

Measures to control codling moth (*Cydia pomonella*) in organic pear production

Problem

The codling moth is a major pest in organic fruit growing. The pest attacks apples, pears, walnuts, and other crops, causing economic losses in fruit production. The susceptibility of pears to codling moths can vary between young and older fruits.

Solution

Several control measures can be used in organic pear growing, combining preventive and direct control measures.

Benefits

Using a decision support system in combination with appropriate control measures will diminish damage and reduce population build-up.

Practical recommendations

Susceptibility of pears

- Research shows that penetration of the larvae in young Conference pears doesn't succeed in the first weeks of the egg-laying period. This is also known for Bartlett pears.
- Later in the summer Conference pears are much more sensitive to codling moths in comparison to the apple variety Elstar. In Northern Italy, Abate Fetel is the more sensitive cultivar.
- The young larvae have greater success later in the summer; this is associated with a decrease in both petrification and fruit hardness.
- The change from little-susceptible to susceptible varies from year to year and depends on the start of the codling moth flight and the development and hardness of the pears. Early flowering is the first indication of early fruit susceptibility. Susceptibility of the pears can start at the beginning of August, but also in July already.

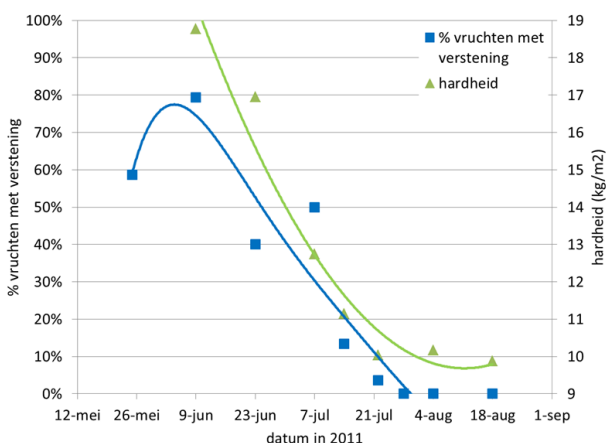


Figure 1. Percentage of Conference pears with petrification (blue line) and the firmness of the pears (green line). The change in susceptibility of the fruits was in 2011 around the beginning of July. H. Helsen, M. Polfliet, M. Trapman, 2013.

Applicability box

Theme

Crop production, Temperate fruits

Keywords

Pest control, pear

Context

Northern and central Europe

Application time

During the year, depending on the measure

Period of impact

June until September

Best in

All practices should be combined to achieve the best result



Picture 1. Damage by codling moths at harvest of Conference pears on 7 September 2020. One larva ruined three pears. Photo: G. Brouwer, Delphy.



Picture 2. Penetration of codling moth in young fruits of the Pierre Corneille variety on 19 July 2021. Pierre Corneille is highly susceptible to codling moth. The larval stage in fruit is the last larval stage. Photo: G. Mulder, fruit grower.

Picture 3 and 4. The start of the larval infection in these Conference pears is at the calyx. Photo made just before harvest on 26 August 2020. Photo: G. Brouwer, Delphy.



Measures

- Preventive measures (no bamboo sticks, no woodpiles, no piles of storage bins in the orchard)¹
- Exclusion netting in single rows is the best strategy (research in Italy, France)
- Utilise mating disruption with pheromones²
- Spray granulose virus on hatching eggs, specific for codling moths. This method is more effective in countries with 1-1.5 generations (north/mid-Europe), than in south Europe with more generations
- Use entomopathogenic nematodes in autumn on the stem to kill overwintering larvae³
- Stimulate beneficials (biodiversity, flowers, hedges)⁴
- Apply spinosad (when permitted)

Further information

Further reading

- Helsen, H., Polfliet, M., Trapman, M. 2013. Fruitmot op peer. Hoe dichterbij de oogst van Conference, hoe meer kans op aantasting. (Dutch)

Weblinks

1. Adolphi, C., Oeser, N. 2023. Practice abstract Bamboo and deadwood: Get them out! Preventive measures to reduce codling moth in organic orchards. FÖKO. BIOFRUITNET.
 2. Adolphi, C., Oeser, N. 2023. Practice abstract Mating Disruption: Key element of a successful building block strategy against Cydia pomonella in organic apple production. FÖKO. BIOFRUITNET.
 3. Adolphi, C., Oeser, N. 2023. Practice abstract Beneficial nematodes against codling moth in organic apple production. FÖKO. BIOFRUITNET.
 4. Warlop, F., Kienzle, J. 2022. Practice abstract Codling moth prevention: Preserve antagonists in organic apple and pear orchards. GRAB. BIOFRUITNET.
- Check the Organic Farm Knowledge platform for more practical recommendations on codling moth.

About this practice abstract

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