

Pest control system for pome and stone fruit species

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Pests in pome fruit species

Phenological stage of development – “bud swelling” – “mouse ear”

Pest – Apple and pear scab *Venturia inaequalis*; *Venturia pirina*

Damage

Primary infections are caused by ascospores, which mature during bud break. For their discharge, leaf wetness and a temperature above 5°C are required. Disease symptoms appear after 9 days at temperatures between 17

and 23°C. Symptoms on the leaves occur as early as bud break.

Control

For maximum limitation of primary infections from ascospores, early preventive treatments with authorized fungicides must be carried out. The first pre-bloom spraying is from the phenological stage “*bud break*” to “*mouse ear*”.

The second pre-bloom spraying is from the phenological stage “*green bud*” to “*button stage*”.

Pest – Fire blight *Erwinia amylovora*

Damage

The bacterium overwinters in cankers formed on the shoots and trunks of the trees. It spreads via water droplets, wind and mechanically. The pathological process develops most intensively at air temperatures above 18°C and under conditions of high atmospheric humidity.

Control

After the mandatory autumn spraying of orchards attacked by the disease, an early spring treatment with a copper-containing plant protection product (PPP) must also be carried out.

Pest – European red mite *Panonychus ulmi*

Damage

With the warming of the weather and when average daily temperatures reach 9-10°C, rapid embryonic development begins. In apple, larval hatching starts at bud break and ends at the end of flowering or shortly thereafter. The hatched larvae move onto the first leaves and start feeding by sucking sap.

Control

When 60-80 eggs / 10 cm shoot are established, from the phenological stage “*bud swelling*” to “*mouse ear*”, treatment is carried out with registered plant protection products containing paraffin oils.

During the period of hatching of overwintering eggs, hormonal acaricides may be used.

Pest – San Jose scale *Diaspidiotus perniciosus***Damage**

The larvae become active at average daily temperatures of 8-10°C. During feeding, larvae and adult females destroy the cell walls of plant tissues. On young shoots, anthocyanic elongated-oval spots are observed. On older wood only the scales of the insects are visible, but in depth the wood begins to die and gradually changes colour.

Control

From the phenological stage “bud swelling” to the phenological stage “green tip”, for the control of overwintering forms of San Jose scale, treatment is carried out with registered plant protection products containing paraffin oils.

Pest – Pear psylla *Cacopsylla pyri***Damage**

The psyllids appear at temperatures above 2.5 °C and start feeding. They lay their eggs at 8-10°C at the base of short shoots, buds and on the bark. Adults and larvae suck sap from the buds and shoots of pear trees. The damage leads to weakening and underdevelopment of the buds.

Control

Chemical control is carried out when temperatures remain above 5°C and the economic injury level (EIL) is exceeded – for adults and larvae 2-3 individuals per 100 buds, using authorized insecticides.

Pest – Apple blossom weevil *Anthonomus pomorum***Damage**

Adults leave their overwintering sites before bud swelling at an average daily temperature above 8°C.

They feed on flower buds and less frequently on leaf buds. They lay eggs in the flower buds immediately before flowering.

Control

Chemical control is directed against the adults during the feeding period up to the beginning of egg laying, when densities above the registered economic injury levels are established: 4-6 beetles per tree or 15% damaged buds.

Pests in stone fruit species

Phenological stage of development – “bud swelling–bud break” – “flowering”

Pest – Shot hole diseases genera *Stigmina*, *Pseudomonas*, *Xanthomonas*

Damage

At high humidity and temperatures above 3°C, conidia are formed on the surface of infected parts, causing primary infections. On young, growing leaves, small purple dots appear, which develop into small rounded spots. The tissue in the centre of the spots becomes necrotic and falls out. Purple dots, which expand, also form on the shoots.

Control

Each significant wave of infection occurs after prolonged rainy periods.

Early spring treatment is carried out immediately “before bud swelling” and at “bud swelling”.

Preventive pre-bloom spraying is carried out at the phenological stage “white bud”.

Pest – Blossom blight (early brown rot) *Monilinia laxa*

Damage

The causal agent of the disease is a “cold-loving” fungus. It forms new spores even in winter, on days with temperatures above 0°C and in the presence of moisture. A high infection pressure is created, which can lead to mass infections during flowering.

Control

Early spring treatment is carried out at the phenological stage “bud swelling”.

In spring, treatments are carried out according to the following scheme:

1st spraying – phenological stage “*flower bud*”. 2nd spraying – phenological stage “*beginning of flowering*”.

Pest – Peach leaf curl *Taphrina deformans*

Damage

Damage is caused by larvae and adult females, which suck sap. During feeding they destroy the cell walls of plant tissues as a result of enzymes injected at the puncture site. A cork layer forms around the site and the bark loses its elasticity.

Control

Early in spring, at the phenological stages “before bud swelling” and “bud swelling”, treatment is carried out with a plant protection product authorized for use against this pathogen.

Pest – San Jose scale *Diaspidiotus perniciosus*

Damage

Damage is caused by larvae and adult females, which suck sap. During feeding they destroy the cell walls of plant tissues as a result of enzymes injected at the puncture site. A cork layer forms around the site and the bark loses its elasticity.

Control

Against the overwintering stages of the pest, treatment is carried out immediately “before bud swelling” and at “bud swelling” with registered plant protection products containing paraffin oils.

Pest – European fruit lecanium *Parthenolecanium corni*

Damage

The larvae become active at an average daily air temperature above 8°C. They crawl along the thin branches and begin to feed by sucking sap. Their legs degenerate and the larvae remain immobile. On their back they accumulate a wax-like substance from which the scale is formed. During feeding they excrete honeydew.

Control

Against overwintering larvae, when 20-30 individuals / 100 cm scaffold branch are established, treatment is carried out with registered plant protection products containing paraffin oils.

Pest – European red mite *Panonychus ulmi*

Damage

Larval hatching begins after average daily temperatures remain above 10-12°C. The larvae spread and suck sap from the buds and the first small leaves. In cases of severe infestation, the flowers do not open. Subsequently, the larvae concentrate mainly on the underside of young leaves and continue to feed.

Control

At the phenological stage “before bud swelling” to “bud swelling” and when 60-80 eggs / 10 cm shoot are established, treatment is carried out with registered plant protection products containing paraffin oils.

During the period of hatching of overwintering eggs, hormonal acaricides may be used.

Pest – Black plum sawfly *Hoplocampa minuta*

Damage

When the soil layer warms above 8°C, the larva pupates in the cocoon. The sawflies emerge a few days before flowering of blackthorn and early plum cultivars. Females lay eggs in the tissue of the sepals and, less frequently, in the calyces of yet unopened flowers.

Control

Chemical control is directed against the adults, before and during egg laying.

The first spraying is carried out when (by beating method) 2-3 sawflies per tree on average are detected at the phenological stage “white bud”.

Pest – Cherry weevil *Rhynchites auratus*

Damage

The mass appearance of the weevil coincides with the end of flowering in cherry. Damage is caused by adults, which gnaw the swollen buds, flowers, leaves, young ovaries and later the young fruits.

Control

Chemical control is directed against the adults, before or after flowering, when (by beating method) 3 weevils per 10 shoots / tree are recorded.