

# In the orchard at the end of July

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The average monthly temperature for most of the country in July is between 21-26°C. Precipitation during this month is short-term and very often scarce. During this period, in some regions the harvest of late-ripening sweet cherries and sour cherries continues, and in apples and peaches the harvest of fruits from early cultivars begins. Shoot growth in July is completed, fruits increase in size intensively, and the process of flower bud formation begins. The care for preserving the fruit yield and the trees continues.

In July, in **apple orchards** where no scab infection has been allowed, spraying against this disease is discontinued. In the presence of infection on the leaves and fruits and with frequent showers, the risk of late infections and an increase in the degree of fruit infestation continues, which necessitates spraying during this period as well.

For apple cultivars that are susceptible to powdery mildew, control against this disease also continues. For simultaneous control of scab and powdery mildew, it is best to use fungicides that are effective against both pathogens: Embrelya – 150 ml/da, Quimera - 20 g/da, Kumulus DF – 600-900 g/da, Luna Care – 300 g/da, Score 250EC – 15-20 ml/da, Sulgram – 750 g/da, Thiovit Jet 80WG – 600 g/da, Flint Max 75WG – 0.02%, Heliosulfur C – 150-500 ml/da, Shavit F 72WG – 0.2%. At high temperatures, do not spray with sulfur-containing fungicides, which may cause scorching in some cultivars.

For apple cultivars that are resistant or very slightly susceptible to powdery mildew, for independent control of scab one of the following fungicides may be used: Delan 700WP - 50 g/da, Delan PRO - 250 ml/da, Decibel Max - 30 g/da, Dithane DG - 200 g/da, Dithane M45 - 200 g/da, Difcor 250EC - 15 ml/da, Indar 5EW – 100 ml/da, Karamat – 200 ml/da, Luna Experience – 20–75 ml/da, Luna Care – 300 g/da, Password 25WG – 50 g/da, Polyram DF – 0.2%, Sancozeb 80WP – 200 g/da, Syllit 40SC – 160 ml/da, Syllit 544SC – 125 ml/da, Scab 80WG captan – 188 g/da, Sugoby – 20 g/da, Faban – 120 ml/da, Folpan 80WG – 0.15%, Fontelis SC – 75 ml/da, Chorus 50WG – 30–50 g/da, Shardif 25EC – 20 ml/da, Difenzone 25EC – 20 ml/da, Dishom 25EC – 20 ml/da.

To prevent the emergence of resistance of the fungus causing scab (*Venturia inaequalis*), it is best to alternate fungicides with different mechanisms of action on the pathogen or to use fungicide mixtures. For example, fungicides with the active substance difenoconazole (Score 250EC, Difcor 250EC, Shardif 25EC, Dishon 25EC) should be alternated with fungicides based on kresoxim-methyl (Sugoby) or cyprodinil (Chorus 50WG), as well as with fungicides based on dodine (Syllit 40SC) or captan (Scab).

Scab-resistant cultivars – Prima, COOP-10, Frolina, Liberty, Jonafree, Jonathan, Pioneer, Macfree, Pilot, Topaz, Novamac, Sava, Rubinola, etc., are sprayed only against powdery mildew and for them one of the following fungicides may also be used: Bayfidan 250EC – 15 ml/da, Bellis – 80 g/da, Embrelya – 150 ml/da, Cosavet DF – 750 g/da, Quimera – 20 g/da, Kumulus DF – 600-900 g/da, Luna Care – 300 g/da, Systhane 20EW – 28-42 ml/da, Systhane Ecozom EW – 60-185 ml/da, Score 250EC – 15-20 ml/da, Solfo 80WG – 750 g/da, Sulgram – 750 g/da, Thiovit Jet 80WG – 600 g/da, Topaz 100EC – 25-50 ml/da, Topsin M 70WG – 0.12%, Flint Max 75WG – 0.02%, Heliosulfur C – 150-500 ml/da, Shavit F 72WG – 0.2%.

In July, spraying is also carried out against codling moth, San Jose scale and leaf-mining moths in apples. Treatments against pests are combined with those against diseases. For control of codling moth, the list of approved insecticides includes: Avant 150EC - 33.3 ml/da, Affirm 095SG - 300 g/da plus 0.02% Break-Thru adjuvant, Aficar 100EC - 30 ml/da, Affirm Opti - 200 g/da, Voliam Targo 063 SC - 75 ml/da, Delegate 250WG -

30 g/da, Deka EC - 30 ml/da, Dukat 25EC – 30 ml/da, Efcimetrin 10EC – 30 ml/da, Imidan 50WP – 150 g/da, Calypso 480SC – 20-25 ml/da, Coragen 20SC – 16-30 ml/da, Meteor – 0.06%, Proteus O-TEQ – 0.05-0.06%, Sineis 480SC – 30-43.7 ml/da, Sumi Alpha 5EC – 0.02%, Harpoon – 100 ml/da, Cyclone 10EC – 30 ml/da. Of the indicated insecticides, Affirm 095SG - 300 g/da plus 0.02% Break-Thru adjuvant, Aficar 100EC - 30 ml/da, Affirm Opti - 200 g/da, Voliam Targo 063 SC - 75 ml/da, Delegate 250WG - 30 g/da, Dukat 25EC – 30 ml/da, Efcimetrin 10EC – 30 ml/da, Calypso 480SC – 20-25 ml/da, Coragen 20SC – 16-30 ml/da, Sineis 480SC – 30-43.7 ml/da, Sumi Alpha 5EC – 0.02%, Cyclone 10EC – 30 ml/da are also effective against leaf-mining moths.

For control of San Jose scale, the following insecticides are registered: Brai - 28-50 ml/da, 0.03%, Deka EC – 50-75 ml/da, Dursban 4EC – 150-187 ml/da, Closer 120SC – 40 ml/da, Meteor - 90 ml/da, Mulligan – 30-50 ml/da, Proximo – 28-70 ml/da, Harpoon – 30 ml/da.

Spraying against European red mite is also carried out if the problem has not been solved in June. When the population density of European red mite increases and reaches the economic threshold of harmfulness, it is necessary to carry out spraying with one of the acaricides: Apache EW – 100 ml/da, Bermectin – 60-96 ml/da, Valmec EC – 60-96 ml/da, Vertimec 018 EC - 100 ml/da, Voliam Targo 063SC – 75 ml/da, Danitron 5SC – 100-200 ml/da, Zoom 11SC – 25-50 ml/da, Laota - 60-96 ml/da, Milbeknock – 25 g/da, Naturalis SC - 100-150 ml/da, Nealta SC – 100 ml/da, Nissorun 10WP – 75 g/da.

In **pear** orchards, spraying against scab, white and brown leaf spots must continue. For their control, one of the fungicides listed for control of apple scab is used. Against common pear psylla, one of the following insecticides is added to the fungicide solution: Bermectin – 37.5–120 ml/da, Vaztak New 100EC – 20 ml/da, Valmec – 37.5–120 ml/da, Deka EC – 75 ml/da, Delegate 250WG – 30 g/da, Laota – 37.5-120 ml/da, Meteor – 90 ml/da, Movento 100SC – 0.12-0.15%, Naturalis - 100-200 ml/da, Sineis 480SC – 30-43.7 ml/da, Sumi Alpha – 0.03%, Harpoon – 100 ml/da.

To protect pear fruits from worm damage, one of the insecticides listed for control of codling moth is used.

Fungicide spraying in **quince** is directed against brown rot and brown leaf spots, for which one of the following fungicides is used: Captan 80WP – 150-180 g/da, Karamat 2.5 EW – 200 ml/da, Scab 80WG captan – 188 g/da, Chorus 50WG – 45-50 g/da. For control of fruit moths, one of the insecticides listed for control of codling moth is added to the fungicide solution.

In July, the harvest of sweet cherries and sour cherries continues, and for these two crops no spraying is carried out. During harvest, all fruits must be picked in order to minimize the overwintering infestation of cherry fruit fly.

In addition, all fruits infected with brown rot can easily be removed and taken out of the plantation.

Usually in July, in **young non-bearing sweet cherry and sour cherry orchards**, where the problem with black cherry aphid has not been solved in June and the population density of cherry leaf sawfly is high, it is necessary to spray with one of the insecticides: Mospilan 20SG – 25 g/da or Lamadex Extra – 40-60 g/da.

In **plum** orchards in July, spraying is directed against brown rot, rust, plum fruit moth and common plum scale. Against brown rot one of the following fungicides is used: Difcor 250EC – 20 ml/da, Indar 5EW – 150 ml/da, Captan 80WG - 150-180 g/da, Karamat 2.5EW – 300 ml/da, Luna Experience – 50 ml/da, Password 25WG – 50 g/da, Signum – 30 g/da, Systhane 20EW - 12.5–30 ml/da, Chorus 50WG – 0.045%. Of the listed fungicides, Signum is also effective against rust. For simultaneous control of rust and red leaf spots on plum, Indar 5EW – 150 ml/da and Karamat 2.5EW – 300 ml/da are approved. Effective insecticides against plum fruit moth are: Delegate 250WG – 100-120 ml/da and Coragen 20SC – 16-30 ml/da. For control of common plum scale, Movento 100SC – 0.075-0.1% or Proximo – 28-70 ml/da are recommended.

At the beginning of July, fruit ripening starts in **early peach cultivars** and during this period no spraying is carried out on them. For late cultivars, treatments against powdery mildew, brown rot, Anarsia, oriental fruit moth and aphids are necessary.

Against powdery mildew, one of the following fungicides is used: Difcor 250EC – 20 ml/da, Embrelya – 150 ml/da, Indar 5EW – 150 ml/da, Karamat 2.5EW – 300 ml/da, Cosavet DF – 150 g/da, Kumulus DF – 750 g/da, Luna Experience – 50 ml/da, Miclophi – 32-60 ml/da, Password 25WG – 50 g/da, Ritual – 32-60 ml/da, Sercadis - 15 ml/da, Signum – 45 g/da, Systhane 20EW – 15-36 ml/da, Systhane Ecozom EW – 65-200 ml/da, Score 250EC – 20-30 ml/da, Solfo 80WG – 750 g/da, Sulgran - 500 g/da, Sulfur WG – 600 g/da, Thiovit Jet 80WG – 600 g/da, Topaz 100EC – 50 ml/da, Flosul – 500 ml/da, Fontelis SC – 120 ml/da, Heliosulfur – 125-500 ml/da, Hercules 120SC – 15-25 ml/da. Of the listed fungicides, Indar 5EW – 150 ml/da, Karamat 2.5EW – 300 ml/da, Luna Experience – 50 ml/da, Password 25WG – 50 g/da, Signum – 45 g/da, Systhane 20EW – 15-36 ml/da, Systhane Ecozom EW – 65-200 ml/da, Score 250EC – 20-30 ml/da, Fontelis SC – 120 ml/da are also effective against brown rot and are used for simultaneous control of both diseases.

Against oriental fruit moth and Anarsia, one of the following insecticides is used: Avant 150EC – 33.3 ml/da, Affirm Opti – 200-225 g/da, Voliam Targo 063SC – 75 ml/da, Delegate 250WG – 30 g/da, Imidan 50WG – 150 g/da, Coragen 20SC – 16-30 ml/da, Lamadex Extra - 70 g/da, Meteor - 90 ml/da, Sumi Alpha 5EC - 0.02%.

At high aphid population density, spraying is carried out with: Abanto – 60 ml/da, Ascot - 40-80 g/da, Deka EC – 30-50 ml/da, Estrela WG – 40-80 g/da, Calypso 480SC – 20 ml/da, Lamadex Extra - 40-60 g/da, Movento 100SC – 0.075-0.1%, Mospilan 20SG – 25 g/da, Natur Breaker – 75 ml/da, Proteus O-TEQ - 0.05%-0.06%, Teppeki – 14 g/da.

In July, apricots ripen and no spraying is carried out on them.

In **raspberry** plantations, during this period spraying is also not carried out, with the exception of remontant cultivars such as Lyulin. For them, spraying against didymella and anthracnose is necessary. Against didymella, anthracnose, and cane dieback (leptosphaeriosis), one of the following fungicides is used: Signum - 100 g/da or Funguran OH 50WP – 200-300 g/da. With frequent showers and high air humidity, spraying against grey mould is also necessary. Effective fungicides against it are: Serenade ASO SC – 400-800 ml/da, Signum - 150 g/da, Switch 62.5 WG – 100 g/da.

After harvest, the leaves of **strawberry plantations** are mown, taken out of the plantation and destroyed by burning or buried so that they decompose. At high strawberry mite population density, spraying is carried out so that it does not damage the young leaves. For control of strawberry mite, one of the acaricides approved for strawberry is used: Apollo 50SC - 30-40 ml/da, Zoom 11SC – 40-50 ml/da, Milbeknock EC – 100-150 ml/da, Nissorun – 50-75 g/da, Thiovit Jet 80WG – 500 g/da.

In July, in some orchards, spraying against **spotted wing drosophila (*Drosophila suzukii*)**, which is a new pest for our country, may be necessary. During this month, drosophila can cause damage to peaches, early-ripening plums and remontant raspberry cultivars such as Lyulin and Heritage. For the need for spraying, growers should consult plant protection specialists from the Regional Food Safety Directorates. These specialists monitor the occurrence and population density of *Drosophila suzukii*. For control of this pest, the list of plant protection products authorised for use includes the following insecticides: for raspberry – Exalt – 240 ml/da, Calypso 480SC – 15 ml/da, Lamadex Extra – 28-60 g/da, Neem Azal T/S - 0.4 g/da; for stone fruits – Affirm Opti – 200 g/da, Calypso 480SC – 20-30 ml/da, Imidan 50WP – 150 g/da, Coragen 20SC – 16-30 ml/da, Lamadex Extra – 60–100 g/da, Neem Azal T/S - 0.4 g/da.

Temperatures in July are high, which requires spraying to be carried out early in the morning or in the evening, when temperatures are below 25°C. In addition, it is very important to use plant protection products with a short pre-harvest interval, bearing in mind that during this period, in some regions the harvest of late-ripening sweet cherries and sour cherries continues, and in apples and peaches the harvest of fruits from early cultivars begins.

## The adopted economic threshold levels for the individual pests are:

*Codling moth* – 0.8–1% fresh entries;

*Oriental fruit moth* – 1.5% damaged fruits;

*Plum fruit moth* – 1–1.5% fresh entries;

*Anarsia* – 3% damaged shoots;

*Cherry fruit fly* – 10 flies/trap;

*Aphids* – 10–15% infested shoots;

*Common plum scale* – 5-7 individuals per leaf;

*Leaf-mining moths* – 1-2 fresh mines per leaf;

*Orchard mites* – 3-4 individuals per leaf;

*Pear psylla* – 4-6% shoots with colonies;

*Strawberry blossom weevil and strawberry stem weevil* – 15% infested plants.

**In organic production** the use of synthetic pesticides is not permitted. For control of fungal diseases, copper-containing and sulfur-containing fungicides are used. For pest control, the following *bioinsecticides* are approved:

**Carpovirusine** against codling moth and oriental fruit moth,

**Chrysant EC** against peach aphid.

**Madex Twin and Madex Top** against codling moth and oriental fruit moth.

**Naturalis** against whitefly and spider mite in strawberry, cherry fruit fly, common pear psylla, European red mite,

**Neem Azal T/S** against leaf-mining moths in apple.

**Oikos** against aphids, leafhoppers and leaf-mining moths in apple.

**Piretro Natura** against peach aphid.

**Rapax** against oriental fruit moth, *Anarsia* in peach and apricot and leafrollers in pome fruits.

**Sineis** against codling moth, apple blotch leafminer, *Anarsia* and pear psylla.

The following *pheromones/attractants* are also approved:

**Ginko** for codling moth

**Isomate OFM TT** for oriental fruit moth

**Isomate C** for codling moth

**Isomate SRL** for codling moth and leafrollers.

For cherry fruit fly, the visual trap **Ferocon AM** is approved.