

# In the vegetable garden in February and March

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February and March are important months for vegetable growers. In order to enjoy a good yield, they must raise healthy seedlings. The most dangerous and widely spread disease affecting them, which does not “spare” any vegetable crop, is damping-off. Two types are distinguished: “false” damping-off, which is the result of an unfavourable microclimate, and true damping-off, caused by pathogenic soil fungi.

**“False” damping-off** is caused by high temperatures and overheating of the surface soil layer. After pulling out the plant, it is established that below the damaged area the stem is healthy.

**True damping-off** is “caused” by soil fungal pathogens of the genera *Pythium*, *Rhizoctonia*, *Phytophthora*. The first symptoms are subsoil cutting, leading to the death of germinating seeds. After emergence, a wet spot

appears at the base of the stem, which expands in a ring, darkens, becomes thinner and the tissue rots. The plants wilt and fall as if cut down, from which the disease takes its name. Initially, individual plants die, then those adjacent to them and so on, forming patches of various sizes, which are centres of infection. The occurrence, development and spread of damping-off are favoured by growing conditions – high or low temperatures, high soil moisture or drought, fertilisation with high nitrogen rates, high salt concentration, insufficient light, excessive plant density.

Control of damping-off in seedlings is complex: elimination of the primary infection, use of treated seeds, sowing in disinfected manure-soil mixtures, ensuring optimal plant density, maintaining an optimal microclimate in seedling facilities, and keeping the temperature difference between night and day temperatures within no more than 6-8°C. When symptoms appear, irrigation is reduced and the seedlings are earthed up with a dry mixture. When raising seedlings in beds outdoors, beds and well-drained soils in airy locations should be selected.

When true damping-off appears, the diseased plants together with the neighbouring healthy ones are removed and destroyed, and the patches are watered with a 2% solution of copper sulphate or ammonium nitrate. Against the causal agents of the disease, the plants are watered with solutions of fungicides registered for this purpose: Propplant 722 SL 0.1% at a working solution rate of 5 l/m<sup>2</sup>; three applications of Topsin M 70 WG 0.1% for cucumbers and tomatoes in greenhouses: I – 3 days before pricking out, at 3 l/m<sup>2</sup>, II – 3 days before transplanting, at 50 ml solution per plant, III – 10 days after transplanting, at 200 ml solution per plant. For better efficacy against all causal agents of damping-off, combinations of the listed fungicides are also recommended. When untreated manure-soil mixtures are used, before sowing the seeds, their bed is dusted with 3-4 g/m<sup>2</sup> copper oxychloride or Funguran, and after covering them, it is watered with 0.5% Bordeaux mixture.

## **Pests**

In the field, with the first warming of the weather in February, as soon as for 6-7 days the temperature exceeds 10°C, the flight of the onion/garlic fly is expected. This coincides with the appearance of the housefly. The onion/garlic fly resembles it, but is hairy and rust-brown in colour.

Adult onion/garlic flies fly low or crawl over the soil surface, choosing sunny, warm spots. The flies lay one egg each around the base of the plants or on the soil in their immediate vicinity. They prefer healthy and better-developed plants – with 2-3 leaves and 10-15 cm in height. The attack is more severe on areas heavily fertilised with farmyard manure. After hatching, the larvae bore into the central leaf of the young plant and move

downwards towards the unformed bulb. The leaf wilts, turns yellow, droops and curls like a spiral, and eventually dries up. Later, all the leaves turn yellow, wilt and dry. Only one larva is found in a single plant. Damaged plants lag in growth and development, weaken, in some the stem remains hollow and the bulb softens. When pulled up, the plants break at the damaged site. After about 28-35 days, larval development is completed and it bores through the bulb and goes into the soil, where it pupates at a depth of 10-18 cm. It remains there until the following year. The onion/garlic fly attacks winter garlic and onions sown in the previous autumn.

*Successful control of this pest can be achieved only if a system of measures is applied:*

Garlic should not be grown on the same plot or near a plot where the same crop was grown in the previous year.

It should be planted on areas not fertilised with farmyard manure.

Deep ploughing of the area after harvesting the garlic, in order to destroy the pupae.

In yards and on small plots, adults are attracted and captured in food traps prepared as follows: 5-6 cloves of garlic are crushed into a paste, 40 ml wine vinegar, 40 g sugar and 150 ml water are added, mixed well and placed in small containers arranged in a chequered pattern. Every few days, they are checked for captured flies, thus establishing their appearance, mass flight and population density.

\* It is recommended to carry out two sprayings against the pest. The first – at the beginning of the fly's flight, and the subsequent ones at intervals of 7-10 days with Meteor – 80-90 ml/100 l water.