

In the orchard in March – agrotechnical activities and pre-bloom sprays

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In March, agrometeorological conditions will be determined by temperatures around and above the climatic norms and precipitation around and below the monthly norms. Precipitation in March is expected to increase the moisture reserves in the 100 cm soil layer.

In fruit crops, the stages of bud swelling and bud burst will take place. At the end of the month, in early-flowering species – almond, apricot and peach – the flower bud stage will be observed and, in some places in the southern regions, the beginning of flowering. During the month, the forecast minimum temperatures, down to minus 7°C, will pose a danger to fruit trees in the bud stage and during flowering.

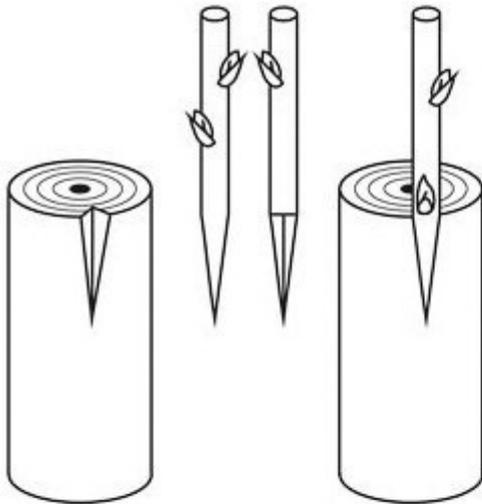
Agrotechnical activities

In fruit nurseries

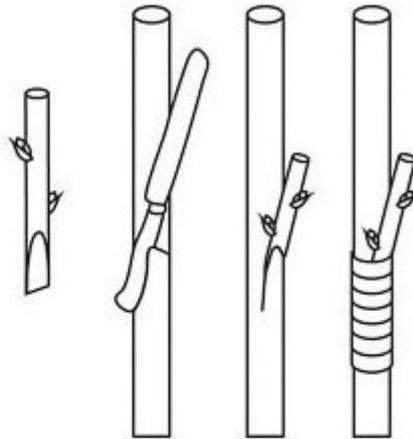
Sowing in seedbeds and planting of rootstocks in the nursery are completed. Mother plantations are planted no later than the end of the first ten-day period. Two-year-old mother plantations are cut back to a stub – 3-4 cm above the soil surface.

Seedbeds with pome fruit species, mother plantations and second-year nurseries are fertilized with 10-12 kg/da ammonium nitrate or with the equivalent amount (corresponding to 10-12 kg/da ammonium nitrate) of another nitrogen fertilizer. The seedbeds are cultivated to break the soil crust, destroy weeds and incorporate the nitrogen fertilizer.

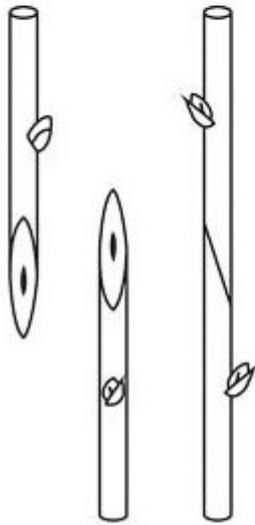
If necessary, thinning of the rootstock material is carried out. Plants of pome fruit species are left at 6-8 cm, and those of stone fruits – at about 4 cm from each other.



1.



2.



3.

1. присаждане на кози
крак

2. присаждане на
страничен разрез

3. присаждане на
копулация

Unsuccessful rootstocks in the nurseries are regrafted with scions. In practice, regrafting is most often done by cleft grafting, side grafting or whip-and-tongue grafting.

In orchards

Up to the “mouse ear” stage of the buds, pruning for production and rejuvenation of pome and stone fruit species and crown formation in young orchards may be carried out.



New orchards are planted, and at the same time the first pruning is carried out. Filling in the places of missing trees in young orchards continues.

The first top dressing with nitrogen fertilizers is carried out. In young orchards, only the row strips are fertilized, while in old ones – the entire inter-row spaces. The fertilizer is broadcast on the surface and incorporated by shallow tillage. The required fertilizer rates are determined according to the results of the leaf analysis carried out in the previous year. If no analysis is available, 15-20 kg/da ammonium nitrate or the same amount of another nitrogen fertilizer is applied.



Bee colonies are provided for flower pollination

Three to four sufficiently strong bee colonies are provided per 10 da. It is most appropriate to place them on both sides of the row. Bees achieve maximum pollination capacity in sunny and calm days at temperatures of 20 – 22 °C, when they can move up to 3 km away from the hive.

Measures are taken to protect plants from late frosts. Protection consists of heating, smoking and air movement, overhead irrigation or soil irrigation, and the use of chemical products.

Air warming is achieved by burning high-energy combustible materials – fuel oil, diesel, natural gas, old car tyres. They are ignited one hour before the temperature drops to the critical point for the plants and the fire is maintained for one hour after sunrise.

For smoking, special smoke candles or inert materials such as straw, sawdust, branches, peat are used. They are arranged in small piles in the rows at 30-60 m from each other and 5-6 m in the row. About 100 kg of combustible material distributed in 10 piles are needed per 1 da.

In overhead irrigation, the property of water to release heat when freezing is used, and by irrigating the orchards, the thermal conductivity and radiation of the soil are increased, as a result of which the air temperature rises by 2-3 °C.

To prevent crystallization of cellular water in the buds and protect against negative temperatures, products based on polymers and copolymers, such as Scudo Therm (1-2 l/100 l water) or another product, may be used.

Frost cracks are treated by hammering in small nails. Longitudinal frost cracks are coated with tree wound dressing.

If necessary, irrigation is carried out before or during flowering. It is usually required when the winter has been dry, followed by a spring with insufficient rainfall.

Old trees and trees of low-value varieties are regrafted.

The scaffold branches are usually shortened immediately above the secondary scaffold branches, and the central leader – slightly above the level of the scaffold branches. The thicker scaffold branches are used for regrafting and are shortened depending on their point of origin – the lower ones are left longer, and the higher ones – shorter. Very good results are obtained when cleft grafting is used.

In strawberry plantations



Empty spots in new strawberry and bearing plantations are filled. They are fertilized with 10-12 kg/da ammonium nitrate or the same amount of another nitrogen fertilizer and hoed, and in case of drought they are irrigated.

In heated greenhouses, when fruits begin to ripen, soil temperature is increased to 15-18 °C, and air temperature – to 20-25 °C. The greenhouses are ventilated during the warm hours of the day.

To ensure good pollination in greenhouses, 2-3 bee colonies per 10 da are introduced.

In raspberry plantations

Filling of empty spots in plantations continues. If not cut after harvest, last year's fruiting canes are cut and burned.

In two-year-old plantations, all weak root suckers are cut at soil level, leaving 2-3 of the strongest to form the bushes.



In older plantations, shortening pruning is carried out, and the replacement canes are thinned

Plantations are top dressed with 10-12 kg/da ammonium nitrate or the same amount of another nitrogen fertilizer and hoed. If autumn fertilization with farmyard manure and phosphorus and potassium fertilizers has not been carried out, it is done now. Apply 50-60 kg ordinary superphosphate or 25-30 kg double superphosphate, 15-20 kg potassium sulphate – or the same amount of other phosphorus and potassium fertilizers, and 2-3 t well-rotted farmyard manure per decare. Fertilizers are incorporated by deeper tillage. In case of drought, irrigation is applied.

In blackcurrant plantations

Planting of stored blackcurrant cuttings in the rooting beds continues. Top dressing with 10-12 kg/da ammonium nitrate or the same amount of another nitrogen fertilizer and shallow cultivation are carried out. Last year's rooting beds are cultivated and irrigated in case of drought.

In plantations with other crops

Seeds of Caucasian persimmon are sown in the nursery. In the row the spacing is 5 cm with 80 cm between rows, and sowing depth – 3 – 4 cm.

Cuttings of fig, pomegranate and sea buckthorn are collected and planted outdoors. The in-row spacing is 10-15 cm and the distance between rows 80-100 cm. The soil around the cuttings is well compacted, after which they are covered 1-2 cm above the terminal bud. Immediately after planting, they are abundantly irrigated.

Persimmon (*Diospyros kaki*) is grafted with scions onto the grown Caucasian persimmon rootstocks.

Planting of trees of persimmon, sea buckthorn and pomegranate not planted in autumn continues. Pruning for formation and for production in pomegranate is carried out.

Lemon seeds are sown outdoors in beds at a spacing of 20 x 5 cm. The soil must be loose and enriched with well-rotted farmyard manure.

March – it is time for pre-bloom sprays

In fruit nurseries

Before planting seedlings and cuttings in mother plantations and first-year nurseries, soil pests are controlled by treatment with Ercole GR (1-1.5 kg/da), Trika Expert (1-1.5 kg/da) locally, only in the planting furrow, near the roots of the plants. Against soil pathogens – root rots, bacterial crown gall – roots are dipped in a solution of a fungicide with active ingredient copper oxychloride – Capper Key, Kodimur 50 WP, Kuprocin 35 WP (18-30 g/10 l water).

Shoot tips of clonal apple rootstocks intended for planting in mother plantations and first-year nurseries that are infected with powdery mildew are cut off, and heavily infected plants are discarded. All planting material whose roots bear galls from bacterial crown gall is also discarded.

Poisonous baits made of boiled maize or wheat grains, Actellic 50 EC; Biona Sincar (4 l per 1 kg grain) and vegetable oil are placed, or Mesurool Schneckenkorn (250 g/da) is buried against mole cricket in the seedbeds.



In mother plantations for the production of apple rootstocks, shoots infected with powdery mildew are cut at the base

In the presence of eggs of San Jose scale, before bud burst all trees are winter sprayed with 3% Acarzin or ParaZomer.

In orchards

March is the deadline for completing machinery repairs. Products required for the control of diseases, pests and weeds during the second quarter are supplied.

If not done in previous months, the materials used to wrap the trunks of young fruit trees are collected and burned.

Before bud burst, winter spraying of orchards may be carried out, if this was not done in February.

Daily microscopic observations are made by the Holtz method on the maturation of ascospores of the causal agents of apple and pear scab, red leaf spot of plum, fruitlet blight of quince, orange leaf spot of almond,

cylindrosporiosis of cherry and other diseases. Spraying against scab is announced as soon as yellowing of ascospores and their discharge after a two-hour stay in a humid atmosphere in a Petri dish are established.

Isolation frames are placed over the materials collected in the previous year from apple and plum sawfly and cherry fruit fly in order to monitor their development.

On trees heavily infested by the spotted tentiform leafminer in the previous year, trunk cages are placed to determine the emergence of first-generation moths and to determine the correct timing of spraying. Protection of apple orchards from this pest depends on timely and high-quality control of the first generation.

The population density of stone fruit sawfly in cherry and peach orchards is determined by soil excavations. Under 10 trees, two excavations of 50/50/25 cm are made. The same excavations are used to determine the population density of cherry fruit fly in cherry orchards by sieving the excavated soil through a sieve.



Shoots from 5-10 peach trees are examined to determine the population density of the peach twig borer, which overwinters in the buds, at the base of one-year-old growth and in mummified fruits.

If this has not been done in November, 1000-2000 mummified almond fruits are collected from the trees or from those fallen on the soil. They are placed in cages to monitor the beginning of flight, peak flight and end of flight of the almond seed wasp. The first spraying is carried out after the flight begins.



Symptoms of damage by the apple blossom weevil (apple blossom weevil injuries)

To determine the population density of the apple blossom weevil, at the end of the month 10 apple trees, evenly distributed in the orchard, are shaken. The apple blossom weevil develops one generation per year and overwinters as an adult mainly under the old and cracked bark of apple and pear trees and to a much lesser extent under fallen leaves. With the onset of warmer weather, they leave their shelters, feed for some time and then lay their eggs. This period is the most suitable for control of the adult insect.

If more than three beetles per tree are found during shaking, spraying is carried out with Sumicidin 5 EC (0.02%), Decis 100 EC (7.5-12.5 ml/da), Deca EC (30-50 ml/da).

Trunks and thick branches of apple trees infested by apple clearwing moth and bark miner are sprayed with Coragen 20 SC (16-30 ml/da), Sumicidin 5 EC (0.02%).

Where peach buds are in the swelling stage, spraying is carried out with 1% Bordeaux mixture, Champion 50 WP (300 g/da), Funguran OH 50 WP (150-250 g/da), Capper Key (240-300 g/da) for control of leaf curl, shot-hole disease and brown rot. Spraying against shot-hole disease and brown rot may be carried out up to the bud stage.



Shot-hole disease on peach

Pre-bloom spraying of apricot, plum and cherry trees is carried out against shot-hole disease – fungal and bacterial – and brown rot, and of almond trees against cercospora leaf spot, shot-hole disease, orange leaf spot and scab with the same products. Spraying with Coragen 20 SC (16-30 ml/da), Somicidin 5 EC (0.02%) against leaf-feeding caterpillars and other pests is also carried out.

According to the signals from the forecast and warning stations of the Bulgarian Food Safety Agency (BFSA), pome fruit trees are sprayed against scab, again with the same products and at the same concentration.

Blossom spraying of apricot trees with Score 250 EC (0.02-0.03%) is carried out against brown rot. Early brown rot is the most dangerous disease of apricot. Copper-containing products must not be used for blossom spraying of apricot.

Soil moisture in March is forecast to be sufficient for uniform germination of weed seeds. On the other hand, it favours the action of soil herbicides and therefore their application in March is always effective. Only the row strip of the plantations is treated. Before herbicide application, the soil is loosened and levelled. Herbicides are sprayed with sprayers that are not used for spraying with other pesticides. When this is not possible, after spraying the tanks, pipelines and nozzles of the sprayers are thoroughly washed with water in which 2% washing soda or quicklime has been dissolved.

Stomp-Aqua or another herbicide is used in pome and stone fruit species at a rate of 250-300 ml/da.

If drought occurs after herbicide application, overhead irrigation is carried out with an irrigation rate not exceeding 30-35 l/m², since water may wash the herbicides into deeper soil layers.

In strawberry plantations



White leaf spots on strawberry

Dry leaves in strawberry plantations are collected and burned to destroy the causal agents of white and violet-brown leaf spot, powdery mildew, etc.

In raspberry plantations

Raspberry canes infested by raspberry moth, didymella, coniothyrium, raspberry gall midge, raspberry clearwing moth, etc. are cut and burned.

In blackcurrant plantations



Anthrachnose on blackcurrant

Branches infested by clearwing moth, anthracnose, etc. are cut without leaving stubs and burned.