



UNISECO

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

Can incremental changes pave the way to sustainability?

An intensive market-oriented farming system in Imathia, N. Greece

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The area

- The dominant farm production type is fruit orchards, mainly peach trees both for fresh fruit and canning.



- Environmental sustainability issues include the high pressure on water resources and biodiversity due to irrigation and use of agrochemicals.
- On the other hand, economic sustainability is directly dependent on the achievement of fruit with low to zero pesticide residues, in order to maintain the position of the producers in a highly competitive market for both fresh and canned produce.

The first step: Collective Certification

- Farmers in the area are organised in Producer Groups run by co-operatives, which is not the case in all fruit producing areas in Greece where a very low percentage of fruit and vegetables is channeled through co-operatives.
- PGs and co-operatives in the area played an important role in processing as well as in distribution of the produce.
- Since 2000 a strong expansion of Integrated Farming (IF) is observed in the area based on standardized management procedures, internal auditing and the provision of training and advice to all producers.



More than 6,200 small farmers participate in 26 Producer Groups and more than 10,000 ha are cultivated under the Integrated Farming Certification Scheme, thus covering more than half of the peach producing land of the area.

450 ha monitored (2006-2015)

Soil analyses, Weather monitoring

- | | |
|-------------------------------|----------------------------------|
| • Use of traps and pheromones | -28% volume of active substances |
| • Application of green manure | - 52% of N application rates |
| • Management of crop residues | + 65 tn/ha |
| • Trickle irrigation | -12% of water consumption |

The second step: Accumulating social capital

- After almost 15 years of collective action which contributed in building of mutual trust among farmers and esteem to collective organisations, in 2014, a collective initiative of PGs and agricultural advisors promoted an agri-environmental measure.
- The proposed measure consisted in the collective application of insect sexual confusion methods in extended zones of tree groves. The objective was to eventual cease spraying with insecticides in a period of three years, through full coverage of entire zones. The design of this measure delegated a crucial role to agricultural advisors.
- The measure was implemented under the Rural Development Programme and currently, around 6,000 hectares of peach orchards are under the agri-environmental measure.
- It was also adopted by PGs in other areas of Greece and was, thus, expanded to other areas and tree crops, increasing thus trust to PGs. Other collective organisations, like the interbranch organization for cotton, propose the inclusion of annual crops.

The role of UNISECO

- Since April 2019, the UNISECO team of Agricultural University of Athens, along with the local champion stakeholder, conducted extended research in the area aiming to understand the drivers and barriers in implementing agro-ecological approaches in a highly competitive agri-food sector.
- We used a combination of participatory farm survey and the application of three Decision Support Tools.
- A total of 26 in person interviews and three workshops were carried out, engaging representatives of local Producers' Groups, advisory services, fruit processing industries and the public sector as well as external stakeholders and experts.
- The local actors co-constructed, within the UNISECO project, transition strategies for the development of a farming system responding to market and consumers' demand for environmental protection and food safety.

The third step: A strategy towards sustainability

The practices

- The transition to narrower canopy systems



- Growing of cover crop between the tree rows
- Selection of varieties resistant to pest and diseases with good quality characteristics.



Barriers hindering transition to agro-ecological practices

- Lack of confidence and trust in agricultural co-operatives prevents collaboration, mutual support and joint efforts.
- Insufficient knowledge and lack of empirical data on innovations related to agro-ecological practices in local conditions, creating thus a feeling of uncertainty and hesitancy in adopting novel agricultural practices.
- Lack of targeted incentives and insufficient economic support measures as well as inadequate information on market conditions hinder farmers from adopting sustainable agricultural practices.

A strategy towards sustainability

Policy and Market Incentives proposed

- Rural Development support for restructuring and modernisation targeted to collective investments.
- Advice to create linkages between practice and research
- Co-operation



Concluding remarks

- When implemented at a relatively large area, mere small practice changes can create big environmental improvements.
- Building trust and confidence needs time and efforts especially in a highly competitive environment.
- Disruptive innovations are rather difficult to be adopted in permanent crop systems with high sunk costs.
- Incremental steps, building on previous wins (small or big), seem in that case a successful approach.
- Tangible results,
- *'Transition trajectories are often complex. They tend to be exposed to risks, require learning, trial and error, [...] or require extra training or research or knowledge, or adapted technologies and institutions (including markets)...'*
(Tittonell, 2020)



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Thank you!



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