



How I implement IPM

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



My farm



Mathias Jonckheere
Jabbeke, West-Vlaanderen

PEDO-CLIMATIC CONTEXT

- Greenhouse (high level of technology, heated), table tops under raincover, trayfields
- Temperate maritime climate
- Average annual rainfall: 929 mm
- Average temperature: 11,2°C

MAIN PESTS

- Spider mites and aphids
- Powdery mildew in late crop

AGRONOMICAL CONTEXT

- Highly specialized in hydroponic cultivation of strawberries (nursery and production)
- Varieties: Sonsation and Elsanta
- Horticulture area: 6,7 ha
- Biological control, releasing natural enemies in the crop

SOCIO-ENVIRONMENTAL CONTEXT

- Seasonal workforce
- 'Tomabel', 'GlobalGap' and Flandria quality labels

OBJECTIVES AND MOTIVATIONS OF THE FARMER

A sustainable and profitable strawberry crop with a limited use of insecticides and fungicides



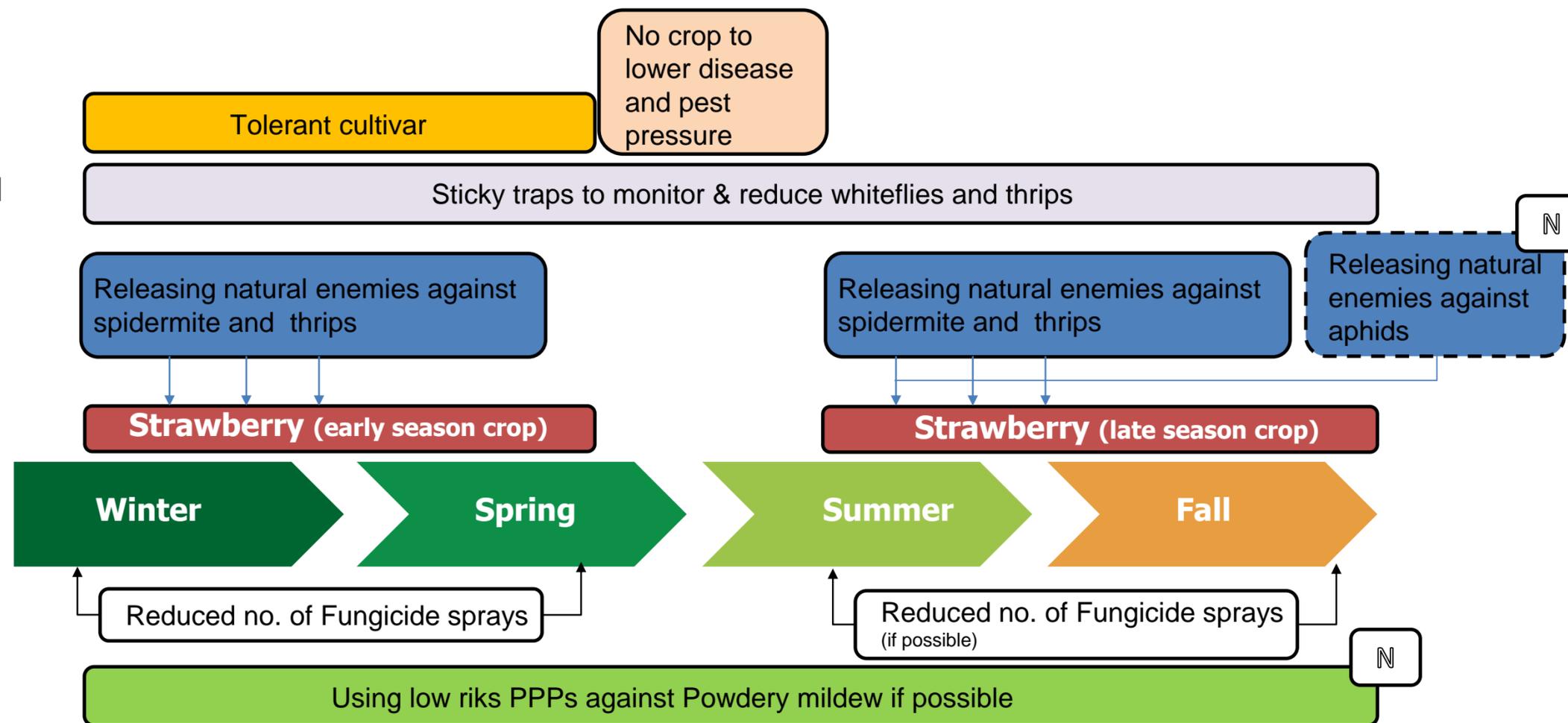
Laurica Plants



My strategy in the greenhouse

Alternative solutions

Agronomical
Genetics
Physical control



Chemicals and biocontrol

Insecticides and other pesticides*
Fungicides*
Herbicides*
*In green = low risk PPPs
* In blue = biocontrol agents

Legend



New solution

~~Solution~~ Abandoned solution



Non systematic solution

Key measures

- In the beginning of both crops natural enemies (mainly predatory mites, such as *Neoseiulus cucumeris*, *Neoseiulus californicus*) are released to prevent pest damage.
- Sticky traps are used in both crops to monitor and reduce pest pressure.
- In the early crop the cultivar 'Sonsation' is used which is tolerant against *Phytophthora cactorum*.
- Fungicide sprays are reduced to the minimum if possible. Often alternatives such as Potassium hydrogen carbonate are used.
- Between the two crops the greenhouse is empty due to the overall work planning. In meantime the disease and pest pressure can reduce.

Pests control

<u>Very good</u>	<u>Medium</u>	<u>To improve</u>
Thrips	Powdery mildew	Botrytis
Spidermites	Aphids	

Evolution of use of pesticides

<u>Very good</u>	<u>Medium</u>	<u>To improve</u>
Insecticides	Fungicides	

Key conclusions

- Mathias replaced almost all his insecticide sprayings by natural enemies. He experimented during the project also with natural enemies to control aphids, but the strategy is time consuming and more expensive, than a pesticide application. Moreover, it asks a lot of expertise.
- Low risk plant protection products are used against Powdery mildew, but Mathias is still looking for other alternatives.
- A good climate and growth is maintained to reduce the infection by Botrytis. Further no alternatives are used yet, because the offer is very limited and the efficiency is mainly lower.

Sustainability indicators

<u>Very good</u>	<u>Medium</u>	<u>To improve</u>
↘ Use of products that are dangerous or toxic to the environment	= Use of chemical fertilizers	= Distribution of work over the year
↗ Level of overall satisfaction of the farmer and his entourage	= Workload	↘ Pesticides costs
	↗ Complexity of the cropping system	↗ Energy costs

Our feedbacks



Our customers have a clear demand: grow strawberries in a more environmentally friendly way. To anticipate this, we have evolved towards almost a complete biological control of insects in our crops. Thanks to good monitoring and sufficient knowledge of our partners and suppliers, we are on the right track here. This is the only way we can convince consumers to choose a healthy Belgian product.

Mathias Jonckheere (Belgium)



Implementing a holistic approach of IPM that is economically viable is not easy. Mathias is a forward-thinking strawberry grower who takes every opportunity to take his IPM strategy to the next level. For instance, he demonstrated the use of natural enemies against aphids. He is a great example for the whole region.

Jolien Claerbout (Belgium)

MAIN OBJECTIVES OF THE GROWER

- A sustainable and profitable strawberry crop with a limited use of insecticides and fungicides

ADVANTAGES OF THE SYSTEM

- The holistic IPM-strategy ensures that less pesticides are needed

LIMITS

- Practices need more time for monitoring and more knowledge. Some strategies are not ready yet to use in practice, because they are too expensive.

Opportunities to develop in the future

- Optimizing strategies to control aphids
- Exploring whether a UV robot can be used at every farm to control powdery mildew
- Looking for opportunities to reduce the general fungicide uses