



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

The logo for 'IPM works ORCHARDS' is located on the left side of the image. It features the letters 'IPM' in a large, green, sans-serif font. A small white icon of a fly is integrated into the letter 'P'. Below 'IPM', the word 'works' is written in a smaller, orange, sans-serif font. To the right of 'works' is a stylized rainbow graphic with five curved bands in shades of green and yellow. Below the rainbow, the word 'ORCHARDS' is written in a large, white, bold, sans-serif font. The entire logo is set against a dark blue background that has a circular cutout revealing the apple tree image behind it.

# IPM works ORCHARDS

*Survey #1: IPM awareness, IPM adoption,  
pesticide use and self-evaluation*

## TOPICS OF SURVEY #1:



**FARMING CONTEXT**



**FARMERS EXPECTATIONS AND PREFERENCES**



**CULTURAL PRACTICES: FARM LEVEL**



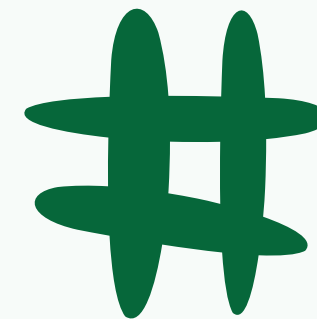
**CULTURAL PRACTICES: CROP LEVEL**



**PEST CONTROL EFFICACY: PERCEPTION OF THE FARMER**



**COST-EFFICIENCY-PERCEPTION OF THE FARMER: SELF-EVALUATION**



**NUMBER OF FARMS**

**15**



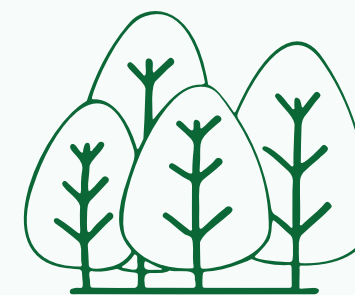
**PARTICIPANT COUNTRIES**

**ITALY  
SLOVENIA**



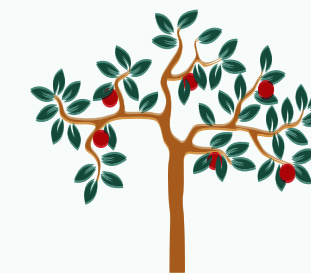
**TOTAL ORGANIC ORCHARDS**

**5**



**AVERAGE ORCHARD SIZE**

**3,65ha**



**TREE SPECIES**

**Olive  
Apple**



**AVERAGE EXPERIENCE OF FARMERS**

**19 YEARS**

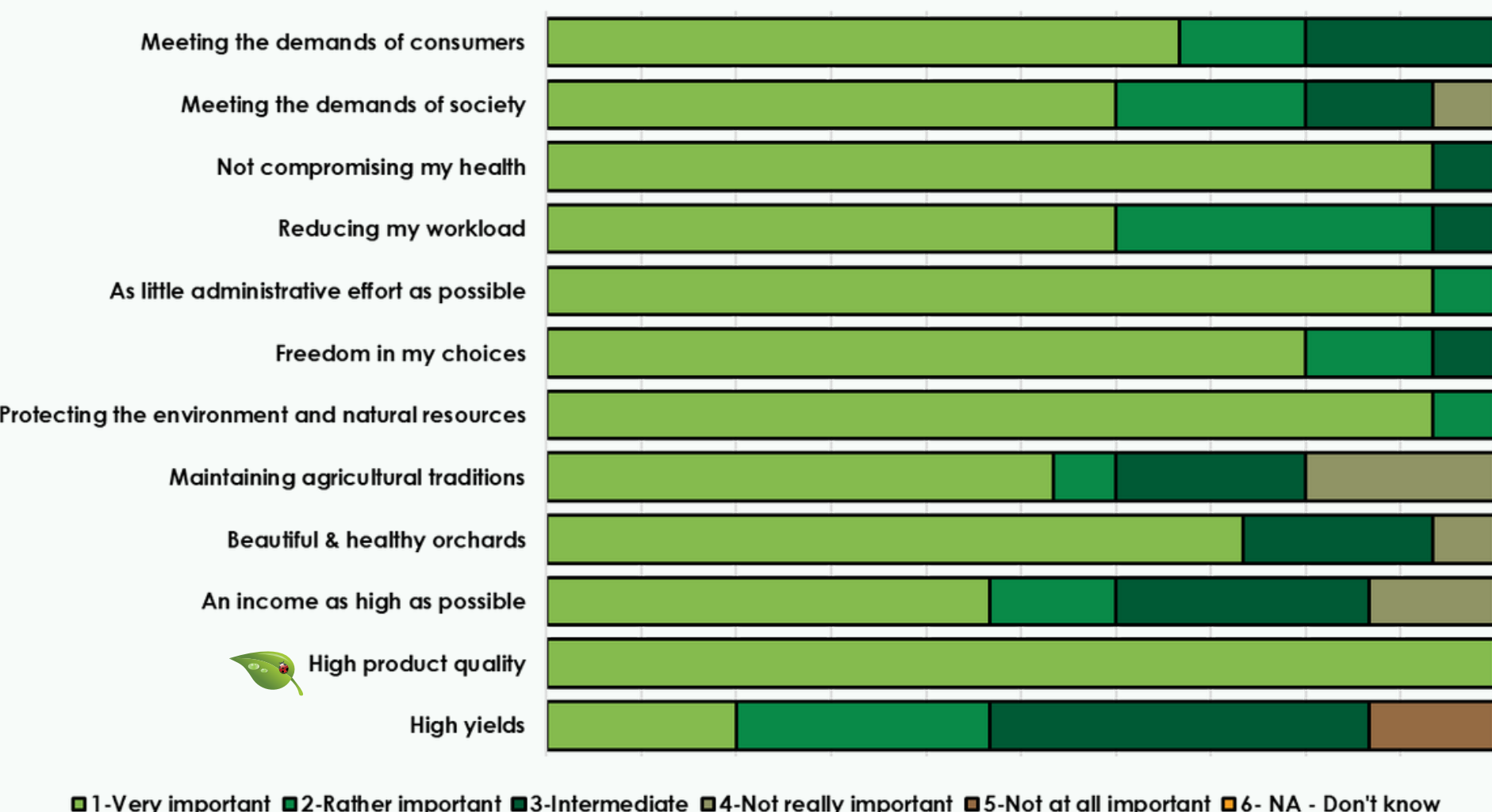
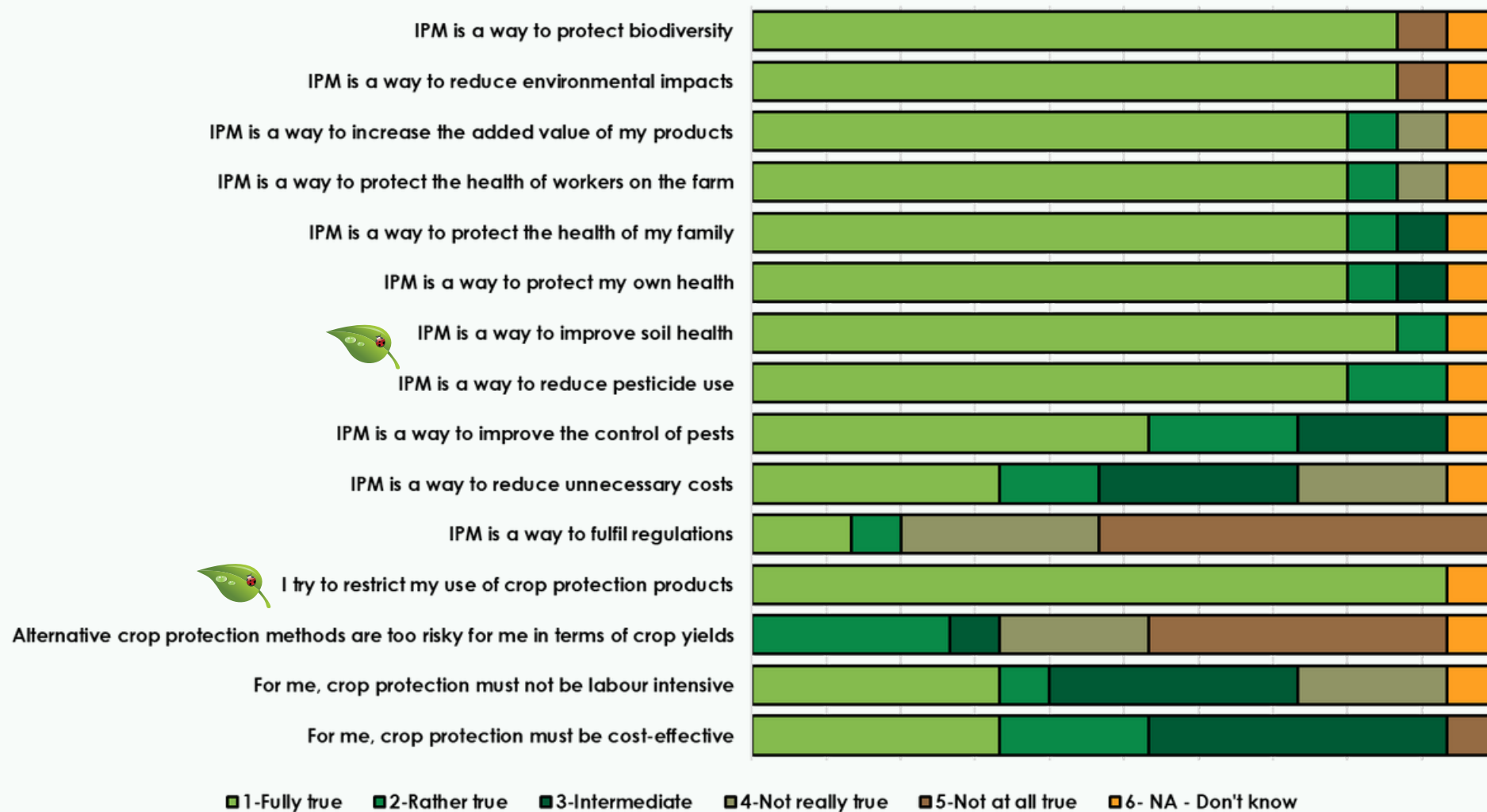
# Farmers' Awareness of IPM and Motivations



Rating statements from not "Fully true" to "Not at all true" or "Very important to "Not at all important".

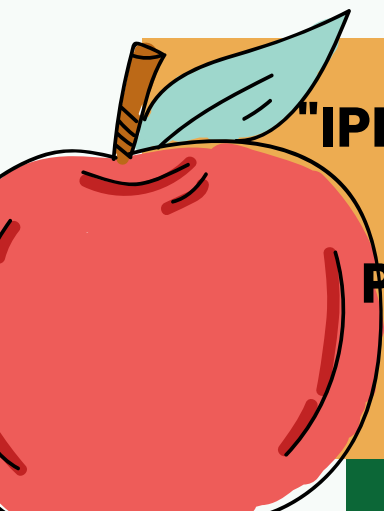
## OBJECTIVES

## MOTIVATIONS

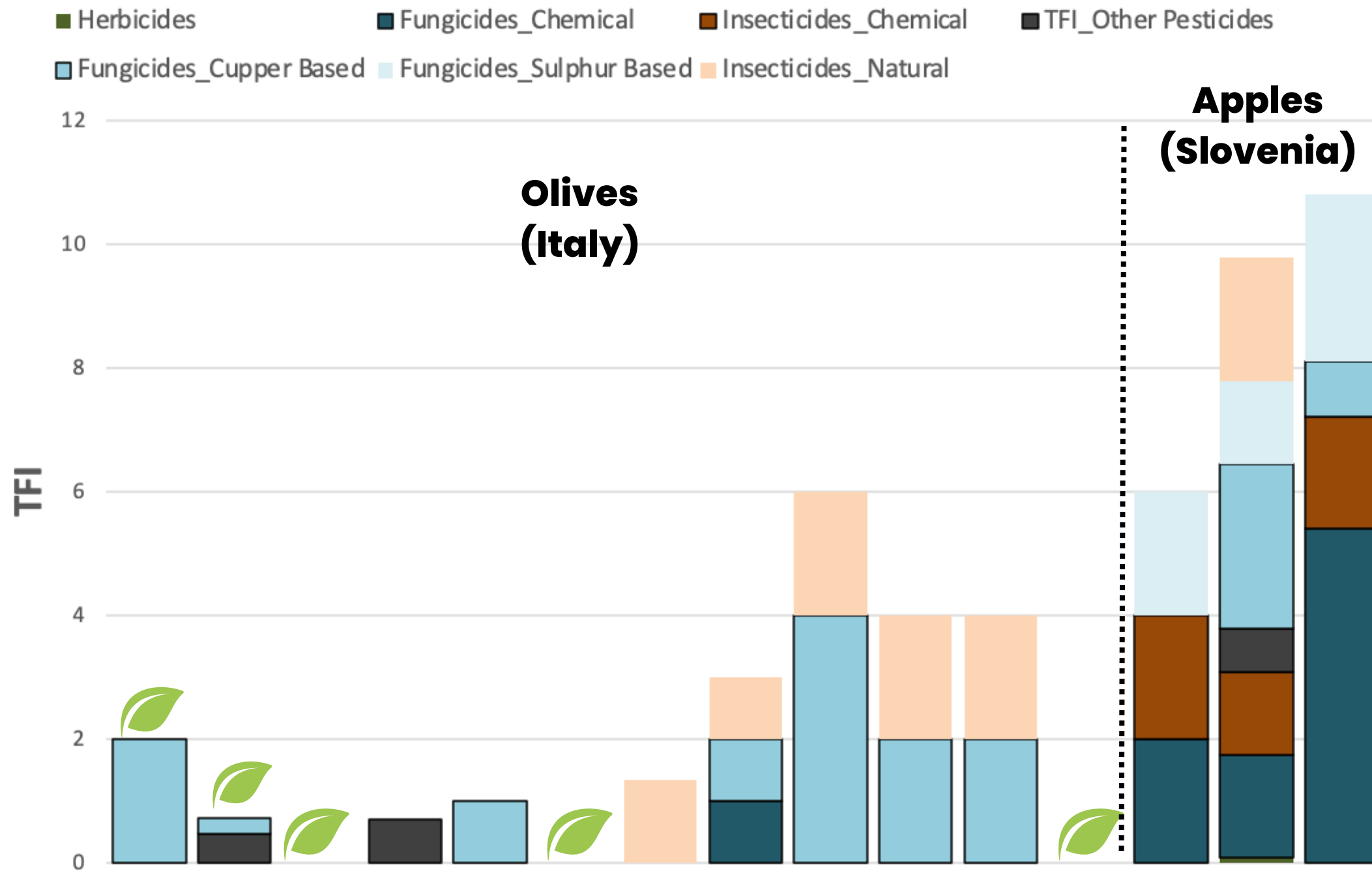


**"IPM is a way to improve soil health", "I try to restrict my use of crop protection product", and "High Product Quality" is considered to be the most important statements for IPMWORKS farmers.**

**Protecting the environment, natural resources, and biodiversity is a very important factor influencing farmers' decision to implement IPM.**



# Pesticide Use



 **Organic farms**

## Treatment Frequency Index (TFI)

TFI is used as a metric of frequency and intensity of pesticide use.

The TFI was determined based on:

- the number of treatments
- average dose (% recommended dose for target pest)
- average % of treated area (default = 100)

**TFI metric shows a large range of pesticide use across farms, that can be attributed to:**

- **Nature of crops**
- **Level of IPM adoption**



# Integrated Pest Management Index



We tested a new IPM Index calculated from the information collected on crop and pest management.



CULTIVAR



DECISION MAKING FOR TREATMENTS



MONITORING TREATMENT EFFECT



LANDSCAPE/BIODIVERSITY MANAGEMENT



GRASS COVER - SODDING



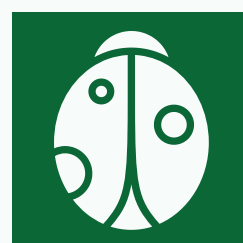
SOIL TILLAGE



MOWING



MULCH



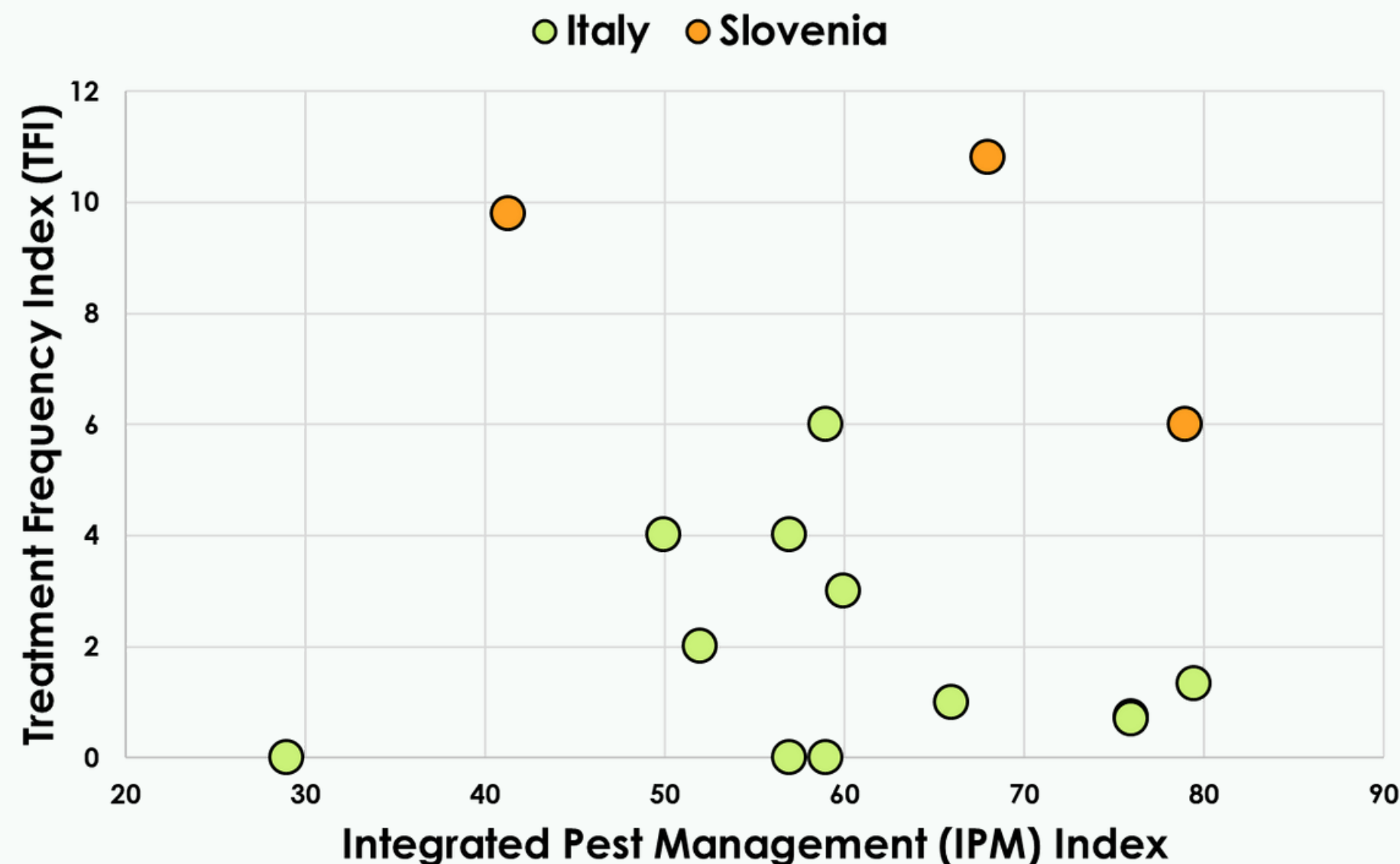
BIOCONTROL

## Topics included in IPM Index

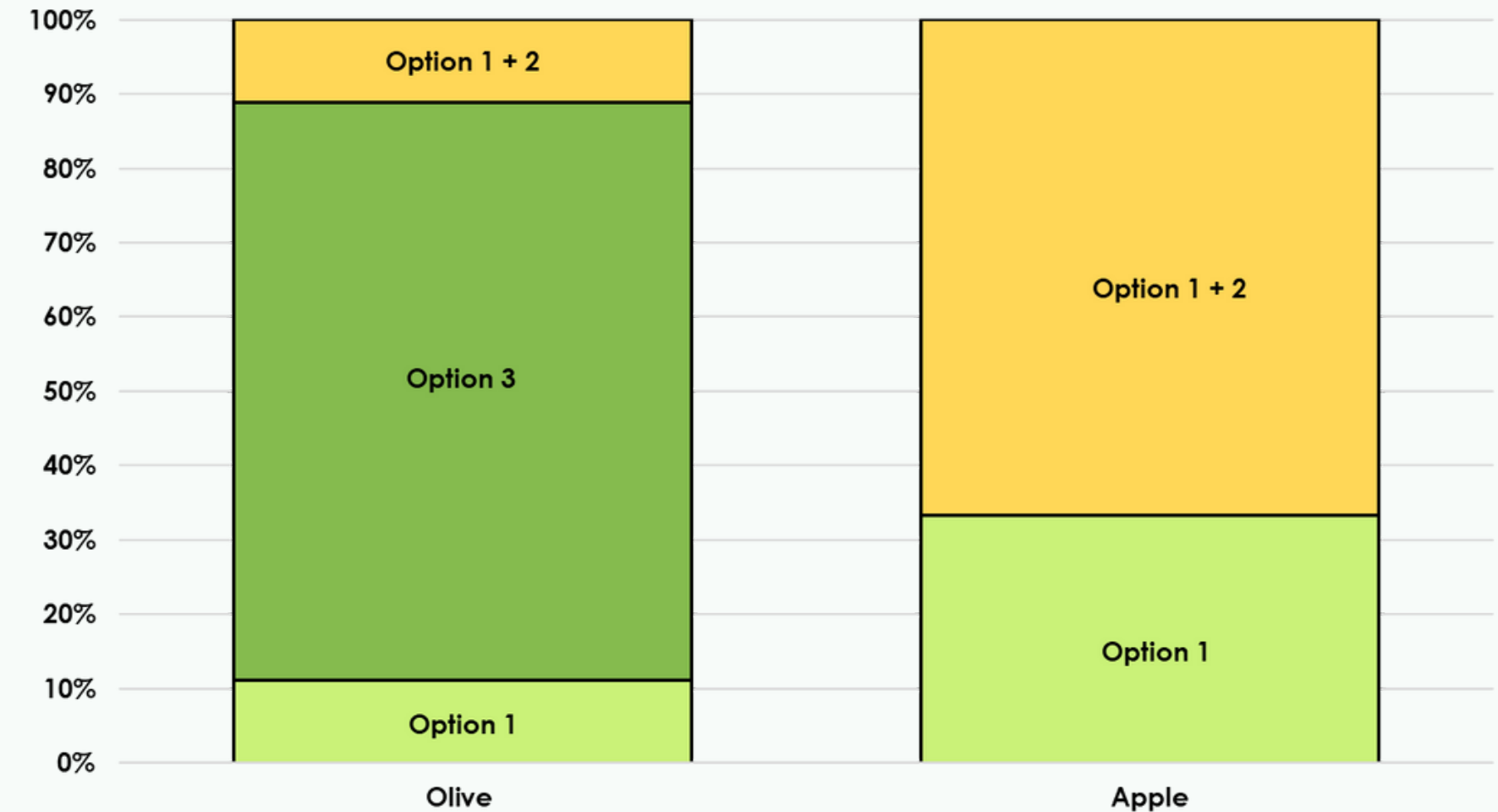
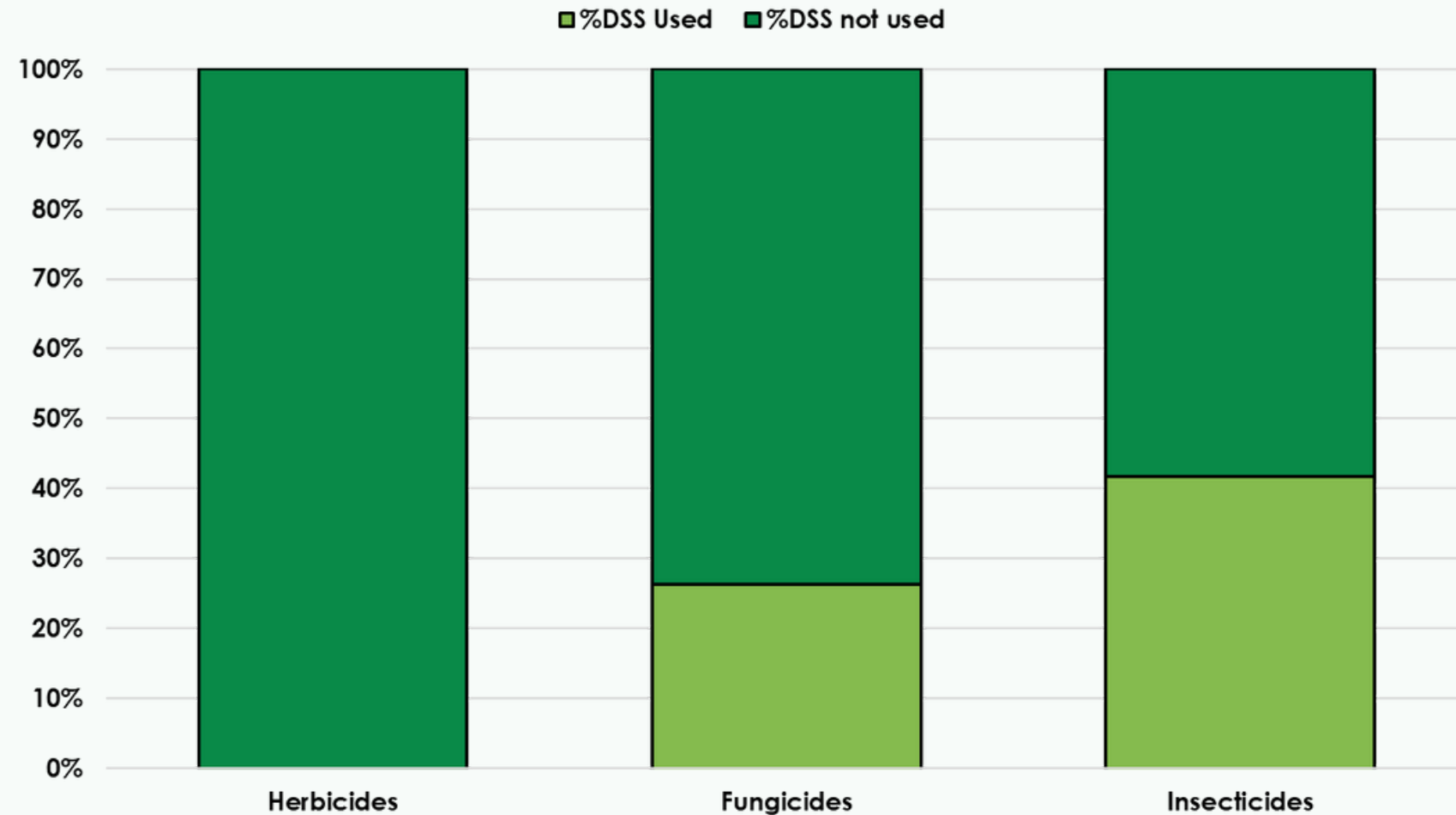
Cultural practices at the crop and farm levels were evaluated based on the last 3 cropping seasons.

IPM practices included in the index were e.g. *use of Decision Support Systems, resistant cultivars, cover crops, mowing, mulching, use of biocontrol solutions, mechanical weeding, protection of wildlife at the landscape scale...*

Each practice rating was then scored between 0-4. The IPM index is the sum of the weighted scores and ranges [0 - 84].



**The range of IPM adoption varies across farms, and this explains part of the pesticide use.**



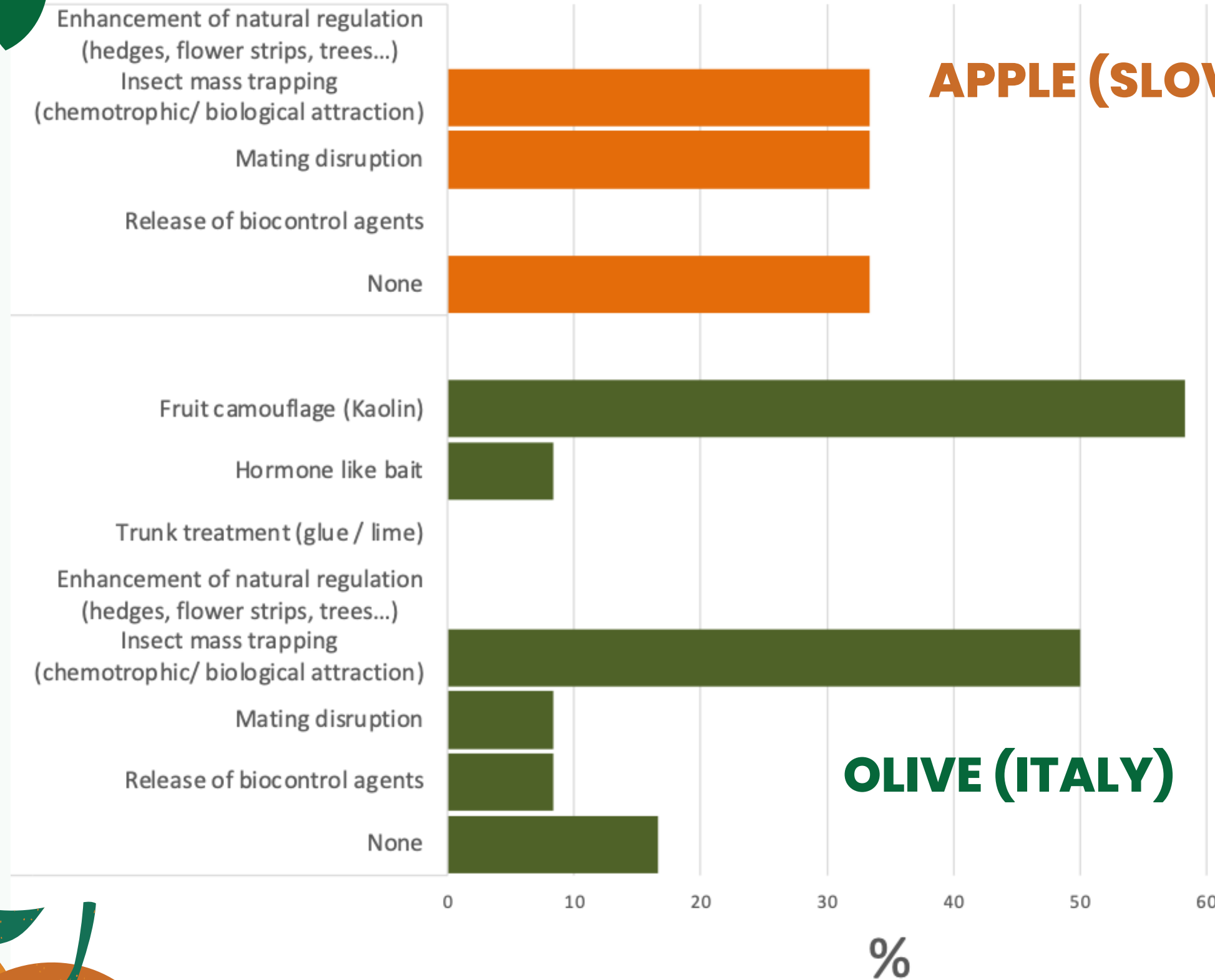
Farmers cited Decision Support Systems (DSS) for the implementation of fungicides and insecticides.

- **Option 1** All cultivars resistant to major diseases
- **Option 2** Part of cultivars resistant to major diseases
- **Option 3** No cultivar resistant to major diseases
- **Option 4** All cultivars resistant to major insect pests
- **Option 5** Part of cultivars resistant to major insect pests
- **Option 6** No cultivar resistant to major insect pests

**Resistant cultivars is not a main factor for olive groves (often old trees)... it is more important when selecting apple cultivars.**

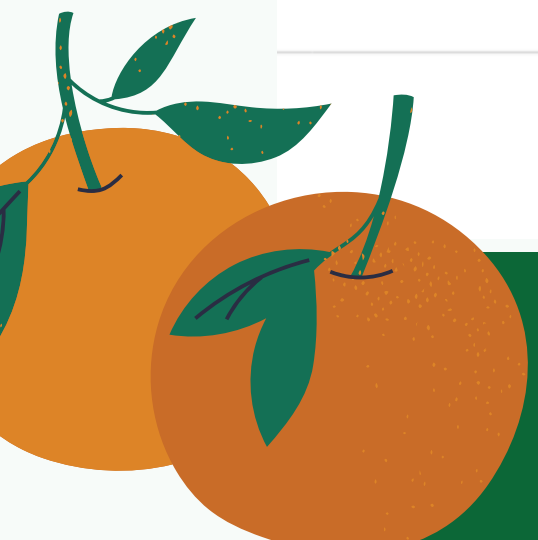
**The survey informs about how far the various components of IPM are already implemented by IMPWORKS farmers in orchards.**





**BIOCONTROL IS WIDELY ADOPTED IN IPMWORKS OLIVE GROVES (MORE THAN 80% OF FARMS), WITH MASS TRAPPING AND CAMOUFLAGE OF FRUITS WITH KAOLIN AS MAIN SOLUTIONS.**

**MATING DISRUPTION AND MATING CONFUSION ARE ALSO WIDELY ADOPTED IN APPLE TO CONTROL INSECT PESTS**



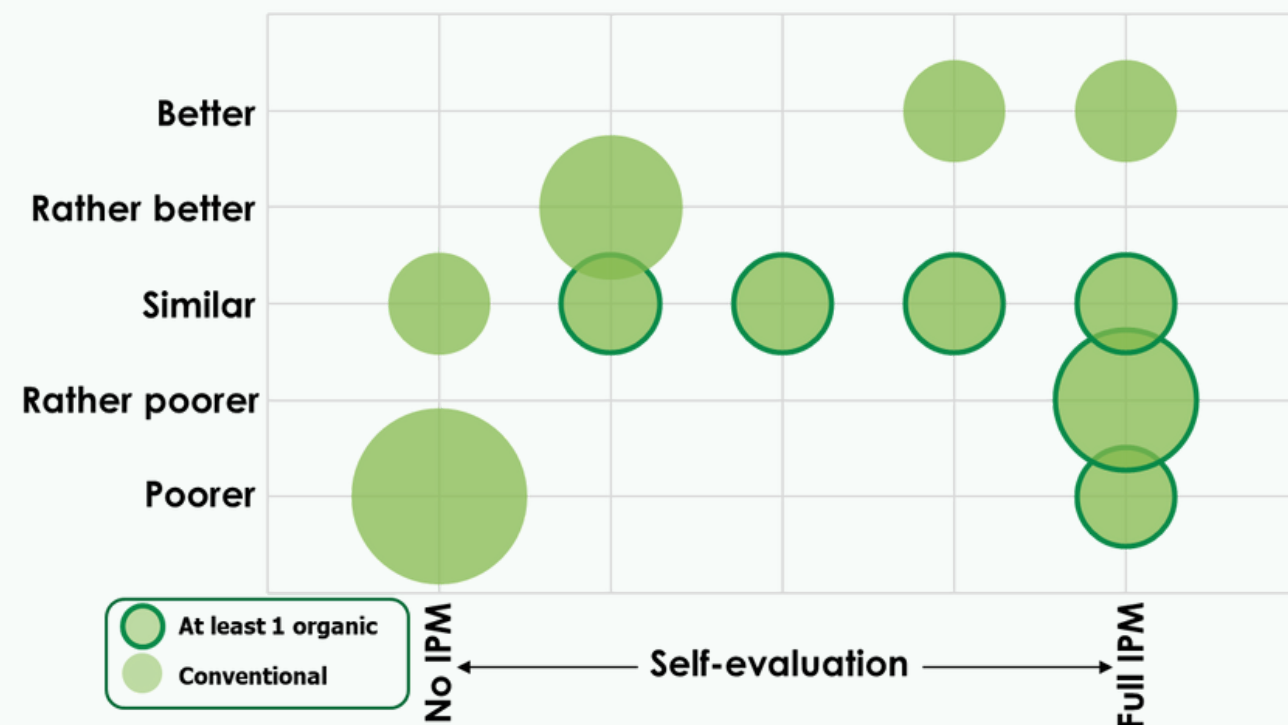
# Self-evaluation

## WEED, DISEASE AND PEST CONTROL

Self-evaluation of the quality of the disease and pest control as compared to other farmers in the area. Results are presented as a function of self-evaluation in IPM adoption.

### Quality of Weed Control

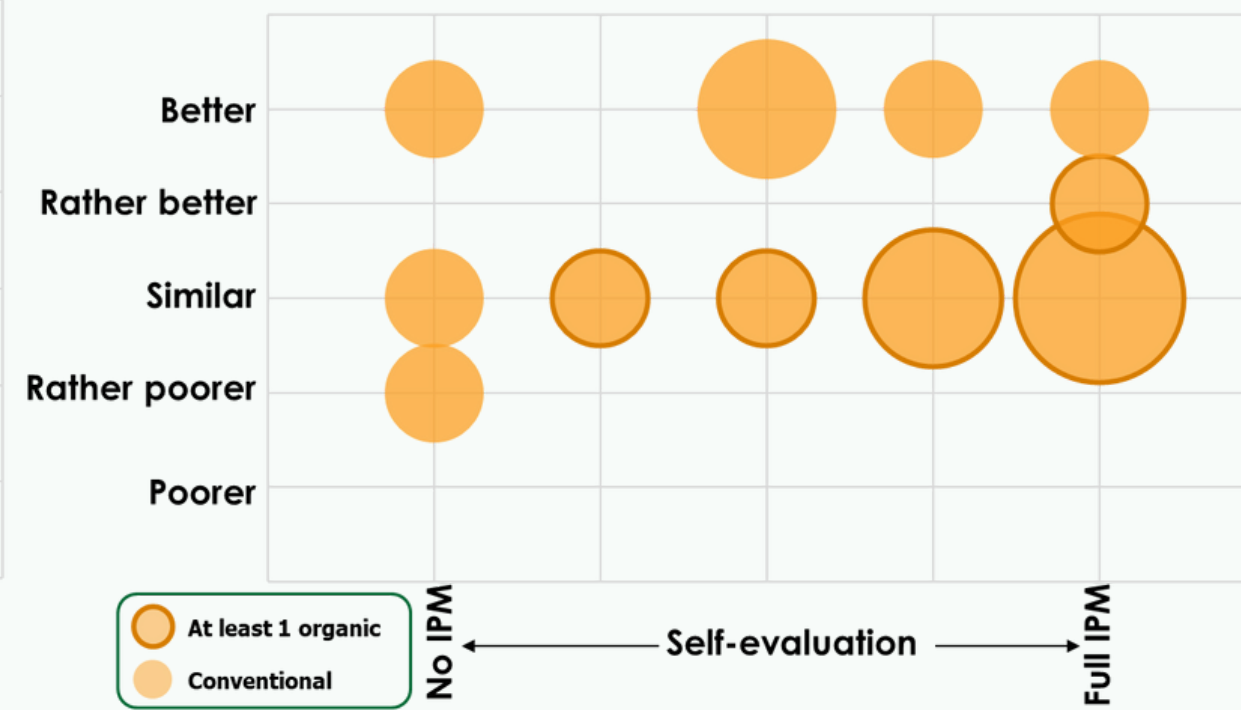
as compared to neighbour farmers...



No clear impact of IPM adoption on weed control. Weed control is an issue in some organic farms, but IWM stands to improve control in conventional farms.

### Quality of Disease Control

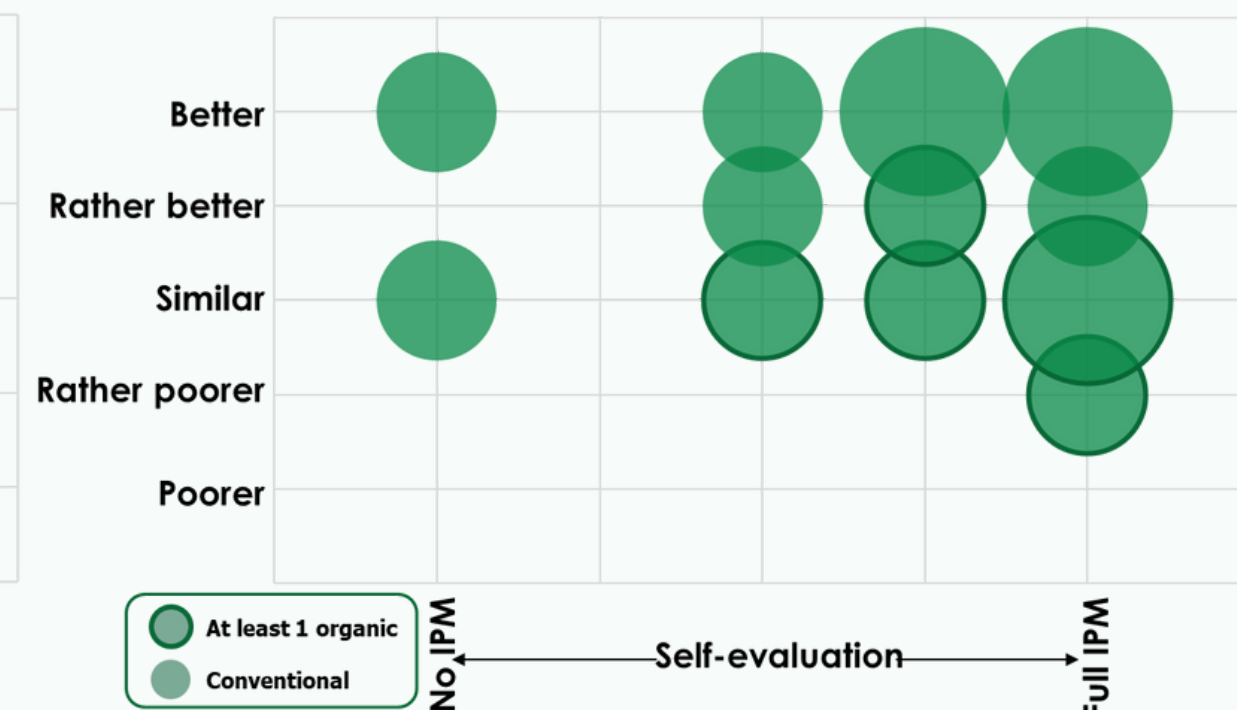
as compared to neighbour farmers...



Farmers consider disease control to be similar or better than neighbor farmers, whatever the level of IPM adoption. IPM is efficient for disease control.

### Quality of Pest Control

as compared to neighbour farmers...



Farmers consider pest control similar to better compared to neighbour farmers, whatever the level of IPM adoption. IPM is efficient for pest control.



# Self-evaluation

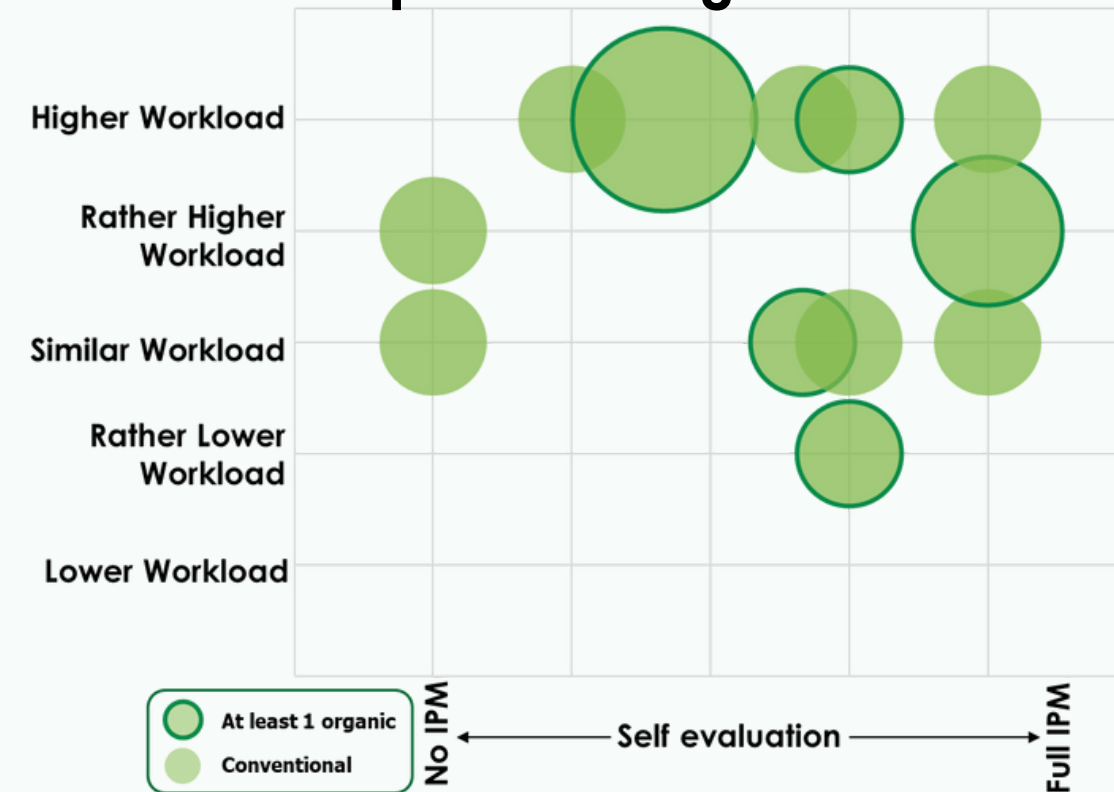
## FARM PROFITABILITY

Self-evaluation of workload/ha, equipment costs, and gross margin as compared to other farmers in the area. Results are presented as a function of the self-evaluation of IPM.



### Workload / ha

as compared to neighbour farmers...

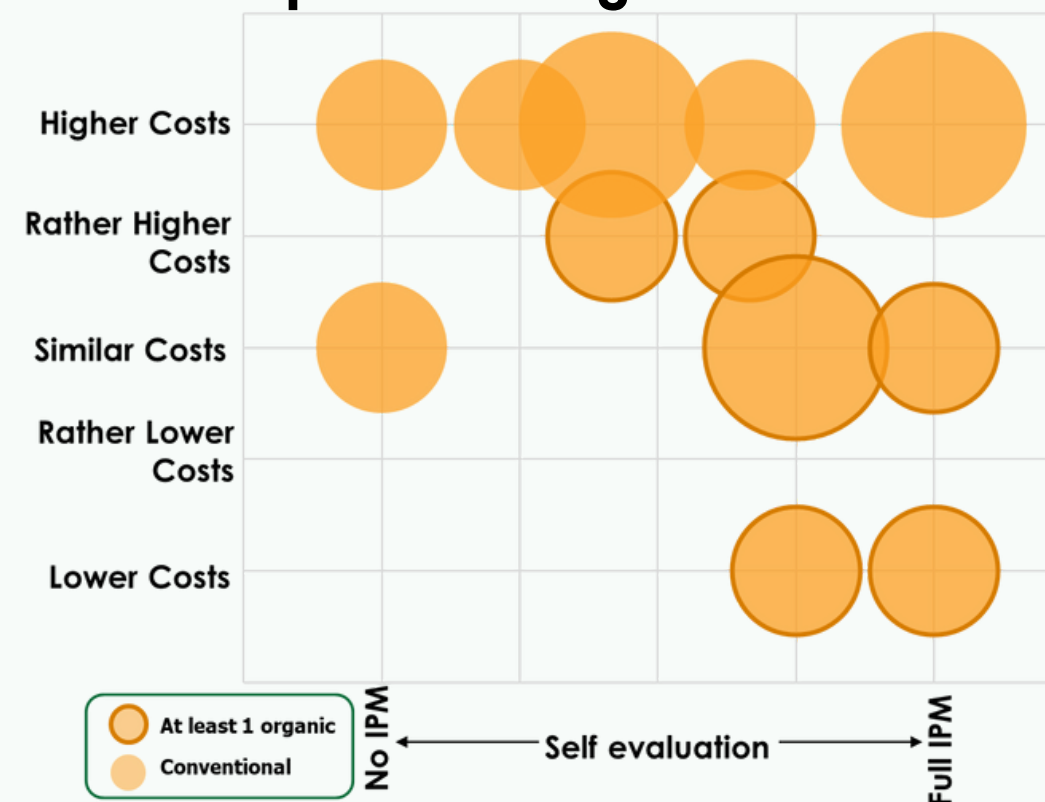


Whatever the level of IPM adoption farmers consider workload/ha to be similar to higher.



### Equipment Costs

as compared to neighbour farmers...

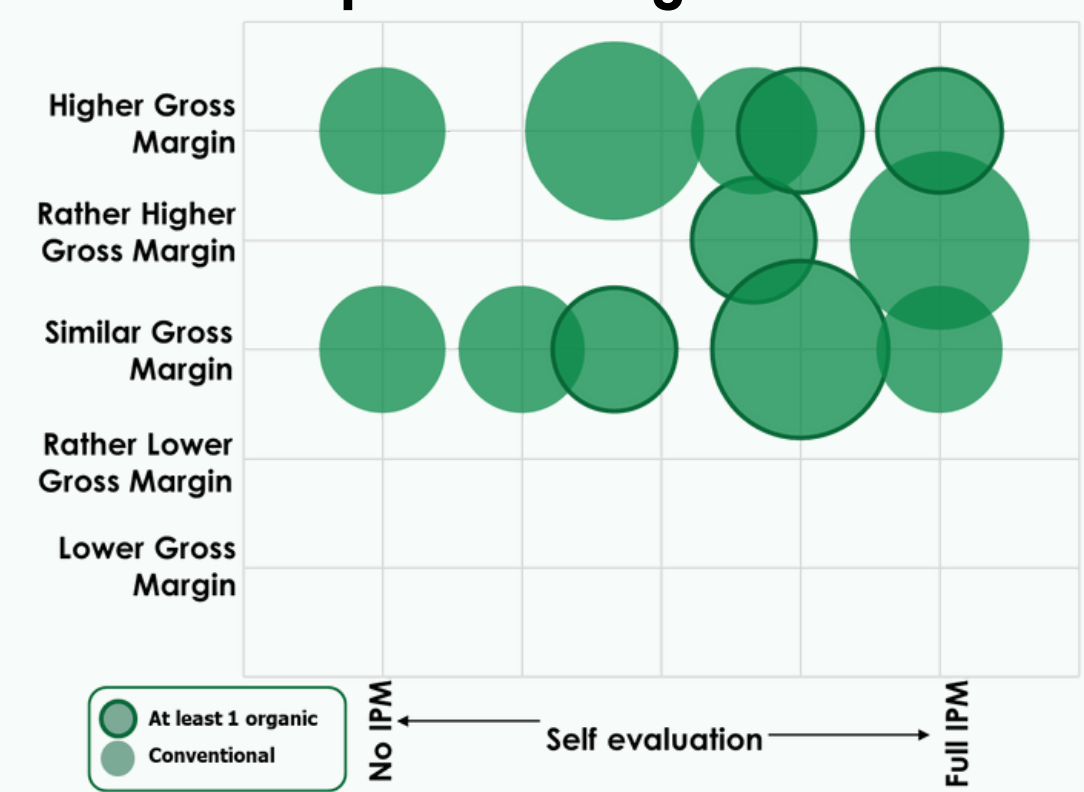


Whatever the level of IPM adoption farmers consider equipment costs to be similar to higher.



### Gross Margin

as compared to neighbour farmers...



Most IPMWORKS farmers think they have similar or higher gross margins than neighbours.  
**IPM is cost-effective.**



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**IPMWORKS**