How I implement IPM

Details of a holistic IPM strategy with low pesticide input in a European farm

My farm

Davide MILAZZO
Vicopisano
Monte Pisano (Tuscany)

PEDO-CLIMATIC CONTEXT

- Clayey and calcareous soils in a hilly-mountainous landscape
- Humid temperate climate with summer aridity, Mediterranean subtype

MAIN PESTS

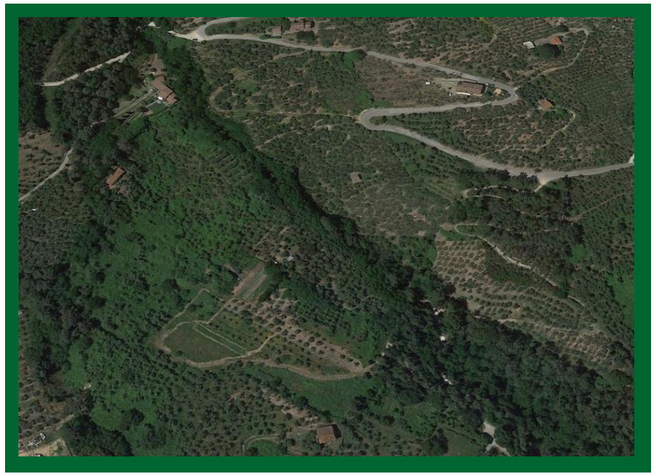
- Insects: Olive fly (Bactrocera oleae)
  Asian bed bugs (Halyomorpha halys)
- Cryptogams: Olive caries (Phellinus fresianus)
  Olive mange (Pseudomonas savastanoi)
- Weeds: Black locust (Robinia pseudoacacia)

AGRONOMICAL CONTEXT

- Contiguity between woods and centuries-old olive groves on terraced land with dry stone walls, grassed edges and related water canalization systems
- High slopes
- Olive trees varieties: frantoio, moraiolo, leccino, local varieties
- Non-irrigated crops

SOCIO-ENVIRONMENTAL CONTEXT

- Family workforce
- Low mechanization, manual operations due to difficult access to land



OBJECTIVES AND MOTIVATIONS OF THE FARMER

To develop a micro-farm according to the principles of agroecology and regenerative agriculture, based on olive growing, aromatic plants, rearing of laying hens, beekeeping, saffron, vegetables.

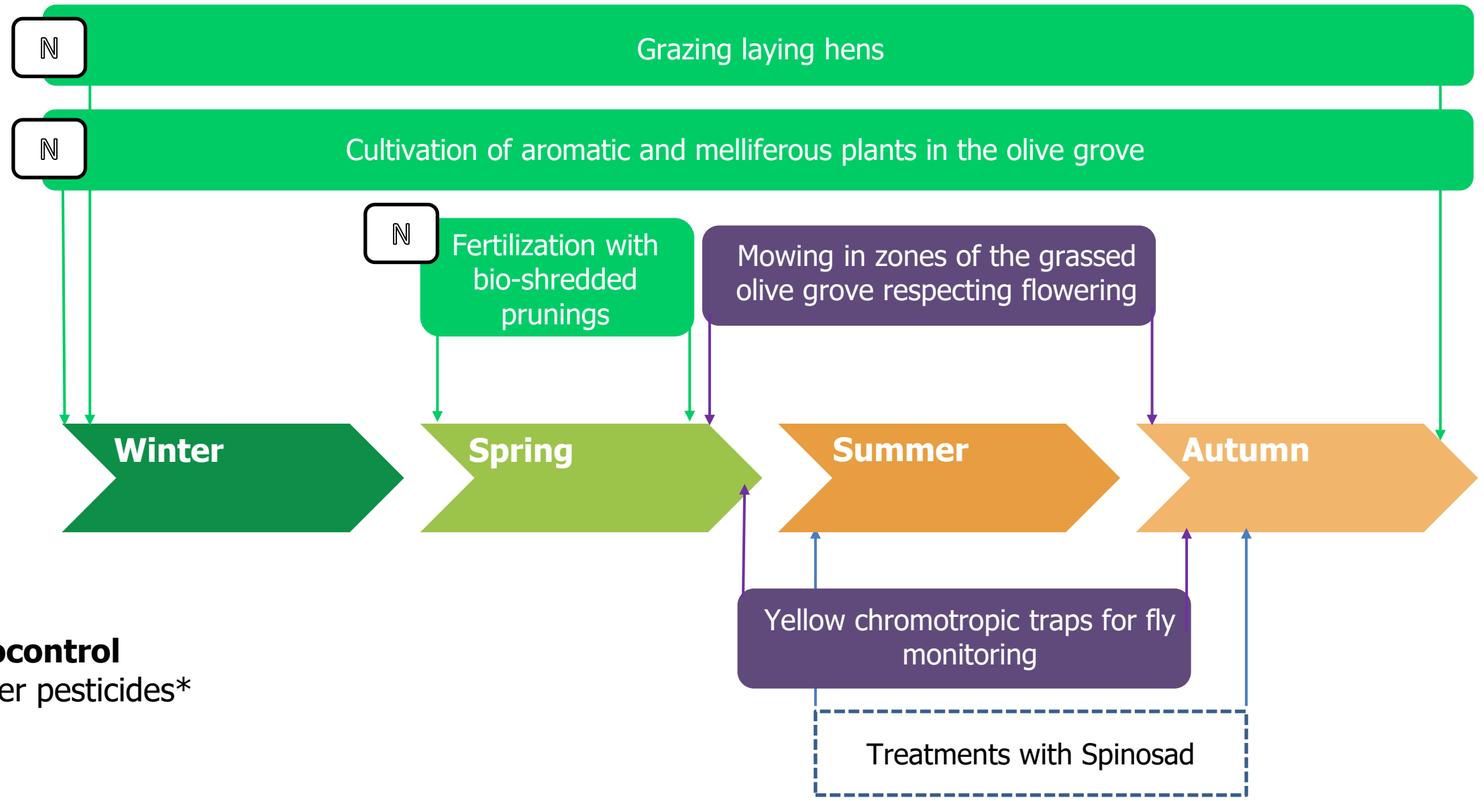
My strategy

Alternative solutions

Agronomical

Genetics

Physical control



Chemicals and biocontrol
Insecticides and other pesticides*

Fungicides*

Herbicides*

*In green = low risk PPPs
*In blue = biocontrol agents

Key measures

- The key insect control takes place through monitoring with chromotropic traps.
- Based on the catches and after consulting the weekly bulletin prepared by Agroambiente.info, treatments are carried out with small doses of Spinosad (extract of artificial culture of Saccharopolyspora spinosa).
- The fertility of the soil and its organic matrix are maintained through the spreading of bio-shredded pruning.
- Free grazing of hens under the olive trees contributes to the fertilization and to control the fly larvae wintering in the fallen olives.
- The presence of aromatic and melliferous plants, even perennial ones, helps to increase pollinators and to maintain a balanced olive grove ecosystem.

Legend N **New solution** ~~**Solution**~~ **Abandoned solution** **Non systematic solution**

My results

Comparison with standards

Pests control

Very good	Medium	To improve
Olive fly	*Olive caries*	*Asian bed bug*
Olive mange		*Black locust*

Evolution of use of pesticides

Very good	Medium	To improve
Insecticides		*Repellents (essential)*

Sustainability indicators

Very good

- ↘ - Use of products that are dangerous or toxic to the environment
- ↘ - Use of chemical fertilizers
- ↗↗ - Establishment of grass cover or multi-annual crops
- ↗ - "Complexity"of the cropping system
- = - Level of overall satisfaction of the farmer and his entourage
- ↘ - Use of dangerous or toxic products for the user

Medium

- = - Use of fossil energy
- = - Labour employment
- = - Equipment usage time
- ↗ - Distribution of work over the year
- = - Pesticides costs
- ↘ - Energy costs

To improve

- = - Use of sustainable energy
- = - Use of conservation biological control [landscaping]
- ↗↗ - Workload
- ↗ - Drudgery of work
- = - Standardized operating expenses
- = - Actual mechanization load

Key conclusions

Davide fully understands the benefits coming out to his farm from a correct management of biodiversity and existing ecosystem services.

Especially after Dimethoate, the base product in the fight against the olive fly, was banned, his multifunctional choices are aimed to a complete renounce of chemical treatments to safeguard health of environment, workers and consumers.

Innovative methods are tested: own-produced essential oils used as a repellent and canopy spiders monitoring to consider the predation of olive fly spiders in the canopy.

The complexity of his cultivation system leads to a considerable workload, but there seems to be a high level of general satisfaction, of him and his entourage.

Legend

In green = positive trend
In red = negative trend
In black = comparable

= Comparable

↗ Increase
↘ Decrease

↗↗ Significant increase
↘↘ Significant decrease

Environmental indicators
Social indicators
Economical indicators

Our feedbacks

To date I am very satisfied with the IPMworks project because it has managed to create relationships between the olive growers in the area and has given me the opportunity to meet people who have willingly shared their experience and their ideas. Additionally, the researchers and the facilitator I interacted with were knowledgeable and interested in my farm and ideas.

Farmer: Davide Milazzo (Italy)

Davide's approach is truly holistic; he bases his work on keen search for innovative and interconnected solutions and an autonomous thinking. He, however, recognizes the need for technical support and continuous exchange between peers. His passion and his interest in a rebirth of olive growing in this area follow the spirit of all the hub farmers and represent an example and a urge for the whole group.

Hub coach: Virginia Bagnoni (Italy)

MAIN OBJECTIVES OF THE OLIVE GROWER

Economically sustainable solutions and strategies as an alternative to chemistry.

ADVANTAGES OF THE SYSTEM

Health of the entire ecosystem with alternative practices and promotion of efficient olive growing in compliance with the environmental peculiarities and local traditions.

LIMITS

The great difficulties linked to the characteristics of the territory and the difficult mechanization require support from the political institutions. The project should help the olive growing of Monte Pisano to be recognized as the last real bulwark to keep the terraced system and the agro-ecological development in the area.

OPPORTUNITIES TO DEVELOP IN THE FUTURE

Transition from farm-level strategies to landscape-level strategies.

Increase in preventive rather than curative strategies.

Increasing knowledge in participatory monitoring.

Organization to increase collective purchases of technical means.

Strengthening of collaboration and peer-to-peer learning to get a greater attention by institutions and politics.

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION' HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT N. 101000339