



# How I implement IPM

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



## My farm



**Pieter en Heidi Vandooren**  
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### PEDO-CLIMATIC CONTEXT

Substrate cultivation  
Temperate maritime climate  
Average annual precipitation: 929 mm  
Average temperature: 11,2°C

### MAIN PESTS

Powdery mildew  
Aphids  
Whitefly  
Pythium

### AGRONOMICAL CONTEXT

Cultivation in plastic tunnel greenhouses  
A/B – fertilization system  
Drain and recirculation  
Utilised Agricultural Land = 3 ha plastic tunnels for zucchini

### SOCIO-ENVIRONMENTAL CONTEXT

Family oriented farm  
Seasonal workforce  
Complements the organic farming practices  
Contract market / auction

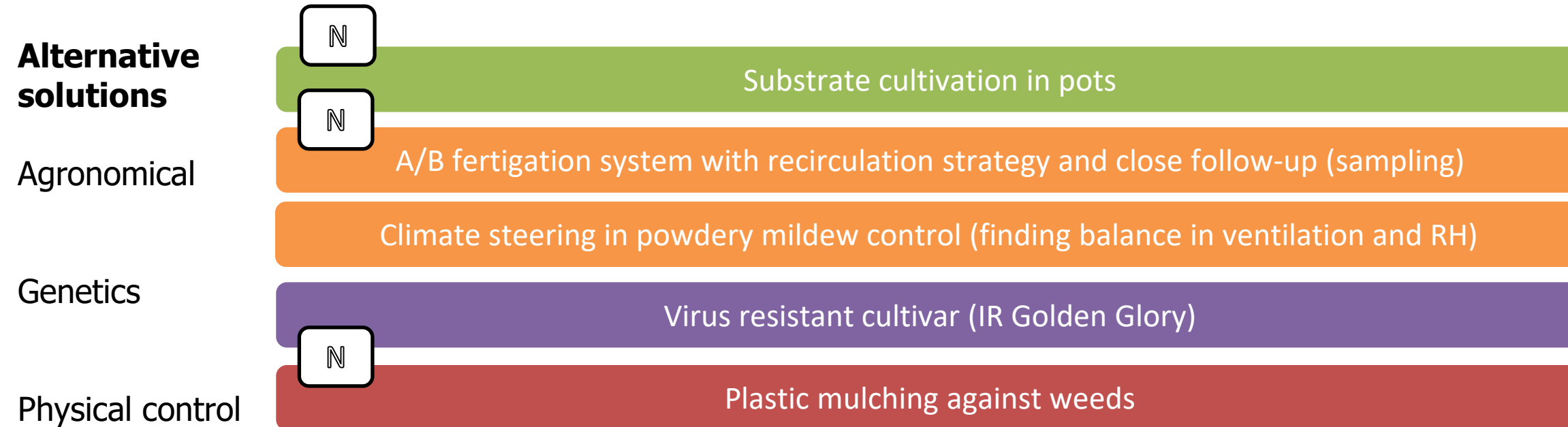
### OBJECTIVES AND MOTIVATIONS OF THE FARMER

Substrate cultivation as an evasion technique for soil-borne pathogens  
Cultivation without the need for herbicides  
Almost organic, as is the rest of the farm





# My strategy



## Key measures

**We start with good planting material by well established plants in 10 cm blocks.**

**Substrate cultivation with recycled fertigation optimizes water and nutrient use, reducing losses to the environment**

**No need for herbicides because of the plastic mulch**

**We try to steer the climate into non favorable conditions for powdery mildew, thus limiting the need for chemical interventions.**



Biocontrol of aphids with (*Aphidius*, *Aphidoletes*, *Micromus*)

Resistance management in powdery mildew 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



# My results

Evolution trend on the farm

## Pests control

<u>Very good</u>	<u>Medium</u>	<u>To improve</u>
Powdery mildew Aphids Whitefly		Pythium

## Evolution of use of pesticides

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

## Key conclusions

**By moving away from soilbound cultivation, soilborne diseases like fusarium are evaded. Oomycetes like Pythium are to be controlled with hygiene measures.**

**Recirculation of the fertigation water optimizes the irrigation and nutrients in the cropping system**

**As complement to the organic farming practices in the other crops on the farm, biocontrol is used to control aphid populations**

**Labour organization and time needed is optimized!**

## Sustainability indicators

<u>Very good</u>	<u>Medium</u>	<u>To improve</u>
<ul style="list-style-type: none"> <li>↘ Irrigation (amount of water)</li> <li>↗ Level of overall satisfaction of the farmer and his/her entourage</li> <li>= Standardized operating expenses</li> <li>↘ Workload</li> </ul>	<ul style="list-style-type: none"> <li>↘ Use of products that are dangerous or toxic to the environment</li> <li>= "Complexity" of the cropping system</li> </ul>	<ul style="list-style-type: none"> <li>↗ Use of conservation biological control</li> <li>↗ Biodiversity</li> <li>↘ Use of chemical fertilizers</li> <li>↘ Peat use</li> </ul>

**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



“ Farmer testimony (technical results and interest for IPMWORKS network

**Pieter and Heidi Vandooren (Belgium)**

*If it would be accepted to grow in substrate for organic farming like in the United States, we would happily switch to organic zucchini growing*



“ Farmers without prejudices and an open mind like Pieter are a leading example for others in the hub

**Jonathan De Mey (Belgium)**

Pieter and Heidi show that biocontrol is viable alternative in greenhouse cultivation.  
I see some opportunities to develop in the future:

- Making the substrate more durable, already 15% of wood fiber is added to replace the peat.
- Use of organic certified products in powdery mildew control