UNISECO

UNDERSTANDING & IMPROVING THE SUSTAINABILITY OF AGRO-ECOLOGICAL FARMING SYSTEMS IN THE EU

UNISECO Project Workshop

13th and 14th November 2019, Basel

Overview of Case Studies

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OVERVIEW OF CASE STUDIES

Country code	Case study	Scope	Main farming system	Website
AT	ECOREGION KAINDORF	Local	Arable and livestock	https://uniseco-project.eu/case-study/austria
CH	INTENSIVE ANIMAL FARMING	Local	Livestock	https://uniseco-project.eu/case-study/switzerland
CZ	DAIRY FARMS	Subnational	Livestock	https://uniseco-project.eu/case-study/czech-republic
DE	DEVELOPING STRATEGIES FOR AGRO-ECOLOGICAL TRANSITIONS IN ARABLE FARMING	Local	Arable	https://uniseco-project.eu/case-study/germany
ES	AGRO-ECOLOGICAL FARMING SYSTEMS	Subnational	Mixed	https://uniseco-project.eu/case-study/spain
FI	PLANNING A DAIRY SECTOR DRIVEN BIO-PRODUCT PLANT	Local	Livestock	https://uniseco-project.eu/case-study/finland
FR	CONNECTING CUMAs TO FOSTER THE ADOPTION OF AGRO-ECOLOGICAL PRACTICES FOR VITICULTURE	Subnational	Permanent crops	https://uniseco-project.eu/case-study/france
GR	PEACH FRUITS FOR CONSUMPTION AND PROCESSING	Subnational	Permanent crops	https://uniseco-project.eu/case-study/greece
HU	SOIL CONSERVATION FARMING	National	Arable	https://uniseco-project.eu/case-study/hungary
IT	CHIANTI BIODISTRICT	Local	Permanent crops	https://uniseco-project.eu/case-study/italy
LT	SMALL SCALE DAIRY FARMERS AND CHEESEMAKERS	National	Livestock	https://uniseco-project.eu/case-study/lithuania
LV	ORGANIC DAIRY FARMING	National	Livestock	https://uniseco-project.eu/case-study/latvia
RO	HOTSPOT OF BIODIVERSITY AND HEALTHY FOOD	Subnational	Mixed	https://uniseco-project.eu/case-study/romania
SE	DIVERSIFICATION OF RUMINANT PRODUCTION	National	Livestock	https://uniseco-project.eu/case-study/sweden
UK	MIXED FARMING AND GENERAL CROPPING	Subnational	Mixed	https://uniseco-project.eu/case-study/united-kingdom

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1. AT - ECOREGION KAINDORF

KEY DILEMMA: HOW TO TACKLE IMPACTS FROM CLIMATE CHANGE (E.G., INCREASING WATER STRESS), INCREASE CARBON SEQUESTRATION IN SOILS, PREVENT SOIL DEGRADATION AND REDUCE SOIL FERTILITY LOSS FROM ARABLE LAND WHILE MAINTAINING OR IMPROVING THE FARM'S SOCIAL AND ECONOMIC SUSTAINABILITY AND CONTRIBUTING TO CLIMATE CHANGE MITIGATION.

The "Ökoregion Kaindorf" is located in Eastern Austria (federal state of Styria) where the eastern slopes of the Alps are slipping into the Southeast-Austrian lowlands and hillsides. The background of the initiative is climate change, a certain exposure to periods of water scarcity in recent years and a higher risk in the coming decades as well as declining humus content on arable land. The case study focuses on the "Humus project" of the umbrella organisation *Ökoregion Kaindorf*, which aims at increasing soil fertility and carbon sequestration. The program includes knowledge transfer to farmers (e.g. "Humusakademie"), CO_2 compensation certificates purchased mainly by regional companies, the use of compost and an initiative for biochar, reduction of soil tillage and compulsory greening of arable land, mixed cropping, etc. Experience on increasing soil fertility is exchanged in a group of regulars ("Humus-Stammtisch"). While most activities of the Association *Ökoregion Kaindorf* take place within the region's borders, the farmers involved in the "Humus Project" are spread across the entire north and east of Austria. There are 250 farms participating throughout Austria with 2,500 ha of arable land.

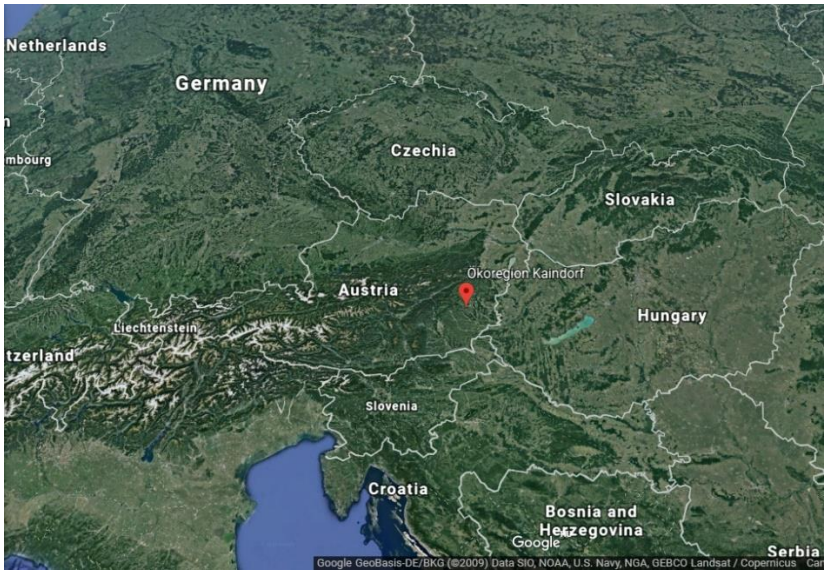

Figure 1. The CS area.

The CS is characterized by close cooperation between farmers and a large network of partners from politics, society, consumers, education (schools), business and research. The Association "Ökoregion Kaindorf" plays a crucial role within this network. A trustful collaboration exists between humus farmers, the association Ökoregion Kaindorf, the certificate buyers, local companies as well as the State government of Styria. The most important improvement to address the key challenge and dilemma would be to increase local farmer's participation in the project.

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2. CH - INTENSIVE ANIMAL FARMING IN THE LUCERNE CENTRAL LAKES REGION

KEY DILEMMA: HOW TO REDUCE THE HIGH ANIMAL DENSITIES AND AT THE SAME TIME REMAINING PROFITABLE AGAINST THE BACKDROP OF IMPORTANT PATH DEPENDENCIES (BARN CONSTRUCTIONS, DEPTHS, UP- AND DOWNSTREAM MARKET, KNOWLEDGE SYSTEM).

The Swiss case study encompasses the agricultural area in the Lucerne Central Lakes, one of the most intensive pig farming regions in Switzerland as well as in Europe. The detachment of animal numbers from agricultural area causes important environmental problems. The farms buy in a high share of the required fodder and thus create nutrient surpluses (manure). To comply with the nutrient balance required for receiving farm payments, manure is transported to other farms. Emissions from livestock cause different environmental problems. Furthermore, the storage and spreading of liquid manure occasionally result in losses due to leakages, technical failures and wrong application. These so-called „manure accidents" cause important damages to water ecosystems. Finally, the animal husbandry, namely the pig farms produce odour nuisances, which is an issue for neighbours and the local population. Summarising, the central challenge of this case study region is the high animal density, the related emissions and their effects on the environment.

Figure 2. Localisation of the CH case study

There is a rather general consensus on the need to reduce animal density. The central actors are the farmers. They are connected to the up- and downstream market actors, to the municipality and cantonal actors as well as to actors providing advisory services. To better address the key dilemma there should be a clearer division between different public offices representing opposing interests. The focus should be less on finding compromises but on the thorough implementation of existing laws. Moreover, the general public, who exerts a high level of influence, should have a more prominent role in the network. There is a lack of communication about the state of the ecosystems and there could be more pressure exerted from environmental NGOs. Moreover, production and consumption are almost completely detached from each other with different actors of the downstream-market controlling the market. There should be a closer connection between farmers and consumers to ensure that consumers get a better idea of how their food products are produced.

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3. CZ- DAIRY FARMS IN VYSOČINA REGION

KEY DILEMMA: HOW TO MAINTAIN THE GOOD PERFORMANCE OF ARABLE LAND MANAGEMENT IN ORGANIC DAIRY FARMS IN VYSOČINA REGION TO REDUCE ARABLE SOIL DEGRADATION AND WATER POLLUTION BY PESTICIDES WHILE ENSURING ECONOMIC VIABILITY

The Czech Republic (CZ) case study is about organic dairy farming (ODF) in the Vysočina Region (NUTS3; figure 1), which faces the challenge of how to balance good farming practices on arable land with economic viability.

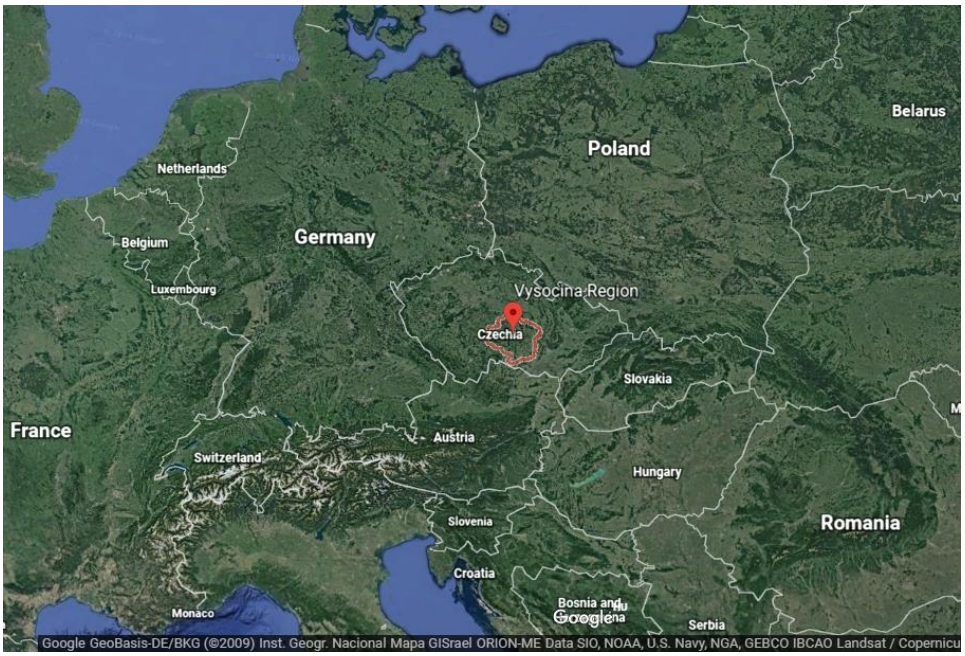

Figure 3. Vysočina Region

Besides the increased soil fertility, major benefits of the adoption of ODF are associated with the improvement of underground water quality, mainly due to the pesticide ban and the replacement of mineral with farmyard fertilizers on arable land. Then, adopting ODF in protection zones for underground water resources could greatly improve the overall performance of dairy farming in CZ, and especially in the CS area, which hosts important freshwater and underground water resources. Dairy farms operating in protection zones have to comply with more restrictive rules for the use of chemical inputs compared to non-protected areas. Adopting ODF may help farmers with rules compliance; however, increasing farmers' motivation to adopt ODF is an issue. Currently, just 1% total milk production is labelled as organic in CZ. Although organic dairy products are one of the most popular categories of organic foods among CZ consumers, the volume of consumption is still small. Moreover, some of the organic goods are still imported by supermarkets from abroad.

It would be possible and probably appropriate to deal the situation/dilemma through greater involvement / better communication of existing actors, complementing the identified missing ones, though (i) greater involvement of actors at local level; (ii) closer communication between organic and conventional farms; (iii) to work more on promotion and sales of organic products.

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4. DE - DEVELOPING STRATEGIES FOR AGRO-ECOLOGICAL TRANSITIONS IN ARABLE FARMING SYSTEMS IN NIENBURG COUNTY, LOWER SAXONY

KEY CHALLENGE: HOW TO INTEGRATE AGRO-ECOLOGICAL PRACTICES ON ARABLE LAND (CONVENTIONAL AND ORGANIC) IN HIGHLY MARKET-ORIENTED FARMING SYSTEMS TO REDUCE BIODIVERSITY LOSS AND WATER POLLUTION THREATS WITHOUT SIGNIFICANT NEGATIVE IMPACTS ON THE ECONOMIC VIABILITY OF FARMS?

The case study area is an intensive agricultural area with particular sustainability issues regarding biodiversity loss and water pollution threats, and comprises 83,100 hectares and approximately 1,500 farms. The German case study provides an example for the analysis of what is required to initiate a transition process to agro-ecological farming in cases of highly market-oriented farming with relatively low level of agro-ecological innovation. Farmers participate in relevant measures supported under the RDP, but with a relatively low uptake of 'dark green' agri-environmental measures. Therefore, the experience with strong agro-ecological practices such as intercropping, agroforestry and integrated biodiversity is very limited. However, some experience exists with flowering strips and protection strips for wild herps, extensive field margins, cover crops, nutrient management and organic farming. The level of cooperation is relatively low, but multi-actor platforms for biodiversity-friendly farming exist, on which this case study builds.

Figure 4. Localisation of the case study area in Germany

Farmers' decision-making on adopting agro-ecological practices is influenced by the information flow and contractual arrangements with, and rules provided by, other types of actors. These include value chain actors from land owners and plant breeders to retailers and consumers, actors providing advice and promoting capacity building, NGOs and local community associations representing environmental concerns and interests of specific groups, and local and regional administration and authorities responsible for the policy implementation and monitoring of policy measures and the legal framework of agricultural land management.

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5. ES - AGRO-ECOLOGICAL FARMING SYSTEMS IN THE BASQUE COUNTRY AND NAVARRA

KEY DILEMMA: HOW TO REDUCE THE FRAGILITY OF AGRO-ECOLOGICAL FARMS WHILE MAINTAINING THE SOCIAL, ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY?

This case study is inspired by the farms that are part of the EHKO association, which is present in the areas of the Basque Country and Navarra. These farms include a wide range of production types, but all of them share the objectives of promoting agro-ecology, being organic systems, with diversification of crops and additional environmental practices, commercialization at local level with short marketing channels, principles of solidarity economy, and being locally based and small sized rural farms. The network focuses on actors that have an influence on reducing the fragility of agro-ecological farms. This is the dilemma that farmers of the case study wanted to address in UNISECO. In this case farmers are already in a farming system redesign and are already at an agro-ecological stage. However, those farms consider themselves as "fragile". Reducing the fragility of agro-ecological farmers is crucial to encourage agro-ecological transition among farmers in conventional farming systems or in the transition pathway.

Figure 5. The CS area. NUTS 2 boundaries in Spain. In yellow, the regions of the Basque Country (left) and Navarra (right). Source: Instituto Geográfico Nacional (IGN, 2019) and Google Earth.

A general system sustainability approach (environmental, social and economic) is addressed by the farmers of the case study. Innovations enabling the transitioning to agro-ecological farming are here not only technological, but also social and institutional. Stakeholders of the Basque Country and Navarra have been similar in both regions, and even though differences might exist among both areas, the main links and conflicts of the network to address the dilemma are related. Relationships are already established so there is the ability to improve with actions and communication. There are commercial and information relations but forums to work towards common goals are missing.

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6. FI - PLANNING A DAIRY SECTOR DRIVEN BIO-PRODUCT PLANT IN NIVALA

KEY DILEMMA: HOW TO REDUCE HARMFUL CLIMATE, SOIL AND WATER IMPACTS OF DAIRY FARMING IN NIVALA REGION WITHOUT SACRIFICING ECONOMIC VIABILITY OF THE DAIRY SECTOR, BY MEANS OF ENVISIONING AND IMPLEMENTING A MULTIPURPOSE BIO-PRODUCT PLANT ALONG THE LINES OF CIRCULAR BIOECONOMY, WITH THE AIM OF PRODUCING BIOENERGY AND ORGANIC FERTILIZERS FROM MANURE

This case study involves dairy production on grass silage which is relevant for several EU level sustainability issues (climate change mitigation, nutrient losses, energy saving). The farms are planning to implement circular nutrient flows under the umbrella of a farmers' dairy cooperative providing manure nutrient

The agro-ecological transition of dairy farming in the Nivala region is expected to be catalysed, and eventually realised, by the development of the bio-product plant. The plant is envisioned to serve several functions: the overall aim is to produce bioenergy and organic fertilizers from the manure of dairy farms (and possibly other bio-waste) and to circulate the sustainable energy and fertilizer products back to users without burdening the environment with emissions. The general agro-ecological goal, and ideal consequence, would thus be the reduction of harmful climate, water and soil impacts of dairy farming, without sacrificing the economic viability of the dairy sector.

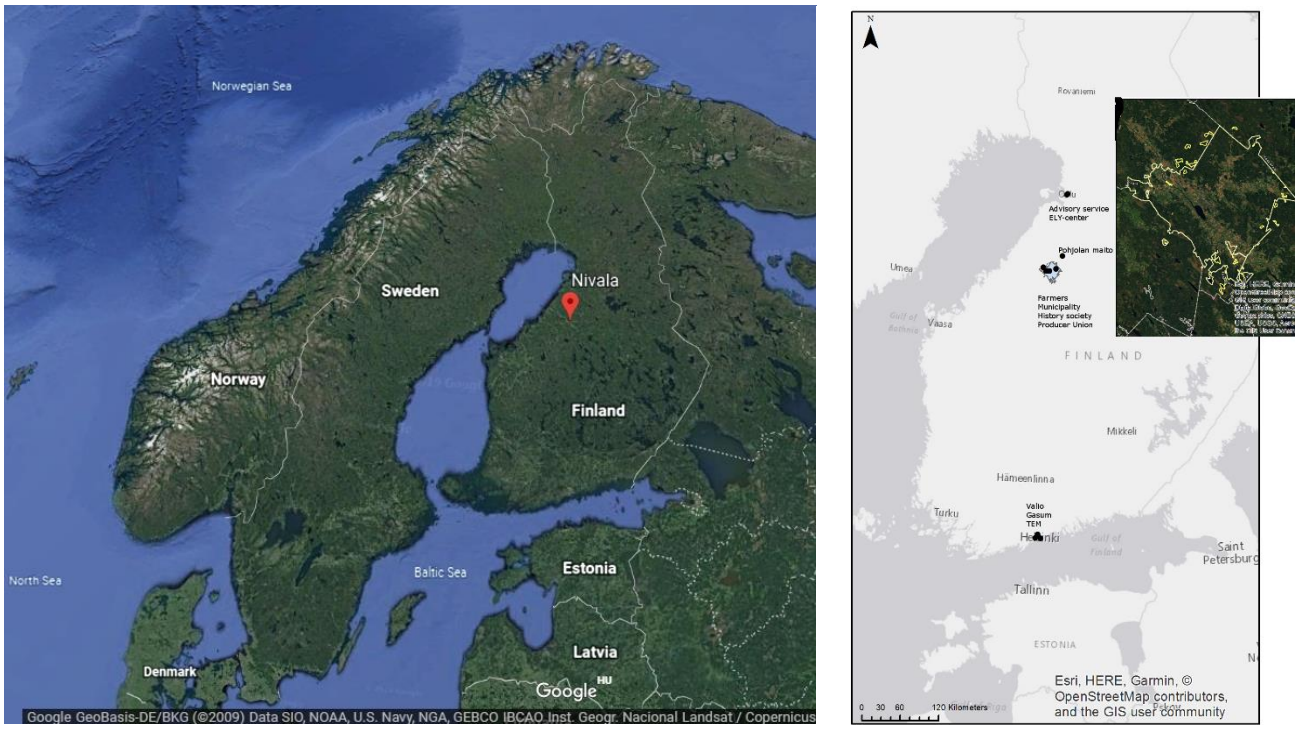

Figure 6. The case study area in Finland

The interactions and relations between various actors in the CS are commonly described as functioning rather well; the overall goals of the network are perceived rather similarly by key actors. However, interactions also involve considerable unpredictability and uncertainty, because the network formation is only in its early stage and some important decisions (e.g., concerning investments in the building of the plant) are yet to be made. A critical issue for the network and its management (with regard to the agro-ecological transition via the planning of the bio-product plant) seems to concern the commitment of key actors to the process.

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7. FR - CONNECTING CUMAS TO FOSTER THE ADOPTION OF AGRO-ECOLOGICAL PRACTICES FOR VITICULTURE IN AUVERGNE RHONE ALPES

KEY DILEMMA: HOW TO REDUCE DEPENDENCY ON EXTERNAL FERTILISERS AND TO REDUCE PESTICIDES USE (ESPECIALLY GLYPHOSATE) THROUGH AGRO-ECOLOGICAL PRACTICES INCREASING SOIL ECOLOGICAL SERVICES (SOIL BIOLOGY) WHILE MAINTAINING THE ECONOMIC PROFITABILITY OF FARMS?

This case study is a network-based case study involving several French farm machinery cooperatives (CUMAs) aiming at working together. An innovative aspect of the case study is the aim to interconnect different territorial groups. This network is starting. Depending on the area and on individual choices, farmers sell their grapes to cooperatives while other do on-farm wine processing and direct sale. The farming practices are currently rather conventional. Locally some farmers are already implementing agro-ecological practices, but the majority of farmers intend to start implementing agro-ecological practices such as using green manure to reduce external fertiliser use and using combined cropping to reduce pesticides use (wine shrubs and other crops).

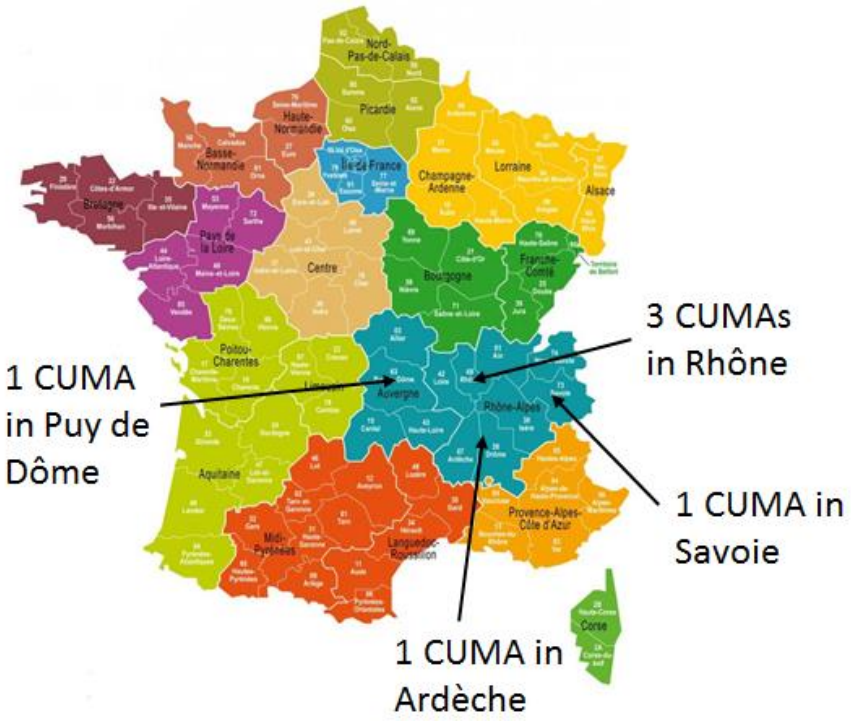

Figure 7. Localisation of the CUMAs being part of the network

The CS involves a complex network of stakeholders, the main controversial matter that we observe concerns the consequences of agro-ecological and environmental practices on agricultural productivity. We face conflicts of interest between agricultural and supply chains actors and other actors, each of those having different priorities and visions.

The decision-making processes are sectorial with some gaps between decisions related to marketing strategies on one side, public support towards agroecology on the other side and finally on the side of local dynamics.

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8. GR - PEACH FRUITS FOR CONSUMPTION AND PROCESSING IN IMATHIA

KEY DILEMMA: HOW TO SUSTAIN THE LONG-TERM ECONOMIC VIABILITY OF FARMS WHILST PROTECTING THE NATURAL RESOURCES? HOW TO PROTECT BIODIVERSITY AND WATER QUALITY IN ORCHARDS WHILST ALSO IMPROVING COMPETITIVENESS AND MARKET ACCESS?

The case study area is located in Imathia, in Northern Greece. The dominant farm production type is permanent crops, fruit orchards, mainly peach trees both for fresh fruit production and canning. An environmental sustainability issue is the high pressure on natural resources due to pesticide use resulting in biodiversity loss and deterioration of water quality. On the other hand, economic sustainability is closely dependent on the production of low to zero pesticide fruit in a highly competitive market environment.

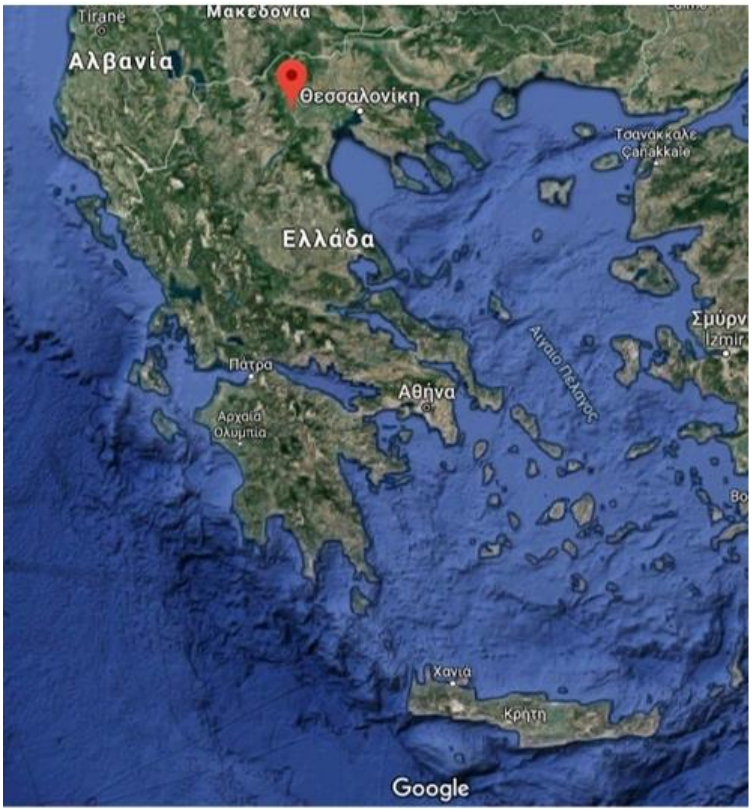

Figure 8. Localisation of GR case study: Imathia

Key initiatives are much easier to be adopted by strong and large agricultural cooperatives, run by pioneer leaders who are open to innovation and can motivate and influence others. In general, most of the farmers adopt innovative agricultural practices only if they are convinced for their benefit and understand that the change has a positive impact on their farm. Thus, farmers should be motivated in order to adopt new farming methods and produce in a more sustainable way. For this reason, the role of agronomists-consultants is crucial, as they are the ones who can properly advise farmers, spread the innovation as well as transfer the knowledge.

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9. HU - SOIL CONSERVATION FARMING

KEY DILEMMA: HOW TO INTEGRATE AGRO-ECOLOGICAL PRACTICES ON ARABLE LAND IN HIGHLY MARKET-ORIENTED ARABLE FARMING SYSTEMS TO MAINTAIN AND IMPROVE SOIL QUALITY WITHOUT SIGNIFICANT NEGATIVE IMPACTS ON THE ECONOMIC VIABILITY OF FARMS?

This case study explores the network of actors in Hungary related to the topic of soil conservation farming. From a land use perspective of the 9,303 thousand ha total area of the country 5,309 thousand ha is utilized by agriculture of which 4,317 thousand hectares are occupied by arable lands[1]. From an economic perspective: market oriented arable farming systems are dominant. Agro-ecological conditions for crop production in Hungary are generally considered to be good. However, water shortage during the growing season, climate adaptation and, in particular, deterioration of soils poses increasing environmental challenges to farmers.

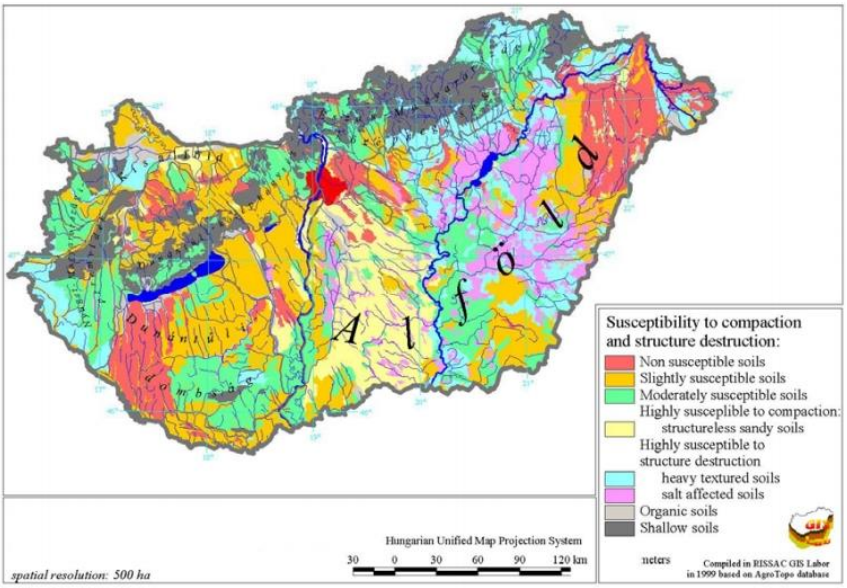

Figure 9. Susceptibility of soils in Hungary[2]

There are some relevant organisations who indirectly are relevant to the topic of soil conservation. This topic is however not explicit on their agendas as they main focus is on other themes. Organic farmers are movements are a specific group somewhat mutually isolated from conventional farmers. Cooperation between NGOs and/or civic society organisations related to the topic of soil conservation is not characteristic neither at a national nor local scale. More cooperation would be needed within and between authorities and science to serve the practical needs of the sector in terms of climate mitigation and preparation for the transition to agroecology in the long run. Lack of skilled agricultural employees with specific knowledge (e.g. precision agriculture) is a big problem. Innovations and digitalisation of the agricultural sector precedes the structure and contents quality of agricultural education both at secondary and higher levels due to old structures in courses and topics, as well as, lack of capital for demonstration and training. Farmers need to be encouraged by the government to participate in research projects. When the research bears immediate benefits (e.g. agrotechnics) to them it is somewhat easier to involve them.

[1] HU Central Statistical Office: Tables (STADAT) - Time series of annual data – Agriculture; Use of land area by land-use categories and by legal forms

[2] Várallyay Gy. Soil Survey and Soil Monitoring in Hungary. EUROPEAN SOIL BUREAU RESEARCH REPORT NO. 9

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10. IT - CHIANTI BIODISTRICT

KEY DILEMMA: HOW TO PROMOTE CROPPING SYSTEM DIVERSIFICATION IN A HIGHLY SPECIALISED AND MARKET-ORIENTED WINEGROWING AREA VIA THE ADOPTION OF AGRO-ECOLOGICAL PRACTICES, TO INCREASE BIODIVERSITY AND IMPROVE LANDSCAPE MANAGEMENT WHILE MAINTAINING THE PROFITABILITY OF FARMING THROUGH LOCAL VALUE CHAINS.

The CS area and Chianti Biodistrict (BD) share the geographical boundaries. A biodistrict is a geographical area where farmers, citizens, tourist operators, associations and public authorities formalise an agreement for the sustainable management of local resources, based on production and consumption of organic food. In Chianti area, in Tuscany, the creation of the BD allowed the adoption and diffusion of key agro-ecological practices in winegrowing, such as e.g., inter-row grassing, selection of local varieties, maintenance of semi-natural features, as well as the use of organic fertilisers and pesticides and green manure, among others. Despite that, the CS faces the critical challenge of increasing the diversification of the cropping system, to increase biodiversity and improve landscape quality. A possible way towards addressing this challenge is supporting the revitalisation of under-utilised agricultural areas, notably via the restoration of abandoned olive groves, the recovery of arable cropping and pasture land, and the development of the related local value chains. The latter could also increase the resilience of the local farming system, by reducing the dependence on the export of a single product, i.e. wine.

Figure 10. Chianti area in Tuscany

The network of actors involved in the key dilemma in this case study is under development, since the BD is still in the process of developing and extending the information and knowledge connections for the main actions relevant for the key dilemma. At the same time the existence of the BD and the promotion of an innovative governance model make the CS an interesting example of transition towards an agro-ecological farming system, since the overall, objective is to re-design the local food system by decreasing the external inputs and increasing the provision of ecosystem services.

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11. LT - SMALL SCALE DAIRY FARMERS AND CHEESEMAKERS

KEY DILEMMA: HOW TO MAINTAIN AND ENCOURAGE EXTENSIVE MANAGEMENT (GRAZING) OF GRASSLAND HABITATS? HOW TO BECOME (OR REMAIN) COMPETITIVE IN THE MARKET WITHOUT INTENSIFYING THE FARMING PRACTICE?

Dairy sector in Lithuania comprises of raw dairy producers, middle-men that collect milk from producers (around 60 companies) and over 20 dairy processing companies with 5 of them accounting for around 95% of production. The number of farms has sharply declined from ~165 thousand in 2005 to ~25 thousand in 2017 while the average farm size has increased from 2,7 cows in 2005 to approximately 9 cows per farm as of 2018. This decline represents small farms mainly. The increasing of the farm size has its typical associated drawbacks related to intensification and ecological pressures as well as changing farming practices from grazing to growing fodder for cattle kept indoors in larger farms.

Milk producers that are of major interest to the investigation not only produce raw dairy but also further production, namely cheese or other products and are involved in direct selling their own produce. This group is chosen as a good example of improving value chain. In these farms, not only cows are kept for dairy production but also sheep, goats. The artisan cheese products are becoming more and more popular in the market. Besides growth of the direct selling market, there is a possibility to grow the market by selling these products in restaurants and street food producers.

Several barriers that would need to be overcome in order to improve the conditions for the extensive dairy farms and address the dilemma were identified: (i) there is a lack of stable and continuous agricultural policy, strong vision, strategic goals and concrete plans to address the issues of and support the development of agroecology; (ii) there is a need for stronger and more influential representation of the interests of the extensive dairy farms and sustainable agriculture (agroecology); (iii) there is a need to strengthen formal and informal forms of cooperation among farmers.

CS actors currently address the dilemma to a small degree only – in a form of market and several policy initiatives. Discussions regarding sustainable farming and new policy/market incentives are taking place more in recent years and even more with new CAP developments with some potential changes in the future. However, there is an urgent need for more favourable policy for extensive dairy farming practices, since environmental conditions during the last two years, on top of socio-economic situation have been the cause of number of small farms declining at unprecedented rates.

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12. LV - ORGANIC DAIRY FARMING

KEY DILEMMA: HOW TO INCREASE THE ECONOMIC VIABILITY OF CONVENTIONAL AND ORGANIC, LARGELY GRASS-BASED, DAIRY FARMS WHILE PRESERVING BIODIVERSITY IN GRASSLANDS AND WATER RESOURCE QUALITY? HOW TO ENSURE THAT ALL ORGANIC MILK IS PROCESSED INTO ORGANIC DAIRY PRODUCTS?

Dairy sector productivity is increasing, but remains comparatively low due to the fragmented small-scale farming structure. Fragmentation results in weak position of producers in the milk food chain (dominated by big processors and retail chains), and overly high competition in the processing sector - Latvian dairies have excess processing capacity. Although Latvian farmers produce enough milk for local consumption, 40% of milk sold in Latvia is imported due to the regional nature of the dairy market with Estonia and Lithuania. Domestic dairy product consumption is stable although organic dairy product consumption remains low.

The dilemma being considered in the case study is related to the fact that although approximately 10% of milk produced in Latvia is organic only 38% is processed into organic dairy products.

The case study is relevant to the transition to agro-ecology in Latvia from the perspective of strengthening and expanding cooperation between relevant actors in the supply chain. To date, farmers have demonstrated good uptake of agro-ecological farming practices. The number of certified organic dairy farming operations has steadily increased and the share of organic milk production has grown. The supply of organic milk has outpaced dairy product production with the resulting dilemma that more than half of the organic milk being processed with conventional milk. This has occurred due to slow growth in consumer demand for organic dairy products. To ensure that existing organic dairy farms remain in operation and conventional farmers continue to transition to organic farming, it is recognized that there is a need to more fully involve all relevant supply chain actors in the process of growing support for organic dairy product consumption and production.

In Latvia, the transition to agro-ecology is as much about increasing the overall viability of all small and medium size farms as changing the mind-set of conventional farms regarding agro-ecological practices. More important still, the impetus for greater adoption of agro-ecological/organic farming practices in Latvia is dependent on an increase in the overall buying power of consumers (which remains low), recognition by consumers of the benefits of healthier eating habits and increased consumer confidence in the quality and health benefits of agro-ecological products. Perhaps most importantly, the transition to agro-ecological practices/organic farming is dependent on continued EU support to agro-ecological farmers through the RDP. In this regard, increasing the allocation of EU RDP payments to Latvia to more closely align with the average payment level in the EU would make Latvian agriculture more competitive with other EU countries and would strengthen the transition to agro-ecology.

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13. RO - HOTSPOT OF BIODIVERSITY AND HEALTHY FOOD IN TRANSYLVANIA AND MARAMURES AREA

KEY DILEMMA: HOW TO INCREASE THE ECONOMIC VIABILITY OF SMALL- SCALE FARMING WHILE PRESERVING THE CULTURAL LANDSCAPE AND BIODIVERSITY?

Case study in Romania will focus on Maramures and Transylvania Highlands, two distinctive geographic regions but having multiple common landscape and socio-economical elements (eg fragmented agricultural landscape, mosaic patches of semi natural grasslands created and maintained by traditional livestock grazing systems: cattle and sheeps, small plots of cultivated land with rather low intensity/extensive management). Transylvania's land cover mosaic results from the long-term application of low-intensity, and often traditional, farming practices. In addition to such practices supporting a diverse land cover mosaic, they also have other benefits for biodiversity. First, the input of pesticides and fertilisers is low, while the amount of manual labour to work the land is high. Many farmers still plough their land with the help of horses, weed their crops by hand, and manually cut hay for their livestock.

Traditional practices thus have many benefits beyond the creation of a heterogeneous land cover mosaic. The high biodiversity in Transylvania is tightly linked to the structural diversity and the specific management practices that can be found in that landscape. However, like many cultural landscapes, Transylvania is changing rapidly, which poses a range of challenges for sustainability in general, as well as for biodiversity conservation in particular.

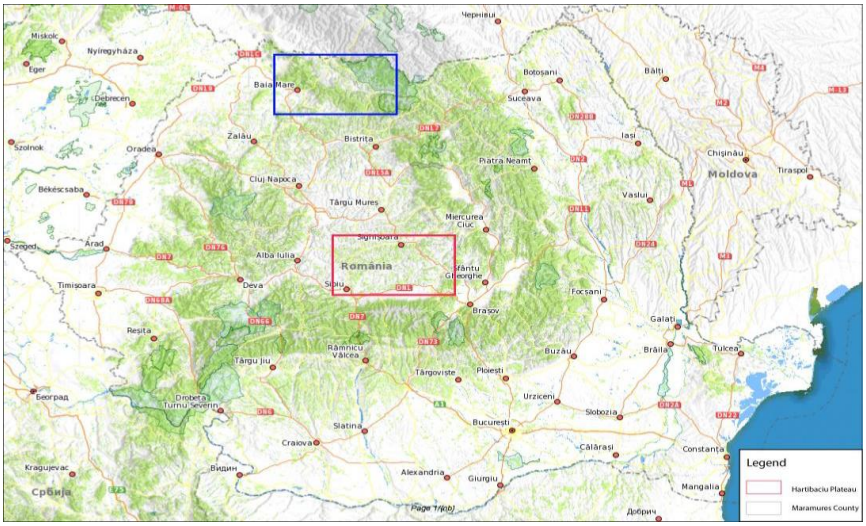

Figure 11. The CS areas

Trust and collaboration are very weak in the regions due to the social trauma left by the nationalized, collective agricultural system imposed by the communist regime. Associations exist, but in low numbers and they have been founded only to be able to comply with eligibility criteria in accessing agricultural subsidies through CAP; cooperatives, which could be regarded as an "upgrade" to associations, are missing. Due to this unwillingness to develop economic activities together, farmers are stuck in a regime of low productivity, with no means to add value to their raw agricultural output and create or access the market, and representing the weakest player in the supply chain.

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14. SE - DIVERSIFICATION OF RUMINANT PRODUCTION

KEY DILEMMA: WHAT ARE THE CHALLENGES AND POSSIBILITIES TO DIVERSIFY SPECIALISED RUMINANT FARMS (CONVENTIONAL AND ORGANIC) TO INCLUDE MORE CROPS FOR DIRECT HUMAN CONSUMPTION WHILE SIMULTANEOUSLY INTEGRATING MORE AGRO-ECOLOGICAL PRINCIPLES TO ENHANCE SUSTAINABILITY PERFORMANCE IN AN ECONOMICALLY STRAINED PRODUCTION SECTOR?

Swedish agriculture needs to move towards less environmentally impacting farming systems with a higher integration of livestock and crop production, and towards producing more crops for direct human consumption and less livestock. Considering this, a desired path for current livestock farms would be to instead of increasing animal numbers, reach profitability by diversifying their productions towards including more crops for direct human consumption. There is no general shortage of cropland in Sweden limiting this development and there is certain, and potentially growing, consumer demand for Swedish plant based products. There are, however, a range of other challenges for diversified livestock production, including climatic restraints, limited sales and investment opportunities, as well as a low level of cooperation. The Swedish case study aims to increase understanding of these limiting factors and how they can be overcome.

Although diversification of farms is central to agro-ecology and has been discussed substantially, few projects or initiatives have previously dealt with this topic in depth and from a systems perspective, at least not with the focus on increasing the production of plant-based foods.

To successfully overcome the main obstacles, several actors have to work together, and policies have to be directed to support this transition. There is a need of political leadership to shape a coherent and supportive policy environment to steer developments in the desired direction. This is heavily dependent of the how the EU CAP is set up, but member states have substantial freedom to develop strategies and make investments in the needed knowledge and infrastructure capacities needed. This includes increased support to holistic extension services, investment in research and needed processing facilities and infrastructure. Here banks and other investors are also very important. The private supply chain actors, especially the ones currently making profits, also need to take a larger responsibility to share risk with less profitable actors – here new private-public partnerships could be established to overcome some of the obstacles, for example, enabling new crops to reach large markets. The awareness among consumers have to be increased – this can be accomplished through information campaigns etc. and further development of alternative sales channels where consumers more closely meet farmers. In addition, food environments (including pricing of food) in which the more sustainable choices are the easy ones needs to be established.

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15. UK - MIXED FARMING AND GENERAL CROPPING IN NORTH-EAST SCOTLAND

KEY DILEMMA: PRODUCING PUBLIC GOODS WHILST MAINTAINING VIABLE PRODUCTION OF PRIVATE GOODS, AND SECURING ECONOMIC AND SOCIAL SUSTAINABILITY AT A FARM LEVEL

The case study represents sustainability issues relevant to the EU (soil degradation, climate change adaptation, animal welfare, environment pollution by pesticides). The farming production systems represented by this case study are relevant across the EU (i.e. mixed farming and general cropping). The agro-ecological farming practices used to address the sustainability issues are, for example: biodiversity support practices, nutrient budgeting, organic farming, permaculture and agroforestry. Farming contributes significantly to the attractiveness of Scottish landscape, evidence of which is recorded in surveys of visitors and their annual expenditure in the region. There is a strong tradition of cooperation between farmers (e.g. machinery rings for mixed farming and general cropping). An example of an innovative policy is the Knowledge Transfer and Innovation Fund, supporting initiatives including environmental performance. The case study will provide an example of a process of transformation in its initial stage. The size of the case study area is 291,826 hectares with 4,366 farms.

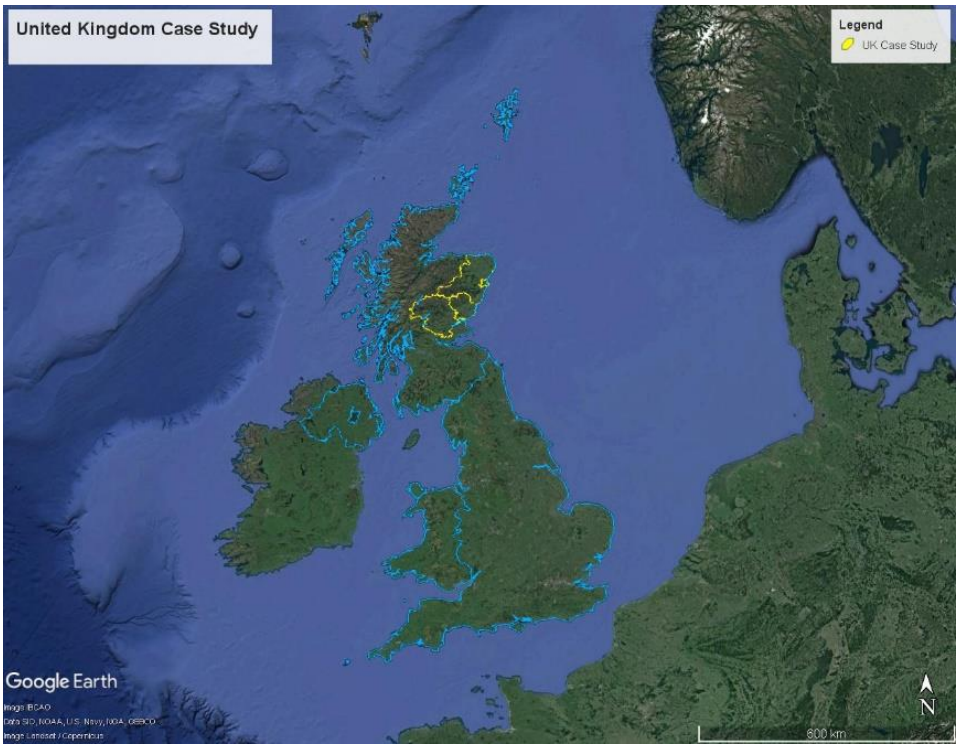

Figure 12. The United Kingdom Case Study Area.

The network of actors involved in the CS dilemma as is subject to external drivers and pressures (i.e. political, economic, social). It operates in an open economy, with significant national and international exports into agri-food markets, and the area is one with a significant number of tourists and migrant workers attracted to the area for its economic and environmental benefits.

There are several conflicts between actors for funding and pressures on land managers, the design and implementation of key regulations and policies to solve the dilemma need to be improved.

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