How I implement IPM

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

My farm

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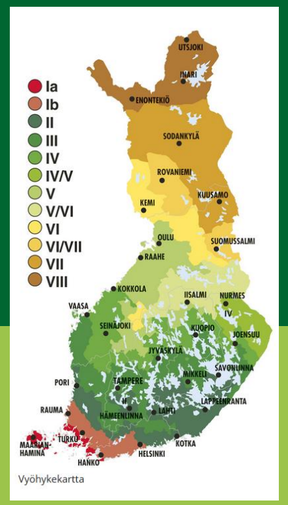
PEDO-CLIMATIC CONTEXT

- Boreal zone
- Garden plant growth zone 3
- Loamy and sand-clay soils
- Always snow in winter



Vyöhykekartta

MAIN PESTS

- Weeds: Sonchus, Elymus repens
- Strawberry: phytonemus pallidus and Botrytis cinerea

AGRONOMICAL CONTEXT

- Strawberry and green asparagus
- Crop rotation: grass-grass-winter oilseed rape/winter cereal-faba bean-cereal/oil hemp
- Organic farming
- 55 hectare fields

SOCIO-ENVIRONMENTAL CONTEXT

- Family farm with one full time farmer and one part time helper
- Seasonal workers 5-10 for 4 weeks

OBJECTIVES AND MOTIVATIONS OF THE FARMER

- Reducing of tillage
- Improving environmental diversity in the farm ecosystem
- Increasing green cover in fields through the year

My strategy

Alternative solutions

Agronomical

Genetics

Physical control

Grass mix with 7-10 different species

Cover crop mix growing under ℕ

Prestop against root diseaes during planting

Prestop Mix with bee vector during flowering against grey mold.

Plastic cover on rows and cut grass between rows.

Cucumeris mites against pests during flowering.

More space between rows and plants to avoid deseases.

Key measures

Strawberry

- At least 5 years between 2 strawberry years in the same field
- Using Prestop for plants, preventing *Phytium* and *Fusarium*
- Plants grow in black plastic cover and there is grass between the rows
- Using Prestop Mix with the help of bees for preventing *Botrytis*
- Using Cucumeris mites against for *Phytonemus pallidus* during flowering

Other crops

- Keeping the field always green, no room for weeds
- Increasing the diversity in the field with cover crop mixes
- Cover crops also shadow weeds

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

My results

Comparison with standards

Pests control

Very good	Medium	To improve
Annual weeds	Botrytis in strawberry	Perennial weeds

Evolution of use of pesticides

Very good	Medium	To improve
Prestop Mix	Pest eaters	

Sustainability indicators

Very good

- ↘ Use of fossil energy
- ↗ Establishment of grass cover or multi-annual crops

Medium

Irrigation (amount of water)

- ↗ Energy costs
- ↗ •Complexity"of the cropping system

To improve

- ↗ •Workload
- ↗ •Distribution of work over the year

Standardized operating expenses

Key conclusions

Cultivating without chemicals needs more planning

The whole farm ecosystem must take for consideration

Most important thing for also pest management is that the soil is in good growing condition and there is lots of good microbes

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

> Using only biological methods in farming demands lots of planning and scanning of the results. You also have to know the ecosystmes cause effects.

Saara Kukkonen Finland

Avoiding the use of pesticides saves all the natural enemies.
Using Prestop Mix (made of *Gliocladium catenulatum*) saves all the good fungi in the canopy
The main goal is to obtain the ecosystem so that it will stay sustainable for all pests.

> More than 85 % of Finnish farmers has adopted IPM methods couse IPM has been a requirement of their environmental commitment for 7 years. Organic farming practices have been introduced more and more in traditional farming as well.

Marja Kallela Finland

In Finland, there is only one chemical product available against plant pest for several garden plants in the open field, which can only be used every other year for the same plants, often only with a Minor use permit. Traditional farmers have to adopt more and more organic farming methods due to the lack of chemical plant protection agents.

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