# THESSALY, GREECE CROSS-VISIT TO DALSLAND, SWEDEN

Dates: 14th-17th of May 2018 (Programme Annex 1)

Greek Team:

- Ioannis Faraslis: Researcher at the University of Thessaly Greece.
- Athanasios Papoutsis: Goat Breeder. He has an extensive livestock farm into the LA Thessaly (Ellinopirgos Village)

Swedish Team:

- Lars Johansson, agricultural advisor, County Administrative Board
- Katrin McCann, environmental specialist, Environment and Energy office of Dalsland
- Stefan Arvidsson, GIS specialist, County Administrative Board
- Lina Morin, agricultural advisor, County Administrative Board

Local Farmers

- Farmers Näsbön, Dals Ed; Elisabet Forsdahl, Anders Forsdahl
- Farmers Svanängen, Köpmannebro; Malin Larsson, Johan Larsson, Lars-Rune Larsson
- Farmers Kingebol, Ånimskog; Marie Naraine, David Naraine.
- Farmers Kylsäter, Färgelanda; Anna Johansson, Andreas Johansson, Marianne Johansson, Lennart Johansson.

## 1. Indroduction

The Greek team decided to visit the LA Dalsland in Sweden, due to the innovations that have been applied in the area. More extensively, the choice was made based on two reasons:
(a) The mapping tools for participatory procedures that have been developed by the Swedish team. Methods and tools of participatory procedures have been applied in the area of the LA Thessaly by the research team of the Laboratory of Rural Space of the University of Thessaly in the last 15 years. In particular, the implementation of 3D representations is a basic dialogue tool between the involved bodies in order to resolve various problems of their space.
At the same time, the new tool developed by the Swedish team, the FOCLUM & FOCLUM-LUP (Facilitation of collaboration land use management & Land use plans), is also presented as a tool that contributes to the facilitation of a dialogue and the creation of a cooperation network between farmers, public bodies, researchers etc.
Within this context what the Greek team expects is to discuss in detail the purpose and how the innovation (FOLCUM) works seeing at the same time its implementation in practice. The questions that were posed and had to be answered were:

-Is it possible to adopt the FOLCUM innovation, making the equivalent modifications, in the LA Thessaly?
- Is it possible to incorporate the FOLCUM innovation in the existing and already used 3D mapping methodology for a more effective enhancement of the participatory procedures and the resolution of problems in various areas of the Greek countryside?
(b) The organizational and technological innovations applied in extensive livestock holdings
The livestock farmer that will participate in the visit to Sweden will have the opportunity to visit similar holdings and discuss with the Swedish farmers the problems and new trends on management and operational issues of the holdings. Also the farmer will get information on the mobile slaughterhouse that works in Sweden, from farmers that have already implemented it. Finally, he will visit a model agritourism holding that applies a holistic approach to pasture management.


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From the visit in the HNV livestock holdings the Greek expedition expects:
- To adopt new techniques and technologies that will improve the performance of extensive livestock holdings in HNV areas.
- The adoption of agritourism activities, from new livestock farmers, in HNV holdings in order to increase their income.

2. Visiting the LA Dalsland (Sweden)

2.1. First day (14/5/2018)

The arrival of the Greek team at the city of Uddevalla was followed by a short meeting with Lars Johansson, the head of the Swedish team.
Mr. Lars made reference to the new tendencies on land use in the Swedish countryside, especially in the HNV areas (LA Dalsland), such as: Intensification of arable land -intensification of timber tree cultivation (productive forests) - reduction of the pastures. As a result there is a reduction in biodiversity and a reduction of the pastures used by free-range livestock holdings.


Fig. 1 Arrival of the Greek expedition at Uddevalla

Respectively, the members of the Greek team presented, briefly, the current situation in the LA-Thessaly with the problems that the area faces as well as its development opportunities. Moreover the farmer of the Greek expedition, referred to the kind of holding that he manages, the products he produces and his plans for the development of agritourism activities, the sale of meat etc. He also pointed out the difficulties that he has faced in the past and he is still facing concerning: (a) the operation of the holding (legislation, pastures etc.), (b) the sale of the product on the market (low price, high taxes etc.). Finally Mr. Lars escorted us for a first contact-meeting with the Swedish countryside.

Fig. 2 Swedish countryside. A first meeting.


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2.2. Second Day (15/5/2018)
2.2.1. Meeting at Uddevalla

Initially a meeting between the Greek and the Swedish team was held at a hall of the municipal council at Uddevalla. The Swedish colleagues thoroughly presented the characteristics of the study area with its advantages and problems (reduction-abandonment of pastures, reduction of biodiversity). At same time, they referred to the vision of the LA Dalsland and the steps that are required for its realization. There was also a short presentation of the innovations that have been applied, for instance the FOCLUM-LUP (Facilitation of collaboration land use management & Land use lans) participatory system and the mobile slaughterhouse.


Fig. 3 Meeting at the meeting room of the municipal council at Uddevalla

After that the Greek team gave a short description of the characteristics of the LA Thessaly. The development of the area was presented through maps and statistics. Reference was also made at the different ways in which the two countries have organized the agricultural holdings of the countryside. In Sweden the size of the average holding is between 150-200 hectares (Ha) and the distance between the farmhouses is more than 1Km. On the other hand in Greece the average holding is between 5-7 hectares (Ha) (in mountainous areas it is even smaller) while the farmers' permanent residence is organized in small villages with 400 people. At the same time in Greece the management of the countryside (pastures, arable land) is influenced by the strong presence of the Diaspora that maintains its relations with its place of origin.

2.2.2. Visit to Näsbön goat farm, Dals Ed (http://nasbon.se/ )

The main purpose of the visit to a free range goat and cow farm was for the farmer of the Greek expedition to communicate and exchange ideas and experiences with his Swedish colleague. Initially the Greek expedition was given a tour by the owners of the farm on the facilities and the surrounding pasture that was followed by a discussion on market issues. The milk is sold in a cheese factory for the production of goat cheese. The farmer did not reveal the selling price. However, through the discussion, it became clear that his cooperation with the local cheese factory is quite lucrative and the cheese distributed in the market is recognizable.


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Fig. 4 Pastures surrounding the farm

Fig. 5 Facilities of the farm with free range goats

The goats that are bred in the holding belong to a local breed. They give twice milk yield in relation to the Skopelos goat breed that is bred by the Greek farmer. On the contrary, at this point it should be stressed that the fats of the Greek breed were more than twice as high, which potentially gives a comparative advantage in the sale of milk.

The milking system used by the holding was then presented to us. A basic innovation of the system is the use of a special micro-sensor in every animal so that the producer can track the milk yield of every animal. During the milking process every animal is identified through a special sensor that the farmer simultaneously carries, attached to his hand. Statistics for every animal are stored in the system. With this way it is possible to present the monthly and annual yields of the animals. The fundamental utility of this application is for animal breeding since the goats with high milk yields are the ones used for breeding.

Fig. 6 A modern goat milking system

Fig. 7 Tracking sensor of the goats' yield attached to the hand of the operator

The farmer of the Greek expedition has already recorded the model and has started the market research in order to get an equivalent system.

2.2.3. Visit to Svanangen Farm, Kopmannebro http://www.swedishcountryliving.se/

Visit and accommodation to Svanangen farm, a model agritourism farm at Kopmannebro (LA Dalsland). The owners used to live in Gothenburg and 10 years ago they permanently settled in the farm. Their goal is to produce organic meat from free range animals as well as other organic



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products like vegetables etc. At the same time, they apply the holistic production system and for the pastures they follow a crop rotational system in order to preserve their quality and enhance the biodiversity in the farm. Finally they also provide agritourism services that include accommodation for the tourists and the possibility to have traditional meals made from row materials that are organically produced at the farm.

Fig. 8 Applying a holistic grazing system in free range sheep

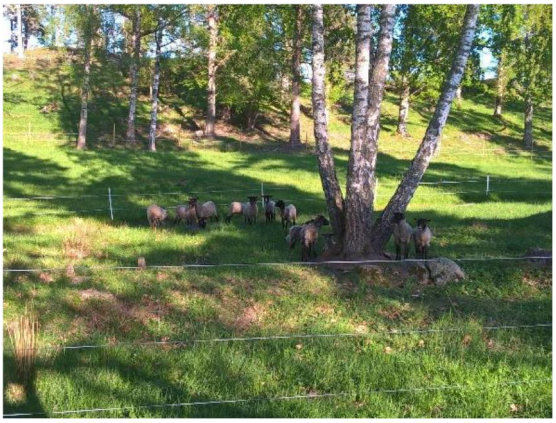

Fig. 9 View of the model farm, Svanangen

The purpose of the visit and accommodation was a discussion between the Greek expedition and the owners for the implementation of equivalent activities in the livestock holdings at the LA-Thessaly. The Greek farmer is particularly interested in the agritourism activities and he has already begun planning an agritourism programme for his unit.

This model farm is part of the national network entitled "Community-supported agriculture – CSA" that is essentially implementing a socio-economic model in agriculture allowing the producer and the consumer to share the cost of animal breeding. The main advantages for the consumers, from this action, is that: (a) they have access to low cost but also high quality organic products, (b) they know the origin of the products they buy, (c) they contribute to the support and survival of small holdings that provide a variety of products and (d) they enhance the biodiversity of the area.

Fig. 10 View of the model farm



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The above innovation is applied for the sale of lambs and it is known as CSA-Lamb model. Consumers buy the whole animal 6 months earlier than it is sold. What is more, through their participation in this specific model they have additional advantages such as visiting and staying in the farm, buying other low-cost products etc.
The possibility to develop a similar activity in the livestock holding of the Greek producer was discussed with the Swedish colleagues. The main conclusion was that the creation of a similar producers' network (CSA-model) is possible, oriented towards Greek consumers of the big cities located in a relatively short distance from the LA-Thessaly (Karditsa, Trikala, Larisa, Volos).

2.3. Third Day (16/5/2018)
2.3.1. Visit to Svanangen Farm, Kopmannebro http://www.swedishcountryliving.se/

The following day the owners -with the participation of the Swedish team- showed us around to their model farm beginning from the animal housing facilities. The basic construction material is wood with openings for the ventilation of te space.

Fig. 11 Facilities at the model farm

Fig. 12 Animal feeding silo

The animal feeding system was particularly interesting for the Greek farmer who believes that the adoption of this specific system-due to the simplicity of the construction combined with the low cost-will save at least 2,500 €.

Afterwards we walked around the pastures of the farm and we were given a description of the holistic approach applied in the farm. The pastures have been divided in sub-areas using a fence. Each sub-area is used by the animals for a certain period of time in order to not burden the pasture and risk overgrazing. The above procedure contributes to the preservation of the area's biodiversity. However it was stressed that this is a process that requires intensive labor, because every 2-3 days the animals should be driven to specific pastures. What is more the Greek farmer observed that it is not feasible to create fences in the grazing area that he uses. The rugged relief, the large surface and the fact that they are scattered render the project economically unsustainable.


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Fig. 13 Grazing sub-areas in the model farm

Fig. 14 Agro-touristic accommodation

Then an innovative approach to the area of agritourism was presented that involves the construction of small houses from natural materials such as wood and wool (for insulation). The roof will be covered with plants so that there is not much diversification from the surrounding space. These eco-houses will have no electricity and will address to a specific group of tourists who desire isolation and closer contact with nature.

The stay in the model farm was completed with a presentation of the activities in which the farm is involved such as: (a) training on the CSA model, (b) support for people with psychological problems (social farming), (c) production of organic products, (d) support of events.

Fig. 15 Presentation-discussion of the model-farm's potentials

Afterwards there was a discussion between the Greek expedition and the Swedish colleagues for the possible adoption of the above activities by livestock holdings in LA-Thessaly. Due to the different structure of the Greek holdings (small properties of approximately 0.1 Ha) we reached the conclusion that the above activities can be implemented only through the creation of a cooperation network amongst different professional activities. The cooperation network in which the Greek farmer participates (cooperation with tourist accommodation establishments) is a good basis to discuss and adopt some of the activities that take place in the model farm.

2.3.2. Visit to Cattle Farm Kingebol, Animskog – Test innovated FOCLUM system.

Kingebol cattle farm is a model HNV extensive livestock holding within the LA Dalsland. Initially, the Greek and Swedish team met with the owners of the livestock holding and posed questions about the quality of the pastures and the prices of cow's milk.



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Fig. 16 An HNV Farm Kingebol

We found that the price of the milk is the same in both countries and it is 0.3 Euros per liter. Of course the sizes are different. An average cattle farm in Sweden has approximately 700 cows while in Greece a farm does not exceed 80 animals.

The implementation of the FOCLUM –LUP innovation

This specific holding was chosen for the demonstration of the FOCLUM –LUP innovation (Facilitation of Collaborative land use management; Land use plan). It was one of the first farms that implemented this model in consultation and land use change.

Fig. 17 FOCLUM-LUP GIS system

A) Initially there was a discussion on the basic issues of the innovation.
This specific innovation aims at strengthening the dialogue and cooperation between producers, public bodies and scientific experts on sustainable management of land use. The main issues that originally the innovation had to deal with were:
(a) How is the biodiversity of the pastures increased? (b) How is the grazing area increased? (c) What is the economic benefit for the farmer?

Essentially FOCLUM–LUP uses a number of environmental, economic and social indicators to map (GIS-system) the existing development of the landscape as well as over a 10-year period. There are two main scenarios:

(a) Business as usual scenario. If the existing situation does not change what will be the development of the above indicators? Similarly, what will be their evolution in 10 years?
(b) HNV scenario. If land use in specific parcels changes how will the indicators (environmental, economic and social) change? How will this change be reflected in a 10-year period?


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The above scenarios are depicted on maps that are presented to the involved bodies, in order to achieve common goals and actions. Therefore, the basic participants in the FOCLUM–LUP innovation are the owners of the holdings. The latter, with the contribution of the scientists, are called to understand the positive and negative aspects of the various spatial management scenarios.

Fig. 18 Interpretation of the environmental indicators in BAU & HNV scenarios.

The idea was launched in 2001 by the farmers' municipal support group in cooperation with Forest Service officials. It is an auditing procedure during which a control of the system was performed both in owners and properties with a different profile. All the data at landscape unit level is recorded on digital geodatabases.

B) A demonstration of the FOCLUM –LUP was also performed.

The operator of the application was Stefan Arvidsson. The demonstration included the delimitation of landscape units. For this purpose a portable GIS system was used. The specific system already contained data: (a) with the limits of the properties, (b) the existing coverage-land use (c) high resolution aerial photographs.

Fig. 19 Demonstration, delimitation of landscape units and evaluation of environmental indicators

Then and within every coverage we recorded data such as biodiversity, the economic performance etc. for the current period and for a 10-year period. Finally, the results were exported to maps. In conclusion, the implementation of FOCLUM–LUP innovation on the Kingebol farm during the past years has led to specific actions such as: (a) increase in the surface of the pastures and (b) increase of biodiversity.



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The positive effects that it has on the environment as well as on the increase of the pastures' productivity has driven producers from neighboring holdings to show interest for similar activities. Already the working group led by Lars is performing similar consultations.

### 2.3.3. Visit to Färgelanda, Kylsäter

Visit and accommodation in Färgelanda farm. It included a small tour at the pastures of the farm and a discussion on the differences and similarities between the holdings of the two countries. In the Swedish countryside the main issue is the creation of social bonds between the farmers. The long distances between the farms have created isolation phenomena and lack of solidarity. On the contrary in the Greek countryside (LA Thessaly) the problem is located in the abandoned properties and the numerous heirs who claim them. However, there is at the same time a strong presence of the Diaspora, which is a key social capital for the area.

Fig. 20 A tour in the pastures of Färgelanda

## 2.4. Fourth Day (17/5/2018)

The morning of the fourth day we exchanged opinions on the main conditions that compose producers' successful participatory procedures in HNV areas. It was agreed that the main prerequisites are: (a) the development of tools that will help the dialogue between the involved actors (such as FOCLUM & το 3D mapping), (b) the creation of common goals between the actors, (c) documenting and structuring the HNV procedures and (d) a long-term commitment of the public actors and the research centers to support the HNV farming systems.


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Fig. 21 Meeting in the farm Färgelanda

Then we met with a free range cattle producer. The purpose of the meeting was to collect information about the mobile slaughterhouse, the possibilities that it has, the advantages and disadvantages that it presents. According to the personal experience of the producer the main advantage of the mobile slaughterhouse is that the animals are calm before the slaughter. This is particularly important for the final quality of the meat. Also, compared to the fixed slaughterhouse the cost is more or less the same. Finally, the farmer did not consider an important advantage the added time that is required for the transportation of the animals in the fixed slaughterhouse.
On the contrary, a main disadvantage is the big volume of the truck-slaughterhouse. Especially the Greek conditions will render the approach of mountainous areas, with narrow steep streets, quite difficult. Of course a smaller version of the mobile slaughterhouse could be designed, with smaller capacity but easier accessibility in mountainous holdings in the LA Thessaly.
The two expeditions were met for the last time at the meeting room of the municipal council in Uddevalla. At first the Greek team presented the particularities in the organization of the Greek countryside, such as: (a) the existence of small properties, (b) the abandonment of these properties in mountainous areas, (c) the existence of the expatriates (Diaspora) as a powerful element for the organization of the space.

Fig. 22 Final meeting at the hall of the municipal council-Uddevalla


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These particularities have resulted in the need to develop tools and methods for the reinforcement of participatory procedures such as the use of 3D representations. We then analyzed: (a) the methodology that was followed for the creation of 3D models with the participation of the local communities, (b) the type of the information that is collected (quantitative-qualitative) and (c) its contribution to the representation of action plans and the common acceptance of those plans by the actors.

We then discussed the possibility to combine the two technological tools (FOCLUM και 3D mapping) for the enhancement of participatory planning.

Finally, the farmer of the Greek expedition had an interesting discussion with the agricultural advisor of Dalsland.

3. Conclusions

As a general conclusion it should be noted that the Greek expedition got a lot of experiences from the four-day visit. We consider that the main initial objectives (see introduction) have been largely achieved.
- Keep in touch with the Swedish team that works with common areas of interest. Especially concerning issues of participatory procedures.
- Exploration of the possibilities to develop a mobile slaughterhouse for free range herds. Investigation of the legislative framework.
- Presentation of the Swedish subsidy model on extensive HNV holdings for grazing HNV pastures. Pressure to set up an equivalent support mechanism of the Greek extensive holdings in HNV areas.
- Presentation at the farmers' network within the LA-Thessaly of the activities run by the model farm and especially those concerning agritourism.

In conclusion we should mention the impeccable hospitality provided by the members of the Swedish team. Special thanks are due by the Greek team to Lars Johansson, the head of the Swedish team.

Bellow, the elements that are considered important and will contribute, to a certain extent, to the challenges that the HNV farms in Greece have to face, are highlighted.

- A discussion and the possibility to implement the FOLCUM system in LA Thessaly. Investigation for the development of respective environmental, economical and social indicators adjusted to the Greek conditions. Creation of an equivalent digital database for the registration of information.

- Exploring the extent into which the combination of the FOLCUM innovation & 3D mapping will broaden the prospects and the values of local society, producer groups, institutions etc.




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