

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 vineyard crops sector.



COUNTRIES



GREECE



PORTUGAL



SLOVENIA



SPAIN



HUBS

There are **4** vineyards hubs, one per country. There are **7** farmers involved in Greece, **13** in Portugal, **3** in Slovenia and **12** in Spain.



CROPS/CULTIVARS

Grapevine
Wine & table grapes



MAJOR PESTS AND DISEASES

Berry Moths (*Lobesia botrana* and *Eupoecilia ambiguella*), Downy mildew (*Plasmopara viticola*), Powdery mildew (*Erysiphe necator*), Green Leafhopper (*Empoasca vitis*) and Weeds

BIOLOGICAL CONTROL OF BERRY MOTHS



SOLUTIONS TO HIGHLIGHT

Biological control of berry moths with nest boxes for bats. Bats are hunting berry moths during the evening, when they fly above the canopy.

EFFICACY OF THE IPM SOLUTIONS

Bats are very voracious! They are able to ingest from 80 to 100 % of their weight every night. Studies show that they may eat between 1,500 and 3,000 insects per night, including grapevine moths, that are part of their diet. Encouraging the presence of bats in vineyards helps to control their populations and reduce the damage caused to the grapevines.



Boxes for bats

MATING DISRUPTION



SOLUTIONS TO HIGHLIGHT

Using pheromones to avoid male detection of females, and thus reproduction. In grapevine, it is used against berry moths.

EFFICACY OF THE IPM SOLUTIONS

Mating disruption totally avoid treatments against berry moths (1 to 3 insecticides/year). It must be used on a minimum area of 5 ha to be efficient, so it usually must be a collective approach.



Pheromones

CONFINED SPRAYER WITH PANELS

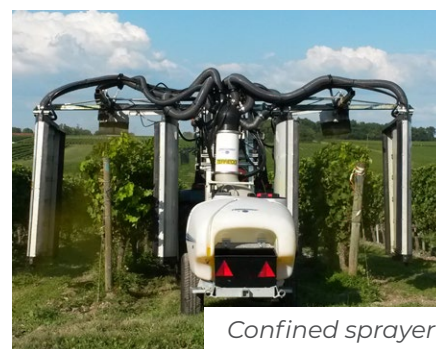


SOLUTIONS TO HIGHLIGHT

Using confined sprayer with panels allow to recover the product that flows through the canopy, limit the drift, and lower the amount of product applied, particularly at the beginning of the season.

EFFICACY OF THE IPM SOLUTIONS

Confined spraying allows to widely reduce the number of pesticides applied (from 70% at the beginning of the season to 20 % when the vine is fully grown).



Confined sprayer

COVER-CROPS



SOLUTIONS TO HIGHLIGHT

Using Cover-crops is a way to select which plants are in the rows. It is usually combined with mechanical weeding and/or herbicides. It can be selected cover-crops that are sown, or natural growth of spontaneous flora.

EFFICACY OF THE IPM SOLUTIONS

Cover-crops are a good way to manage the soil wherever the soil potential allows it. It is a matter of balance between the soil content in water and nutriments and the needs of the cover and grapevine. Good cover crop management can reduce the use of herbicides. It needs a lot of observations to be properly done, and the efficacy depends on the soil nature. Water competition is a major limit to the use of this practice without irrigation.



Cover-crops

OZONATED WATER



SOLUTIONS TO HIGHLIGHT

Ozonated water can be used against downy and powdery mildew.

EFFICACY OF THE IPM SOLUTIONS

No need to apply other pesticides, as it also controls non-flying insects. It has to be applied once a week and can have some consequences on beneficials. It is not very widespread, so the cost is still high. It must be prepared just before application, so the grower must buy the ozonating machine. Some growers that tested it have stopped now.



Ozonated water machine

DECISION SUPPORT SYSTEMS (DSS)



SOLUTIONS TO HIGHLIGHT

A decision support system is a tool that helps to determine the opportunity of a treatment. They can be based on pheromone traps, spore traps, weather forecast, models, various observations, or a combination of those elements.

EFFICACY OF THE IPM SOLUTIONS

DSS allows to evaluate the risks and avoid systematic treatments, thus reducing the number of treatments depending on the disease and pest pressure. DSS are available against berry moths, powdery and downy mildew, black-rot.



Grape berry moths

MECHANICAL WEED CONTROL



SOLUTIONS TO HIGHLIGHT

Mechanical Weed control is a way to lower competition of cover-crops with grapevine. There are several tools available. It can be done under the vines, or between the rows.

EFFICACY OF THE IPM SOLUTIONS

Mechanical Weed control using Inter-row weeders or weeder robots (mechanical/electrical). It is possible to reduce the use of herbicides, in some cases even do not use them at all.



Mechanical Weed control

SHEEP HERDS



SOLUTIONS TO HIGHLIGHT

Sheep herds can graze in vineyards to replace mowing. It also fertilizes slightly the vineyard. It is usually done in winter, when grapevine has no leaves.

EFFICACY OF THE IPM SOLUTIONS

Grazing by sheep herds allows to reduce the use of herbicides. Combined with other practices (mechanical weeding, cover-crops), it allows to totally avoid herbicides.



Sheep herd grazing in a vineyard

CANOPY MANAGEMENT



SOLUTIONS TO HIGHLIGHT

Shoot trimming removes the tip of the shoots, where a lot of green leafhopper larvae resides.

EFFICACY OF THE IPM SOLUTIONS

Canopy management, such as shoot trimming is essential to green leafhopper control, which at correct timing can delay the need to apply insecticides, therefore reducing 2-3 treatments.

Canopy management (leaf, shoot removal) also reduces disease risk and controls plant vigour, therefore “balancing” the plant, making it more resistant to pests and diseases.



Green leafhopper larvae