

# Physical protection barriers to reduce fungal and pest damages

## Problem

Pests and diseases control can be a real challenge for organic farmers, as there is only a limited number of plant protection products approved on the market, and sometimes their efficacy is only moderate.

## Solution

Physical protection barriers can help to reduce losses caused by pests and diseases. Lateral barriers (i.e. exclusion nets) avoid the contact between insects and trees, while the rainproof roof reduces leaves wetness, thus the proliferation of important fungal diseases, and fruit cracking.

## Impact

Physical barriers help to reduce plant protection products application, and could help to reduce the losses, especially where the current phytoiatric strategy doesn't help.

## Practical recommendation

- **Physical protection barriers require high initial investments, as the structure and the materials are expensive.**
- **It is important to assemble the support system on well-fixed poles, as the nets under strong winds condition might act as a sail, causing damages to the barriers and the orchard rows.**
- **The barrier needs to be opened in the right moment, before the main infections start to spread, but it is important to remember how lateral nets strongly reduce the pollinators activity.**
- **The ideal opening moment is immediately after the full bloom. Until the nets opening, preventive plant protection products should be sprayed, to avoid earlier fungal infections and future pest infestations (i.e. *D. plantaginea*).**
- **Even if the shade caused by the barrier increase the June fruit drop, it might be necessary to open the barriers to perform further hand thinning.**
- **In case of pest infestations this could be the right moment to spray, as the nets will be partially closed.**
- **Before the harvest, might be useful to anticipate the nets closure, to increase fruit coloration and, if necessary, to remove leaves.**

## Notes

Protecting the trees with physical barriers might increase the presence of secondary pests, like *Eriosoma lanigerum*. Furthermore, life cycle analysis of the single row rain roof cover combined with exclusion nets highlighted the heavy impact of such systems on the environment.

## Applicability box

### Theme

Rainproof roofs and lateral physical barriers

### Keywords

Reduction of plant protection products, physical barriers, rainproof roof, pest and diseases control, exclusion nets

### Application time

From the end of the bloom to the harvest

### Period of impact

Almost the whole season, from the spring opening to system closure

### Equipment

It is necessary to use a hydraulic platform to mount, open and close the barriers. Solids structure against windstorms are required.



**Picture 1 (left):** Physical barriers composed by the lateral exclusion nets and the rainproof roof.

**Picture 2 (right):** Closing operations before the harvest.

## Further information

### Video

- Check the following video for further instructions (in German with French subtitles):  
<https://www.youtube.com/watch?v=5g927EYOoEU&t=7s>

### Further readings

- Covering systems in Ecofruit proceedings 2018:  
<https://www.ecofruit.net/proceedings/proceedings-2018/#4>

### Weblinks

- Check the [Organic Farm Knowledge Platform](#) for more practical recommendations.
- DOMINO web page: <http://www.domino-coreorganic.eu/>

## About this practice abstract and DOMINO Project

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