

# Apple blossom weevil: Offering alternative shelters

## Problem

Apple blossom weevil (*Anthonomus pomorum*) is a major pest in organic fruit production. Eggs are laid in the developing buds (BBCH 53-55). Larvae eat the buds and fruit losses can be up to 90%.

## Solution

Trap the weevils in alternative hiding places in summer until winter. Remove the shelters with weevils in winter. Shelters can be reused in the next season.

## Benefits

Trapping and removing the weevils reduces the need to intervene with control agents and decreases damages.

## Practical recommendations

Trapping is especially efficient in orchards with as few natural hiding places as possible, e.g., in young orchards (Table 1). This practice is less effective in older orchards with many hiding places (rough trunk) and with hollow PVC tying tubes - when possible, remove the tubes.

### Making the bundles

- Use PVC tying tube with an outer diameter of 4-5 mm.
- The standard shelter consists of a bundle of 10-20 pieces of tying tubes of 14-20 cm long, folded in half (20 cm) or straight (14 cm), tied together with a nylon cable tie. Including a Treefix elastic band allows for securing the bundles to the trunk (Picture 5). Preliminary results show that straight, non-folded bundles are effective as well. A larger number of tubes per bundle allows for a higher number of weevils hiding per bundle.
- Bundles can be made by hand. They are not yet commercially available.
- Make straight bundles: Put 20 rolls of tying tube on a horizontal pole. Sample all threads together. Cut at 14 cm. Fasten the tie-wrap (~12 cm all nylon) tightly around bundle, including a Treefix elastic band (11 cm).
- Install the bundles by **end of May**, when the young weevils have left the flowers.
- Attach the bundles tightly to the trunk (Picture 3) at about 1 m height. Contact of the bundle shelters with the trunk is essential.
- Hang one bundle per tree. Research is ongoing to better understand the optimum bundle density.

### Collecting the bundles

- Collect the bundles between December-January when it is cold, and the weevils are inactive.
- Put the bundles in a closed plastic bag, a closed box (Picture 4) or other place from where they cannot escape. Packed bundles may be put in a cold storage.
- Inside the bags or boxes, the weevils will leave the bundles and die. In May, the bundles can be used again.

**Monitoring apple blossom weevil:** On a warm day in early spring, check for weevils by tapping branches above a collection sheet. Sample in the afternoon when the weevils are active. The threshold for apple blossom weevil is 5-10 weevils per 100 tapped branches. In a year with many flowers more weevils are tolerated than when flowering is poor.

## Applicability box

### Theme

Crop production, Temperate fruits, Pest and disease control

### Keywords

Disease control, apple, apple blossom weevil

### Context

Europe

### Application time

End of May

### Period of impact

Lifetime of the orchard

### Equipment

Binding material for tree fixing (tubes), labour to make the bundles and to hang them in the orchard

## Direct control measurements

- When necessary, use Pyrethrum early in the season on the adult weevils. Pyrethrum is a contact-insecticide and should be applied with a lot of water. Check the registration status for Pyrethrum in your country.



Location	Variety	Plantyear	Bundles per tree	Replicates	Reduction compared to reference (%)
1	Natyra	2015	1	3	65
2	Natyra	2015	1	4	90
2	Elstar	2016	1	4	87
2	Natyra	2017	1	6	70
3	Pinova	2007	1	4	54
<i>mean</i>			<i>1</i>		<i>74</i>
3	Pinova	2007	2	4	73

Picture 1. Apple blossom weevil 4-6 mm long, Picture 2. Capped blossom damage of apple blossom weevil, Picture 3. Bundles tightly fastened to the trunk, Picture 4. Collected bundles in a box that can be closed, Picture 5. Folded and straight bundles. Photos: G. Brouwer, Delphy.

**Table 1.** The effectiveness has been shown in several orchards. The bundles were applied after flowering in 2021. In the treated parts of the orchards, the bundles were removed from the plots in February 2022. In the untreated control plots, the bundles remained. At flowering, spring 2022, the effect of removing the bundles was measured by counting the number of affected flowers per tree. Fields where the bundles had been removed had on average 54- 90% fewer capped flowers than control fields. In younger orchards the results are best: these offer fewer 'natural' hiding places than old trees, and the more the beetles rely on the bundles for their overwintering, the better the control. In the old Pinova, treatment with two instead of one bundle per tree increased the effectiveness from 54%-73%. Source: H. Helsen and B. van der Sluis, Wageningen University & Research, 2023.

## Further information

### Further reading

- Helsen, H., van der Sluis, B. 2023. Appelbloesemkevers bestrijden met bindbuis. Fruitteelt 5-2023 (Dutch).

### Weblinks

- Check the Organic Farm Knowledge platform for more practical recommendations.

## About this practice abstract

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