it is clear that the Netherlands and Italy play a leading role with the largest numbers of these projects in terms of both those that meet our inclusion criteria and of the total number of projects included on these databases. The case of Spain is quite different, however, because although it was the third country with most agri-food projects on the two European databases, only three complied with the inclusion criteria for our review, so confirming our decision to make an additional consultation of a Spanish database.

As regards the field of application, we found that 43.5% of the projects were designed and implemented at a local scale, and 40.6% at a regional level. Projects designed at these scales dovetail well with the widespread aspiration of linking product quality and differentiation to the values and identity of the territories in which they are produced. They also tie in well with the increasing demand for locally sourced products that avoid the need for a long distribution chain with large numbers of intermediaries [68–70]. Many of the alternative food networks involve the direct sale of products at the farm itself or in farmers' markets, or through small retailers or restaurants within the local and regional area.

This review reveals that in almost all cases, the projects are transversal initiatives that innovate in different aspects of their business models, from the product and the production process to the sales and distribution methods. It seems clear that these projects are open to external participation, accepting innovative ideas that affect all the different links in the agri-food value chain. Many of the projects made innovations in the product and used one or various alternative distribution channels (85.5% of the projects work with two or more types of AFN) in a bid to diversify their strategies so as to reach small retailers and final consumers. It is evident that the priority objective of almost all these initiatives was to find alternative ways of offering their products to possible clients (94%), rather than creating differentiated products (62%). As a result, we found fewer formulas for improving the characteristics of the product or the production process, as occurs with agri-food brands, geographical indications of quality, organic production and local varieties, whereas a majority opted for innovation in terms of AFNs, such as consumers associations, farmers' markets, farm-gate sales, supplying institutions, supplying local shops and restaurants or online digital platforms, in which the spotlight is on sales.

As regards the type of AFN used in the projects we analyzed, the most common was direct supply to local retailers and restaurants (65.2% of the projects), followed by the creation of agri-food brands and digital platforms for the sale of local products online, both of which were used by 34.8% of the projects. By contrast, the least-used AFNs were geographical indications of quality and supplying institutions, which were used in 7.2% and 8.7% of the projects, respectively. In all the projects, the most important actors are food producers, who are either the driving force behind or participate in 100% of the projects. Our analysis of the projects has shown that their design is often heavily based on the main interests of the producers, i.e., obtaining products that are differentiated by their quality, identity or production process and improving their promotion, distribution and sale.

In addition to our findings regarding the relative popularity of the different AFNs in the projects we analyzed, in these concluding lines, it is also important to mention various interesting questions that were highlighted by our results. We observed, for example, a clear preference for creating agri-food brands as a means of differentiating the products rather than geographical indications of quality. This is because the former are much easier to obtain than the latter. Obtaining, for example, the stamp that comes with a "protected

designation of origin" is a complex, time-consuming procedure. Our research has also revealed that organic food products act as a powerful catalyst for innovations, which range from radical changes in the production process and in the product itself to a search for alternative channels for sales and distribution [71,72].

Another fact worth highlighting is that very few projects advocated the setting up of consumers associations, in spite of the fact that they are widely used within the general framework of alternative networks. Authors such as Ammirato et al. [51], Sánchez [35] or Venn et al. [52] among others, mention different types of consumer groups such as foodsheds, box schemes, U-pick–PYO, etc., which did not appear in the projects reviewed here. One possible explanation for this is that these schemes tend to be located in urban areas and were therefore excluded from our selection of projects from rural data sources. We were also surprised that in the projects in which associations between producers and consumers were developed, they did not work with organic products, in that when groups of this kind first appeared, they were often specifically conceived as channels for the sale of organic products [73].

Our review shows that certain AFNs are normally used as a complement to others. These include above all farmers' markets, farm-gate sales and supplying institutions, which are rarely the main sales channel used. These AFNs offer the additional advantage of creating a direct bond of trust between producers and consumers and are therefore a good method for promoting local products and their special qualities. In addition, as occurs with direct sales from the farm gate, farming can be linked to tourism services that tie in well with a multifunctional conception of the rural world.

It is also important to point out that some projects have a greater social and environmental commitment than others. These included for example the recovery of local varieties, consumers associations, organic foods, geographic indications of quality and agri-food brands, which play an important role in the recovery of agricultural biodiversity, the use of traditional environmentally friendly practices and more local, sustainable distribution systems. As Espluga-Trenc et al. [74] point out, projects of this kind which put agriculture at center stage can help recover much of the traditional know-how and the skills developed in the countryside over centuries. This could encourage both the communication and the transfer of this know-how between farmers, so becoming a strong asset for the sustainable development of rural areas such as the Alpujarra. It is also possible, however, that many of these alternative strategies could eventually be absorbed by conventional systems, as explained in research by Le Velly and Dufeo [75], Forsell and Lankoski [76], Kirwan [77] or Raynolds [78]. These studies highlight the possibilities of hybrid combinations of alternative and conventional food networks and the disputed evidence as to whether they are more sustainable and positive for rural development and the environment. Consumer groups appear as the AFN least likely to be swallowed up by the global market, as they prioritize the direct bond between consumers and producers.

As regards the role of digitalization in the design and operation of these projects, we observed a growing trend in this direction, not only via the creation of digital platforms, but also through the widespread use of online sales as a complementary tool to other forms of sale. Digital media are also increasingly used for the dissemination and promotion of products and the exchange of information between producers and consumers [79,80].

In general, the transversal nature of the projects we analyzed, in terms of both innovation and in the AFNs they chose to use, indicates that in the design of a project related with the sustainable development of the agri-food sector, the whole production and supply chain must be taken into account. There must be a direct circular relationship, in that sales are impossible without a good product, and there is no sense in producing a high-quality product, if there is no commercially viable outlet for it.

Our results clearly indicate that the sample of projects analyzed was complete and was more than sufficient to enable us to create a model for the transfer of knowledge and citizen science, whose ultimate aim is the design of a specific strategy for the Alpujarra region. The fact that these projects, despite having often quite different objectives, all

used a wide range of innovative approaches, means that they all provide valid ideas on which to base new projects focused on the development of the rural world and the agri-food sector. Even though the project we are currently implementing in the Alpujarra has a specific focus on extending the cultivation of local varieties, any of the projects that we analyzed could provide interesting ideas that can be easily replicated or adapted to our case. In their attempts to create differentiated products linked to the territory and alternative networks for their sale and distribution, many presented innovative formulas for certification, short supply chains or reconnection between producers and consumers that could also be applied in the Alpujarra Granadina. In addition, just like our project, these initiatives have a deep-rooted commitment to environmental sustainability and the local farming community.

Our participative model for the transfer of knowledge is based first of all on the knowledge we acquired about the group of farmers/producers through the different individual and collective methods used to gather information. The starting point was therefore to discover their main demands and aspirations. These centered, above all, on creating a channel for the sale of their products at fair prices, whereas the conservation of local crop varieties was not a priority. We also found out more about the difficulties surrounding projects of this kind in the region, which have often failed due to the weak associative fabric, in spite of their strong collective awareness of their own regional identity. They also expressed their suspicions and mistrust regarding projects promoted by academic institutions or other bodies linked to nature conservation. Other more specific findings included the fact that they are convinced about the quality of the food products they produce and that their region is a very attractive destination for tourists. All these considerations were taken into account in the model we designed for presenting the projects and their innovations.

As regards the limitations of this research, the most important was the fact that, in spite of the large number of projects registered on the databases we consulted, we discovered many other initiatives that had been implemented in rural areas of the EU and were of great interest for our purposes, but had not been registered on these databases. Another problem was that the projects that work with local crop varieties were not particularly common in our sample group, which limited our analysis of the experience accumulated in this specific field.

In addition, although the evidence collected from our analysis of the sample group of projects provides sufficient fundamental information to carry out knowledge transfer, the broadening of the search for projects applied in all the EU countries could enable us in the future to review the state of the art of innovative agri-food projects supported by EU Rural Development Programmes. A broader catalogue that included experiences of AFNs in urban areas would provide a better insight into the connections and synergy between rural and urban. Other possible future lines of investigation could involve research into the best ways of adapting rural production to global warming and climate change.

Despite these limitations, we can conclude that the 69 projects contained a wide spectrum of options and ideas from which we were able to identify key examples that could be adapted to the specific characteristics of the local agri-food sector in the Alpujarra. We believe that a careful selection of the different methods and tools proposed in the projects we analyzed will be extremely useful for guiding the discussion and for making progress in the construction of a plan adapted to the social and territorial reality of the region, a plan for which the starting point is the recovery of local crop varieties but which must also consider a comprehensive strategy for their production, sale and distribution.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/land11040519/s1, Table S1: List of the selected projects.

Author Contributions: Conceptualization, Á.I.-J. and Y.J.-O.; methodology, Á.I.-J., Y.J.-O. and Á.M.-P.; validation, Y.J.-O. and K.Z.; formal analysis, Á.I.-J., Y.J.-O. and Á.M.-P.; investigation, Á.I.-J., Y.J.-O., Á.M.-P. and L.P.-R.; writing—original draft preparation, Á.I.-J., Y.J.-O. and Á.M.-P.; writing—review and editing, Á.I.-J., Y.J.-O., Á.M.-P. and L.P.-R.; visualization, Á.I.-J. and Y.J.-O.; supervision, Y.J.-O. and K.Z. All authors have read and agreed to the published version of the manuscript.

Funding: This research is part of the project "Thematic Center on Mountain Ecosystem & Remote sensing, Deep learning-AI e-Services University of Granada-Sierra Nevada" (LifeWatch-2019-10-UGR-01), which has been co-funded by the Ministry of Science and Innovation through the FEDER funds from the Spanish Pluriregional Operational Program 2014–2020 (POPE), LifeWatch-ERIC action line. The project has also been co-financed by the Provincial Council of Granada.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: This research is part of the project "Thematic Center on Mountain Ecosystem & Remote sensing, Deep learning-AI e-Services University of Granada-Sierra Nevada" (LifeWatch-2019-10-UGR-01), which has been co-funded by the Ministry of Science and Innovation through the FEDER funds from the Spanish Pluriregional Operational Program 2014–2020 (POPE), LifeWatch-ERIC action line. The project has also been co-financed by the Provincial Council of Granada. We also appreciate the contribution of the "Researching how to integrate sustainability and competitiveness in Agrifood Mediterranean Landscapes: Agrobiodiversity, climate change and local development" project (AGRIFOODSCAPE) (PID2020-117198RB-100), with which the LifeWatch project (WP-6.2.) collaborates closely.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Types of AFNs Identified in the Selected Agri-Food Projects.

AFN	Description
Geographical indications of quality	These are quality schemes or certifications backed up by public bodies and promoted by the Common Agricultural Policy (CAP) as an instrument of rural development that can boost the commercial prospects of differentiated high-quality products in contrast to the normal products on offer on conventional markets. Their classification as an Alternative Food Network is justified fundamentally by the organoleptic quality of the products, their identification with the local area and their respect for the traditions maintained by small local producers. The most representative examples of this AFN are Projected Denominations of Origin (PDO) and Protected Geographical Indication (PGI), although there are also various quality schemes linked to protected areas or areas for the conservation of biodiversity.
Agri-food brands	These are private certification schemes that attempt to reproduce and extend the capacity of *geographical indications of quality* in order to create a niche in the market that generates greater added value. Certification guarantees the practice, monitoring and precise compliance of stipulated quality standards, which are verified by the producers' association itself or by an independent body. They also offer a guarantee of traceability and provide additional information for the consumer about the history of the product and the area in which it is produced, so increasing its value.

Table A1. *Cont.*

AFN	Description
Organic foods	Organic foods are produced without using pesticides, chemicals, synthetic fertilizers or transgenics. They are produced in harmony with the cycles of nature, rotating the crops so as to make the most of the soil's own nutrients, while applying agricultural techniques that do not upset the conditions of the local ecosystem. This form of agriculture is diametrically opposed to the prevailing production-based system, in terms of both the production process and the nature of the product itself. In this way, it makes an important contribution to environmental conservation and to our genetic heritage.
Local varieties	Local varieties can be defined as genetic resources that form part of our cultural heritage, which have been cultivated for a long time in a specific geographical area, using traditional techniques that have endowed these local or traditional varieties with a considerable capacity to adapt to the ecosystem of the area. There is often high variability within each local eco-type or variety, which results in a greater capacity to adapt and higher organoleptic quality, a parameter that has normally been one of the selection criteria for these varieties over the course of history. A great deal of accumulated knowledge is associated with each crop in terms of specific cultivation techniques and the practices linked to its uses, etc. The cultivation of local varieties helps protect agricultural biodiversity, a form of heritage that has been gradually built up by local societies, so recovering genetic resources that can enhance sustainability and health.
Consumers Associations	These are based on agreements between groups of consumers organized and established at a local level and small farmers in the nearby area. They operate outside conventional distribution channels. The two parties set up a mechanism by which they can obtain high-quality products using sustainable, environmentally friendly farming methods. The consumers agree to buy the seasonal products supplied by the farmers, either via home deliveries or at specific pickup points. The prices are agreed in such a way as to satisfy the interests of both parties. These groups provide a short distribution channel that strengthens the connection between the two ends of the chain via personal contact, so boosting the local economy and creating social ties.
Farmers' markets	Farmers' markets are markets where the farmers sell their products directly to their customers. They are often located in urban or periurban areas but can also be found in rural spaces. This method of direct sale allows farmers to charge prices that are more in line with the work they do and, above all, to create a physical space that enhances social interaction. In this way, they maximize the trust between buyers and sellers, and provide opportunities for consumers to learn more about farmers' needs and concerns, and about the food products themselves and their production process. They also help highlight environmental concerns and allow farmers to take orders from their customers.
Farm-gate sales	This method follows a similar logic to that of farmers' markets. In this case, the customers travel to the farm to buy the food products in their geographical, cultural and economic place of origin. On occasion, and in line with the conception of the rural world as a multifunctional space, this type of economic transaction is also combined with complementary tourism-related activities, such as visits to the farm and its facilities, active participation in farm work, farm accommodation, etc. All of these provide additional sources of income for the farmers.

Table A1. *Cont.*

AFN	Description
Supplying institutions	This is a very powerful instrument for cooperation between public authorities and local producers, by which farmers supply food to public institutions where they serve food, such as schools, universities, day centers, hospitals, etc. In this way, they create a sense of community while, at the same time, promoting the local farming sector.
Supplying local retailers and restaurants	In this case, food producers, acting either through farmers' associations or on an individual basis, make direct contact with local retailers and restaurants to supply them with their products. In this way, they establish short distribution channels that encourage the consumption of locally sourced products of higher quality. They can also provide useful information to the consumer when it comes to deciding what to buy. These retail establishments could be specialized shops, dieticians, local shops, tourism companies, local restaurants, etc.
Digital platforms for the sale of local products online	Online shops are created on digital platforms where consumers can purchase the food products directly from local producers. The prices for the products are set by the farmers, who also provide information about the farming practices used and the characteristics of the product, so creating a close bond of trust even though there is no face-to-face contact. These online platforms supply limited geographical areas, which do not generally extend beyond the region where the farms are located. They also use distribution methods that reduce the monetary costs and the harmful emissions associated with food transport.

Notes

[1] Preferred Reporting Items for Systematic reviews and Meta-Analyses.

[2] Operational Groups (OP) are intended to bring together multiple actors such as farmers, researchers, advisers, businesses, environmental groups, consumer interest groups or other NGOs to advance innovation in the agricultural and forestry sectors.

[3] A Local Action Group (LAG) is a non profit-making composition made up of public and private organizations from rural villages having a broad representation from different socio-economic sectors. Through the European Agricultural Fund for Rural Development (EAFRD), LAGs can apply for financial assistance in the form of grants to implement the Local Development Strategy of their respective territory.

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