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ANNEX

4 Activity Report of the Mountain Agriculture and Mountain Forestry Working Group for the period 2021-2022 (EN)

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ACTIVITY REPORT OF THE

Working Group on Mountain Agriculture and Mountain Forestry

FOR THE PERIOD 2021-2022

(BETWEEN THE XVI AND XVII MEETINGS OF THE ALPINE CONFERENCE)

1. Overview of the mandate given by the XVI Alpine Conference

Summary of the objectives according to the 2021-2022 mandate or work programme
The Mountain Agriculture and Mountain Forestry Working Group has been established by the decision A6 of the XV Alpine Conference as part of the priority 4 “Greening the Economy” of the Multiannual Working Programme 2017-2022. Its activities relate to mountain agriculture and to sustainable management of mountain forests and their respective value chains. The WG mandate states that it will contribute to the operationalisation of the recommendations contained in the “Climate Target System 2050 of the Alpine Convention” and will also contribute to the implementation of the Action Program for an Alpine Green Economy (GEAP) by supporting actions envisaged in the Program in its relevant action fields. **The mandate included 2 objective and 3 specific tasks :** **Objective 1**: Promoting climate-friendly agriculture by taking the first implementation steps as defined by the Alpine Climate Board for the pathways on agriculture in the Alps: "Promotion of Alpine Products and increase in locally retained value added for a sustainable and climate-friendly agriculture” (IP_Agr1) and “Moving to organic and climate-friendly methods in Alpine farming” (IP_Agr2). Obj. 1 had two planned tasks: **Task 1 Stocktaking on organic agriculture in the Alps** (implementation step for ACB IP_Agr2) and **Task 2 Developing organic agriculture scenarios for Alpine regions** (implementation step for ACB IP_Agr2). The planned outputs were a stocktaking report, including a collection of scenarios. **Objective 2:** Promote sustainable value chains in forestry and farming sectors by involving the relevant actors. A focus will be laid on linkages between mountain farming and forestry and urban centres. The objective will contribute to the implementation of the Action Program for an Alpine Green Economy (GEAP) as well as contributing to IP_Agr1 and IP_Fo of the ACB. Obj. 2 had one task: **Task 3: Study on the status of value chains in regions and selected sectors of agriculture and forestry**, for which a report was the planned output. For each objective a thematic workshop was planned. **Objective 1** - **Expert workshop** on the topic of organic agriculture in the Alps; **Objective 2** - **Stakeholder workshop** on the enhancement of value chains in selected sectors and regions – with presentation of case studies and good practices.

2. Meetings

Summary of the meetings held (date, place, main topics and milestones)
• April 28th, 2021 - 1st meeting (on line): presentation of mandate 2021-2022, Thematic discussion on Task 1 "*Stocktaking on Organic Agriculture in the Alps*" and on potential steps of stocktaking strategy, presentation of some research projects carried out in some alpine contests; presentation of the template devoted to data collection and discussion. • July 2nd, 2021 – 2nd meeting (on line): thematic discussion on Task 2 "*Developing organic agriculture scenarios for Alpine regions*" and on potential steps for their definition, presentation and discussion of a proposal of template for a common methodology to define future scenarios in the different Alpine contests. • November 12th, 2021 – 3rd meeting (online): organization of the expert workshop on Organic Agriculture, Status of the activities related to the Task 1; discussion and methods for Task 2; proposal and inputs for Task 3 "*Study report on the status of value chains in regions and selected sectors of agriculture and forestry*"; discussion on potential steps of study report on value chains development. • January 19th, 2022 – 4th meeting (online): organization of the stakeholder workshop on the value chains, Planning the report 1 for Task 1 and Task 2, Planning the second report for Task 3. • April 13th, 2022, 5th meeting (online): discussion for finalizing the new mandate 2023-2024 of the MAMF Working Group, its future possibly objectives and discussion on the Tasks to reach them; drafting and discussion of the two final reports related to the tasks of previous mandate. • April 28th, 2022 – 6th meeting (online): brief update on the proposal of the next mandate. Discussion and reviewing the final reports. All the meeting were organised online, with the efficient use of the Alpine Convention Webex platform.

3. Activities carried out

Synthetic description of further activities carried out (including outreach and communication activities)
In the mandate period, two Workshops were also organized, to streamline and collect inputs, suggestions and best practice on the topics of Task 1 and 2 (workshop 1) and Task 3 (workshop 2). Due to the pandemic situation, both workshops were hold online, using the Zoom platform. November 18th, 2021: 1st Workshop: "Status and perspectives of Organic Agriculture in the Alps". Organised in two sessions and a round table. Session 1: "Initiatives, good practices, projects in the field of organic mountain agriculture and in the agroforestry sector and their relations with agritourism, conservation of agro-

forestry bio-diversity and genetic selection and protection of species".
Session 2: "Overview on current state of organic agriculture at the Alpine level and perspectives in the development of future scenarios".
Round table: "Socio-economic changes and developments in Alpine organic agriculture – An exchange between experts, stakeholders and local actors".

1st February 2022: 2nd Workshop "Value chains in mountain forests and mountain agriculture: opportunities for sustainable economy and development", Organised in two sessions and a discussion table.
Session 1: "Initiatives, good practices, projects, policies in the field of value chains in organic mountain agriculture and in the forestry sector from Alpine Convention Countries".
Session 2: "Role of value chains in sustainable economy and development in mountain areas".
Discussion table: "Criticisms in the agroforestry sectors for the Mountain economy".

4. Outputs and results

Description of the main outputs and results achieved
Two reports have been produced: Report 1: "ORGANIC FARMING IN THE ALPS: A FIRST ANALYSIS AND SOME DEVELOPMENT SCENARIOS", targeting Task 1 (Stocktaking in organic agriculture in Alps) and Task 2 (Developing organic agriculture scenarios for Alpine region). Report 2: "VALUE CHAINS IN ALPINE REGIONS AND SELECTED SECTORS OF AGRICULTURE AND FORESTRY", targeting Task 3 (Study on the status of value chains in regions and selected sectors of agriculture and forestry).

5. Cooperation

Description of cooperation developed with other Alpine Convention bodies and further relevant partners and processes, and of the resulting benefits
10-11.06.2021: online participation to the EUSALP Territorial Brands Workshop on Territorial Brands in the Alpine Region. 17.06.2021: online participation to the Workshop of the Thematic Working bodies of the Alpine Convention (with presentation). 16.11.2021: online participation to the Alpine Convention Permanent Committee (PC73), with specific input on biodiversity. 25.01.2022: online participation to the Workshop of the Thematic Working bodies of the Alpine Convention with presentation. 01.03.2022: in person and online participation to the meeting on agricultural topics within EUSALP – Paris – with presentation on WG MAMF mandate and activities and opportunities for cooperation.

07.04.2022: participation to EUSALP Action Group 2 meeting of Subgroup “Wood” - Grenoble (Col de Porte, Chartreuse) – with presentation of Alpine Convention protocol on mountain forests and WG MAMF activities.

6. Attachments

List of the documents attached to this report, such as papers proposed for approval by the XVII Alpine Conference (thematic reports, guidelines, statements etc.) and supporting documents (workshop proceedings, survey reports, communication materials etc.). *Please kindly provide a PDF file of each attachment. Do not include the minutes of regular meetings!*

Report 1 “ORGANIC FARMING IN THE ALPS: A FIRST ANALYSIS AND SOME DEVELOPMENT SCENARIOS”

Report 2 “VALUE CHAINS IN ALPINE REGIONS AND SELECTED SECTORS OF AGRICULTURE AND FORESTRY”

ORGANIC FARMING IN THE ALPS: A FIRST ANALYSIS AND SOME DEVELOPMENT SCENARIOS

Mountain Agriculture and

Mountain Forestry Working Group of the Alpine Convention

Mandate 2021-2022

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SUMMARY

This report relates to Task 1 (Study on Organic Agriculture Stocktaking in the Alps) and Task 2 (Developing Organic Agriculture Scenarios for Alpine Regions) envisaged in the 2021-2022 mandate for the Mountain Agriculture and Mountain Forestry (MAMF) Working Group.

Organic farming is a good development opportunity for Alpine communities who want to qualify their food and products as respectful of the environment and its balance. Organic mountain products have undoubted advantages linked to a more balanced exploitation of soil, environment and natural resources, and undoubtedly combine advantages for the consumer, linked to better organoleptic and healthiness characteristics. Furthermore, the presence of an agricultural model based on pastures and on the production of milk and meat allows to maintain a pleasant landscape in the mountains and an environment suitable for sustainable tourist use, inducing the possibility of developing district economies diversified on many activities in the Alpine territories. These activities are not only strictly sporting but also linked to cultural events, leisure time, wellness, traditional cuisine and gastronomy, therefore they can have many relationships with the local agricultural sector.

The development of this model of agriculture has been very intense in the last 20 years in all Alpine Convention Countries, also driven by consumers who are increasingly attentive to their purchasing choices, albeit with different growth rates. Also inside the perimeter of the Alpine Convention spread and growth of this model has not been homogeneous in the various areas, as it was influenced by determinants (socio-economic and organizational conditions) with value and importance different in different Countries and territories. The propensity to adopt this model of agriculture, in fact, is mainly influenced by the possibility of obtaining a satisfactory and lasting income for farmers, which in turn depends on the possibility of effectively differentiating Alpine organic productions, by consumers' willingness to pay more for Alpine organic products and, more generally, on market demand. Market demand, in turn, is susceptible to exogenous macroeconomic variables, such as difficult economic growth and inflation, which by modifying the purchasing power of consumers can endanger this important production model for the Alps.

If these exogenous and negative influences will not prevail in the next decade, and if the availability of consumer spending will go on growing, we can envisage a positive scenario of growth of the territories and farms affected by this type of agriculture, on the basis of what happened in the AC countries in the last decade. However, it remains essential to continue promoting Alpine organic products in a way able to effectively emphasize the differences compared to other products, both non-organic and organic but of non-Alpine origin, perhaps outside the EU, and the common value represented by consuming products of local mountain origin. The EU regulation of organic farming, even in the presence of group certification, could represent a brake on the spread of the production method in the presence of muddled and unsuitable rules for small family farms. As always, the role and importance of future EU policy choices remains, which should take into consideration the possibility of declining measures and funding in order to favour Alpine farms in comparison with those located in areas with greater economic development and possibilities.

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1. PART 1 – STUDY ON STOCKTAKING ON ORGANIC AGRICULTURE IN THE ALPS (Task 1)

Introduction

The Alps represent a territory rich in ecosystems and biodiversity but also increasingly characterized by a great fragility (physical and socio-economic) that is highly dependent on existing climate changes and more unfavourable socio-economic conditions. The increase in temperatures, the slopes instability, the phenomena of soil erosion are critical physical factors that go together with social phenomena such as the aging of Alpine populations and the loss of agricultural surfaces (MacDonald et al., 2000). These elements, all together, are the basis of the degradation and abandonment of many mountain areas. Biological diversity, inherent not only to uncontaminated alpine habitats but still present in the traditional cultivation and breeding practices of our mountains, is a highly endangered value, to be preserved and protected with targeted actions because otherwise it cannot be recovered.
The biodiversity inherent vegetal cultivars and animal breeds characterize traditional Alpine agriculture (Sturaro et al., 2013). It constitutes not only an important genetic basin from which we can draw for the future, but also represents the first step from where important value chains are developed (fruit and vegetables, milk, meat, wood, and their processed products such as cheeses, wines, sausages, industrial and handicraft wood products) able to activating important collateral economies (districts), often based on sustainable tourism, essential for the local development and the permanence of young people in the territories.

So, alpine areas must be directed towards forms of agriculture which, by recovering elements from the past, can look at the future as more extensive and sustainable forms of production, which are also the basis of the beautiful landscape of our mountains. In this context, organic farming provides an opportunity for sustainable food production. The aim of this report is to present data and information useful for describing the situation of organic farming in the Alpine territories belonging to the Alpine Convention (AC) perimeter, to facilitate the identification of actions, projects and policies useful for its promotion and enlargement.

In this report we will not only refer to organic farming, but more generally to agriculture and forestry currently existing in the territories included within the AC perimeter, which are not always strictly alpine. These farming activities, regardless of whether they are strictly certified organic or not, in any case respond to an environmental friendly model. It is therefore important to guarantee over time the presence of agricultural and forestry activities managed in all these territories (both those strictly mountain at high altitude, and also those in the valley, close to the alpine environments) with a special consideration to the multiple effects (socio-economic but above all of protection and maintenance of the landscape and delicate ecological balances) these productive activities determine.

1.1 Characteristics of the Alpine agriculture

Mountain agriculture plays a key role in the Alps (Manrique et al., 1999 ; Laurent et al., 2003 ; Casini and Scozzafava, 2013), determining positive effects of various kinds: economic, social, hydrogeological, environmental, climatic, to the benefit not only of local populations but also of people living downstream of the Alpine territories. The main reasons can be summarized as follows:

- First, it is an economic sector producing value through agricultural commodities and food and wood productions. The food productions are unreproducible elsewhere, as their physico-chemical and organoleptic characteristics are strongly linked to the territories of origin and to the production techniques used (Martin et al., 2005; Eccel, 2022).
- In many Alpine areas, especially in the case of high mountain pasture management and pasture cheeses production, the production techniques are traditional, linked to the knowledge established over the centuries, and above all they are low-inputs based (Marongiu et al., 2010). This fact determines in vegetable and breeding processes lower average yields respect to more intensive production models, typical of lowland agricultural areas. At the bottom of the valleys, on the other hand, the agriculture practiced (especially when oriented towards more intensive fruit growing) responds more to profitability criteria. In any case, these are productive activities that characterize and enhance these areas, with products that are positively affected, in their organoleptic characteristics, of the cultivation environments close to the mountains (Andreotti, 2013).
- It is just implementing of low-input production models that allows a production activity to minimize the impact on the environment, determining on the contrary positive effects on slopes stability (e.g. by cultivating terraces), on maintaining soil fertility (e.g. by the recycling of organic matter from livestock and crop residue) and on animal welfare (e.g. by allowing free relaying of animals in the pastures in summertime and on permanent grassland in wintertime), on the protection of indigenous genetic resources that otherwise would not have the possibility of competing with new breeds and varieties with higher yields.
- Generally farming activities carried out in the mountains are diversified and often also involve the management of the woods (with activities of pruning for production purposes, collecting firewood or wood to be used in the piling of permanent crops, cleaning the brushwood, etc.), with fundamental effects for fire control.
- Finally, the production techniques used, despite affected by seasonal weather trends that often oblige some treatments to be intensified, are today strongly oriented towards integrated agriculture and/or organic farming protocols, which notoriously determine less pressure on the cropland and on the bordering ecosystems, fully compatible with natural areas and woods.

To summarize, mountain agriculture mostly implements low-input production and/or organic farming tecniques, and for these reasons is undoubtedly a sustainable and fundamental production model. The techniques adopted (consolidated over time) and the constant and continuous presence of men guarantee balances for environment and ecosystems. On the contrary, the abandonment of mountain territories and of agricultural best practices favour landslides, slopes instability, forest fires, which locally implies material and social damage.

In the Alps, agricultural activity is mostly carried out by small family farms[1], according to productive specialization oriented towards animal husbandry or fruit-growing, but also non-specialized farms (with mixed-production) are very widespread. Even when prevalent activities are present, they often can be accompanied by viticulture, cereal farming, cultivation of small fruits or fresh vegetables. Generally these are businesses passed from

[1] It is important to underline the lack of up-to-date databases at a European level that allow to consider separately from all the universe the agricultural and forestry farms located inside the perimeter of the Alpine Convention. It is therefore difficult to support the information on the small physical and economic size of Alpine farms with statistical structural data. The publication "Mountain Agriculture" (Alpine Convention, 2017; p. 38, fig. 1.1 and 1.2) reports a comparison in relative terms between mountain UAA and mountain farms inside the AC perimeter and the national universe of AC Countries for 2010. The relative percentages of UAA appear systematically lower than the relative percentages of farms, indicating an average size in physical terms lower than the average size in the AC Countries. The only exception is represented by Slovenia, where the two percentages coincide (26%) and Italy, where the percentages of UAA is higher (8%) than the percentages of farms (6%). Nothing is reported on the economic dimension of the farms, which the operational experience of stakeholders indicates much more limited than in the agricultural areas of plains and not disadvantaged hills. These data are old but there is no particular evidence that situations have changed radically compared to 2010.

father to son; of course if a son/daughter is present and he/she is interested in going on with the business.

However, an agricultural system of this type presents a non-negligible bill to farmers. Farming in the mountains is undoubtedly more onerous in terms of physical effort and hours of work per hectare[2], above all for the more difficult accessibility of land which limits the possibilities of mechanizing many cultivation phases. Added to this, there is also a limited offer from the mechanical industry of machines. The mechanical industry has neglected this question for many years (Cerea and Mercatoni, 2016; Zambon and Monarca, 2017; Rodrìguez-Pose, 2017; Franco et al., 2020), because it is not very profitable in terms of the number of machines required and because of the prices, which may be not suitable for small farms. More recently, some stakeholders and farmers from Trentino report that small agricultural machinery produced in China have made a timid appearance. According to some operators, they have numerous advantages in terms of operational characteristics and accessibility as price.

This problem, together with other economic and social reasons, are the basis of a difficult, not obvious generational turnover that has afflicted many of the Alpine areas for several decades. We cannot say how much this condition is widespread everywhere. Intelligent educational and effective support policies for local populations have been carried out by some Alpine countries for many decades (France, Switzerland, Austria, Germany are good examples), in terms of services provided. They have contributed to countering this phenomenon which instead afflicts many other Alpine (but not only Alpine!) areas, for example in Italy.

1.2 Challenges for Alpine agriculture in the long term

The challenge that mountain agriculture must face in the coming decades is to minimize its negative externalities, demonstrating that it is able to meet demand and remain environmentally and economically sustainable.

To overcome this challenge it is necessary to play both on the agricultural supply front, directing production towards models that are more attentive to the environment and the land-water-soil system, and also on the side of the demand for food, directing consumers towards food consumption models. more attentive to the quality, the geographical origin of the food, and more sober in terms of calories ingested and the limitation of waste.

The most significant agriculture negative externalities (supported by a very rich bibliography which here is summarized in a few references) can be summarized as follows:

a) production of greenhouse gases, such as CO2, CH4, N2O (Wang et al.2011 ; Stavi and Rattan, 2013 ; Coderoni and Bonati, 2013 ; ISPRA, 2020a, 2020b, 2022)
b) pollution of groundwater (Arias-Estevez et al., 2008 ; Parris, 2011)
c) possible damage to farmers, consumers and the environment (primarily entomofauna) due to the use of pesticides (World Health Organization, 1990; Hayes et al., 2006)
d) impoverishment of ecosystems biodiversity due to the abandonment of traditional practices, the use of pesticides and the non-use of native varieties / breeds because of their lower productivity
e) a not sparing use of irrigation water due to the use of varieties that are not very resistant to water stress.

While intensive livestock farming is the main responsible for negative externalities referred to in points a), b) and e), the chemistry used in agriculture (for fertilization, weed control and

[2] In the case of Alpine viticulture in Aosta Valley (heroic by definition) the number of hours required by the vineyard cultivation exceeds the work of a vineyard in the Langhe area by 2,5-3 times (depending on the type of training used, guyot or pergola), mainly due to the difficulty of accessing to agricultural machinery, which oblige farmers to do almost all the work required by hand (Mazzarino et al., 2021).

pest attacks) is most responsible for the imbalances produced on the environment, intended as the water-soil system and pressure on the indigenous populations of plants and animals, including insects responsible for pollination. It should be emphasized that literature on carbon foot print shows that the negative effect on the environment by using chemical fertilisers and pesticides is referred not only when they are used on the crops (determining the b), c) and d) externalities), but also during their production phase and, to a lesser extent, transport (externality a) (Audsley et al., 2006; Condor and Vitullo, 2010; Passeri et al., 2012; Coderoni and Bonatti, 2013; Zampori and Pant, 2019).

The response that mountain agriculture can give is based on choices that limit as much as possible the use of chemical fertilizers on crops, and in general mechanical work in the field that requires high power and therefore high fuel consumption; limit the livestock load per hectare, to have lower CH4 emissions linked to enteric fermentations, and to limit the production of manure, which, if in large quantities may cause problems both in its storage at farm level - production of N2O - and when it is distributed on the land - nitrate pollution of groundwater -; recovery of traditional practices; the adoption of targeted innovations. Some examples can be:

- livestock farming techniques based on grazing, free housing and use of locally produced feed ;
- site-adapted number of cattle per hectare;
- use of manure as a natural nitrogen source ;
- crops rotations, for good weed control and maintenance of microbial balances and nutrients in the soil ;
- diversification in the cultivation/breeding of varieties and breeds, in order to avoid excessive genetic homogeneity in fields and livestock, with impacts on crops deseases and local ecosystems ;
- minimum tillage and conservative agriculture, to limit the tillage of the land while preserving its structure;
- preference for native varieties and breeds, more rustic because selected over the centuries and adapted to mountain environments;
- introduction in the farm of IT innovations (smart farming, precision farming) and biological control of pests, aiming at reducing chemical inputs and interventions according to the actual needs of crops;
- maintenance of forests managed and land arrangements, such as terraces and steps, which in addition to offering a better control of soil erosion and slopes instability, allow to maintain micro-ecosystems useful for the survival of the small local fauna (birds, small reptiles and amphibians, almost always responsible for the control of the harmful insects)
- the recovery of spontaneous plant species to be used for food.

The actions that farmers must undertake to limit these negative externalities are management choices, therefore private choices, which have repercussions on business income and for this reason they must also be adequately supported by the final consumption of families, good incentive policies, targeted research activities, technological innovations.

Considering the above, either the organic farming, the low-input agriculture traditionally implemented in mountain areas (pastoralism *in primis*) and the precision farming seem to respond well to these needs. In the case of IT innovations, the availability of service companies or consortia, able to offer the service at affordable costs for the individual farm, is also a crucial factor. It is important for the future to make farmers aware of what business choices are the best for the farm and the general context in which it operates, while not lacking the necessary support from the public sector and market demand.

Consumers must be made aware - the pandemic from Covid19 has already started this process - of the importance that cultivation and breeding techniques have on their health and the balance of the natural environment. These concepts must be communicated effectively at the time of their purchase through the food label, so to make them available the information when they do their food shopping.

1.3 Organic farming: some technical characteristics

Considering the above, no doubt that low input farming is the best response that mountain agriculture can give to the environment and the communities.Organic farming is a low-input food producing method aiming to limit the use of agriculture chemical inputs such as fertilizers, insecticides, fungicides, and herbicides. This farming model also provides the non-use of antibiotics in the livestock farming for production of milk and meat (with the exception of curative purposes and with authorised drugs) (Stockdale, 2001; Hole et al., 2005).

The organic model is based on traditional agricultural practices widely used until the middle of the last century in most rural areas, which promote the reuse of by-products like manure, the carbon cycle, and the activities of nitrogen-fixing bacteria. Moreover, it takes advantages of natural ecological balances, keeping under control harmful insects through the intervention of predators naturally present in the wooded areas next to the cultivated fields (birds, small reptiles, predatory insects).

Practices traditionally used in organic farming are (Reg. CE 834/2007; Reg. UE 848/2018):

- use of manure and green manure to restore soil fertility;
- use of crops rotations to combat weeds and crop diseases;
- biological pest control ;
- use of very few low toxicity chemicals (sulphur, copper compounds), traditionally used in agriculture;
- use of native plant varieties and animal breeds;
- limited use of antibiotics and medicines for farmed animals, and a lower number of cattle for hectar.

Organic farming excludes the use of genetically modified organisms and do not encourage intensive cattle farming; on the contrary require farmers to consider the specific behavioural needs of animals in terms of space and moving, so encourage a high standard of animal welfare.

The advantages offered from this productive method are devoted to three different subjects:

- **consumers**, who can feed with products less polluted by chemicals and with higher organoleptic characteristics and nutritional value
- **producers**, who are less exposed to the carcinogenic action of chemical inputs
- **environment**, since organic agriculture encourages the maintenance of biodiversity and of water quality, the enhancement of soil fertility, the preservation of local ecological balances, the responsible use of energy and natural resources.

The production protocol provides that to become organic the farm faces a conversion period (two or three years, depending on the production address) during which its management respects the rules of organic production even if its products at this stage are not yet considered organic. Its products will be sold as organic not before of the end of the conversion period, after having passed the relevant controls.

The organic production model involves lower yields, and potentially higher production costs. This means that prices for organic products are on average higher than those for conventional agricultural products. To give consumers more security and confidence towards

organic food, organic farming has been regulated at EU level for many years. The set of EU rules and controls are quite complex since they involve the single stages of production, distribution, and marketing of organic food. The labelling involves the use of a brand with a specific logo, which is the same in all Member States.

The last European Union basic act on organic production and labelling is **Regulation (EU) 2018/848**, came into force since January 1st 2022[3] [4]:

- it establishes production rules, control systems and trading arrangements for EU producers
- it harmonizes the rules applicable to organic operators in Third Countries through the introduction of the conformity monitoring system
- it simplifies access to the organic farming scheme for small operators
- it reviews the rules on organic animal production and introduces production rules for new species
- it also applies to mixed production farms (with non-organic and organic farming), provided that the two ways of producing must be clearly and correctly separated.

Two implementing Regulations (Reg. (UE) 2020/464 and Reg. (UE) 2021/279) and five delegated Regulations (issued in 2020 and 2021) integrate this main act on organic farming. **Delegated Regulation (EU) 2021/715**, which amends Regulation (EU) 2018/848 regarding requirements for groups of operators interested in organic certification, seems to be particularly interesting for organic mountain farmers, whose small economic dimension not always justifies the cost related to single controls and single compulsory certification.

1.4 The organic farming in the Countries of the Alpine Convention

It should be emphasized that the main statistical sources available at European (EUROSTAT) and national level mostly do not provide disaggregated data to give a recent overview of the organic agriculture in the Alps. More precisely, in some Alpine Convention Countries, in particular Switzerland and Austria, data on organic farms and surfaces insistent inside the Alpine Convention perimeter (municipalities / regions / cantons) are available for recent years (as shown in the following reports of the respective Delegations), but for other Countries, such as Italy and Slovenia, this availability relates only to Agricultural Census data, available every 10 years. The latest available Census data are referred to 2010, too old to be used for a current organic farming stocktaking.

In the absence of data only referring to the municipalities included in the Alpine Convention perimeter, a general framework on organic farming in the Alps is provided for all the territory of the different Countries. For Switzerland and Austria this framework is also significant for their AC territories, as most of these Countries are included. For Italy, France, Germany, and Slovenia cannot reflect what happens in the Alpine areas only (this is true particularly for Italy[5] and France). Despite these great limitations, we considered useful to provide a general overview of organic farming in all these Countries because it helps to appreciate the trend of the organic phenomenon over time and at national level.

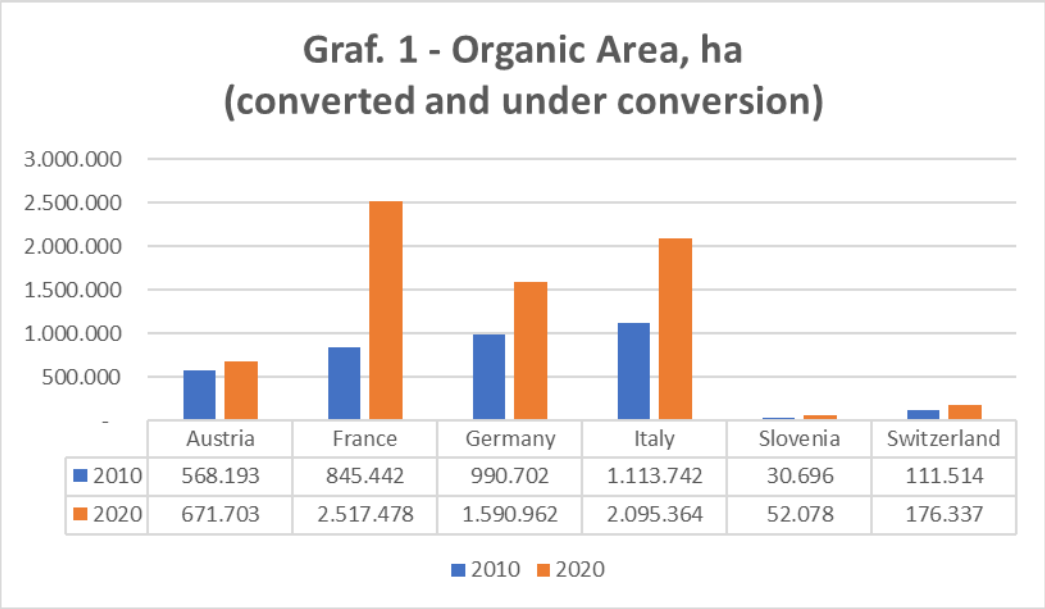
[3] The new regulation provides for transitional periods for the implementation of some new rules, particularly on trade. Please refer to section 2 of Chapter IX of Regulation (EU) 2018/848, where provisions under previous Council Regulation (EC) 834/2007 and Commission Regulation (EC) 889/2008 may apply for a limited period.

[4] The organic regulation of Switzerland is considered equivalent to the EU regulation.

[5] In 2020 in Italy the organic surface was distributed as follows (SINAB database, 2022): North-West 5.2%, North-East 12.4%, Center 24.0%, South 33.1%, Islands 25.2%. In Italy, organic farming only marginally affects Alpine areas. One of the most important Italian regions for organic agriculture in the Alps is represented by Trentino Alto Adige (22.136 ha, 1.6% of the national organic area), with the two autonomous provinces of Trento and Bolzano. In this region the 59% of these areas is represented by meadows and pastures, the 28% by permanent crops, 12% by arable land and less than 1% by fresh vegetables (SINAB database, 2022).

In the space of a decade (2010-2020) the area devoted to organic farming (including areas under conversion) and the number of farmers increased in all six Alpine countries (Graf. 1 and 2).

In terms of area, it was very sensitively in France, Italy and Germany (respectively: +198%, therefore almost tripled; + 88%; + 61%), less evident, especially in absolute terms, in the other countries, but with a growing trend.



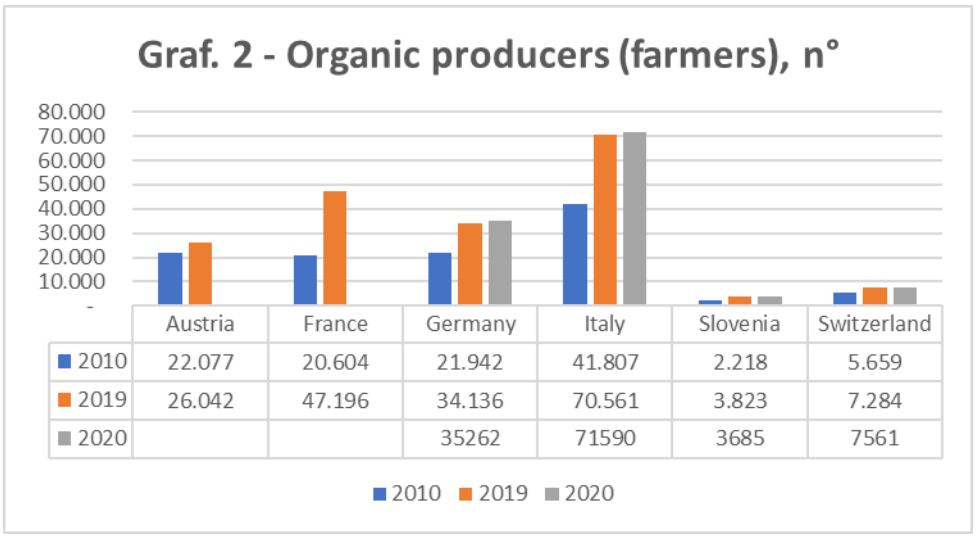
	Austria	France	Germany	Italy	Slovenia	Switzerland
2010	568.193	845.442	990.702	1.113.742	30.696	111.514
2020	671.703	2.517.478	1.590.962	2.095.364	52.078	176.337

Source: EUROSTAT, 2022

The producers' propensity to adopt organic protocols increased during this period in all the AC Countries, both in terms of number of producers (Graf. 2) and also in terms of share of organic surfaces on the total UAA (Graf. 3), in line with the growing demand for organic food, driven by the increase in consumption on the market (graf. 4).

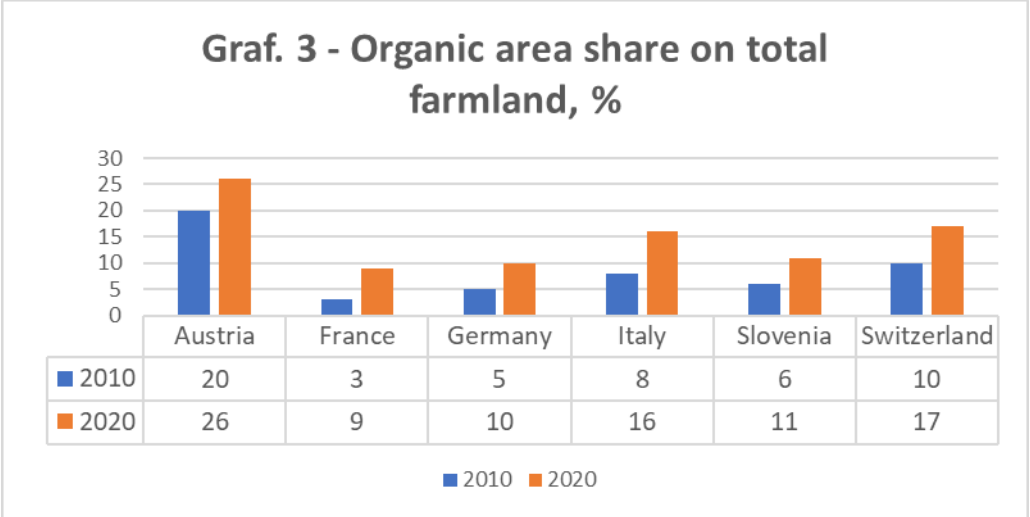
In many cases the incidence on total farmland has doubled (Germany, Italy and Slovenia), and in one case (France) has tripled. Austria shows a less evident increase, which still allows to reach well in advance the goal set by the F2F Strategy of 25% of the total national farmland by 2030. Other countries (Switzerland and Italy), while still below this threshold, could be in a position to reach this target of 25% by 2030. Germany and Slovenia, on the other hand, will soon have to take targeted measures to push farmers' propensity towards the organic model, to be in line with the objectives proposed by the F2F Strategy.

The average size per farm of organically cultivated surface tends to be medium-high (Graf. 5): the range goes from 14 hectars in Slovenia up to 45 hectars in Germany, with stable or slightly increasing trend in the period 2010-2020 in all the Countries, with the exclusion of France, where instead it has more than halved, due to the large increase in producers, rose to over 47,000 units.



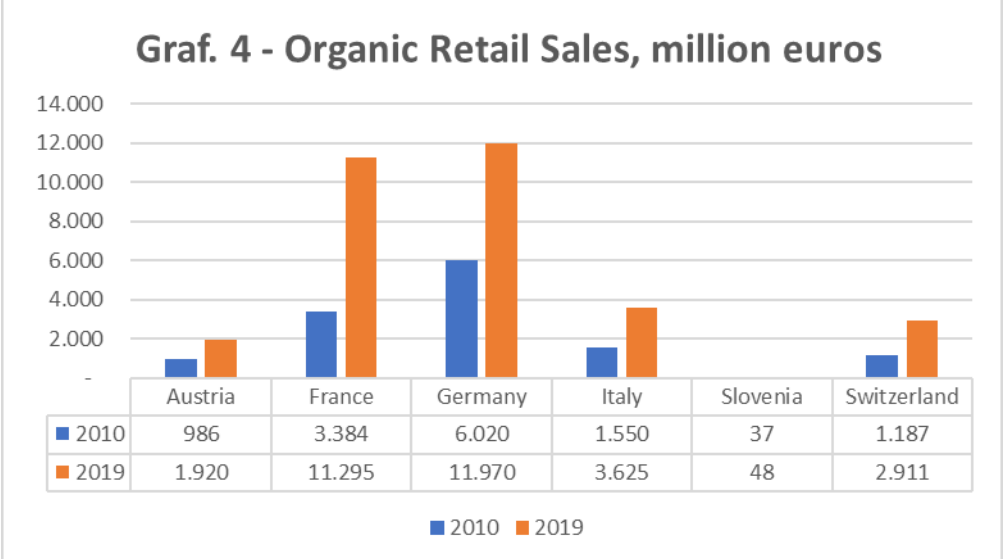
	Austria	France	Germany	Italy	Slovenia	Switzerland
2010	22.077	20.604	21.942	41.807	2.218	5.659
2019	26.042	47.196	34.136	70.561	3.823	7.284
2020			35262	71590	3685	7561

Source: EUROSTAT, 2022



	Austria	France	Germany	Italy	Slovenia	Switzerland
2010	20	3	5	8	6	10
2020	26	9	10	16	11	17

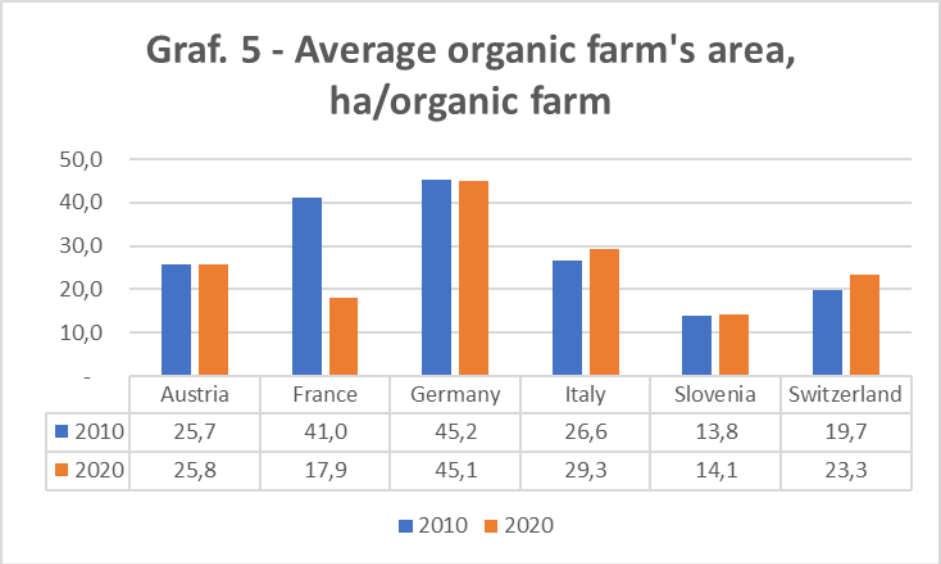
Source: EUROSTAT, 2022



	Austria	France	Germany	Italy	Slovenia	Switzerland
2010	986	3.384	6.020	1.550	37	1.187
2019	1.920	11.295	11.970	3.625	48	2.911

Source: FIBL, 2021

These relatively high average surfaces per farm are justified by the fact that often, especially in Alpine farms, the organic surfaces include natural meadows and pastures of large extension for grazing or haymaking, not subject to chemical treatments or fertilization. From this data, instead, we cannot deduce anything with respect to the average size of farms in terms of total UAA, nor if and to what extent the farms are completely organic or mixed conventional-organic. In Italy, for example, most of the organic farms are not so exclusively, as they are managed cultivation and breeding processes even in a conventional way.



Source: EUROSTAT, 2022

1.5 Some results from Task 1 activities

In Switzerland and Austria organic farming has become more and more important over the last 20 years, expecially in mountain territories. The reason for such a positive evolution lies on many drivers that have, on the one hand, sensitized consumers towards healthier food, and, on the other, have been able to support farmers through policies and to adeguately promote these products on the markets and at consumers, tourists and catering (collective and private).

In all Switzerland (data referred to 2020) organic farming represents 17% of the total UAA and 15% of farms; but inside the AC perimeter agriculture is more oriented to the organic model, bringing the two shares to 25% for surfaces and 20% for farms.

Inside the AC perimeter we can observe generally a lower intensity of livestock per farm, both for non-organic farming (24,3 adult cattle versus 27,8 for all Switzerland) and for organic-farming (22,5 versus 23,3), indicator of less intensive breeding techniques in mountain territories thanks to traditional mountain pasture and pastoralism techniques. Nevertheless the differences observed between organic and non organic farming and between all Switzerland and only the AC perimeter are quite small because all Swiss agriculture is based on low-input models, even when not organic. These data justifies the fact that in Switzerland a large number of cheeses and meat products have very good organoleptic requirements, precisely for these low intensity breeding techniques. So a large number of these products have obtained over time the protected designation of origin (PDO) mark, giving rise to important supply chains for the mountain territories in terms of value and jobs opportunities.

Most of the organic farms in Switzerland are family-owned and family-managed. Organic farms run by women in all the Country account for a little more 17% (6% for all Swiss farming); over 21% inside the AC perimeter. Farmer's average age shows a small but significative difference between organic (49 years) and non-organic model (51 years), both for all the Country and within the AC perimeter. The average age data is positive, indicator of a good generational turnover. In terms of gender, data show a major propensity for the organic model among younger tenants, involving more women.

In Austria there has been a growth of organic farming since the 90s of the last century, because in this country there has always been a greater sensitivity of consumers and administrations towards a more natural and healthy diet and agriculture. Organic area (672.000 ha) represents 26% share of total UAA, managed by 23% of the overall farms. But this share rise to 26% inside the AC perimeter, while outside it goes down to 19%.

Among the organic areas, just about 1/3 is represented by pastures, and 1/5 by arable land. Inside the Austrian AC perimeter organic livestock productions (cattle, pigs, milk) is larger than outside, indicating that in Austria Alpine territories represent the better conditions to obtain agriculture raw material for final consumption or for a further processing.

Very important for Switzerland and Austria is the certification and use of brands. The certification and the branding connected are obtained at different levels: EU regulation (Reg. EU 2018/848 and related regulations), national regulation (Swiss Organic Farming Ordinance, SR 910.18; Austrian Organic Farming Guideline), certification for large-scale retailers' chains, local / regional certification brands (es. 100% Valposchiavo).

It should be noted that the growth of this production model is also based on a strong horizontal integration between producers through various Producers' Associations both in Switzerland (BioSuisse, DemeterSwitzerland) and Austria (BioAustria and others less representative). They support farmers and procucers for changing in legislation, technical updates, control activities, certification, use of brands, and give producers a greater bargaining force, expecially with large retailers' chains.

2. PART 2 - DEVELOPING ORGANIC AGRICULTURE SCENARIOS FOR ALPINE REGIONS (Task 2)

Introduction

The state of organic farming in the Alpine territories is by no means a homogeneous reality. The conditions for its development are not only linked to the sensitivity and propensity of farmers to use this production model, but they also benefit from the sensitivity of the institutions to favour this way of producing and from the sensitivity of the market to go towards this type of consumption. Obviously, the lower yields obtained in the field and on farming livestock reflected on the prices of organic food, which are on average higher than those from conventional agriculture. This reduces the potential consumption basin. There are, however, a series of determining factors (drivers) that can specifically or negatively affect the production and consumption trends. What has been observed from the data presented in the first part of this report is precisely the result of different dynamics by these determinants that have evolved and acted differently in different national contexts.
The trend in consumer incomes, the competition by non-organic productions, the constraints and bureaucracy associated with certification, education and knowledge skills both from consumers and from farmers, the evolution and expansion of marketing channels for organic products, are just some examples of the drivers capable of modifying the future prospects of organic agriculture in general and of Alpine organic one in particular. The attention of TASK 2 focuses on the definition of possible scenarios for the development of organic farming and surfaces in the Alpine regions in the next decade, so this part of the report aims to outline the possible scenarios that organic farming could undergo as a function of possible evolutions of the main determinants, extrapolating the trends observed up to now regarding production in some AC countries.

It should also be emphasized that the good trends recorded in the last decade 2010-2020 (and accentuated by the COVID-19 pandemic) towards organic food obtained with more environmentally friendly production methods have radically changed in autumn 2022. The increase in inflation, the energy crisis and the trade exchanges crisis following the radically changed European international scene, all these elements have begun to have a very negative impact on families' expectations and consequently on their consumption, due to very uncertain economic and political prospects. The scenarios presented here obviously fail to consider conditions, which were completely absent in the production and consumption data relating to the last decade and which were, moreover, completely unexpected in Europe.

2.1 Important drivers on organic farming

Not all mountain farming is organic. There are many reasons that influence the choices of Alpine farmers towards (or not) the organic production model. Depending on the times required for determining their effect, they can be schematically divided into short and long-term drivers.

Among the short-term drivers there are certainly constraints and bureaucracy imposed by the organic production method for the certification. Not all Alpine farmers are encouraged (by size, skills, time required, and many other factors) to adopt it, particularly in the case of small farms. In general, the higher costs of organic production are linked to lower production yields and to the costs determined by the controls to obtain the certification. Particular attention should be reserved to the regulations (national and EU) for the organic production and its

application in mountain areas. Among the issues of relevance for the future we may recall the Group Certification for small farms and cooperatives. The Group Certification, which will be discussed later, could offer possibilities for simplification and cost reduction, but its success in mountain territories will depend on how this possibility will be implemented at European and national level.

It should be emphasized that these aspects linked to the certification restrictions can also act on farmers who had already organized themselves to produce organically. A good example comes from Aosta Valley (Italy), where in 2020 the only cooperative organized to produce organic Fontina d'Aosta (PDO cheese) saw the number of organic members (and consequently their delivers in organic milk) to drastically decrease, due to heavy fines imposed because of an incorrect storage of organic feed.

Another potential short-term driver is represented by policies and funding declined in supporting the organic farming, both inside the Common Agricultural Policy (CAP) and at national / regional levels. In many regions and EU countries, the propensity of farmers to adopt the organic approach has grown, albeit at different rates, as can be seen from the increase in the national organic UAA. For the next programming of EU CAP, it has been proposed to move fundings for organic farming practices from the Second to the First Pillar, by inserting organic farming among the possible activities planned within the Ecosystems, but still leaving to Member States the freedom to decide on which Pillar to articulate the support. It will be necessary to verify if and to what extent the aids amount (in EU and countries) and if the new rules for access will be able to convince a larger number of producers in the Alpine areas.

Among the more long-term drivers there is the market demand and prices. If demand for organic food increases, this would drive production, but how much mountain areas can benefit is not easy to estimate. Prices are a very important factor for mass consumption and production. On average, prices for organic products are higher, but this is not the same everywhere and for all products. When market prices are indeed higher, there is greater satisfaction among producers, but demand remains tight. In other cases (here, again, the example of Fontina from Aosta Valley) the price for the organic product does not differ much from the homologous non-organic product, and this naturally discourages the commitment by producers.

In turn, demand must be supported by a healthy economy. We are struggling to emerge from a never seen economic and pandemic crisis. COVID 19 has made consumers aware of the importance that the environment has on the health of people and animals (wild and farmed), and therefore on the importance of a healthy diet with products from healthy environments, such as the mountains. Also, but not least, they have developed a greater sensitivity to agricultural farming "kind" to the environment. But we know very well that not all the families have incomes and knowledge allowing them to buy a food basket at a higher cost than a conventional one. Therefore, the economic performance of the various countries in the coming years will play a crucial role in the organic farming development in mountain areas.

2.2 Trend of organic farming in AC countries in the last decade

Some general data on organic farming in the six main countries within the perimeter of the Alpine Convention (AC) have been presented in the previous part, to better catch the organic farming trends in the decade 2010-2020. These data were extracted from the Eurostat database.

For at least twenty years the organic production model has been enjoying success in the world and in Europe, driven by a progressive appreciation by consumers of healthier and more environmentally friendly foods. In all AC countries, the organic surface area therefore increased considerably in the decade 2010-2020, with particularly marked growth in France, Italy and Germany. The crops mainly practiced in the different countries are different. In Italy, for example, in 2019 arable crops and vegetables prevail (49%), followed by fruit trees

(including vines, 28%) and secondary meadows and pastures (24%), while in France, for example, alongside arable crops and vegetables (56%), are widespread meadows and pastures (37%) (Gerini, 2021), outlining different organic food orientations induced also by processing chains that have different importance in the different Countries.

The data on surfaces in Italy (Graf. 1), however, cannot be considered representative also for the AC perimeter as most of the organic surfaces are located in Southern and Central Italy regions, while in those involving the Alps in 2020 they represented only 9,25% of Italian organic farming (SINAB data, 2022). In Switzerland and Austria these data are much more representative of what happens to organic farming within the AC perimeter. Here the growth trends of the surfaces are less evident, also because in these two countries the growth of the organic model started already before the observed decade.

The number of producers (farmers) also followed the same trend as the surfaces (Graph 2), favoured by the CAP of the last two programs (2007-2013 and 2014-2020) that gave good financing opportunities to organic farming through the implementation of Measure 11 of the RDP and considering organic farming practices equivalent to those envisaged by greening measure on First Pillar.

The greater propensity of producers towards this farming model is also perceived by observing the incidence of the organic surface on the total farmland (Graph 3), which increases in all countries, particularly in Italy, Switzerland and Germany.

These dynamics of the agricultural offer reflect a growing interest by consumers and the main distribution channels, which saw the volume of sales considerably grow in the period 2010-2019 (Graph 5), that more than tripled in France and roughly doubled in Italy and Germany. The effect of the Covid 19 pandemic has certainly contributed to maintaining this growing trend in the last two years because it has played an important role in raising awareness among consumers on the importance that a healthy diet has not only on human health, but also on the environment. Crops using fewer chemicals and farming using traditional practices have almost negligible impacts on ecological balance, on the quality of air, soil and deep / surface waters, and on the protection of pollinator insects.

2.3 The organic surfaces under conversion as an indicator of the short-term scenario

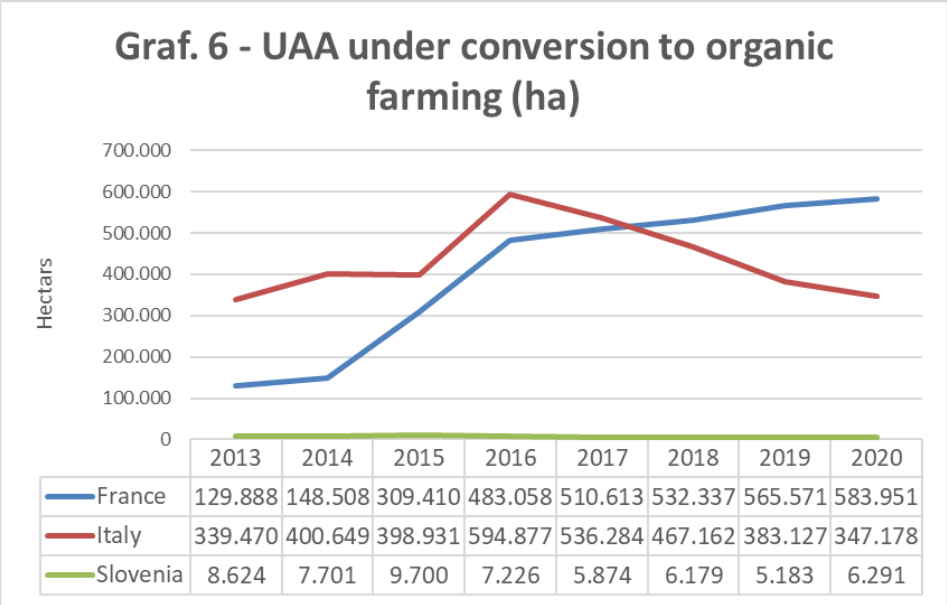
To understand what scenarios could develop over the next decade following the evolution of all these different drivers (organic and non-organic agricultural policy, demand, general economic and social conditions, organic regulation, consumer sensitivity) it is necessary to make assumptions about their possible changes in the various countries, in particular in the Alpine regions. Outlining possible scenarios is not easy if you do not have for all the AC perimeter up-to-date quantitative data and previous historical series to make statistical forecasting. In this context, we can only try to outline in qualitative terms which possible perspectives Alpine organic farming could have with more favorable, less favorable, or almost similar conditions to the most recent past, with respect to the levers above identified.

To start this exercise, a useful indicator of future farmers' propensity towards organic farming, albeit in the short term, is represented by the trend in surfaces under conversion. Using EUROSTAT data (as already mentioned, available only at national level) it can be observed that only 3 AC countries (France, Italy and Slovenia) make this information available (Graph. 6). This trend, actually, represents the overall effect of the forces that we have tried to outline just now, taking into account the reaction times required by the farmers' choices.

Although the graph is poor in national data, the heterogeneity of situations between the different countries is clearly observable, heterogeneity which we also find in the areas within the AC perimeter. In the period 2013-2020, the growth of organic surfaces was accompanied by a progressive increase also of the surfaces under conversion. In Italy, on the other hand, a first phase of increase in areas under conversion (which took place until 2016) was followed by another with their significant decrease, which caused a slowdown in the second

half of the decade in the rate of growing of the organic UAA at national level. In the case of Slovenia, no particular variations are observed for this data in the same period.

The decrease in areas in conversion in Italy is not so easily interpreted, although certainly the trend in national demand has had its effect. The average per capita consumption of organic food in value in Italy, despite having increased in absolute value, is in fact much lower than in AC Countries (such as Austria, Germany and Switzerland) (Willer et al., 2021), and in the last 5 years, as a result of the economic recession that mostly hit middle-income families, they grew in relative terms less than the consumption of conventional food (Meo, 2021).



	2013	2014	2015	2016	2017	2018	2019	2020
France	129.888	148.508	309.410	483.058	510.613	532.337	565.571	583.951
Italy	339.470	400.649	398.931	594.877	536.284	467.162	383.127	347.178
Slovenia	8.624	7.701	9.700	7.226	5.874	6.179	5.183	6.291

Source: EUROSTAT, 2022

2.4 A comparison between territories inside and outside the perimeter of the AC

To better understand what effects the different drivers (and in general socio-economic and environmental conditions) produce on farmers' organic choices, it is very useful to make a comparison between the territories inside and outside the perimeter of the Alpine Convention. To do this, however, it is necessary to have annual data disaggregated by farms' location. In some countries (for example Italy), these data are only available by Agriculture Census.

For Austria and Switzerland, instead, municipal / regional data on organic farming are also available for years different from the Agriculture Census period. So, for these two countries it is easier to value the propensity of farmers in Alpine areas towards this model of agriculture compared with what happens outside the perimeter of the Alpine Convention.

Switzerland data available for the period 2000-2020 (Table 1) show a very positive growth trend for surfaces (+ 114%) and number of organic farms (+ 54%).

In the same period, there was a trend with a different rate inside and outside the AC perimeter, with much less marked growth in the Alpine areas, albeit still positive. This is observed both in the organic surfaces, both in the number of farms and also in the average UAA per farm.

This comparison indicates that even when market demand, policies supply by the institutions and farms' structures are in the best conditions to adopt this model of agriculture, the Alpine areas still present conditions of greater fragility, which make a little less easy its adoption.

Table 1 - Organic farming in Switzerland: a comparison between territories inside and outside the AC perimeter (2000-2020)

	2000	2005	2010	2015	2020	Change 2000-2020, %
	UAA for organic farming, ha					
overall	82.748	117.117	111.514	135.638	177.347	114,3
outside AC perimeter	28.421	39.003	38.764	51.707	80.023	181,6
inside AC perimeter	54.327	78.114	72.750	83.931	97.324	79,1
	Organic farms, units					
overall	4.902	6.420	5.659	6.298	7.561	54,2
outside AC perimeter	1.619	2.023	1.885	2.297	3.211	98,3
inside AC perimeter	3.283	4.397	3.774	4.001	4.350	32,5
	Average organic area per farm, ha/unit					
overall	16,9	18,2	19,7	21,5	23,5	39,0
outside AC perimeter	17,6	19,3	20,6	22,5	24,9	42,0
inside AC perimeter	16,5	17,8	19,3	21,0	22,4	35,2

Source: OFS, Relevé des structures agricoles, 2021

In the case of Austria (see in this respect the contribution of the Austrian Delegation in the first and second part of this report) the market demand and the growing sensitivity of consumers on the one hand, the national political choices on the other, have had a driving role in the developing of the number of organic farms and surfaces in the last twenty years.

Faced with a general decrease in farms (functional moreover to a rationalization of production structures over this twenty-year period), the total number of organic farms has grown, and with it the organic areas. However, by comparing the situation inside and outside the AC perimeter, we can observe that their increase in absolute terms took place above all outside the AC perimeter, while inside the number first decreased and then went back to the initial values. However, inside the AC perimeter the number of non-organic farms continued to decline, increasing the incidence of organic farms in relative terms.

This certainly means that in mountain areas some more difficulties exist for the development of organic farming, but in these same areas this production model has allowed local organic farms to keep their business much more than non-organic ones.

In terms of funding received, in the period 2015-2020 organic farms received increasing funding (in relative terms) on the First and Second Pillar, thanks to an growing sensitivity of policy makers towards supporting this model of agriculture.

The enhancement of organic products, through certification and branding, have also contributed to develop a growing interest by consumers, facilitated in purchasing thanks to the expansion of distribution channels, both within large-scale and also more specialized distribution.

2.5 The example or Piedmont (ITALY): focus on recent organic farming trend

Piedmont is part of the perimeter of the AC and for this region (unfortunately not for all Italian area within the perimeter) data on agricultural activities (organic and conventional) referring to single municipalities are available starting from 2016. Therefore, in this period it was possible to evaluate the importance of organic farming for this region in terms of farms and areas, comparing what happened in all the region and only in the area included in the AC perimeter. The results of these comparisons are shown in the following tables.

In the last 5-6 years, organic agriculture has had a good expansion when compared to the agricultural sector as a whole (Table 2). Farms and organic surfaces increased significantly (+ 46,5% for farms, + 56,2% for organic UAA), against a sharp decrease in overall farms and a much more contained increase in total surfaces (+ 3,6%).

Table 2 - Organic farming in Piedmont, years 2016-2021

	2016	2017	2018	2019	2020	2021
Farms overall (n.)	50.776	48.795	47.372	46.190	45.028	43.785
UAA (ha)	869.556	888.135	895.465	901.474	898.390	901.218
Organic farms (n.)	1.593	2.071	2.157	2.246	2.280	2.333
Organic farms share (%)	3,14	4,24	4,55	4,86	5,06	5,33
Organic UAA overall (ha)	32.047	42.681	47.995	47.756	48.574	49.774
Organic UAA share (%)	6,32	8,77	10,19	10,43	10,89	11,45
UAA under conversion (ha)	7.417	15.566	15.877	12.836	8.822	7.486

Source: our elaboration on data from Anagrafe Agricola Unica, Regione Piemonte, 2022

This trend was induced by several factors. On the one hand, the measures provided for in the RDP (Measure 11) have encouraged the use of this production model, also because it is considered equivalent to greening, and therefore decisive in the annual funding received by farms. In Piedmont mountain areas, in addition to meadows and pastures, the most represented crops are fruit trees, while the certified animals are mainly represented by cows for the production of milk (Mazzarino, 2019).

Consumer demand, favored by the expansion of sales channels (traditional and large-scale distribution) has also shown a progressive interest in organic food, despite limited growth in the regional economy. In any case, Piedmont (with less than 12% of UAA devoted to organic farming) is still very far from reaching the goal of 25% of the F2F strategy and it will have to implement strong initiatives (political, commercial, educational) to increase the propensity towards this model.

Despite these general trends, Piedmont represents very well how the different territories can have very different dynamics regarding the farmers' choices towards this production model.

The following tables take into consideration only the provinces interested by the AC perimeter, and clearly show that in the different areas (especially those within the AC perimeter) the farmers, who generally tend to be more reluctant to convert to this production model, made very different choices even in presence of similar economic and market conditions.

In general, in the period 2016-2021 the percentage shares of farms and surfaces increased in all the provinces (table 3), but with a very different trend, fluctuating for farms in all the

provinces (except for VCO), sometimes with a certain downsizing of the surfaces shares, especially in the last two years (Cuneo and Novara).

Table 3 - Organic farming in Piedmont (Italy): share of organic farms and organic surfaces in the different province inside the AC Perimeter (2016-2020)

	Piedmont Provinces interested by the AC Perimeter											
	BIELLA		CUNEO		NOVARA		TORINO		VERBANO-CUSIO-OSSOLA		VERCELLI	
	farms share %	UAA share %	farms share %	UAA share %	farms share %	UAA share %	farms share %	UAA share %	farms share %	UAA share %	farms share %	UAA share %
2016	5,51	8,39	3,80	4,33	3,72	2,79	1,95	1,22	3,69	1,64	6,60	6,61
2017	5,42	12,41	8,35	5,11	5,44	3,62	12,62	2,12	8,47	2,74	2,63	7,76
2018	3,62	13,47	7,08	5,31	4,39	3,99	7,76	2,47	3,47	2,75	2,43	8,82
2019	3,05	13,17	7,19	5,72	4,01	3,73	6,86	2,44	4,45	3,34	2,04	6,87
2020	3,37	11,19	6,77	5,97	4,01	3,87	7,30	2,61	3,72	3,19	2,36	6,37
2021	4,24	11,67	6,68	6,43	3,68	3,26	6,96	2,66	4,04	3,73	2,63	6,84

Source: our elaboration on data from Anagrafe Agricola Unica, Regione Piemonte, 2022

These differences are accentuated and highlight very different situations when comparing the trends in organic agriculture between the Piedmont area outside and the one inside the AC perimeter (Table 4), and also with reference to the single provinces (Tables 5 and 6).

Table 4 - Organic farming in Piedmont (Italy): a comparison between territories inside and outside the AC perimeter (2016-2020)

	2016	2017	2018	2019	2020	2021	Change 2021-2016, %
	organic farming UAA, ha						
overall	32.047	42.681	47.995	47.756	48.574	49.744	55,2
outside AC perimeter	21.236	29.885	35.335	34.877	35.466	35.546	31,3
inside AC perimeter	10.811	12.796	12.659	12.879	13.107	14.198	67,4
	Organic farms, units						
overall	1.593	2.071	2.157	2.246	2.280	2.333	46,5
outside AC perimeter	879	1.236	1.344	1.403	1.403	1.443	64,2
inside AC perimeter	714	835	813	843	877	890	24,6
	Average organic area per farm, ha/unit						
overall	20,12	20,61	22,25	21,26	21,30	21,32	6,0
outside AC perimeter	24,16	24,18	26,29	24,86	25,28	24,63	2,0
inside AC perimeter	15,14	15,32	15,57	15,28	14,95	15,95	5,4

Source: our elaboration on data from Anagrafe Agricola Unica, Regione Piemonte, 2022

In table 4 the differences in the period considered are observed in the rate of growth and in the percentage changes of surfaces and farms outside and inside AC perimeter. In the case of surfaces, organic ones have increased much more significantly in mountain areas (inside the perimeter), because in general farmers have used permanent meadows and pastures to increase the surfaces that can be easily certified as organic. But regarding to farms, the percentage variations in the period considered are less evident in the AC perimeter than in outside (not alpine area), and indicate that mountain farmers are less inclined to adopt this method, especially due to the complications that organic certification requires and the concern of not being able to carry out correctly all the required steps.

Inside the AC perimeter of the various provinces concerned, along the period considered the behavior of organic surfaces and farms was very different (tab. 5). Cases of relative success for organic surfaces, such as Turin and Vercelli were contrasted with cases of total failure of the model (Biella) or lukewarm acceptance (Cuneo), just in provinces where Alpine territories are widespread.

Table 5 - Organic surfaces (UAA, ha) in Piedmont (Italy): a comparison between four Provinces, among territories inside and outside the AC perimeter (2016-2020)

	2016	2017	2018	2019	2020	2021	Change 2021-2016, %
CUNEO Province (mountain share 73,83%)							
overall	11.350	13.668	14.349	15.473	16.143	17.403	53,3
outside AC perimeter	3.135	4.759	5.657	6.169	6.472	7.132	97,7
inside AC perimeter	8.215	8.909	8.692	9.304	9.671	10.271	25,0
TORINO Province (mountain share 65,70%)							
overall	2.464	4.382	5.149	5.083	5.434	5.621	128,1
outside AC perimeter	1.493	2.695	3.388	3.565	3.735	3.854	158,1
inside AC perimeter	971	1.687	1.761	1.518	1.699	1.767	82,0
BIELLA Province (mountain share 57,98%)							
overall	1.753	2.626	2.884	2.820	2.383	2.473	41,1
outside AC perimeter	521	1.076	1.318	1.374	1.280	1.406	169,9
inside AC perimeter	1.232	1.550	1.566	1.446	1.103	1.067	-13,4
VERCELLI Province (mountain share 38,5%)							
overall	6.732	7.899	9.025	7.005	6.541	7.045	4,6
outside AC perimeter	6.424	7.521	8.660	6.837	6.316	6.467	0,67
inside AC perimeter	308	378	365	168	225	578	87,7

Source: our elaboration on data from Anagrafe Agricola Unica, Regione Piemonte, 2022

A similar behavior is observed for organic farms located inside AC perimeter (tab. 6), whose growth in the same period is systematically struggling to maintain the same rhythms recorded in the plains or hills.

Table 6 - Organic farms (N°) in Piedmont (Italy): a comparison between four Provinces, among territories inside and outside the AC perimeter (2016-2020)

	2016	2017	2018	2019	2020	2021	Change 2021-2016, %
CUNEO Province (mountain share 73,83%)							
overall	745	948	968	1032	1048	1078	44,7
outside AC perimeter	187	294	332	369	360	378	102,1
inside AC perimeter	558	654	636	663	688	700	25,5
TORINO Province (mountain share 65,70%)							
overall	223	311	340	353	371	378	69,5
outside AC perimeter	118	175	198	210	227	235	99,2
inside AC perimeter	105	136	142	143	144	143	36,2
BIELLA Province (mountain share 57,98%)							
overall	75	95	95	88	95	101	34,7
outside AC perimeter	20	37	41	40	42	49	145,0
inside AC perimeter	55	58	54	48	53	52	-5,5
VERCELLI Province (mountain share 38,5%)							
overall	159	177	192	184	165	172	
outside AC perimeter	154	171	188	179	160	165	7,1
inside AC perimeter	5	6	4	5	5	7	40,0

Source: our elaboration on data from Anagrafe Agricola Unica, Regione Piemonte, 2022

The reasons for these difficulties in accepting the organic model in the Alpine areas are many and interrelated. In addition to the already mentioned distrust of the certification system (often really incompatible with the small economic size of companies), in Piedmont (but this thrue in general for Italy) there is no brand policy for organic products that is not the only logo of the EU regulation. So very often the consumer does not even recognize the origin of the organic food he/she buys, and does not even look for it. Finally, it should be remembered that the average per capita expenditure for organic food in Italy, despite having grown in recent years, still stands at very low values (60 euros per capita expenditure per year in 2019) and fails to tow for the offer (FIBL, 2021). For some years there has been an raising awareness in the main cities (Turin and other large ones) for school and public offices canteens, tending to offer more and more organic meals (using organic products also from distant areas), while at the catering level entirely organic restaurants are very little widespread.

2.6 Identification of possible scenarios for Alpine organic farming up to 2030

The possible scenarios for the development of organic farming (here evaluated in exclusively qualitative terms, and presented in Table 7) have been identified taking into account the possible evolution of the organic surfaces cultivated in the Alpine areas:

- ***scenario 1 – significant increase in cultivated areas***
- ***scenario 2 – steady trend of cultivated areas***
- ***scenario 3 – decrease in cultivated areas***

In doing this exercise, many elements were taken into account (but not in a statistically rigorous way). In particular the evolution of the surfaces realized in the past years up today in the different national / local contexts has been tried to connect to the drivers before recalled. Some of them, such as the prices recognized for organic products /raw materials, consumer demand and consumer incomes, are characterized by a high variability of expression in the various national contexts. Various papers and data extrapolated from some publications have somehow allowed us to outline these three different scenarios that could be hypothesized for organic mountain agriculture in the next decade depending on the declination of these main drivers.

As already said before, this exercise did not take into account imponderable and unexpected factors such as those that characterized the international scene in the first months of 2022. These are events that can clearly interfere heavily with the choices and possibilities of consumption of families, even those of medium income which have notoriously represented the most promising consumption basin for organic products so far.

- ***Scenario 1 - Consistent development of organic surfaces per year (>5-10% per year)***

This scenario is the most optimistic, and takes a cue from what has happened in Austria and Switzerland in the last decade. The most relevant aspects for this type of scenario are represented by:

i. a good sensitivity of consumers to go towards this type of consumption (demand), linked above all to a good spending power by the average consumer and a focus on preserving the mountain environment in an integral way;

ii. good economic performances obtained by organic producers, able to give a satisfactory income to those who are already engaged in this type of production and to entice those who are not yet in it;

iii. a great attention by policy makers to support this production model with different types of actions, especially in mountain areas.

The role played by consumers' demand is the key to the success of this model, because it is able, if positively triggered, to set points ii. and iii. in motion as well. A driving demand for organic consumption requires consumers able to sustain a higher food expense, therefore with medium and medium-high incomes. Furthermore, the role played by education is very important, both in terms of education skills for a healthy diet, and in terms of sensitivity to adopt diets that are more carefull to environmental protection, and finally in terms of sensitivity to support economically (therefore by paying higher prices) production models more attentive to the environment. The skills mentioned above (health and environmental) must be acquired both in the family and at school, following activities and consumption models implemented at various levels, including in private and public canteens.

Tab. 7 – Possible scenarios for organic farming in alpine / mountains territories declined according to the main drivers and possible actions

Possible scenarios for organic agriculture in alpine / mountain areas	EU and national agricultural policy measures	Prices for farmers (value chain)	Consumers' Demand	Consumers' incomes
Scenario 1 – Consistent development of organic surfaces per year (> 5-10% per year)	Increase in funding foreseen in the Measure11 of the regional RDP for farms located in mountain areas Increase in funding below a given farm UAA size / turnover, for farms located in mountain areas Projects / laws /funding at national level in favor of mountain organic producers (biodistrict) attention to include part-time farms and multi-active entrepreneurs in funding	Strengthening of the value chain through vertical integration (cooperatives) Prices for organic agricultural raw materials at least 35% higher than non-organic ones Branding (EU logo / local and regional branding)	Increasing in the average annual expenditure per capita on organic food (for low-consumption countries average annual expenditure increase should be at least 15%) Promotional actions to raise awareness of the consumption of low impact products on the environment and human safety	Increasing in national GDP Increasing in average per capita incomes inflation below 2-3%
Scenario 2 – Weak development (<5%) of organic surfaces per year or steady trend	Current distribution of funding on Measure11 of the regional RDP part-time farms excluded from funding on M11	Weak processing chains Prices for organic agricultural raw materials below 25% compared to non-organic ones	Moderate growth in average annual expenditure per capita on organic food	Steady trend in national GDP inflation below 2-3%
Scenario 3 – Organic surfaces decrease	Current distribution of funding on Measure11 of the regional RDP	Prices for organic agricultural raw materials below 15% compared to non-organic ones	Non-increasing or decreasing in the average annual expenditure per capita on organic food	Decreasing in national GDP inflation over 5%

As regards point ii., it is very important that the commitment of the organic producer is remunerated in terms of income (or in remuneration for their own work) at a higher level than that corresponding to those who adopt more conventional models. Although it is not easy to find specific studies that objectively compare the incomes of conventional and organic farms located in homogeneous areas (Offermann & Lampkin, 2005), many papers show that organic producers are generally satisfied by their income, by the average higher prices on the market and by the fact that in general, there are no situations of excess supply with respect to demand (Jouzi et al., 2017; Carillo et al., 2008; Canavari et al., 2004). In general, it is very important that the price of the organic product (whether it is the final product or the raw material deliverd to obtain the final product) is higher than that of the conventional homologous product, even if (due to the different production yields, different techniques and different work commitments) it is absolutely not certain that higher prices always correspond to higher incomes (Uematsu & Mishra, 2012).

A very important lever for orienting producers towards organic farming is undoubtedly the way organic regulation is declined. It is important that legislation on organic food ensures the consumer a high degree of safety with respect to what he/she buys. It is therefore important to maintain high standards of behavior required to organic producers, to prevent the level of quality assured to organic food decreasing in the long term. However, it should be emphasized that the commitment required by certification and compliance with regulations require to farmers a lot of time, administrative burdens, as well as direct costs (costs for checks by the certifying body, fully charged to the farm) and indirect costs (time for bureaucracy and legislative updates, possible fines in case of non-compliance, even if not serious). In the case of small farms (and perhaps not completely organic), these aspects often act as a brake on the adoption of the organic model.

In order these charges do not constitute a brake to the development of this scenario, greater flexibility in the application of rules and bureaucratic procedures (which are often more formal than substantial) would be desirable. From this point of view, the **group certification**, provided for by Reg. 2018/848 which entered into force from January 2022, could be an interesting opportunity for small organic mountain farms. However, even in this case, there are rules of behavior and constraints for the members of the group[6] which imply strong organization, cohesion and non-opportunistic behaviors within the group itself. It will be necessary to verify in the next future what will be the reaction and the degree of acceptance by small mountain producers forward this new form of certification.

Finally, political decisions and programs implemented to support organic agriculture in "more difficult" contexts, such as mountain areas, will also play an important role in supporting this production model in farms more fragile than their counterparts located in more structured geographical contexts. It is not necessary to recall the weakness of many Alpine areas in terms of infrastructures, social conditions (schools, hospitals, connections to large cities, etc.), and connectivity to the web. It will be important providing for increased funds for organic agriculture for farms operating in alpine / mountain areas, because they are characterized by living and working conditions less attractive than other better structured areas. Moreover, the delays - in some Alpine regions of up to 3 years, such as Aosta Valley - with which the funding provided by the RDPs (also on M11) are recognized, fatally induce producers to let go of their organic farming projects.

Again about this regard, we would like to point out the importance of supporting pluri-active farmers in some Alpine areas who supplement their income by allocating their working time to different economic activities (agriculture, employment for local authorities, sporting and recreational tourism activities, accommodation and catering, etc.). In some geographic contexts (in particular this is true for Italy and Piedmont in particular) if these farmers could not have these complementary economic possibilities, they could not base their income solely on agriculture. Although they are not agricultural enterprises in strict sense, the EU programs to support mountain agriculture must take these realities into account and ensure that they can keep active, otherwise the areas actually

[6] The constraints for the group members are economic (in the case of farmers the certification cost as single operator must be heavier than 2% of the organic turnover), physical (farm UAA not exceeding 5 ha), geographical (geographical proximity between the productive activities of the members), as well as the members organization and the procedures envisaged (internal control system for the group and sharing of structures or sites).

cultivated (organically or not) continue to decrease, and rural landscape will go on changing, covering the slopes with completely wooded areas.

- ***Scenario 2 - Weak development (<5%) of organic surfaces per year or steady trend***

This scenario is inspired by contexts that in the past have proved to be less favourable to the development of organic agriculture model, such as the case illustrated in Piedmont alpine areas.

The reasons for an unsatisfactory growth of the model are obviously opposite to those seen for Scenario 1. In particular, we recall the problems related to certification in its classic meaning, to an insufficient diversification in CAP funding (First and Second Pillar) reserved for small mountain farms, including part-time ones (very present for example in the Italian Alpine territories), and the delays with which often the payments are cashed out by farms. The limited economic conditions of families / consumers can also play a role, even if many countries (France, Austria and Germany) have shown in recent years that organic Alpine products, being products of excellent quality and made in limited quantities, are niche products and they almost always find commercial outlets if adequately promoted with brand policies that emphasize quality and local origin, beyond the EU branding.

Another aspect on which attention must be paid is the lack or the insufficient development of local supply chains responsible for the transformation of local organic agricultural products, such as milk and meat. In Piedmont, for example, all the organic milk produced is almost entirely destined for fresh consumption, because the subsequent processing involves separate and distinct processing lines, and this considerably complicates the subsequent phases, especially if managed independently by the farmers. Even organic meat destined for slaughter (which in itself already implies many difficulties in the breeding process due to the limitation in the use of drugs) is difficult to find in most sales channels.

- ***Scenario 3 – Organic surfaces decrease***

Scenario 3 is the worst, and reflects the numerous difficulties that small organic farms can face if they do not receive adequate attention from institutions, policy makers and market. The greatest fears are linked to the presence of a stagnant or regressing demand for organic food, due to major economic difficulties of the economic system as a whole (decrease in GDP, inflation, uncertain economic and political expectations at national and international level) which always produce restrictions on household consumption.

So far, situations like these have never occurred in the last 20 years, but the international situation that has arisen starting from autumn 2021 (energy price increases) and to follow from February 2022 (invasion of Ukraine and restrictions on international trade of energy materials and important agricultural inputs for animal husbandry) does not bode well.

We hope, in order to achieve the objectives of the F2F strategy, that the coming seasons will change what at the moment appear to be uncertain economic, political and market prospects.

3. CONCLUSIONS AND RECOMMENDATION

3.1 Agriculture and organic farming in the Alps

The Alpine territory is not only a natural environment suitable for the development of sports and leisure activities, but it is also an important productive space. Where agricultural and forestry activities have been maintained by applying traditional farming methods, with low input use and using species, breeds and cultivars suitable for mountain environment (Switzerland, Austria, Trentino-Alto Adige for Italy and many areas in the Alps French), the territories have maintained an excellent structure in terms of slope stability, fire control, ecological balances, rural landscape. This has made and makes Alpine territories attractive for tourists dedicated to winter and summer sports, but above all it also makes them accessible to those who, due to their age or personal needs, require relaxing and regenerating recreational spaces. It is therefore a natural and at the same time productive space to be preserved, also because it is the basis of strongly interrelated economies (quality food production, sporting attractions, wellness centres, cultural events, etc.), which in turn allow people (and young people) to stay and live in their territories.

Organic farming represents a certified production model, with limited use of chemical inputs and with a highly sustainable use of natural resources because it is based on the recycling of organic substances in the soil and crop rotation. Although its codification in terms of farmers' behaviour has a long history in the EU (Reg. (CEE) 2092/91), its definition and codification take as model the traditional agricultural practices applied over the centuries in agriculture, which, since the 1970s, were abandoned by most European farms to obtain higher production yields and incomes.

A very rich bibliography relating to the negative externalities produced by intensive agricultural models, with a high use of chemical inputs and, on the contrary, the benefits generated by the more extensive production models attentive to the environment, suggests that in the Alpine context, organic farming represents the optimal production model, able to respect the delicate ecological and morphological balances of the natural environment. However, it should be remembered that in Alpine territories, traditional cultivation, and breeding practices, even when not strictly certified as organic, are still very widespread among farmers, because local communities in general are strongly linked to traditional agricultural uses (breeds, cultivar, good practices) and to respect the common values. Only some areas at the lower valley, mainly oriented toward fruit crops, have been limitedly converted to more intensive forms of agriculture, with a greater intensity of use of chemical inputs.

These considerations lead to underline how important is, in the Alpine territories, not only to raise awareness of agricultural communities to adopt the organic production model, but more generally to preserve the implementation of low-inputs agriculture models in all their possible forms, that even without an organic certification, ensure a more sustainable use of natural resources and contribute to maintaining important ecological, economic, and social balances in the mountain areas.

3.2 The survey activity on organic stocktaking in the Alpine Convention Countries

The survey activity on territories and farms affected by organic farming, carried out during the 2021-22 mandate, presented many difficulties due to the lack of statistical data (EUROSTAT, FADN) disaggregated by altitude or by municipality at national level, such as to allow a comparative analysis between areas within and outside the AC perimeter of the AC countries.

Only Austria and Switzerland Delegations were able to provide updated data that showed an effective growth (both in absolute and relative terms) of the surfaces and of organic farms both with respect to conventional agriculture (Austria) and with respect to areas outside the AC perimeter (Austria and Switzerland).

For all the other AC countries, there was a very positive trend in organic farming, but relatively to the entire national area of each countries. The data, although all converging towards a significative growth for the surfaces (in absolute and relative terms) and for the producers concerned (in absolute terms) in the various countries, only in the case of Austria and Switzerland can be considered significant for the organic stocktaking activity, as they are notoriously countries with a prevalently mountainous area. The same data cannot be considered significant for Italy and France, where organic farming involves large areas not included in the AC perimeter.

This lack of up-to-date structural data on organic farming within the AC perimeter suggests that, if AC Permanent Secretariat / Committee will be still interested in alpine agriculture (organic and otherwise) in the future mandates, it should promote the constitution of a transnational database (currently missing) that aggregates statistical data and information essential to build a precise picture of characteristics, strengths, but above all criticisms that can be found in the territories within the perimeter.

Therefore, it can be said that in countries such as Austria and Switzerland the spread of Alpine organic farming has grown on average, especially in the last decade, driven by a growing appreciation by consumers, but it is not possible to argue with numbers that the same happened on the whole AC perimeter. The analysis of some data referring to Piedmont (an Italian region that enters partly within the perimeter) shows very heterogeneous situations within the perimeter, with increases in surfaces and farms in some areas flanked by decreases in other parts of the Alpine territory. The development of organic farming in the various territories depends in fact on the propensity of farmers towards this production model, which is different and influenced by many factors, first and foremost the income results that can be obtained, in turn influenced by the farmers technical skills, by rules and regulation to obtain the organic certification, by their ability to join together and make network, from the interest that consumers show towards Alpine organic products, and from the support offered by institutions and policy makers.

3.3 Organic scenarios in Alpine regions under the action of main drivers

The definition of possible scenarios for Alpine organic agriculture (which have been developed taking into account the possible future increase of organic surfaces, also in relation to the objective set by the “Farm to Fork” strategy by 2030) was carried out by focusing attention on some important drivers that can have influence on the evolution of organic agriculture in the perimeter: the prices producers will be able to obtain on the market for their organic products; the market demand; the trend of some macroeconomic variables that have direct influence on consumers’ purchasing power; the policies and measures implemented at local, national and community level to promote the organic model among farmers.

For the (most desirable) scenario of increasing the organic farming areas, an appreciable rate of yearly increase was assumed higher than 5-10%, in consideration of the average development rates presented by historical series of some of the countries concerned, and considering that the growth rate also depends on the values currently achieved by the organic surfaces in the various contexts.

3.4 Prices for organic products

This scenario highlights the importance of the price recognized to producers, which must be significantly higher than the corresponding price of the non-organic product (at least 35% more), even if this is not in itself a guarantee of satisfactory income (in organic farming yields are lower and there are additional certification costs, not present in non-organic productions). In turn, the price depends on what develops downstream the farm. The presence of supply chains with a strong agricultural component (vertical integration), well organized on a technical and marketing level, the possibility of using territorial brands (PDO, PGI) and / or other labelling systems able to

highlight the Alpine origin (even if non-organic) of raw materials, cheeses, meat products, are fundamental levers to differentiate from competing products and that strongly can influence the producers' income. Let's not forget that organic food can also come from other production areas and countries (even outside the EU), and it exerts competition on organic Alpine products, which therefore must be clearly distinguishable by the consumers.

3.5 Market demand and consumers' spending

Another fundamental lever is represented by demand, intended as consumers' interest and willingness to purchase organic products. Organic products of Alpine origin, mostly available in non-massive quantities, are placed in medium-high price segments, therefore they address to a consumer with a non-low income. Organic food demand is related to the propensity to buy, outlined by the average consumer spending on organic products, and by the number of consumers interested, connected to the average per capita income, which in the same country can change significantly from region to region, and between large cities and small urban centres. Notoriously Austrian and Swiss consumers (but also those located in Northern Europe) have for years matured knowledge and preferences towards products obtained with the organic method, for the reasons widely illustrated in the report, and this has strengthened producers to adopt this productive method. In other countries this has happened much less, although the Covid-19 pandemic has highlighted the importance of consuming food produced with less impact on the environment. Furthermore, in many countries organic food is readily available even on the shelves of large retailers, and not only in specialized shops, according to a range of private organic labels that go beyond the simple EU label.

So, market demand in the future will play a crucial role in the development of organic agriculture, including Alpine agriculture. It is therefore necessary to raise knowledge and awareness of consumers that consuming organic Alpine products can certainly cost more (even compared to "conventional" organic food) but allows to eat healthier, to consume products with better organoleptic characteristics, and above all, to take care of the alpine environment. Equally important is the labelling of organic Alpine products, which must not only serve to ensure the application of organic standards required by regulations, but has to provide additional information to the consumer about origin, nutritional values, making easy and immediate to distinguish the Alpine products from other organic (but also non-organic) products of more uncertain origin.

3.6 Exogenous macroeconomic drivers

Unfortunately, there are also some drivers completely beyond the control of producers but representing a potential risk for the commercial outlet of highly qualified niche products such as Alpine organic products. Macroeconomic variables such as GDP trend, the slowed economic growth, inflation, are factors that heavily affect the families spending power and purchasing choices. Inflation affects more, on average, the food basket acting as a brake on less essential consumption and weakening more low-income families. Inflation is a phenomenon that is reappearing in the euro area after at least two decades of absence, and together stagflation (inflation accompanied by economic decline), is the primary cause for concern for consumers as well as producers. It is difficult for small mountain farms to contrast these events with effective production and marketing strategies, we can only hope they can survive these negative cyclical moments with the help of targeted policies.

3.7 Policies for mountain agriculture and Alpine organic farming

Policies supporting mountain farms are fundamental: for their survival in times of collective difficulty and for their strengthening when general economic conditions are better. Policy makers must

consider the mountain agriculture fragility, because of the operational context (more difficulties for farms mechanization), and the small size of farms in terms of surfaces and turnover. On the other hand, it is important recognize to mountain farming (and to organic farming as well) the positive externalities that farmers determine with their work, that market is unable to fairly recognize through the products price.

Political leverage is therefore another fundamental driver that must be dosed with adequate measures, according also to contingent needs. The previous CAP programs have given great support to organic farming, through measure 11 of the RDP, enhancing funding under the conversion period and supporting costs during the production period. However, it would be very useful for the future if this measure (and others related to the First and Second Pillar) could also be implemented in the case of micro-units and part-time farms located in mountain. The part-time farms represent a reality (often not well surveyed) present in many Alpine areas because mountain agriculture, due to the reduced income capacity it can provide, is also based on units that often seek to diversify their business with multiple economic activities (multi-active farms), with perhaps the possibility of integrating between them (agriculture-hotel / restaurant services-services related to sport and leisure). Taken together, they count for little compared to Alpine agricultural production, but all together they play an important role for the mountains, in terms of territorial coverage, landscape and their presence in the local communities (that mostly are becoming depopulated).

3.8 Business networks and district development model for Alpine territories

Another important opportunity for the mountains (and therefore a useful political line) will be the possibility of creating projects and initiatives that develop or strengthen the intersectoral relationships that mountain agriculture and the forestry sector have with other economic sectors (sport, tourism and leisure, cultural events, agri-food industry, traditional cuisine and catering, handicraft, spa, furniture industry, energy production from by-products, etc.), creating the conditions for a multisectoral district economy. The development of relationships and networks between companies active in different sectors (sport, tourism, agriculture and forestry sector, craftsmanship, food industry) will be desirable, to create synergies among them and to allow that the growth of a sector become a stimulus also for other economic sectors. To make it possible, it is necessary to encourage partnership projects which, alongside local institutions, also involve the private sector. From this point of view, the Leader experience of previous CAP programs certainly offers useful ideas for action.

Recommendations

For a further and wider support to organic farming in Alpine areas, the following needs will be important for the coming years:

1. **Maintaining high attention on supporting incomes of Alpine farmers, through the declination of the First and Second Pillar measures that favour proportionately more mountain farmers (even part-time and pluri-active ones). To safeguard traditional mountain farming, supporting pastoralism and transhumance because these practices allow to maintain a load of livestock in the territories proportionate to the production capacities of the territories, to obtain products (milk, meat, cheeses, and other derived products) with organoleptic characteristics superior to the corresponding products obtainable with other production models, and because they have a beneficial effect on the landscape.**
2. **Declining rules for EU organic certification, taking into account the small size of mountain farms, in order not to increase difficulties encountered so far by small farms. Organic regulation is important not to lower the quality level, but the small size of farms often is not compatible with complex verification and registration procedures. Group certification could be a possible way for**

mountains farmers, but it is necessary to verify that the proposed procedures respond adequately to the simplification needs of small farms.

3. **Going on with promotion and marketing actions on both the products and the Alpine territories. Alpine organic products require appropriate promotion strategies, on site (fairs, exhibitions, etc.) and in the large cities adjacent to the Alpine territories. Citizens must be aware that their choice for local agricultural products represents a correct style of purchase and food, with a low environmental impact. Taking advantage of the Covid-19 effect, Alpine territories must be promoted as preferential destinations for experiencing wellness and relaxation, strengthening confidence with local products. Awareness-raising campaigns in schools are also needed to raise citizens aware of the importance of safeguarding Alpine agriculture.**
4. **The labelling of Alpine products (organic and otherwise) is a focus point in the promotion strategies. EU organic product certification is important but not enough. It is important that the consumer easily recognizes the Alpine product and its local origin, and he understands the meaning of a higher price, synthesis of harsher working conditions, lower production yields, non-constant over time, of a higher product quality, and of ecosystem services provided to all the community.**
5. **Making living conditions (economic and social) in Alpine areas comparable to those existing in the cities, to stop young people from escaping away from the mountains, choosing medium or large cities as their life and work destination.**
6. **Promotion of inter-sectoral projects and actions, to develop economic relationships and give life to districts and networks of cooperation among companies operating in different economic sectors.**
7. **Through the collaboration between universities, research centres and local institutions, it is possible to underline a new role that Alpine farms can play in safeguarding biodiversity. Some examples can be referred to the selection and domestication of ecotypes of spontaneous plants, traditionally used for therapeutic purposes, in herbal medicine, for liqueurs, etc., whose indiscriminate collection in the past has put natural populations and habitats at risk.**

BIBLIOGRAPHY

PART 1 – STUDY ON STOCKTAKING ON ORGANIC AGRICULTURE IN THE ALPS (Task 1)

Andreotti C. (2013), *Qualità delle produzioni frutticole di montagna*, Italus Hortus, 20 (2): 45-60

Arias-Estevez M., Lopez-Periago E., Martinez-Carballo E., Simal-Gandara J., Mejuto J-C., Garcia-Rio L. (2008), *The mobility and degradation of pesticides in soils and the pollution of groundwater resources*, Agriculture Ecosystems and Environment, 123: 247-260

Cardillo, C., Cimino, O., Gabrieli, G., Giampaolo, A., Vieri, S., & Pagliai, M. (2013), *La meccanizzazione agricola in Italia: aspetti tecnici, economici, ambientali e sociali*, Collana Studi e Ricerche, INEA-CREA

Casini L. (2009), *Guida per la valorizzazione della multifunzionalità dell'agricoltura*, Firenze University Press

Casini L., Scozzafava G. (a cura di) (2013), *La multifunzionalità dell'agricoltura nelle zone montane marginali: una valutazione qualitativa, quantitativa e monetaria degli impatti ambientali, economici e sociali*, Firenze University Press

Cerea G., Marcantoni M. (a cura di) (2016), *La montagna perduta. Come la pianura ha condizionato lo sviluppo italiano*, FrancoAngeli, Milano

Convenzione delle Alpi, Piattaforma Agricoltura di Montagna (2017), *Agricoltura di montagna. Segnali alpini 8*, Segretariato Permanente Convenzione delle Alpi

Eccel, E. (a cura di) (2022), *Bioagrimont: la biodiversità agraria e alimentare associata alle produzioni agricole e zootecniche di montagna, la conservazione in situ e la tutela del paesaggio agrario*, Fondazione Edmund Mach, S. Michele all'Adige (TN)

ESPON (2004), *The territorial impact of CAP and rural development policy*, ESPON Project 2.1.3, Final Report, August.

www.espon.lu/online/documentation/projects/policy_impact/1861/fr-2.1.3.pdf

Hayes T.B., Case P., Chui S., Chung D., Haeffele C., Haston K. et al. (2006), *Pesticide mixtures, endocrine disruption, and amphibian declines: are we underestimating the impact?* Environ Health Perspect, 114: 40–50. doi:10.1289/ehp.8051

Hole D.G., Perkins A.J., Wilson J.D., Alexander I.H., Grice P.V., Evans A.D. (2005), *Does organic farming benefit biodiversity?* Biological Conservation, 122: 113-130

ISPRA (2020a), *Italian Greenhouse Gas Inventory 1990-2018. National Inventory Report 2020*, report 318, Roma

ISPRA (2020b), *Italian Emission Inventory 1990-2018. Informative Inventory Report 2020*, report 319, Roma

ISPRA (2022), *Italian Emission Inventory 1990-2020. Informative Inventory Report 2022*, report 361, Roma

Laurent C., Maxime F., Mazé A. Tichit M. (2003), *Multifunctionality of agriculture and farm models*, Economie Rurale, 273/274: 134-152

MacDonald D., Crabtree J.R., Wiesinger G., Dax T., Stamou N., Fleury P., Gutierrez Lazpita J., Gibon A. (2000), *Agricultural abandonment in mountain areas of Europe: Environmental*

consequences and policy response, Journal of Environmental Management, 59, 1: 47-69. https://doi.org/10.1006/jema.1999.0335

Manrique E., Olaizola A., Bernués A., Maza M.T., Saez A. (1999), *Economic diversity of farming systems and possibilities of structural adjustment in mountain livestock farms*, Option Méditerranéennes, 27: 81-94

Marongiu S., Cesaro L, Latruffe L., Desjeux Y. (2010), *L'Efficienza tecnica delle aziende agricole di montagna: analisi dei dati RICA e confronto fra montagna Italiana e Francese*, Colloque joint ASRDLF - AISRe: Identité, Qualité et Compétitivité Territoriale - Développement économique et cohésion dans les territoires alpins, Association de Science Régionale de Langue Française (ASRDLF), Sep 2010, Aoste, Italy, 25 p.

Martin B., Verdier-Metz I., Buchin S., Hurtaud C., Coulon J.B. (2005), *How do the nature of forages and pasture diversity influence the sensory quality of dairy livestock products?* Animal Science, 81 (2): 205-212. doi: 10.1079/ASC50800205

Mazzarino S., Chenal G., Letey M., Francesia C. (2021), *Valutazioni economiche della viticoltura alpina - Manuale Tecnico*, IAR, Aosta, 48 p.

Parris K. (2011), *Impact of Agriculture on Water Pollution in OECD Countries: Recent Trends and Future Prospects*, International Journal of Water Resources Development, 27: 33-52

Pellizzi, G. (2000), *Sull'evoluzione della meccanizzazione agricola in Italia nel XX secolo*, Rivista di Storia dell'Agricoltura, 40(1): 53-86

Rodriguez-Pose A. (2017), *The revenge of the places that don't matter (and what to do about it),* Cambridge Journal of Regions, Economy and Society, 11 (1): 189-209

Stavi I., Rattan L. (2013), *Agriculture and greenhouse gases, a common tragedy. A review*, Agronomy for Sustainable Development, 33: 275-289. https://doi.org/10.1007/s13593-012-0110-0

Sturaro E., Marchiori E., Cocca G., Penasa M., Ramanzin M., Bittante G. (2013), *Dairy systems in mountainous areas: farm animal biodiversity, milk production and destination, and land use*, Livestock Science, 158, 1-3: 157-168

Velasquez B.E. (2001*), Il concetto di multifunzionalità in agricoltura: una rassegna*, QA Rivista dell'Associazione Rossi-Doria, FrancoAngeli, 3: 75-112,

Zambon I., Monarca D. (2017), *Processi di Meccanizzazione nel Contesto Rurale per lo Sviluppo Sostenibile*, Convegno "LA MECCANICA AGRARIA OGGI" Bolzano, 23-24 novembre

World Health Organization (1990), *Public Health Impact of Pesticides Used in Agriculture*, England

PART 2 - DEVELOPING ORGANIC AGRICULTURE SCENARIOS FOR ALPINE REGIONS (Task 2)

Andreotti C. (2013), *Qualità delle produzioni frutticole di montagna*, Italus Hortus, 20 (2): 45-60

Arias-Estevez M., Lopez-Periago E., Martinez-Carballo E., Simal-Gandara J., Mejuto J-C., Garcia-Rio L. (2008), *The mobility and degradation of pesticides in soils and the pollution of groundwater resources*, Agriculture Ecosystems and Environment, 123: 247-260

Cardillo, C., Cimino, O., Gabrieli, G., Giampaolo, A., Vieri, S., & Pagliai, M. (2013), *La meccanizzazione agricola in Italia: aspetti tecnici, economici, ambientali e sociali*, Collana Studi e Ricerche, INEA-CREA

Canavari M., Stanzani N., Pirazzou C. (2004), *Analisi di costi e redditività in aziende frutticole biologiche*, Rivista di frutticoltura e di ortofloricoltura, 66.2: 35-39

Carillo, F., Doria, P., & Madau, F. A. (2008). *L'analisi della redditività delle colture agrumicole attraverso l'utilizzo dei dati RICA*, INEA

Casini L. (2009), *Guida per la valorizzazione della multifunzionalità dell'agricoltura*, Firenze University Press

Casini L., Scozzafava G. (a cura di) (2013), *La multifunzionalità dell'agricoltura nelle zone montane marginali: una valutazione qualitativa, quantitativa e monetaria degli impatti ambientali, economici e sociali*, Firenze University Press

Cerea G., Marcantoni M. (a cura di) (2016), *La montagna perduta. Come la pianura ha condizionato lo sviluppo italiano*, FrancoAngeli, Milano

Convenzione delle Alpi, Piattaforma Agricoltura di Montagna (2017), *Agricoltura di montagna. Segnali alpini 8*, Segretariato Permanente Convenzione delle Alpi

Eccel, E. (a cura di) (2022), *Bioagrimont: la biodiversità agraria e alimentare associata alle produzioni agricole e zootecniche di montagna, la conservazione in situ e la tutela del paesaggio agrario*, Fondazione Edmund Mach, S. Michele all'Adige (TN)

ESPON (2004), *The territorial impact of CAP and rural development policy*, ESPON Project 2.1.3, Final Report, August.

www.espon.lu/online/documentation/projects/policy_impact/1861/fr-2.1.3.pdf

Furlan, S., Pietromarchi A. (2018), *Certificazione di gruppo. Il futuro dei biodistretti*, FIRAB, Regione Veneto

Gerini O., *Rivoluzione Bio 2021. I numeri chiave della filiera*, SANA, Bologna, available at: https://www.sinab.it/reportannuali/presentazioni-sana-2021

Hayes T.B., Case P., Chui S., Chung D., Haeffele C., Haston K. et al. (2006), *Pesticide mixtures, endocrine disruption, and amphibian declines: are we underestimating the impact?* Environ Health Perspect, 114: 40–50. doi:10.1289/ehp.8051

Hole D.G., Perkins A.J., Wilson J.D., Alexander I.H., Grice P.V., Evans A.D. (2005), *Does organic farming benefit biodiversity?* Biological Conservation, 122: 113-130

ISPRA (2020a), *Italian Greenhouse Gas Inventory 1990-2018. National Inventory Report 2020*, report 318, Roma

ISPRA (2020b), *Italian Emission Inventory 1990-2018. Informative Inventory Report 2020*, report 319, Roma

ISPRA (2022), *Italian Emission Inventory 1990-2020. Informative Inventory Report 2022*, report 361, Roma

Jouzi Z., Azadi H., Taheri F., Zarafshani K. et al. (2017), *Organic farming and small-scale farmers: Main opportunities and challenges*, Ecological Economics, 132: 144-154

Laurent C., Maxime F., Mazé A. Tichit M. (2003), *Multifunctionality of agriculture and farm models*, Economie Rurale, 273/274: 134-152

MacDonald D., Crabtree J.R., Wiesinger G., Dax T., Stamou N., Fleury P., Gutierrez Lazpita J., Gibon A. (2000), *Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response*, Journal of Environmental Management, 59, 1: 47-69. https://doi.org/10.1006/jema.1999.0335

Manrique E., Olaizola A., Bernués A., Maza M.T., Saez A. (1999), *Economic diversity of farming systems and possibilities of structural adjustment in mountain livestock farms*, Option Méditerranéennes, 27: 81-94

Marongiu S., Cesaro L, Latruffe L., Desjeux Y. (2010), *L'Efficienza tecnica delle aziende agricole di montagna: analisi dei dati RICA e confronto fra montagna Italiana e Francese*, Colloque joint ASRDLF - AISRe: Identité, Qualité et Compétitivité Territoriale - Développement économique et cohésion dans les territoires alpins, Association de Science Régionale de Langue Française (ASRDLF), Sep 2010, Aoste, Italy, 25 p.

Martin B., Verdier-Metz I., Buchin S., Hurtaud C., Coulon J.B. (2005), *How do the nature of forages and pasture diversity influence the sensory quality of dairy livestock products?* Animal Science, 81 (2): 205-212. doi: 10.1079/ASC50800205

Mazzarino S. (2019), *Agricoltura biologica: un'opportunità per la montagna*, Città del Bio, Torino

Mazzarino S., Chenal G., Letey M., Francesia C. (2021), *Valutazioni economiche della viticoltura alpina - Manuale Tecnico*, IAR, Aosta, 48 p.

Meinshausen F., Richter T., Blockeel J., Huber B. (2019), *Group Certification. Internal Control Systems in Organic Agriculture: Significance, Opportunities and Challenges*, Research Institute of Organic Agriculture, FiBL

Meo R. (2021), *Rivoluzione Bio 2021. Il mercato bio alla ricerca di nuovi stimoli*, SANA, Bologna, available at: https://www.sinab.it/reportannuali/presentazioni-sana-2021

Offermann F., Lampkin N. (2005), *Organic Farming in FADNs – Comparison Issues and Analysis, in Towards a European Framework for Organic Market Information*, Proceedings of the Second EISfOM European Seminar, Brussels, November 10 & 11, Research Institute of Organic Agriculture FiBL, Frick, Switzerland

Parris K. (2011), *Impact of Agriculture on Water Pollution in OECD Countries: Recent Trends and Future Prospects*, International Journal of Water Resources Development, 27: 33-52

Pellizzi, G. (2000), *Sull'evoluzione della meccanizzazione agricola in Italia nel XX secolo*, Rivista di Storia dell'Agricoltura, 40(1): 53-86

Rodriguez-Pose A. (2017), *The revenge of the places that don't matter (and what to do about it),* Cambridge Journal of Regions, Economy and Society, 11 (1): 189-209

Stavi I., Rattan L. (2013), *Agriculture and greenhouse gases, a common tragedy. A review*, Agronomy for Sustainable Development, 33: 275-289. https://doi.org/10.1007/s13593-012-0110-0

Sturaro E., Marchiori E., Cocca G., Penasa M., Ramanzin M., Bittante G. (2013), *Dairy systems in mountainous areas: farm animal biodiversity, milk production and destination, and land use*, Livestock Science, 158, 1-3: 157-168

Uematsu H., Mishra A. K. (2012), *Organic farmers or conventional farmers: Where's the money? Ecological Economics*, *78*, 55-62

Velasquez B.E. (2001*), Il concetto di multifunzionalità in agricoltura: una rassegna*, QA Rivista dell'Associazione Rossi-Doria, FrancoAngeli, 3: 75-112,

Willer H, Trávníček J, Meier C., Schlatter B. (2021), *The world of Organic Agriculture* FIBL & IFOAM

World Health Organization (1990), *Public Health Impact of Pesticides Used in Agriculture*, England

Zambon I., Monarca D. (2017), *Processi di Meccanizzazione nel Contesto Rurale per lo Sviluppo Sostenibile*, Convegno "LA MECCANICA AGRARIA OGGI" Bolzano, 23-24 novembre

VALUE CHAINS IN ALPINE REGIONS AND SELECTED SECTORS OF AGRICULTURE AND FORESTRY

Mountain Agriculture and

Mountain Forestry Working Group of the Alpine Convention

Mandate 2021-2022

ALPENKONVENTION
CONVENTION ALPINE
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ACRONYMS

AC: Alpine Convention
FOAG: Federal Office for Agriculture, Switzerland
PDO: Protected Designation of Origin
PGI: Protected Geographic Indication

INTRODUCTION

The essential role of value chain in mountain regions is to add value to a generally "poor" agricultural and/or forestry raw material, so to enhance it and allow it to be better exploited, affecting consumption areas potentially much larger than that of origin.
The question we should be asking is: what kind of value? – as there are several (economic, monetary, social, territorial), and all are relevant. The answer is not so trivial, because the activity of a supply chain, especially if in a mountain area, takes on many meanings, going beyond the economic significance. The purpose of this report is to highlight the role of value chains connected to the agricultural and forestry sector, highlighting which actions, policies, good practices can help in supporting and strengthening value chains in the mountain/Alpine economy. Alpine territory is understood, in this report, as defined for the Alpine Convention (AC) perimeter, which clearly also includes non-mountain territories.
The past economic theories considered the market for agricultural products one of the closest models to perfect competition as agricultural products were for a long time considered simple commodities. Now we know very well that even the basic agricultural materials (milk, meat, cereals, fruit and vegetables) are not homogeneous at all in their characteristics, but they are strongly affected by the environment where they were produced. The nature of the soil, the microclimate, the plant varieties and the animal breeds used, the production techniques and yields, the interactions between the production models with the ecosystems (natural/wild animals and plants), are all factors that influence notably chemical and organoleptic characteristics of the raw materials produced. These differences, already appreciable during the direct consumption at the fresh state, are accentuated because of the transformation and processing activities. The techniques used (industrial/conventional or traditional) complete the process of economic enhancement, but also plays an important role for the organoleptic enrichment of raw materials. In particular, if the transformation is carried out following non-industrial and conventional processes, but with artisanship and traditional processes, developed over the centuries, often not rigidly standardized and using particular inputs and materials, the organoleptic enhancement process of the starting raw materials expresses itself at its best.
The value chains of mountain products from agriculture fully respond to this interpretive model: they increase the value (monetary and other) of raw materials that are already intrinsically different in characteristics and value, as they cannot be compared with agricultural products from more intensive production areas and models. Actually, this is the philosophy behind Protected Designation of Origin (PDO) products: their geographical brand substantially attest the uniqueness of these productions and their irreproducibility in other agricultural contexts.
In the forestry sector, the multifunctional character of the forest ecosystem and the approach of sustainable forest management have traditionally led to the development of locally diverse value chains, often with a cascading use of wood: from roundwood and wood for construction to wood craft to the use of small assortments and residues for firewood and energy. Nowadays, however, we are seeing frequently that the wood harvested in mountain regions is transported away, transferring a significant part of the added value far from the place of origin.

Nevertheless, the role played by the value chains in mountain areas is larger and more articulated. In addition to representing stable employment and a source of income, certainly important in areas that often do not have many other economic alternatives, the supply chains help to strengthen the links between producers, united by organizational, production and commercial problems, and allow to transmit knowledge (also stratified over time) to the younger generations, as well as valid employment opportunities. A role that we could define as socio-cultural as it allows for the strengthening of intra and inter-generational social cohesion. Furthermore, value chains in the Alps have an identity role for the mountain territories, where the cultural identity is strengthened thanks to the activities carried out within the value chains, and which, also for this reason, must be preserved and strengthened. Finally, value chains are beneficial for other aspects of "quality of live" and of the environment: sustainability, landscape maintenance and protection, animal welfare, climate regulation.

1 TIES OF ALPINE VALUE CHAINS WITH THE MOUNTAIN ENVIRONMENT

Alpine territories are characterized by the presence of farmers and forestry operators who are not limited to the production of raw materials. Through complex processing and marketing phases, they create a local economy based on food and timber products fundamental for these communities and for their sustainable development.

One of the most important assets for the Alpine supply chains is represented by the linkage established with the territories of origin, reflected also in the enhancement of organoleptic quality (Belletti et al., 2017). An effective food or timber value chain represents a production system that receives a series of influences from the environment where it operates, but, at the same time, exerting its own influence on the environment. The positive feedback ties established are multidimensional, as they are connected to all the components of the environment: land, water, biodiversity, rural landscape, but also to local economies, local resources, history, know-how and traditions of the social communities. The ensemble of these links represents the main responsible for the identity and quality of alpine products and gives strength to the supply chains, also in term of sustainability (Tebby et al., 2010).

The agri-food chains in the Alpine areas are very numerous, and the quality of their products is very often emphasized by the geographical indications PDO/PGI (Protected Geographic Indication) and their brands. These geographical indications are referred to different type of products: fresh food (meat, fruit and vegetables, cereals, milk) or processed products (cheeses, meat products, wines, spirits, bakery products, dairy products, fruit/vegetables conserves) from local raw materials (milk, meat, grape, cereals, fruit, vegetables). Their organoleptic characteristics are strongly affected by the territories of origin because of two main factors: the characteristics of the agricultural raw materials; and the characteristics given by the adopted transformation processes, which in turn are conditioned by the places (microclimate, materials and premises used for processing and aging) and their traditions.

Table 1 shows the indications of geographical or protected origin recognised at the end of 2021 in the Alpine Convention Countries (entire countries) for food products, except wines and spirits.

Tab. 1 – Food PDOs and PGIs (excluding wines and spirits) in the Countries of the Alpine Convention

	Food PDOs registered by EU, 2021					
	Austria	*France*	*Germany*	*Italy*	*Slovenia*	*Switzerland***
Cheeses	7	46	6	53	4	11
Fruit, vegetables and cereals	4	23	2	38		2
Fresh meat		11	3	1		
Meat products		5		21	1	
Oils and fats		13		42	2	1
Others*		12	1	17	3	4
Overall PDOs	11	111	12	173	10	18
	Food PGIs registered by EU, 2021					
Cheeses		9	3	2		
Fruit, vegetables and cereals	2	38	20	80	1	
Fresh meat		67	2	5		
Meat products	2	14	18	22	8	14
Oils and fats	1		1	7	1	
Others*		21	36	24	3	
Overall PGIs	5	149	80	140	13	14

*: fresh fish, molluscs, etc.; other products of animal origin (eggs, honey, etc.); vinegar; beers; pasta; bread, pastry, cakes, biscuits, etc.; chocolate; spices; salt; essential oils.

Source: European Commission, GIview, Geographical Indications across the EU and beyond
https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/quality-products-registers
https://www.tmdn.org/giview/gi/search
**Switzerland: https://www.aop-igp.ch/

The wide heterogeneity of food products with a geographical or protected indication is an indicator of the different typology and high quality of food directly linked to farming and agriculture. Among these products, many of them (mostly cheeses and meat products, in some cases fresh meat and wines) originate precisely from the Alpine territories. This fact gives rise to important local value chains in terms of value at the farms' production, of value connected to the final consumption, and of jobs and incomes directly and indirectly generated along their different phases.

Looking at the specific numbers of the Alpine Countries, the French Alpine area includes 17 geographical indications of cheeses (11 PDO and 6 PGI) and some PGIs related to fresh meat (such as "Lamb of Sisteron" and other four for poultry). The Italian Alpine regions stand out for the PDOs related to cheeses (19) and indications for meat products (5, including the 2 PGI of "Valtellina Bresaola" e "Tirolo Speck"). The geographical indications for cheeses from Switzerland, Austria and Slovenia are almost entirely attributable to the Alpine area, while only a part of German PDO cheeses (4) fall within these territories; but it must be said that many other German cheeses (such as Harzer, Rauchkäse, Romadur) are important for the local alpine economies, although without a recognised geographical indication.

A brand based on a geographical indication for an Alpine product undoubtedly represents a strong lever for the whole value chain, allowing to obtain a wider and more robust product visibility, connecting mountains and the cities and giving the possibility to expand the area of distribution and consumption, also through exports. The Compté cheese in the Jura Massif, the Beaufort in Savoie, the Gruyere and the Tête de Moine in Bern canton, Ennstaler Steirerkas in Styria, Vorarlberger Alpkäse and Tiroler Bergkäse in the Austrian Alps, the Castelmagno for Cuneo Province and the Fontina in Aosta Valley are just a few examples of very important Alpine supply chains strongly rooted with their territory and communities, also recognised at international level.

However, it should be noted that brands different from geographical indications (such as regional and sub-regional brands provided from the regions of Auvergne, Rhône-Alpes and Valposchiavo) also can be successful to underline the local origin of the food or of the raw materials used, the production processes inspired to traditions, the ties of these products with local communities and their historical origins. All this represents a benefit that is certainly missing in an industrial product. It is therefore necessary to stress these important values, go on working on them and transmit them to the final consumers.

2 EFFECTS OF VALUE CHAINS ON THE ALPINE COMMUNITIES AND TERRITORIES

The impacts produced by the agriculture and forestry value chains in the different territories involved are various and always very positive. Effects are always important, even if the effects are not always and easily monetized.

A first effect, related to the economic and monetizable added value produced by the supply chain, obviously affects all the operators involved, whose labour and invested capital can be adequately remunerated if the supply chain works well and the bargaining powers between the different phases are well balanced. To maintain an adequate presence of operators in mountain areas (farmers, breeders, shepherds, foresters, craftmen, local processors), it is necessary that a significant part of the added value remains in the same mountain territories, working together with processors and points of sale, limiting the sometimes strong bargaining power of the industrial processors or distribution operators (wholesalers and downstream large distribution). This also makes it possible to pass to the younger generations production techniques and know-how developed in history, encouraging at the same time the introduction of technical innovations to improve processes, so permitting a better social inclusion and a generational turnover among farmers, processors and craftsmen. A specific paragraph will be devoted to possible strategies for retaining a significant part of the overall added value for the benefit of the agricultural phase, which shall actively contribute to certain sustainability criteria that are recently high on the political agenda due to urgent needs (biodiversity, circular economy, carbon farming, etc.).

One example for such a strategy is given by a German campaign, targeting the use of wood of regional origin for improved climate protection and resource conservation. This campaign pursues the regionalization of value chains. It calls for close cooperation between the operators in the forestry and timber industry in Bavaria: forest owners, sawmills and timber construction companies, architects, planners and decision-makers in cities and municipalities. The campaign "We build on domestic wood" in South-Eastern upper Bavaria draws attention to the ecological and economic importance of wood use from local origin. Thereby, the focus is on the idea of short distances: wood from the region should preferably be used in the region, aswood is a valuable raw material and can better exploit its climate protection potential if used regionally. In the coming years, it is urgently necessary, also for climate change mitigation, to increase the use of wood for building and to promote the regional use of the raw material. In addition, the timber construction initiative ensures the long-term consolidation of reliable regional supply chains and domestic value creation. In summary, the goals of the initiative are: active climate and resource protection, saving CO_2 emissions, strengthen the domestic economy, drawing attention to the importance of active and sustainable forest management as well as promoting construction with the renewable and climate-friendly raw material wood.

Other examples are coming from Austria. In one cases, the weak demand for mountain pine products (used traditionally for interiors) led to establishing a network (www.zirbe.at) comprising 114 suppliers, manufacturers and processors. The mountain-pine value chain supports a sustainable, nature-based product, which has positive effects on human, business and environment (win-win-win). It supports rural areas and short distances (anchored regionally) and is made by (traditional) crafts including designers, architects and carpenters. A second example is the Build-in-Wood Community[1] that shows a new way of networking, knowledge sharing and exchanging experiences for everyone working with wood in the construction industry. This Community is international and a result of the European Horizon 2020 project Build-in-Wood, where 21 partners are working together to develop new solutions for building with wood and to remove the barriers that exist today when it comes to wood construction. The Community is a place where everyone can both contribute their own knowledge and learn from each other as network and knowledge transfer are vital to growing business. There are examples in other Alpine countries, such as "Wood from Alps" https://www.boisdesalpes.net/ in the French Alps

Other positive effects caused by the presence of value chains in the Alpine areas concern the environmental ecosystem functions connected to agriculture and forestry sectors. Through the presence of farmers, breeders, foresters on lands, value chains indirectly allow a proper management of the rural space (landscape), of biodiversity (plants, birds, insects, small reptiles) and natural environment (ecological balances). Traditional agricultural practices in the mountains are based on low-input processes and continuous recycling of by-products (manure, stubble, crop residues, dried leaves, buttermilk), extensive farming and pastoral practices are common and widespread, while forest resources are traditionally managed in a sustainable way, providing material for building and for farming and ranging (e.g fences, stables, mountain shelters) and biomass for heating and, in the last two decades, also for electricity through local-level small sized biomass plants. Differently, operational projects for an economically viable reuse of wool and leather from mountain livestock are still lacking although this can be a possible example of circular economy in mountain areas.

Finally, the presence of mountain agricultural and forestry activities in connection with the local value chains is a positive factor on fire control and on management, increase and protection of ecosystems carbon storage, contributing to mitigation of climate change. In addition, activity of farmers and foresters allows to maintain stability of the slopes, which in many regions are often terraced. Terraces are widespread in all Italian alpine regions, in Switzerland, Slovenia and in some French alpine areas (in particular Savoie) (Bagnod et al., 2020; AA.VV. Various Authors, 2020; Tolusso et al., 2022). Restoration and maintenance of dry stone-walls provide different benefits. First, they play an ecological (shelter for small animal and plant species) and an agronomic role (reduction of soil erosion, increase in productive agricultural areas and greater stability of the slopes). They also have a remarkable landscape value (particularly in Aosta Valley, Lombardy and Province of Trento), and a cultural heritage value. The latter has allowed these handmade infrastructures, that are widespread in different areas of the world. to be recognized by UNESCO (in 2018) as a transnational cultural heritage.

Transhumance was also included in 2019 by UNESCO in the Intangible Cultural Heritage List, again following a transnational candidacy. UNESCO has recognized two types of transhumance:

[1] https://community.build-in-wood.eu

that typical of the flat areas (horizontal) and the vertical one, typical of mountain areas. This recognition highlights the cultural importance of a tradition that has helped to define the relationships between communities, animals and ecosystems, giving rise to rituals, celebrations and social practices that follow the cyclical nature of the seasons and, also, to shape the landscape in mountain regions.

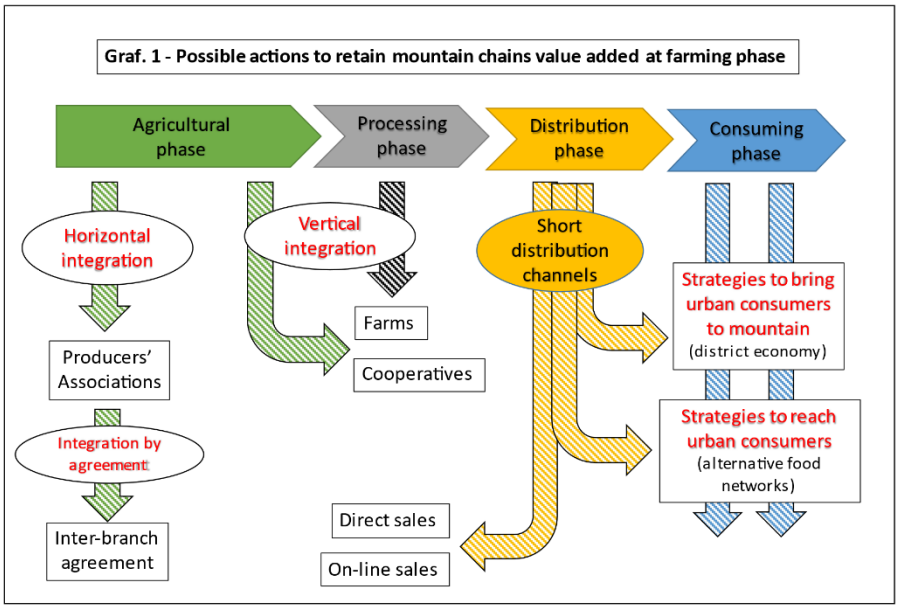
3 POSSIBLE STRATEGIES TO RETAIN THE ADDED VALUE OF ALPINE VALUE CHAINS AT THE LOCAL/SUB-REGIONAL LEVEL: HORIZONTAL AND VERTICAL INTEGRATION

As mentioned above, economic, social, environmental reasons show that the added value of value chains linked to mountain products must benefit local operators, especially farmers and foresters. The possible strategies, already implemented in many Alpine contexts, are different and complementary, but all are based on the principle to incorporate into the agricultural and forestry phases of some other stages of the value chain, in particular the processing and the distribution phase, in order to retain the relative share of added value (Brugnoli, 2011; Furesi et al., 2020).

In operational terms this means also giving contractual strength and organization to the agricultural and forestry phase, notoriously made up of small farms and small operators (who sometimes operate also part-time), through important horizontal and vertical integration processes. The structuring as a producer organization will also make it possible to join operational programs/sectoral interventions open to the livestock sectors in the long term. Alpine agricultural professionals would like an initiative in this direction for the already highly structured and high quality dairy sectors, in order to implement actions towards environmental measures, support for local protein sources, product research and development and promotion.

Other possible strategies recently implemented also in Alpine areas concern the shortening of the distances between producers and consumers. Among the limits to be considered and overcome in order to retain more added value in the mountain regions, we highlight the problem of the renewal of generations which will be crucial in the years to come and providing support as common service for maintenance of structures (slaughterhouses, manufacturing workshops).

The synthesis of these strategies is described by Graphic 1 and developed in this chapter and in the following one. Apart from what reported in the body of the report, examples of best practices, that were presented in a dedicated workshop, are provided in annexes.



3.1 Horizontal integration

Horizontal integration is achieved through the establishment of Producer Associations, organizations that associate each other small farmers producing the same agricultural product (Petriccione and Solazzo, 2012). These bodies allow the agricultural phase to acquire a greater contractual power towards the other stages of the value chain, so that farmers are not in the condition to suffer for a too low selling price for their own raw materials. It is an important organisational approach particularly in two different situations:

a) when the technical processing of the raw materials requires high investments, special licences and/or sophisticated technologies to manage the agriculture, forestry or processing phase;

b) when a wholesaler or a large (even final) distributor seeks a particularly large volume of product, not within the reach of the individual farmer. Sometimes it may be necessary to plan crop production for obtaining it.

In these situations, between the farmer and the processor/distributor, an agreement is normally established, in which specific terms are defined for the delivery and the collection of the raw material, including of course its purchase price. If Producers' Associations are able to effectively control and plan the overall raw material supply (even at local level, because the quality characteristics are of particular interest), they may be part of an inter-branch agreement, representing the contractual counterparty of industrial processors or wholesalers or large distributors, and allowing small farmers to acquire bargaining power that they individually cannot have.

Moreover, the Associations may liaise to provide members with legislative updates and support services of various types (technical and legislative update courses, commercial support, etc.). Although this form of integration may have its limits, it often the main possibility when the agricultural raw material cannot be transformed or distributed directly by the farmers.

The strategic importance of these bodies is stressed, especially if processors need significant volumes of agricultural products with certain characteristics (fresh fruit and vegetables, perhaps organic, medicinal and aromatic plants, etc), or if a large distribution chain is interested in sourcing fresh products (e.g. small fruits, chestnuts, mushrooms). It could also become important when farmers need to introduce technological innovations (such as smart farming techniques) from high-tech service providers.

In Germany, Austria and Switzerland an example for forestry sector is given by private forest owners, that form “Forstbetriebsgemeinschaften” or “forest owners associations” in order to enhance the sales conditions of timber. For what concerns Germany, professional foresters are offering their service to forest owners of a specific region. In these areas, functioning forestry value chains enhance the value of rural areas as a whole. Above all, horizontal integration makes it possible for a large number of small forest owners to use and maintain their forests. Without a professional service (e.g. through forest owners associations) it is impossible for most of them to pursue forest work adequately. On the one hand, forest owners gain an economic benefit, which has a positive effect on the regional economy. On the other hand, the forest ecosystem is not neglected but adequately and professionally maintained and stabilized, which also benefits the regional natural balance. This is not only leading to all the already mentioned benefits of horizontal integration, but also helps private owners taking care of their properties and creating a climate-resilient ecosystem. Therefore, also services like consulting, organising of harvest/planting projects and educational offers are provided for the members

3.2 Vertical integration

Vertical integration can be achieved through three possible ways:

a) an inter-branch agreement between farmers/forest owners and a processor (integration by agreement);

b) the direct management of the processing and marketing phases of the final product by the individual farmer/forest owner;

c) a cooperative, which is responsible for the processing and marketing of the final product on behalf of its members;

d) the delegation of the processing phase to a third party (using raw material obtained by the farm or forest itself), and marketing the final product by the farm or forest owners/association (with its own label).

The inter-branch agreement has already been mentioned above. This is the least effective form of vertical integration, since the initiator, farmer or forest owner, especially if not represented by a Producers' Association, remains the least powerful actor in the agreement, with very few freedom degrees at disposal to improve effectively the productive activity. Often, varieties and ecotypes to employ are predefined (for example, this type of integration exists in the case of liqueur or natural cosmetics), as well as the management of the cultivation phases, the harvest period, the delivery volumes and methods, the minimum of quality characteristics required in the raw materials, with the possibility of binding the final price to the quality of the delivered products. Of course, the contract constrains the parties to the agreed price (the agreement is signed before the harvest, and often lasts more than one harvest), regardless the evolution of the price on the market. In this

respect, there are sectors such as meat products and UHT milk which may present difficulties in governing such agreements.

The other forms of vertical integration allow participants to become more competitive and are certainly very efficient tools to direct the most part of the added value of the value chain to the agricultural or forestry primary sector, or at least to allow the Alpine product to maintain an imagine strictly linked to its territory of origin. The methods indicated as b) and c) are undoubtedly the most common in Alpine areas (many examples observed in the dairy sector and for meat products in France, Switzerland, Italy, Austria), depending on the type of processing required and the entrepreneurial skills of farmers. In some special cases (production of jams and natural cosmetics), option d) was also detected.

It should be underlined that while the direct management of the transformation phase requires skills, capital, and energy by farmers and forest owners, although it is potentially able to give good reward to individual entrepreneurs, mountain agricultural cooperatives play an almost irreplaceable role, not only in technical and economic value chain terms, but also as social and territorial conservation. They allow small farms often managed part time or run by people no longer young, to maintain their own farming activity, still having access to the processing and marketing phases and added values. For this reason, it is essential to support their activities in the mountain areas. However, proper attention has to be given to maintain the governance of the cooperatives in the hands of farmers and forest owners, to avoid loose part of the value connected to products, to benefit downstream operators. This is sometimes the case in the meat products and in UHT milk sectors, where the processing part of the value chain often needs more relevant investments that other value chains.

According to the vertical integration idea, in the Allgäu region the Holzfroum Allgäu is developing a Forest-Wood-Network (DiWaHN Digital). The aim of the project is to bring together regional players and entrepreneurs digitally, to ensure security of wood supply in the industry and to build resilient structures. This will be achieved through a joint digital platform for supporting, mapping and handling the regional value chain in the region. Additionally, the regional timber market is to be stabilized through suitable contractual arrangements to buffer the demand for logs and sawn timber. This particular project is only one example of many and currently in the review phase for LEADER funding, i.e. as part of a European Union program of measures.

3.3 Efficiency indicators for vertical integration

Differently from the integration by agreement, vertical integration can be very efficient in retaining locally a higher share of added value of the supply chain, but it is necessary that operators (farmers, forest owners, cooperatives, artisanal processors) are able to properly manage two important aspects of the vertical integration process:

1. individual farms, forest properties but above all the cooperatives must be properly managed, monitoring all the time revenues and costs, in particular external labour costs and depreciation linked to the fixed capital invested. In turn, they must be correctly dimensioned in relation to the volume of processing and the type of activity. The duration of the ageing and refining process of the product can also be crucial and must be carefully valued. The financial aspects related to external financing also need to be well assessed to balance outcoming cash flows to settle debts through incoming cash flows from sales and funding;

2. all operators must be able to effectively manage the marketing phase, which ideally closes the value chain. This requires specific skills that are not always within the reach of all operators, especially small farmers and artisans. The marketing phase is delicate because it involves a series of distinct, although interrelated processes (identification of the customer portfolio, sales performance, selling price definition, inventory control, production planning, promotion activities and labelling, and transmission of very relevant information to the consumer, etc.). Managing the marketing phase properly means being able to control the volume and value of the final product sales.

The proper management of the two aspects, which are at the same time technical and economic, allows to increase the income of individual enterprises participating in the supply chain directly (case b) or through cooperatives (case c).

The case of individual farms that directly process their own production and carry our direct sales is a widespread case, when the value chain concerns products with small volumes. There are many examples of this type: Castelmagno cheese for Piedmont or in general, many of the small productions of goat and sheep cheese, directly sold at farms. In this case, in addition to the role played by the individual farmer, the presence of a Protection Consortia is fundamental as its controls on producers and its market promotion activities support the image of the product. In these cases, the best indicator of efficiency is represented by the income of the processing farm. This income has direct reference to the level of implementation of the two aspects of the vertical integration described above. However, as operators are private entities, it is difficult to gain full knowledge of these data, as they are obviously considered sensitive. The final selling price could give some indications, but it is only a partial indicator. But even farm income can be misleading in some cases. In the case of Reblochon producers in the Aravis in France, the overall profitability of the farms is indeed high in absolute value, but the income related to farmer' labour is not so high, considering the very high number of hours required.

In the case of cooperatives, instead, the most direct indicator of the vertical integration efficiency is the price paid to their members, which is easier to be valued, especially by farmers. The contacts had during the mandate of the WG MAMF provide good evidence that where cooperation is stronger and better organised (the case of the dairy Cooperatives for French Comté, Beaufort and Gruyere cheeses is emblematic, but the same applies to fresh fruit in Italian Alpine regions, and for slaughtered meat in Germany of the initiative "Weitnauer Kalb") the price paid to members who provide the raw materials is significantly higher (also 40-50% in the case of Comté) compared to the market price of the raw material as such. Moreover, it is also more stable compared to the price fluctuations that can be observed periodically in relation to market demand and supply, giving greater economic certainty to local farmers.

In any case, it should be emphasized that even in cases when mountain raw materials get higher prices, it is not certain that farmers and forest owners always obtain fully satisfactory incomes. In the mountains, yields are lower, harvest season is shorter, working conditions are harder and farm costs are very high due also to more limited economies of scale compared to other conditions. Also, mountain conditions impose other higher production infrastructural and logistic costs (reinforced roof for snow, greater storage capacity for effluents during the winter, distance from dealers, etc).

These concepts should be transmitted to consumers, to make them aware of the difficulties involved by mountain agriculture and forestry but also of the important role mountain communities play for the benefit of the environment and the rest of population in other areas.

4 POSSIBLE STRATEGIES TO RETAIN THE ADDED VALUE AT THE LOCAL/SUB-REGIONAL LEVEL: BRING CONSUMERS CLOSER TO LOCAL PRODUCERS

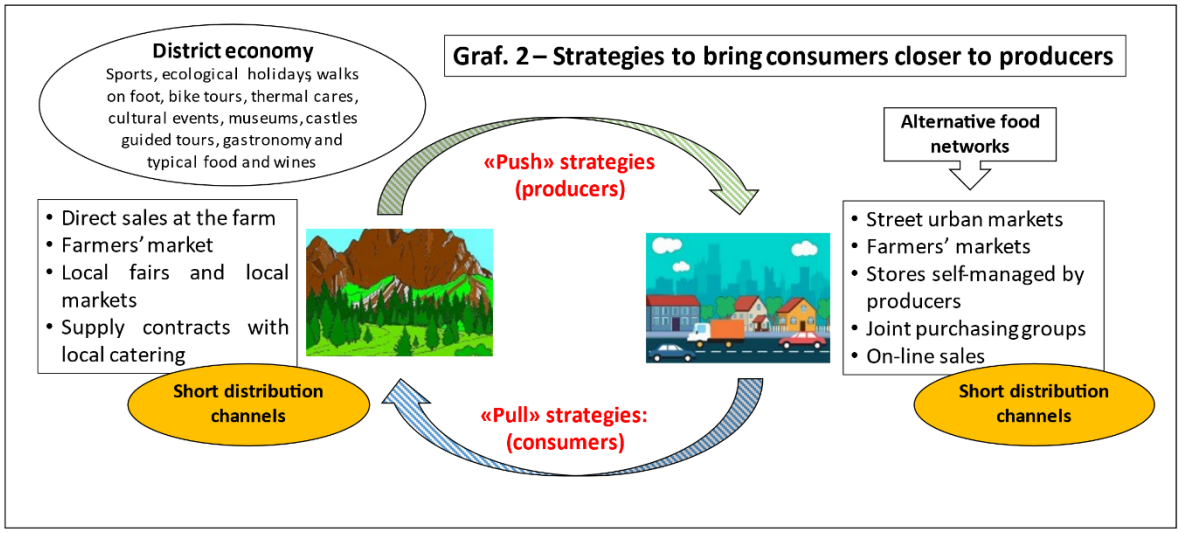
The transfer of a satisfactory share of the added value of mountain value chains to local producers is not only achieved by an effective vertical integration, but also requires strategies that allow to shorten distribution channel between producers and consumers, both as the number of steps taken by the product to reach the final consumption (very low number: better zero or 1), and as the effective distance.

The most significant market for mountain products is generally found in the urban centres closest to mountain areas, since local consumption is of course limited to a small population. It should be remembered that the volumes of mountain products, with a few exceptions, are generally small, and this fortunately does not make problems to producers for selling. The problem is basically related to finding the most suitable ways to get these volumes of product to consumers who appreciate its quality, and are willing to pay a higher price for it.

The possible strategies for achieving these goals tend to be two (Graphic. 2):

1. *"push"* strategies, which allow the producer to approach a reference market far from the production area (for example, an average or large city close to the Alpine area)
2. *"pull"* strategies, which can attract the citizen consumers (potentially also from distant regions, even from abroad) to approach the production territories.

These two strategies are both based on the realization of short distribution channels (what we call “zero-Kms sales”). They have to be understood as complementary and close to "circular" because the use of the push strategies also implies a positive impact in terms of the consideration of mountain areas by citizens interested in better knowing the production areas; while the pull strategies, which leads for different reasons consumers to visit mountain areas, move them more easily to know the local community and its products, improving the visibility of the territories and strengthening the existing value chains. Both strategies are surely favoured by local brands, even at the region or department level, that put emphasis on the alpine origin (e.g. Country of Savoy; AlpISHere; Hautes Alpes Naturally in France or Valle d’Aote or Trentino Alto Adige in Italy). The strategies will be described in the two following paragraphs.



4.1 "Push" strategies

With the "push" strategies the short distribution channel can be realized through a set of possible actions that go under the name of "alternative food networks" (Corsi et al., 2018), which include direct sales at neighbourhood urban markets, at Farmers' markets organized periodically in the cities, and at urban outlets managed by the producers themselves. Networks which – thanks to new internet technologies and following the pandemic from Covid19 – have grown with supplies to purchasing groups and direct sales with home deliveries.

All this implies, obviously, an increase in the organization of the mountain farms and in the invested capital, which is inevitably reflected in their costs (fixed and variable) and the necessary working times. In addition to the need of methods for handling goods, of equipment for sale, of any premises for sale (for rent or in ownership) and sales licences, it may be necessary to hire staff if family work is not enough. This suggests that mountain farmers should be able to organise themselves into groups to increase the range of products supply and to better distribute the increased costs. However, the higher sale price obtained and the direct contact to the market fully remains in the benefit of the farm revenue and, less the higher costs, of its income.

In our cities already many farmers, including those from mountain areas, have organized themselves in this way, especially for the sale of fruit and vegetables, honey, eggs, cheese, butter, bread and meat sausages. For example, in Savoie, dairy cooperatives have developed a large network of mountain product shops strongly linked to skiing resorts. Projects to develop baskets of mountain products in connection with train stations in ski resorts or fridges full of mountain products in mountain lodges and bar are examples of what could be organized to make local products known immediately to sports or hiking tourists.

Instead, the sale of fresh meat from mountain livestock (especially dairy cattle, but also lamb) is less widespread, probably because of its preservation needs, so more often it remains within the other distribution channels (local shops in the cities and large-scale distribution). For meat, in general there are difficulties in valuing all the cuts by consumers and, sometime, also to overcome criticism in selling young animals (although raised under good animal welfare conditions). It is

necessary to raise awareness among consumers to learn how to value also the cuts which are usually considered of lower interests. A good example of how to try to get calves born from dairy cows to enter the fresh meat market (without turning to wholesalers) is provided by Germany “Weitnauer Kalb” project, with the intermediation of some operators to meet directly the supply of dairy calves (that cannot be used for internal replacement) by mountain farmers with slaughtering operators (slaughterhouses and butchers). The intermediate operators have drawn up a standard for the breeding of animals to be sent for slaughter that the farmers have learned to apply.

4.2 “Pull” strategies and tourist districts

In this case it is necessary that the territory develops a strong tourist attraction, acting on a large diversification of the activities and services offered by the mountain territories. In the mountains, the basic tourist activities are linked to the traditional winter sports and summer vacation packages that these territories have always offered. However, to increase their attractiveness towards different demand segments, it is essential to diversify the tourist packages offered, to be able to develop a tourist demand in all months of the year (not only winter or summer), also including people not interested in sports activities. The organization of fishing courses, mountain biking, paragliding and similar; the organization of exhibitions and cultural events, themed walks (heroic vineyards, biodiversity of pastures, for example), organized on foot or by bicycle (also with rented e-bikes), the offer of visit to forests as well as the offer of thermal baths and spa activities, are just a few examples of how tourist packages can be diversified to intercept a new segment of tourist demand that the pandemic from Covid19 has brought to attention, and that interests more and more families who want to live their free time not far from the big cities and in healthy and relaxing natural environments (Barbera, 2022).

There are examples of great interest (Savoie and Rhone-Alpes in France, Aosta Valley and Trentino-Alto Adige in Italy, many locations in Switzerland and Austria) which indicate how important is a district development for the alpine territories.

The presence of tourists in the mountain area promotes the development of other activities, in particular accommodation and catering, developing a local district economy very important in terms of value and jobs. The different economic components contribute to the overall added value of the area, allowing a virtuous "win-win" process of development of the territory, where all operators have an interest in maintaining and safeguarding the mountain environment for the future. Among others, this also allows many farmers and craft men to find new employment opportunities, to increase a sometime insufficient income. The so-called "multi-activity" in agriculture (widespread for example in many Italian alpine areas) is a fundamental condition for the development of marginal territories, because if these additional income opportunities were to be missing, easily a part of small farms (especially part-time farms, the most fragile) would eventually disappear, with all the negative externalities that this entails: loss of the rural landscape, of traditional production, decrease in territorial control and control of forest fires, just to mention a few.

Even in these cases, the technical innovations, such as some specific apps (although efficient traditional information and tourist offices are still good), can stimulate the interest of tourists to visit the places. Thjs is particularly true if the local entertainment and visit offers of the areas are well presented, the historical and cultural destinations well described and all the tourist services illustrated (sleeping and eating, renting bicycles and other sport gears, local shops for food and

crafts - see for example http://www.suaci-alpes.fr/-Sytalp; http://www.suaci-alpes.fr/-Alpe-en-Alpe).

The presence of tourists coming from distant urban areas therefore offers to the operators of the local value chains and to farmers the possibility to intensify onsite the direct contacts with the final consumers. Also in this case, the short distribution channels (zero or at most 1 step) are the best way to enhance local products and retain locally their added value. It is important that, alongside the cooperatives (already well organized in this sense), the individual farmers and craftmen also organize themselves for direct sale, inside their own premises if it is in a strategic position, or through participation in local fairs and markets. But also supply contracts with onsite small shops and restaurants must be implemented, as these operators hopefully must become promoters of products of local origins, also for cooked food, to better develop the district economy. Other opportunities may come from experiential stays to discover milking, processing, accompany a shepherd to keep the herd in a predation zone, tour operators to meet the alpine pastures (on foot, by bike, etc.).

Obviously, as already mentioned, in all cases of direct sale the activity involves additional costs, above all fixed costs, and potentially also for an increase in the working times. All these costs can be better distributed if the local operators organize themselves not individually but in groups, thus allowing to also widen the assortment of products offered and the opening hours to the public.

5 LABELLING OF ALPINE PRODUCTS

A crucial aspect for a mountain product and its communication to the consumer is represented by its label, intended as a union between a local-level brand (geographical indication, local origin, organic farming), a trademark (producing farm, processor or cooperative), any other distinctive signs, words, symbols, and other information on the packaging; these information must be available also at the point of sale, particularly for products that are sold in bulk by weight or without particular packaging.

The label must be able to transmit to the consumer some key information in a clear and unambiguous way:

- the product nature, that is not comparable with an industrial product; consequently, its characteristics that could also be non-uniform over time and space (especially for particular cheeses when in limited quantities), in several cases these discrepancies must be considered normal and acceptable in an Alpine production context and do not detract from the intrinsic product quality (let's think, for example, of the differences between an alpage cheese and the same cheese obtained in winter)[2];
- the raw material used, which is of local origin and used in the process in an exclusive or largely prevalent way; in qualitative terms it benefits from the natural environment in which it was produced (for example, higher nutraceutical properties of cheese and butter

[2] The stability of the product characteristics nevertheless contributes to its quality and its recognition by the consumer, this is in particular what makes the strength of mountain cheeses, such as the Comté cheese.

produced in mountain pastures[3]); moreover, the use of local raw material helps to limit pollution and emissions related to transport;

- the utilised process, linked to local traditions (e.g. wood craftmanship), but also to local microclimate conditions and environmental characteristics (e.g. particular bacterial microflora, natural animal or vegetable rennet, etc.) that affect the final characteristics;
- any activated circular economy (cascading use of wood, use of reusable waste in agriculture or in the energy sector from livestock ranging);
- the advantages - economic and not economic - generated by the purchasing, for the benefit of the local community and the environment where the product chain insists (environmental sustainability);
- the greater constraints imposed by the mountain environment, which raises the farming costs, and limits the yields, to the benefit of product quality and for human and environmental health (a higher price than comparable products is justified).

Regarding the use of the local brand by producers, there must be clear protocols and severe controls for granting the use, and this naturally raises the problem of identifying a suitable body to perform these functions.

Moreover, the use of an territorial brand requires that the message associated with it is completely clear to the consumer. The excessive proliferation of territorial brands over a limited area can be negative if it leads to confusion or even to a loss of consumer confidence. From this point of view it is necessary attention from local administrations, acting if necessary with "umbrella" marks, able to limit the dispersion of visibility of the mountain territory. Local administrations could be also active in facilitating the adoption of mountain, local, products in collective catering (as this is not always allowed by sometimes too strict market competition regulations).

The activities carried out by the Working Group have shown that, in the absence of geographical indications, many Alpine areas (depending on the individual existing legislation) have organised themselves with different types of marks, to emphasize the link of alpine products to the mountain environment.

Among these brands the optional indication of quality "Mountain Product" (referred to in Reg. EU 1151/2012 and Reg. Delegate EU 665/2014; many countries had pre-existing national legislation) or “Montagna e Alpe” (https://www.blw.admin.ch/blw/fr/home/instrumente/kennzeichnung/berg-und-alp.html) for Switzerland must certainly be mentioned. It is a designation for quality and origin available for food of animal and plants origin, with the aim of promoting their recognition on the market. These indications are particularly relevant for those products that do not have an official PDI or similar formal recognition. In Italy, in 2017 the Ministry of Agricultural Food and Forestry Policies issued specific provisions for its application, and in 2018 the Italian brand was established with its logo to be applied on the label of products. Piedmont is currently the Italian region with the highest number of communications submitted (Bonadonna et al., 2020). Specific measures included in the this regulation have encouraged its use by many mountain producers through a series of rewards favouring the adoption of this sign of quality.

[3] Actually proven for Savoie cheeses

There are also cases of local brands that aim to emphasize the local origin of the raw materials used and the environmental sustainability of the value chains. It should be noted that in some cases these brands may even be numerically redundant in the same region, requiring the presence of an "umbrella" territorial brand, in order to strengthen the unitary image of the region and its products toward the consumer. For example, in the French region Auvergne-Rhône Alpes, a regional umbrella brand "Ma Région, Ses Terroirs" has been established (EUSALP-AG 6, 2022), in order to include a multitude of brands related to different food (147) and not-food (180) products, each of them recalling aspects highlighted above. In Switzerland two different approaches have been applied. One approach is the label reporting the regional provenience of food products (*regio garantie – provenienza regionale garantita – verein Schweizer Regionalprodukte*), that combines the forces of the four supra-regional organisations alpinavera, Culinarium, Das Beste der Region and Pays romand - Pays gourmand on the topic of regional products. The "Verein Schweizer Regionalprodukte". Sales promotion measures for regional products are supported within the framework of the four supra-regionally organized projects for regional sales promotion. A second approach is «Swiss Parks» label can be awarded to parks but also to products and services in regional and national parks (see https://www.parks.swiss/en/the_swiss_parks/what_is_a_park/park_product_label.php).

6 CONCLUSIONS AND RECOMMENDATION

Overall, also through the activities carried out by the Working Group on Task 3, it appears that mountain value chains are well represented and active in the different Alpine territories. In general, each locality, each region presents typical and characteristic food and non-food products, which are enhanced through brands of geographical indication, but also with other types of brand, in order to promote the typicality of the product and the local origin of the raw materials used. In general, these products have higher added value than industrial products, and this is a first positive element because they can potentially promote and strengthen the development of mountain areas Additionally, timber of short distribution is strengthening the local economy while being climate-friendlier than long-distance alternatives. Regional campaigns helps moothing the needed local timber value chains by promoting the use of wood in e.g. wooden buildings.

The horizontal and vertical integration processes, especially through the processing cooperatives, allow to strengthen the position of agricultural and forestry phases within the supply chains, but in order to keep a significant part of their added value in the territories of origin, public policies and farms management must work for enlarging the markets (private and public) for local products, for making many Alpine areas more attractive and for reducing the length of the distribution channels between producers and final consumers.

The Covid19 pandemic crisis has partly fostered these objectives. In fact, it has stimulated the interest of many people towards more local and less industrial foods, obtained according to production techniques less harmful to human health and more sustainable for the environment. The market for organic and local products showed further increases in all Alpine Convention countries compared to the years before Covid19, which had already reported substantial increases in the sales. The restrictions imposed on the movement of citizens during the Covid period have made many families rediscover mountain resorts as an ideal destination to spend their free time, even in periods different from winter and summer. This really was a great opportunity to make the mountains and their products more attractive, giving consumers the opportunity to get closer to local producers and to consider the production context *in situ*. The district development model in the mountain contexts has proved successful, and the differentiated tourist offer in response to these changed needs has allowed many Alpine areas to strengthen their visibility and attractiveness, bringing the final consumer closer to the production chains operating on site.

For a further and wider support to local supply chains in Alpine areas, the following needs will emerge for the coming years:

1. **Focusing on the consumer, to communicate quality in an appropriate way**, so that the greater willingness to pay really corresponds a perception of a different product in its intrinsic characteristics and in its environmental sustainability. The territorial brands (geographical indications -GI - and other) and the labelling so far adopted have well answered to the need of emphasizing typicality and close links with the territory of origin. The new CAP 2023-2027, in order to line up with the strategies of Green Deal, is preparing to review the geographical indication and food labelling discipline, changing the reference context and transferring attention from the main factors of the past system

(typicality, traditions, territory) to new values, probably involving also simplified nutrition information provided to the consumer (Nutriscore system or similar). Regardless of how GIs will be declined in the future, it is important that policy makers be aware of the positive effects on the environment that Alpine value chains linked to GI and non-GI products continue to have in mountain contexts. The value chains of Alpine products (cheese, meat, wood in particular) have demonstrated to be a model of sustainable production to be supported in every way, for the positive impacts on several aspects of the mountain environments. Without them, the mountain regions would become much more vulnerable, less resilient to the economic, social and environmental difficulties that will inevitably await us in the coming years.

2. **Going on to support short distribution channels, providing local services for processing and retail sectors, also promoting the adoption of new internet technologies for sale.** The ability of producers to access urban areas through conventional and technological sales channels, as well as to make direct sales on site, is giving good results. Websites, smartphone apps and social media offer new marketing opportunities. These tools allow local producers to have more visibility and attract more consumers, while they help consumers to identify individual farms. The use of these technologies is now available to many farms and cooperatives. Local level services for first-level processing, technical maintenance and facilities are also relevant for successful development of short distribution markets.

3. **Farmers and producers must establish a relationships network with other operators of primary production phase, and with other district operators.** Direct sales (both far from the farm or on site), beside higher revenues, always entail an increase in costs and work commitment, and therefore the need for adapting farms internal organization. A collaborative and non-competitive approach between producers allows a better organization of the sales process and a better distribution of fixed costs. Coordination with other operators in the district (especially tour operators, restaurant, and hoteliers) also allows a better visibility of traditional local products, in this respect, regional systems may be a promising approach. It is very important to keep the added value upstream, but tools and assistance should be provided for a proper agricultural and market governance.

4. **Facilitated access to the public food market must be guaranteed to local producers.** The nearest urban areas are markets of great interest for Alpine supply chains producers. In addition to the private markets, made up of individual citizens' food demand, public markets should also be considered, consisting of the consumption of school, hospitals, and public offices canteens. They could represent an additional outlet for mountain products. Public expenditure on food products offers a significant potential for supporting the local economy and short supply chains, by providing high quality food. Greater political commitment is needed to help local producers gaining access to these markets, by passing on the notion that the value of public procurement must also be in favour of rural development objectives. Public procurement procedures must therefore make virtuous approaches, possible by stopping to consider only or mainly the price of the supplied products as the predominant choice criteria, as this does not guarantee a good use of public money in the medium-long term. Hence, mountain products could be considered for public support. However, it is possible that many Alpine producers, considered individually, may not have the capacity to comply with a public contract. This difficulty can,

however, be overcome by horizontal and vertical integration processes, and by the collaborative approaches mentioned above.

5. **Foster the territorial involvement for the development of more effective value chains**. Value chains exert at best their effects on the socio-economy, the environment and the well being of mountain territories only if all the territorial actors are involved. In this respect, future actions should favour strong interactions among local, regional and national institutions (simplified bureaucracy, political and economical support, recognition of the peculiarities and difficulties of the mountain territories, etc), farmers, forest owners (private and public), processors (collaboration, cooperation, vertical and horizontal integrations) and citizens of the mountain areas and of the other places, considering also tourism stakeholders. Proper support to communication and animation could help in this development.
6. **Recognize and give value to the other services ensured by functioning alpine value chains**. As described in this report, value chains in mountain areas are ensuring the maintenance of the environmental assets. In this respect, ecosystem services such as landscape and biodiversity protection and climate change mitigation should enter in the construction of the price recognized to mountain productsing , biodiversity, carbon

BIBLIOGRAPHY

AA-VV. (2020), GUIDE TRANSFRONTALIER POUR LA CONSERVATION ET LA RÉHABILITATION DES PAYSAGES VITICOLES ALPINS - GUIDA TRANSFRONTALIERA PER LA CONSERVAZIONE E IL RECUPERO DEI PAESAGGI VITICOLI ALPINI, Politecnico di Torino, Interreg ALCOTRA

Belletti G., Marescotti A., Touzard J. (2017), *Geographical Indications, Public Goods, and Sustainable Development: The Roles of Actors' Strategies and Public Policies*, World Development, 98, October, 45-57. https://doi.org/10.1016/j.worlddev.2015.05.004

Barbera, F. (2020), *Politiche e strategie metro-montane nel contesto europeo*, *Il Mulino*, *69* (6), 970-976

Bonadonna A., Peira G., Brocardo R. (a cura di) (2020), *Il "Prodotto di montagna" in Piemonte. Indagine sull'utilizzo dell'indicazione facoltativa*, Regione Piemonte, Torino

Brugnoli, A. (2011), *Economia del mercato agro-alimentare*, *Economia e Diritto Agroalimentare*, *16* (1), 163

Corsi A., Barbera F., Dansero E., Peano C. (2018), *Alternative Food Network. An Interdisciplinary Assessment*, Palgrave MacMillan, London

Furesi R., Madau F.A., Pulina P., Marchio territoriale, produzione agro-alimentare e modelli di govenance, Rosemberg&Sellier, 265-280

MacDonald D., Crabtree J. R., Wiesinger G., Dax T., Stamou, N., Fleury, P., … Gibon, A. (2000), *Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response*, Journal of Environmental Management, 59(1), 47–69.

https://doi.org/10.1006/jema.1999.0335

Bagnod G., Chenal G., Corsi A., Letey M., Mazzarino S. (2020), *The «Pergola Valdostana » and heroic viticulture in Aosta Valley (ITALY): a case study on a traditional wine-growing system*. ANNALES. SERIES HISTORIA ET SOCIOLOGIA, vol. 30, 99-112. DOI:10.19233/ASHS.2020.07

Petriccione G. and Solazzo R. (2012), *Le Organizzazioni dei Produttori nell'agricoltura italiana*, Agriregionieuropa, Settembre, 8 (30) 18-25

Tebby C., Giraud G. and Amblard C. (2010), *Determinants of interest in mountain food products: A European cross - country study*, 9th European IFSA Symposium

Tolusso E., Marini A., Bonardi L. (2022), *Dal racconto al paesaggio. La narrazione come strumento progettuale nel recupero degli spazi agricoli di versante (Valtellina, Alpi centrali)*, Rivista Geografica Italiana, 1. https://doi.org/10.3280/rgioa1-2022oa13367

ANNEX 1: Best practices and cases from the Value Chains Workshop (01/02/2022)

1. Holzforum Allgäu - Network for regional value creation in the forestry- timber sector (Markus Briechle, Germany)
2. Short food chains for connecting mountains and cities: opportunities and problems (Alessandro Corsi, Italy)
3. Added value in the Austrian Alps: Either small, single and local or jointly in cooperation (Christian Jochum, Austria)
4. Value creation in mountain regions used on the example of Tête de Moine PDO (Olivier Isler, Switzerland)
5. The initiative Weitnauer Kalb – regional veal without long transport routes (Verena Graber and Stefanie Fink, Germany)

HOLZFORUM ALLGÄU E.V.
REGIONAL VALUE CHAINS IN MOUNTAIN FORESTS

What is the Holzforum Allgäu?

The Holzforum Allgäu is the only regional organization of the timber industry in which all members of the forestry-wood value chain are represented: from forest owners to sawmills and carpenters to architects and planners. From the standing tree to the finished product. The Holzforum Allgäu promotes domestic wood and the products made from it by establishing contact between the various sectors. Its task is to build and operate networks and to carry out public relations work for the forestry-wood value chain. Political decision-makers and end customers are made aware of the advantages of regional wood.

Why are regional value chains needed in the forestry-wood industry? Where are the problems?

Given the concentration of industrial processes in the wood sector, it is becoming increasingly important to strengthen the cooperation and performance of the many craft and small businesses in the region's value chain. The importance of regional supply chains has recently been clearly demonstrated by the Corona pandemic. It is our task to build resilient structures to strengthen resilience in the face of aggravating living conditions. An important part of this is the digital bundling of processes within the complete value chain without media disruption.

There are a number of obstacles to overcome in building these durable regional value chains. On the one hand, there is a lack of trust among the players and a prevailing fear of competitors and know-how theft. On the other hand, almost the entire industry in our region lacks the digital interfaces that guarantee smooth cooperation.

DiWaHN Digital Forest-Wood-Network

The aim of the project is to bring together the regional players and entrepreneurs digitally as mentioned above in order to ensure security of supply in the industry and to establish resilient structures. This is achieved through a common digital platform for supporting, mapping and handling the regional value chain of the Allgäu.
In addition, the regional timber market will be stabilized - through suitable contractual arrangements to buffer the demand for logs and sawn timber.
The project is currently in the examination phase for LEADER funding, i.e. within the framework of a program of measures of the European Union.

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Short food chains for connecting mountains and cities: opportunities and problems

Alessandro Corsi, Dept. of Economics and Statistics, University of Torino

Short food chains (SFCs) are the object of much interest in recent years at the economic and policy level, for environmental, social and economic motivations.

In general, in short food chains costs and benefits of distribution activities accrue to consumers and producers (in different ways and measure) and not to the agents of the conventional chain, but costs do not vanish. Different types of short chain (on-farm direct sales; off-farm direct sales- farmers' markets, city markets; Solidarity Purchase Groups, home delivery, etc.; food shops, restaurants, local schools) imply different costs for producers. On-farm direct sales imply costs for the store (depreciation and maintenance, interests on fixed capital, material) and for hired or family work. When selling in markets or to Solidarity Purchasing Groups, restaurants, food shops, costs concern transportation (fuel, truck depreciation and maintenance, interests on capital), sales structures (selling permit, materials, depreciation and maintenance, interests on capital), and hired or family work.

On the other side, SFCs may provide benefits, that nevertheless mainly depend on specific circumstances: higher selling prices, have one's product quality better appreciated, larger commercial outlets. SFCs may provide income opportunities to small farmers with available labour, relieve the power of supermarket chains, help highlighting the specific product's quality, allow building consumers' loyalty, thus creating safe outlets, or finally may also provide non-monetary benefits, like personal relationship with customers.

SFCs may imply problems for the producers: SFCs usually implies more work, so it may hinder work requirements for production, but can be an advantage if family labour is underemployed; often, economies of scale in the distribution favour the conventional chain; product seasonality can hinder continuity in the short chain, so that short chains are more fit for specific productions and can require changes in the production mix; not always farmers have the specific skills needed for distribution activities.

Two – not alternative – ways for connecting mountains and cities are:

"bringing town to the mountains", i.e., exploiting mountain tourism to sell: it is an easier way, since generally, does not need large investments, it is relatively easy to reach consumers, but it is more difficult in less touristic areas.

"bringing the mountains in town", i.e., means selling mountain products in town, in various ways (farmers' markets, home delivery, solidarity purchasing groups). Generally, it is more labour intensive and implies higher costs (transportation, sales structures, etc.). There is some evidence that this way is less frequent than the former.

Some trivial suggestions for enhancing the connection between mountains and towns:

"bringing town to the mountains" could e.g. be supported by: advertisement of local production; organisation of farmers' markets in tourist locations; creation of collective shops, selling local products; support of local products in local restaurants and food shops; offering to consumers the possibility of home delivering.

"bringing mountains in town" could e.g. be supported by: organisation of regular farmers' markets in town; collective shops, selling mountain products; home delivering in town of mountain products; contacts with Solidarity Purchasing Groups.

Added value in the Austrian Alps: Either small, single and local or jointly in cooperation

summary of the presentation of Christian Jochum (Austrian Chamber of Agriculture) in the workshop of 1 February 2022

The simplified income formula says: Income is selling price by quantity minus costs. Experience shows: no income, no livelihood. In practice all 3 variables are relevant. Increasing quantity leads to growth, growth to structural changes, which are sometimes not wishful but also limited in mountainous areas. Therefore costs are key, which can be reduced in cooperation as a group or among neighbours.

For a single holding the selling price is the most effective lever. Whereas quantity and costs are a matter of business management higher prices can be reached through diversification (e.g. within a commodity, by new products or services like tourism). Of course public payments also contribute significantly to income.

Good examples for diversified commodities are organic food, hay milk, special breeds, special fruit or vegetables varieties. Additional added value through own manufacturing and direct selling is also a kind of diversification. Some farms start new activities in fish, geese, alpaka wool, alpine shrimps, mushrooms, medicinal products, spices, herbs, ornamental plants etc. Tourism is a broad and important activity in alpine regions which offers many options for income combinations like accommodation, guided tours, sleigh rides or an own gastronomy.

If economically viable projects are realised jointly additional benefits can be achieved: reducing costs for marketing, market research, developing products, installing and running communication channels etc. Being a group opens access to bigger markets or clients and easies exports. On the other hand the resources for coordination, the financial risk by weak partners in the group or interpersonal relationships must not be under-estimated.

Practice and Austrian experience show that besides these objective criteria some soft facts are also crucial: Successful private entrepreneurial initiatives with economic sustainability depend on a political climate of openness to innovation and change, a network of advice and funding and a customized implementation of legal conditions by the regional authorities.

If mountainous regions shall be economically successful by gaining added value all elements must fit together. It is possible to create conditions that this can work.

DI Christian Jochum, 2.2.2022

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs,
Education and Research EAER

Federal Office for Agriculture FOAG
Quality and Sales Promotion

Online Workshop - Working Group Mountain Agriculture and Mountain Forestry (MAMF) of the Alpine Convention

Value chains in mountain forests and mountain agriculture: opportunities for sustainable economy and development

February 1th 2022

Value creation in mountain regions used on the example of Tête de Moine PDO

Based on the study (U. Zaugg et al.,1999),
School of Agricultural, Forest and Food Sciences HAFL

Short summary

In 1999, the consortium of Tête de Moine cheese commissioned the School of Agricultural, Forest and Food Sciences HAFL in Zollikofen (CH) to measure the socio-economic importance of Tête de Moine for its region.

Tête de Moine is an interesting example as a regional mountain cheese produced with raw milk and as PDO registered since 2001. Its production area is situated in a typical decentralized mountain region with milk and meat production as principal agricultural activity.

The study provides a simple way to measure the added value and its distribution generated by Tête de Moine value chain and is still used today. It also demonstrates the socio-economic importance of this activity and also the positive impact of other activities in the area.

The study underlines also the importance of structured value chains so that they benefit all members of the sector. Well organized GI's are an example in this sense.

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Project and initiative „Weitnauer Kalb“

Weitnauer Kalb
direkt · richtig · gut

Do you think about a calf while drinking milk in your coffee or eating butter on your bread? Why- milk is produced by cows? Every dairy cow just gives milk by giving birth to a calf every year.
Kick-off for our idea „Weitnauer Kalb“ was a report „Tiertransporte Grenzenlos“ of Manfred Karremann on TV channel ZDF. He informed about cattle life stock transport to third countries such as turkey, libanon and lybia (and many more) with their typical slaughter methods. At our small allgovian village „Weitnau“ also shuttle life stock transports and refridgerated lorries every week. So we had the idea: „Why do we buy cheap meat of less quality instead of eating the meat which is produced here?“ If the people accept it and buy these products, we could avoid cruel transports for at least some creatures and recreate sustainable value chains.

We are Verena Graber and Stefanie Fink, both do not have direct relation to the dairy farm business.

Gain of our initiative is: to distribute as many calves of local dairy farmers as possible to local customers. Our job is building a bridge between producers (farmers), handcraft (butcher), and customers. For this we created a logo and corporate design. We set standards such as the animals do not have to be dehorned, vaccinated and castrated – a commercial advantage for the farmer and pain preventing for the animals.

Challenges:

- Political circumstances: “easy” export and no solution for “calf overflow” within Europe
- Farmers: as they are educated for long years just to produce and deliver almost without any economic value/interests/ideas. They are used to deliver their calves shortly after birth to cattle traders and get prices of them, many want to go the easy way and also have no time left to think about alternative merchandising
- We are just end users and have to learn a lot about agriculture

Benefits

• additional income stream
• no expenses for planning, organization and realization
• positive image
• more customers
• more ethical and sustainable solution for the animals

Our vision for the future:

• Expanding the initiative to other communities
• Supporting farmers and small retailers
• Involving bigger players in the dairy industry due to a problem they create
• Knowledge transfer and solution-driven communication

As our most important task we accomplish knowledge and image of sustainable meat consume – “sweet and easy” for customers. We want to bring clearance and transparency about the situation and the “calf problem” caused by milk industry combined with solutions for all participants. We would be glad to implant our concept to other dairy regions all over the alps – and are happy to hear from you! Building a bridge…

Verena Graber und Stefanie Fink
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