

Outdoor vegetable sector

The aim of IPMWORKS is to encourage the implementation of IPM methods across the European Union by utilizing a network of farmers. Through peer-to-peer learning and collaborative efforts, these farmers will advance in their use of IPM strategies and showcase the effectiveness of holistic IPM in achieving reduced pesticide reliance, improved pest control, cost savings, and increased profitability.

This factsheet outlines the IPM practices employed by the outdoor vegetable sector.



COUNTRIES



HUBS

There are **5** outdoor vegetables hubs, one per country. There are **11** farmers involved in Belgium, **11** in Finland, **10** in Serbia, **10** in the Netherlands, and **12** in Portugal.



CROPS/CULTIVARS

Zucchini (Tosca, Mirza), tomatoes (industries), carrot, sweet potato, potato, lettuce, brassicas, cucumber, pod pea, stalk celery, strawberry, raspberry, celeriac, chicory, onions and apple.



MAJOR PESTS AND DISEASES

White fly, aphids, mildew, red spider mite, fruit borer (*Helicoverpa armigera*), thrips, potato beetle, *Tuta absoluta*, diamond moth, pea moth, brassica pests/beetles, raspberry beetle, carrot root fly, apple fruit moth.

IPM SOLUTIONS TO HIGHLIGHT	CROPS/CULTIVARS	COUNTRIES
Conservation bio-protection – flower stripes	Lettuce, strawberry	
Use of plastics to avoid use of herbicides	Lettuce, zucchini, strawberry, raspberry, and stalk celery	
False seedbed for control in weed management	Potato, carrot	
Mixed use of varieties with selection of healthy material	Carrots and sweet potato	
Mechanical weed control	Potato, tomato, brassicas, carrot, sweet potato, pod pea, crops celeriac, chicory, onions	
Biotechnical practices (yellow traps and other traps) for pest monitoring and control	Carrot, leek, sweet potato, lettuce, tomato, strawberry, brassicas, onions	
Use of Beneficials to control pests	Zucchini, lettuce, tomato, raspberry, strawberry (on field and polytunnels)	

EFFICACY OF THE IPM SOLUTIONS

 **BELGIUM**

In Belgium, Biobest is at the forefront of providing expert guidance to growers, helping them make informed decisions about the optimal timing and choice of beneficial organisms to achieve outstanding results.

In their mission to effectively manage aphid populations, Biobest employs a range of beneficial species, including *Aphidius*, *Aphidoletes*, and *Micromus*. This innovative biological approach has demonstrated remarkable success in minimizing the necessity for conventional insecticide applications, marking a significant stride towards sustainable and eco-friendly pest control practices.



 **FINLAND**

In Finland, Integrated Pest Management solutions play a pivotal role in pest monitoring and control. They use pheromone traps alongside yellow or white sticky traps to manage various pests, including the diamond moth, pea moth, and various brassica pests such as the cabbage root fly and various beetles. Additionally, these methods are employed for pest management in crops like raspberry, carrot root fly, and apple fruit moth, among others.

Furthermore, protective measures like cover cloths and insect nets are deployed for safeguarding brassicas and carrots. To suppress weed growth and maintain soil health, biodegradable films or plastic covers are applied, especially for perennial crops like strawberries and raspberries.

Emphasizing the importance of crop rotation is essential in their IPM strategy, as it serves as a fundamental practice to deter the proliferation of pests.



EFFICACY OF THE IPM SOLUTIONS

 **SERBIA**

In Serbia, the adoption of cover crops preceding potato cultivation has yielded multiple benefits. Notably, it has significantly reduced the reliance on chemical fertilizers, while concurrently enhancing the natural immunity of the plants against various diseases. Consequently, this holistic approach has led to a substantial reduction in the overall usage of pesticides.



Potato fields

 **THE NETHERLANDS**

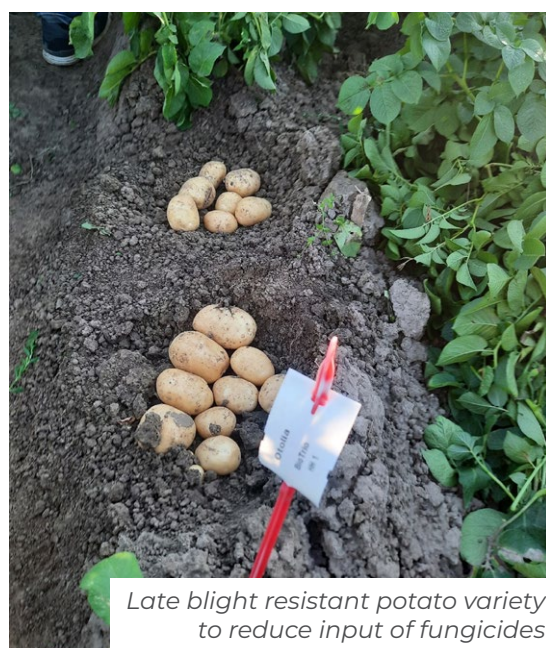
In the Netherlands, the most effective strategies for minimizing the use of herbicides and fungicides involve mechanical weed control across multiple crops and the cultivation of late blight-resistant potato varieties. These proactive measures contribute significantly to reducing the need for chemical inputs in agriculture.



The FarmDroid



Potato varieties resistant to phytophthora field demonstration



Late blight resistant potato variety to reduce input of fungicides

 **PORTUGAL**

In Portugal, the adoption of conservation Bio-protection through the use of flower strips is making significant strides in sustainable farming practices. These flower strips create a more intricate ecosystem, offering both nourishment and shelter to specific beneficial insects. The key objective is to attract predators or parasitoids that target the pests of interest to farmers.

The careful selection of plant species is paramount in this approach, as it ensures that the right insects are drawn to the fields, effectively controlling the targeted pests. Furthermore, this practice can work synergistically with the release of commercially available beneficial insects. By doing so, it not only enhances pest control but also reduces the severity of pest attacks, ultimately leading to a reduction in the reliance on pesticides, thus promoting environmentally friendly agricultural practices.



Flower strips in lettuce