

Farming in the Valleys of Mount Etna

Biodiversity and good agricultural practices in Sicily's *Lands of Biosphere*

Results obtained from surveys conducted with farms in the “Terre della Biosfera” area and its inhabitants; observations and recommendations to contribute to sustainable Sicilian agriculture.



Addressed to the Region of Sicily in anticipation of the future orientation of the new strategic agricultural plans. To the 27 municipalities aspiring to UNESCO recognition as “Terre della Biosfera – le valli fiuviali dell’Etna” (TB) so that they enhance their rural landscape and encourage, by supporting them, farmers and consumers. To the farmers, thank you for your availability and participation.

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1. INTRODUCTION

The project “Farming in the Valleys of Mount Etna Biodiversity and good agricultural practices in Sicily’s Lands of Biosphere” is promoted by Giacche Verdi Bronte (GV) and Manfred-Hermsen-Stiftung (MHS) and implemented in synergy with LIPU Italy, U.I.A. Bronte (Inter-municipal Agriculture Office of the Sicily Region), the University of Catania (Departments of Agriculture and Economics) and with the support of NABU Germany. It was developed as a continuation of the German BMU-funded EUKI project 'Frutti per la Biosfera', in view of the new CAP funding period 2023-26.

This paper analyses the current state of agriculture in relation to environmental and social demands and allocations. It is based on a survey of 106 farmers and 119 TB residents between 2019 and 2021 and observations by the Agricultural Outreach Service of the U.I.A. Bronte. It also refers to two questionnaire analyses by the University of Catania and an analysis of the PSR Sicilia by LIPU (attached). The paper also presents the challenges for biodiversity conservation and their integration in the new EU CAP regulations for the next funding period.

2. MOTIVATION AND AIMS OF THE PROJECT

The project aims to identify good agricultural practices, biodiversity and suggestions for optimising economic and institutional support to traditional Sicilian farms. The sample area, known as “Terre della Biosfera” (TB), lies between the Simeto and Alcantara river valleys and is of significant importance due to the presence of Sites of Community Importance (SICs and SPAs) and features a widespread agriculture that is still largely traditional and linked to typical cultivars. In light of this, at the basis of the project is the hypothesis that this preservation of agricultural traditions is in favour of nature and biodiversity and is worthy of economic and institutional support through appropriate measures. Through the evaluation of the results of the submitted questionnaire, the working group intends to contribute to the debate on the national strategic plans, which are based on the CAP¹ 2023-2027, so that it can be truly aligned with the European Green Deal and the Biodiversity and Farm to Fork strategies, but above all, so that it can answer the needs of smallholder farmers. The main subsidy of the CAP that is paid per hectare distorts the production model in favour of large companies and landowners, who are not necessarily farmers. In fact, as payments are based on farm size their distribution is skewed: 80% goes to just 20% of farms². It is necessary to create new prospects for small family businesses, which play a very important role in protecting and enhancing the territory and receive

¹ Common agricultural policy – Wikipedia

² European Commission, Direct payments, 28 February 2018/CAP Atlas 2019 CambiamoAgricoltura

much less support than large 'industrial' companies. It is no coincidence that 96% of farms closed between 2003 and 2013 had an area of less than 10 hectares, and this corresponds to an obvious loss of jobs, a dramatic factor when one considers that in 2013 only 6% of farm leaders in the EU were younger than 35³.

The new CAP 2023-27, which was signed by the European bodies this year, already takes into account the negative effects of the past and aims at greater protection of biodiversity and climate, securing a sustainable future for European farmers and providing more targeted support for small farms. At the same time, it allows Member States greater flexibility in adapting measures to local conditions.

In this context, identifying which good agricultural practices are already adopted by farmers in the study area and which challenges need to be addressed to help them operate in a biodiversity-friendly manner, without compromising the profitability and competitiveness of their economic activity, became the key objectives of the project. In fact, the development of large-scale agroecological practices, together with the promotion of local food products and short, traced and distinctive supply chains, make it possible to counteract the various phenomena of environmental degradation mentioned above and to revitalise rural territories.

3. PROJECT AREA

Approximately 120,000 ha in size, the territory within which the project was developed is the subject of a proposal for candidature as a UNESCO MaB area called "Terre della Biosfera - le valli fluviali dell'Etna" by the Terre della Biosfera Promoting Group⁴, involving 27 municipalities around the Etna and more than 100 associations. The main idea behind the "Terre della Biosfera" (TB) initiative is to maintain the biodiversity richness of the Simeto and Alcantara river valleys, (not only, but to a large extent) through the benefits deriving from the current eco-sustainable use of agricultural land, connecting it to the ecotourism sector. This would entail economic development of what already exists with a view to strengthening the path towards sustainable development, a preparatory element to a widespread improvement of socio-environmental conditions.

Currently (as of 2019), the application to UNESCO is being examined by the Ministry of the Environment and the Region of Sicily.

Research has shown that, taking into account several criteria, the territory in question "Terre della Biosfera – le valli fluviali dell'Etna" represents a very active territory from an agricultural and productive point of view, with the consequence that the prevailing interest is devoted to the criterion of profitability, according to the results of our analysis.

The high value given to landscape aspects of the territory for potential future tourism developments is of interest here (Etna Park 2020; Scuderi et al 2021). On the subject of the environment, there is limited attention to the pollution caused by conventional agricultural production, although there is an interest in organic farming. This data shows that there is still little awareness of the environmental benefits of organic farming. Policy makers should therefore take appropriate measures to better orientate local farmers towards organic farming. The Sicilian region is still far from adopting a fully sustainable environmental model, but by adopting the necessary measures and tools, it could become an ideal destination for tourists wishing to combine enjoyment and optimal use of natural resources (Spadaro et al. 2020). A survey on the above-mentioned topics among the inhabitants of the Terre della Biosfera underlines this observation and at the

³ European Commission, Statistical Factsheet European Union, May 2018/CAP Atlas 2019 CambiamoAgricoltura

⁴ Terre della Biosfera (terrebiosfera.org)

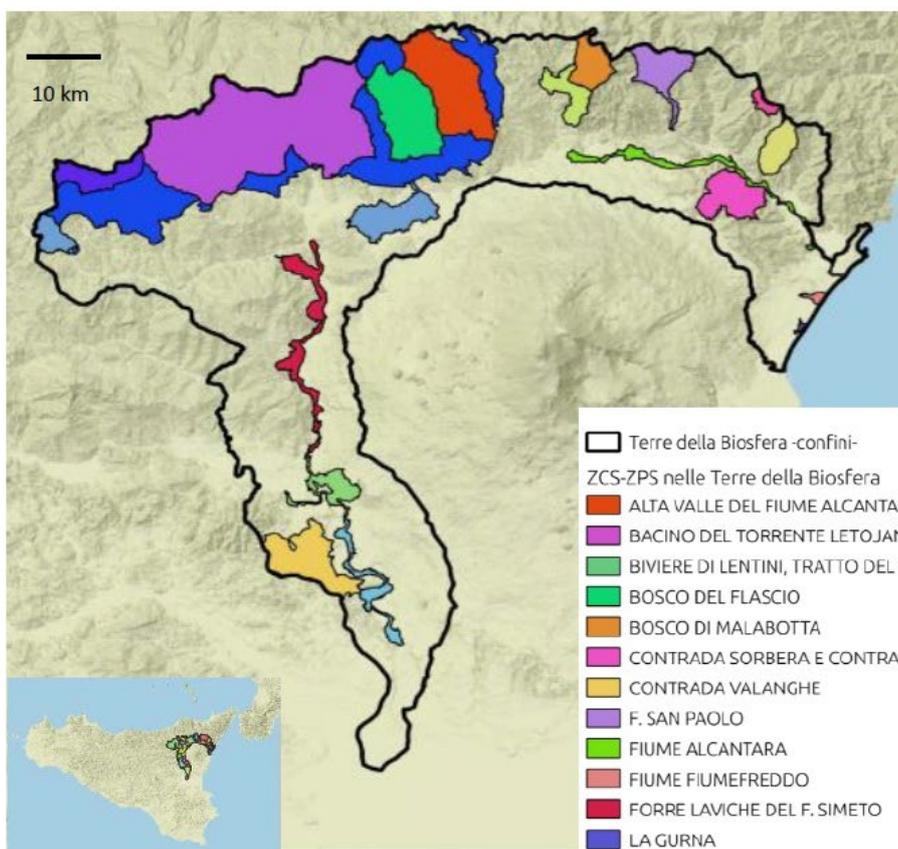
same time the sensitivity to environmental topics and the preference for healthy/organic products (see appendix).

The map shows the TB and the significant number of Natura 2000 sites.

4. PROJECT METHODOLOGY

The project is based on face-to-face interviews conducted by GV and MHS, including the publicly accessible sources of information mentioned above. The two questionnaires were addressed to 106 farms located in the area under analysis and 128 citizens in the same area.

The selection of interviewed residents did not follow strict criteria, but sought to obtain a set of random individuals representative of gender and age.



La mappa mostra la zona TB e il significativo numero di siti Natura 2000

- ▭ Terre della Biosfera -confini-
- ZCS-ZPS nelle Terre della Biosfera
- ALTA VALLE DEL FIUME ALCANTARA
- BACINO DEL TORRENTE LETOJANNI
- BIVIERE DI LENTINI, TRATTO DEL FIUME SIMETO E AREA ANTISTANTE LA FOCE
- BOSCO DEL FLASCIO
- BOSCO DI MALABOTTA
- CONTRADA SORBERA E CONTRADA GIBIOTTI
- CONTRADA VALANGHE
- F. SAN PAOLO
- FIUME ALCANTARA
- FIUME FIUMEFREDDO
- FORRE LAVICHE DEL F. SIMETO
- LA GURNA
- LAGO DI ANCIPA
- LAGO GURRIDA E SCIARE DI S. VENERA
- MONTE PELATO
- MONTI NEBRODI
- POGGIO S. MARIA
- ROCCA DI NOVARA
- ROCCHES DI ROCCELLA VALDEMONE
- SERRA DEL RE, MONTE SORO E BIVIERE DI CESARO'
- TORRENTE SAN CATALDO
- TRATTO DI PIETRALUNGA DEL F. SIMETO
- TRATTO MONTANO DEL BACINO DELLA FIUMARA DI AGRO'

The selection of the farms interviewed, on the other hand, was defined in advance:

- Small to medium-sized (about 40% of the total are under 6 ha)
- Certified organic 27%, traditional pesticide-free 43%, conventional 21% and semi-natural 9%
- With a high degree of wildness (large pastures especially retain large areas of wilderness)
- Characterised by the cultivation of traditional local products

The questionnaires allow to answer several questions. They can represent a basis for further studies. The results that appear to be of significant importance in the current context are described below.

5. CATEGORY EVALUATIONS

5.1 Biodiversity

Biodiversity is decreasing dramatically with negative effects also on agriculture, and consequently its protection is becoming more and more important and urgent in the CAP: 20 % of direct payments must go into mandatory ecological programmes (eco-schemes).

According to the 2019 United Nations' Biodiversity Global Assessment Report⁵, one million species are threatened with extinction worldwide. The rate of species extinction is ten to one hundred times the average of the last 10 million years and continues to rise, according to the report. Besides population growth, global warming and environmental pollution, important factors in the extinction of species are the effects of insufficiently sustainable agriculture.

As far as Europe is concerned, a recent study⁶ shows that the number of breeding birds living in Europe dropped between 17 and 19% between 1980 and 2017. This means that there are currently about 600 million fewer birds living on the continent than about four decades ago. The populations of birds of species that are linked to agricultural land have been decimated the most.

In addition to the use of pesticides, habitat loss is also to blame for this development. In fact, one study⁷ states that at least 20% of an agricultural field must be wild to maintain biodiversity. To date, it has not been possible to investigate the degree of biodiversity in the field due to the post-pandemic aftermath, but several scientific studies in the literature confirm a significant presence of the species chosen as representative, particularly pollinating and beneficial insects, as the size of the field decreases. This environmental benefit is largely the result of traditional wild or artificial boundary elements, e.g. hedges and dry stone walls – both between individual fields and between farms. In addition, these small fields/farms are characterised by many different crops, which are also significant for biodiversity. So far, this factor has been underestimated, according to Tschardt's study: "The key to restoring biodiversity on a large scale is a small-scale land-use mosaic, with fields averaging less than six hectares in size, and increasing crop diversity both temporally (through long crop rotations) and spatially (through mixed cropping, strip cropping, etc.)." In addition, one goal should be to maintain or restore 20% of near-natural habitat remnants in all agricultural landscapes and to encourage the incorporation of appropriate biodiversity-enhancing structures on farms through appropriate measures. The greatest obstacle inherent in the certification/quantification of natural features on farms is the lack of mapping by the relevant institutions.

⁵ IPBES Home page | IPBES secretariat

⁶ "Abundance decline in the avifauna of the European Union reveals global similarities in biodiversity change", Royal Society for the Protection of Birds, BirdLife International, Czech Society for Ornithology 2021

⁷ "The importance of a diversified small-scale farming structure for biodiversity and its promotion under the Common Agricultural Policy" (title translated from German) Teja Tschardt, 2021

➡ **40% of all farms surveyed have more than 20% of their area devoted to wildlife. But only 29% receive compensation for preserving this wildlife.**

Given the above-average presence of biodiversity, which is derived, among other things, from studies on the designation of Natura 2000 areas in the TB study area, our thesis is that it is closely linked to the size, structure and cultural diversity of the farms. In particular, we hypothesise that small farms maintain an important amount of the natural habitat for biodiversity and this seems to be confirmed by the questionnaires.



5.2 Pesticide reduction, organic farming with and without certification

The goal of the “farm-to-fork strategy” to reduce pesticides by 50% by 2030 reflects the global shift in sentiment against their use, in society and in agriculture. The serious impacts on human health, the environment and biodiversity, as well as the negative economic side effects of their use in agriculture, including the killing of beneficial insects (75% of our crops depend on pollinating insects) and the increasing dependence on this industrial sector, are leading to an increased demand for organic food in more and more countries. The European citizens' initiative⁸ “Save Bees and Farmers” has found 1.2 million supporters by 2021 and they are pushing policy makers to adopt pesticide reduction strategies or even establish “pesticide-free regions⁹”.

Our survey of TB residents also showed a clear preference for organic and pesticide-free land use and a high interest in rural biodiversity.

➡ **49% of the TB residents surveyed are definitely concerned or moderately concerned about the use of pesticides.**

In this context, a recent study is of interest to us¹⁰. It argues that pesticides can be eliminated – not only through organic agriculture subsidies, but also through additional taxation.

In the TB, whose microclimates and soil conditions around Etna are very different, special crops have developed over centuries, producing local excellence in relatively small areas. For example, the pistachios of Bronte and the blood oranges of Paternò are quite famous. One might think that the cultivation of such crops continues with traditional ecological methods. The argument that the production of indigenous products is beneficial for biodiversity, because hypothetically such typical crops find an ideal environment and can be cultivated traditionally, is not in itself correct. In particular, the example of the strawberries of Maletto, which are cultivated, even on very small farms, largely with the massive use of pesticides, contradicts this idea. The

⁸ The “European Citizens' Initiative” (ECI) is an instrument of direct participation in European Union policy, provided by the Treaty on European Union: “Not less than one million citizens who are nationals of a significant number of Member States may take the initiative of inviting the European Commission, within the framework of its powers, to submit any appropriate proposal on matters where citizens consider that a legal act of the Union is required for the purpose of implementing the Treaties.”

⁹ In Europe, Luxembourg is a pioneer that has already decided in 2016 to completely abandon pesticides on public land; Sikkim in India is converting the entire agricultural production of the state to organic after intensive use of poisons.

¹⁰ “Effect of different levy concepts to reduce pesticide use in Germany - a simulation analysis”, Helmholtz-Zentrum für Umweltforschung, 2021. The study shows how the use of such chemicals could be reduced by introducing a tax on pesticides in Germany. This could help achieve the European Commission's goal of halving the use of pesticides by 2030. The authors of the study analysed the use of pesticides in Germany and Denmark and developed a database model with which they were able to simulate the effects on prices, sales volumes and treatable area, as well as estimate the volume. For those already working in organic farming (or with less pesticides, like our farmers) a pesticide tax would mean an additional market advantage.

situation is similar for vegetables, both in Adrano (lettuce) and Moio Alcantara (cabbage) and vineyards from Randazzo towards the coast. Bronte pistachios are also often cultivated with the help of chemical herbicides. These farms partially compensate this through the natural structures present and through other organic/traditional cultivation. Farmers who use intensive methods for one crop and extensive methods for another are already quite sensitive to the minimal use of pesticides, but many do not have the knowledge or experience of organic farming even for the most sensitive crops. It is precisely in these cases that help would be needed, both in terms of training and financially, to fully convert farms to organic. This should be done through CAP support, plus additional support to make the sale of organic products more profitable.

➡ **66% of the organic and conventional farms responded that they have gained benefits as a result of conversion to the organic production model. (24% did not answer the question).**

Accordingly, the EU regulations of the new CAP period explicitly call on Member States to create the conditions for conversion from intensive to organic farming and to provide adequate support for organic farming.

➡ **In the TB, 70 % of the farms surveyed work without pesticides, but of these only about 1/3 are certified organic, the others are defined in this study as traditional farms.**

Our survey revealed that many of the traditionally organic farmers cannot afford the organic certificate, either because of the small size of their land and the cost of a fixed basic fee for the certifying organisation, or because the local market does not reward certified quality.

The national design of the CAP is a central tool for achieving the objectives of organic land area at the EU, federal and state levels by 2030. A prerequisite for this is that the implementation of the CAP from 2023 strengthens the position of organic farming in the overall support structure of the first and second pillars and thus the relative excellence of this environmentally friendly farming system. This means, in particular, the full accessibility to ecological bonuses ("eco-schemes") for certified organic farms with the simultaneous full use of the support for the preservation and introduction of organic farming in the second pillar. This is the only way to avoid disadvantages for organic farms with their extensive services compared to conventional forms of cultivation.

If society wants to ensure ecologically sound and poison-free production, as long as poisons in agriculture are still permitted, there must be a strong incentive to convert and maintain the organic certification.

This means, in particular, the full accessibility to eco-schemes for certified organic farms and at the same time the full benefit of support for the preservation and introduction of organic farming in the second pillar. This is the only way to avoid the disadvantages for organic farms with the extensive services provided by the organic system compared to conventional forms of cultivation.

Instead of weakening the economic viability of organic farms, eco-schemes should be designed in such a way that organic farms can fully participate in support schemes. In principle, the implementation of the national CAP in the interaction between the first and second pillar must create sufficient incentives for farms interested in conversion, as well as motivating those that retain organic farming methods to participate in an additional support period. The incentives for conversion to conventional farming should be avoided at all costs.

5.3 Checks on hunting

A huge threat to biodiversity concerns birds and mammals still threatened by hunters. Numerous farmers (who stressed that they wished to remain anonymous) told us that they still hunt almost undisturbed whatever they can, even protected species such as hares or partridges. Moreover, even the large farms interviewed during the project practice extensive grazing, representing a high degree of biodiversity.

5.4 Climate change and soil

The majority of farmers (72%) say they are negatively affected by weather phenomena due to climate change. Above all, instability and unpredictable weather cause them problems. In addition to bad weather, late frosts, rain in the "wrong" season, excessive heat and drought, soil erosion due to heavy rainfall events is also playing a growing role.

A study¹¹ already reported in 2014 that with current land use and management about one third (32.6%, 8382.9 km²) of the Sicilian Region (excluding urban areas, water bodies and rock) is threatened by complete erosion to the rooting depth within a maximum of 100 years, and about 1.3% (about 323.6 km²) in less than 10 years. Soils at high or very high risk are shallow and have an erosion rate accelerated by water.

Awareness of one's own contribution to climate protection and soil fertility through the incorporation of organic material into the soil is not yet sufficiently developed. 36% of farmers incorporate tree prunings into the soil, 16% compost the organic material.

 **29% of farmers burn on the field the organic material (tree prunings) produced on their farms.**

In organic and traditional farming especially, the practice of burning is common, as it can thermally destroy pest larvae. Education on alternative practices is necessary and, if needed, further field trials and models must be implemented.

Agroforestry is a partially traditional technique that is becoming increasingly important. This form of land management could become increasingly important, especially for agriculture in Sicily, with the growing impact of climate change, because it protects soil and sequesters carbon, binds water and provides shade. The labour input, however, is higher and the costs and profit losses for managing agroforestry systems are not yet covered. This should be compensated by appropriate remuneration within the eco-bonus already provided for in the CAP.

A new study by the Thünen Institute¹² shows the great climate protection potential of the planting of hedges. On average, over many years, almost as much carbon per hectare is sequestered in a hedge as in forests. In the long term, a newly planted hedge 720 metres in length on arable land can offset the entire greenhouse gas emission that an average German emits in ten years. By storing carbon in the biomass in the hedge and as humus in the soil, new hedges can absorb carbon dioxide from the atmosphere and render it harmless to the climate. This method of soil and climate protection, which is easy to implement, is also rewarded by eco-schemes; at the same time, it makes an immensely important contribution to biodiversity.

5.5 Water usage

Agriculture accounts for a quarter of all water withdrawals in the EU, where water is mainly used for irrigation. Many regions, such as Sicily, are already affected by water scarcity and climate change is likely to exacerbate this problem. The Water Framework Directive has set the goal of good status for all water bodies by 2027, but there are considerable delays in achieving it.

The European Court of Auditors found in its recent report¹³ that agricultural policy is not consistently aligned with EU water policy. The Court assesses that, the funds of the new CAP are more likely to promote greater water use than greater efficiency. "There are no economic incentive systems for efficient water use", says the court, "The inadequate economic incentive systems in the form of water withdrawal fees and the inadequate controls on water withdrawal and related monitoring of compliance are glaring".

¹¹ "Soil erosion risk, Sicilian Region", M. Fantappiè et al 2014

¹² "Carbon sequestration in hedgerow biomass and soil in the temperate climate zone", 2021

¹³ "Sustainable water use in agriculture", Special Report no. 20/2021

The “Terre della Biosfera” are characterised by the two large rivers Simeto and Alcantara, which represent an ecologically valuable habitat that absolutely must be preserved.

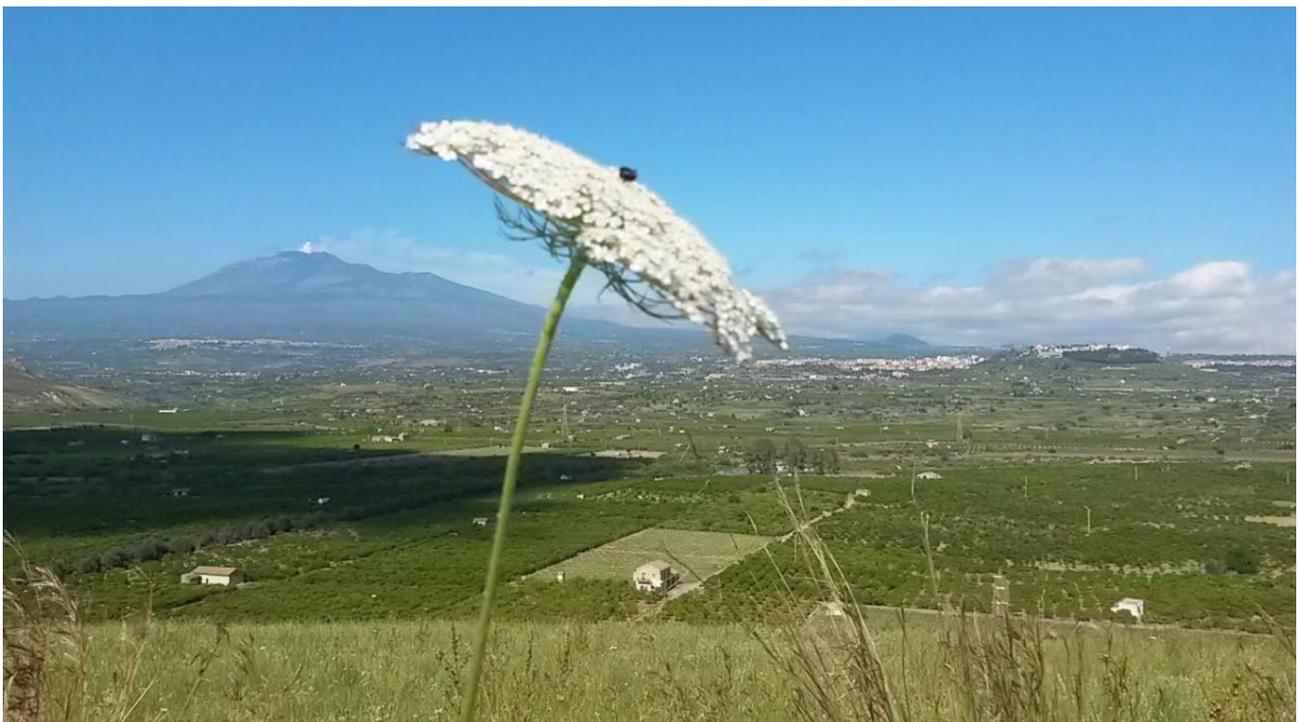
Of the farmers interviewed who irrigate artificially (49%), 85% say they irrigate only in emergencies.

5.6 Good practices in the Terre della Biosfera

Although many farmers point out a substantial number of good practices applied on their farms, many are unaware that these already serve as models for sustainable agriculture. This is despite the fact that around 70% of the participating farms already make an excellent contribution to the maintenance of biodiversity, with organic (27%) or conventional (pesticide-free) production methods (47%) and through the maintenance of wild areas and natural elements (94%).

Extensive grazing, which is common in the TB, represents a high value for biodiversity conservation and has to be taken into account in eco-scheme subsidies at a sufficient level, both for the breeding of suckler cows and for milk production.

Good practices in terms of farm-oriented services (such as waste disposal and infrastructure) provided by municipalities are rated as good or satisfactory by farmers in 23% of cases. More attention needs to be paid to illegal micro-dumps in order to keep the countryside attractive for visitors.



5.7 Market and farm sustainability

The price that the surveyed farmers receive for their products is too low for 73% of them. The excessively low income for dairy and meat products is serious; in particular, organic or traditional cultivation is not or barely rewarded.

➡ **90% of all farmers producing milk and meat without processing complain about selling prices that are too low¹⁴.**

- Question: What are your thoughts on the price setting of agricultural products? "Bad, very bad! We can't sell the wool and we don't know where to put it, because we have to pay money to get rid of it. Lambs are only in demand during festive periods for a pittance (€ 2.50 per kilo). Sheep are not sought after by anyone, we are talking about € 20-25 per sheep. Milk € 0.80 including VAT. The profit is negligible, but the seeds and labour cost a lot. When we buy the seeds, they cost 40-45 cents per kilo, when we sell them we get only 16 cents per kilo. (A shepherd from Bronte)

In view of the fact that all the farmers interviewed practise typical extensive grazing appropriate to the species, promoting biodiversity, there is an urgent need to support this sector through adequate and easily accessible subsidies!

➡ **Although almost all farmers love their work very much (65%)¹⁵ and many of them also have children who are interested in continuing, 14% see no (4%) or only low future profitability of their farm due to low earnings.**

During the period of this study, two of the 106 farmers left farming without any family member taking their place.

A comparison¹⁶ of the economic viability of farms selling directly on site or on the market to end consumers shows:

➡ **Almost all, i.e. 75% of the farms that market their products at least partly directly or over short distances see a future in their activities. More or less the same applies to the tiny 5% that participate in sales cooperatives. These two categories account for 35% in our survey. Of the remaining farms that sell through traders or wholesalers, only 47% see a future for their farm.**

The way forward in this case relies on consumer awareness and offers at the point of sale itself (especially at local markets). For the sale of organic products outside their own production area synergies should be created and farmers themselves should be encouraged to form cooperatives to obtain higher sales prices. Unfortunately, about 36% of respondents do not have confidence in cooperation in Sicily, while theoretically a large number of them (67%) consider it useful. In this regard, training, with some functional and working examples taken from other situations, would be an excellent way to encourage cooperation.

However, institutions can do even more with environmental and agricultural education to make a decisive contribution to climate protection, soil fertility and sustainable agriculture and short supply chains. This is already possible by raising school children's awareness of the above-mentioned issues in a practical way, with appropriate educational programmes. Some good experiences have already taken place, for example, in the EUKI project "Frutti per la Biosfera" ("Fruits for the Biosphere")¹⁷ with the creation of school gardens and compost heaps.

5.8 Use of agricultural subsidies

Use of agricultural subsidies: This study shows how important targeted financial support to farms is for their economic survival and for the preservation of biodiversity. In the future, however, CAP reform must place

¹⁴ Comparison of question 1/12 and question 1/19a

¹⁵ Question 4/3

¹⁶ Comparison of question 1/18 and question 4/7

¹⁷ "Frutti per la Biosfera - Terre della Biosfera" (terrebiosfera.org) 2018-19, there is some educational content for schools



much more emphasis on welfare-oriented services and adequately reward climate protection and environmental services provided by farms.

Although 82% of respondents consider financial aid money important, only 56% use it. The main reasons are bureaucratic obstacles (26%), small agricultural area, lack of interest or of knowledge (21% each).

➡ **61% of farmers have never participated in Rural Development and Biodiversity (RDP) measures. Of these, 41% cultivate only a small area of less than 5 ha¹⁸.**

We have noticed that participation depends very much on the support of proper agronomists and the financial possibilities of farmers to pay in advance and to be able to mitigate the risk of their application being rejected. Institutional help is needed in this regard.

6. RESULTS AND DISCUSSION

The gender distribution of the interviewed sample: there is a male predominance of 85%, and only 15% of the sample are women. The distribution by age group confirms that the sample is mainly composed of adults between the ages of 18 and 60, while agricultural entrepreneurs over 60 represent only 17% of the sample. This confirms that young people are also interested in the sector. Regarding the educational level of the farmers interviewed, 38% of the sample have a secondary school diploma, 26% a university degree, 15% a middle school diploma and 12% a primary school diploma. Farmers are, in fact, the main stakeholders in this European policy, which through financial support under the first and second pillars also aims to contribute to farm development and income stabilisation. Farmers themselves are also the ones who, if properly involved, supported and trained, can develop their ecological knowledge and provide ecosystem services and other benefits for the environment and society.

Indeed, it is widely known that the impact of the current food system, from field to fork, is responsible for about 21-37% of total greenhouse gas emissions, according to the IPCC. The largest contribution to this estimate comes from agricultural production, with crop and livestock farming and changes in land use, such as deforestation and peatland degradation. These figures are also partly the result of an ongoing process of moving away from traditional farming methods: the latter, unlike the industrial farming model, which is

¹⁸ Comparison of question 1/3 and questions 2/4+5

geared towards increasing production through the use of monocultures, fossil fuels and chemical inputs, are generally based on ecological principles, which ensure soil regeneration, the preservation of biodiversity and the production of healthy and nutritious food for the community.

The results highlight the barriers that determine the non-participation of farmers in the financial proposals promoted by pillar I and II funds of the Common Agricultural Policy. They specify the needs and expectations of the respondents towards these economic and financial instruments and assess the extent to which good agricultural practices for the conservation of biodiversity are used.

7. ADVICE FOR REGIONAL INSTITUTIONS AND MUNICIPALITIES

The results of the project clearly show:

- **the willingness of the farmers interviewed to contribute to the conservation of biodiversity;**
- **that most farmers use water sparingly, only one farm uses sub-irrigation. [We recommend that agricultural subsidies be made available in Pillar II to promote water storage, water recyclers and innovations in economic irrigation technology to overcome outdated systems];**
- **the presence of farms on the territory that routinely apply good agricultural practices;**
- **the need for training on good agricultural practices, including innovative approaches, e.g. in relation to climate and soil protection as well as increasing biodiversity, and information on how to obtaining subsidies that reward such measures, also for small farms;**
- **the call for a reduction in bureaucratic and administrative burdens associated with access to funding measures;**
- **the advantage for farms to be able to refine their raw products themselves, and the consequent need to reduce the non-mandatory requirements for domestic slaughterhouses and dairy farms; simplified access for farms to subsidies for enhancing the value of their products would also be favoured. [It would also be necessary to verify whether the European directives and related constraints applied by the Sicilian Region on production and processing methods are really respected, since during the survey, numerous reports were collected on how the Region's interpretation is likely to be stricter than European regulations];**
- **the need to diversify the areas of support and the criteria for access to funding based on the farm size, type of production and type of territory;**
- **“eco-schemes” under Pillar I can be an important support for farmers to continue their near-natural farming practices. Incentives to participate in eco-schemes must be large enough to be accepted by farmers and to induce them to implement them;**
- **the need for regular and systematic communication and training of the agricultural and rural population on the content and purpose of European, national and regional policies on agriculture, food and the environment;**
- **more funds would also be needed for training services and information and support bodies, such as the U.I.A. (avoiding their demobilisation), as they act as a link between farmers and the bureaucratic machinery of institutions;**
- **not only is greater education in the management of agroforestry systems necessary, but the level of support must also be sufficient to ensure acceptance of this practice and to establish it;**

- **the urgency of supporting companies in promoting their products on the market, e.g. through 0-km markets, organic markets and a consumer awareness campaign;**
- **possible aid for the marketing of products through training on the advantages of cooperation, with the aim of encouraging and fostering synergies that lead to more advantageous sales prices for producers;**
- **the importance of providing institutional communication campaigns that illustrate the role of agriculture in preserving the environment and the different types of initiatives that can be classified as “good agricultural practices”, so as to activate a greater degree of awareness of the population (demand subjects) on these important functions of agriculture so that a “premium price” can be recognised;**
- **controls on hunting should be intensified to protect endangered species with the consequent loss of biodiversity.**

In view of the 2023-26 CAP reform with higher environmental standards, which requires flexible interpretation by member states, and given that the farmers interviewed from the TB appear to be representative of sustainable Sicilian agriculture, relying precisely on these subsidies, we expect the largest possible budget for organic schemes in direct payments. Bonuses should be attractive enough and easy enough to apply for to strengthen nature-friendly agriculture in the TB and the rest of Sicily.

Otherwise, there is a risk that the funds earmarked for ecosystems will not be used, which would contradict the fundamental objective of implementing greater environmental and climate protection with the CAP. Therefore, the use of agri-environmental support measures must be planned in a realistic way.

If (organic) farms want to make use of eco-schemes such as fallow land, legume cultivation, and agroforestry in the first pillar, it is important that there are no financial losses for them in the second pillar's eco-bonus.

Sicily, and especially the TB area, has the possibility of becoming a model region in terms of ecological and economic sustainability in Europe through a skilful interpretation of European requirements. It is precisely on this last aspect that we insist and that aim for in the long term.

