Растителна защита
електронно списание за растителна защита
семена, торове и земеделие
ISSN 2815-522X

Care in seedling production

Автор(и): Таня Динова, гл. експерт в дирекция „РЗ и контрол“ към БАБХ
Дата: 16.03.2014 *Брой:* 3/2014

- Agricultural producers who apply plant protection products in production are obliged to use only plant protection products authorized for use on the respective crop, pest, and at the respective dose, included in the **"List of plant protection products authorized for placing on the market and for use"**, published on the website of the Bulgarian Food Safety Agency (BFSA) at: http//www.babh.government.bg
- The purchase of plant protection products must be made only from traders holding a license for the activity and included in the **"List of companies that have obtained a license for wholesale trade of plant protection products, retail trade of plant protection products in an agricultural pharmacy, repackaging of plant protection products, and fumigation and disinfection of areas, premises and plant products against pests"**, published on the website of the **BFSA**.

Care in Seedling Production

Disease/Pest	Causal Agent	Symptoms/Damage	Life Cycle
Seedling Damping-off		**True Damping-off**	
	Phythium, Phytophtora, Rizoctonia, etc.	• rotting of the stem immediately above the soil surface or slightly below it • observed in denser, tender seedlings grown at higher temperature and humidity	• the causal agents are widespread • they multiply particularly strongly in moist and organic matter-rich soil, at temperatures around 25 °C and insufficient light
	Non-infectious disease	**False Damping-off** • the stem thins like a thread and the plant collapses in the area of the root collar and slightly above it • the affected areas are dry • saprophytic organisms can penetrate through the damaged site • manifests at high temperatures, drought, and overheating of the soil surface • initially, individual plants "damp-off", then it spreads to adjacent ones, which later dry up and empty spots remain in the bed • damping-off also attacks older seedling plants	• denser, overgrown, and tender seedlings suffer more from damping-off • in peppers, damage is greater at high air humidity and rising temperatures • plants one-sidedly fertilized with nitrogen and grown under insufficient light also have increased susceptibility to the disease

Care in Seedling Production

- in them, the bark at the base of the stem dies without affecting the vascular bundles
- such seedlings do not wilt, but stop their growth and after some time they wither and dry up

Control:

- Sowing seeds at optimal density. Seed disinfection with the product *Flouzan FS – 180 ml/100 kg* seeds against soil pathogens in tomatoes.
- Seedlings should be grown on disinfected peat-soil mixtures.
- For soil disinfection (in the absence of plants) in steel-glass greenhouses, use the product *Nemazol 510 – 8–10 l/decar* against root-knot nematodes, soil pathogens, and weed seeds, with the higher dose applied when soil pathogens are the predominant infestation. It is applied via an applicator with rolling, as well as through drip irrigation systems, followed by rolling or covering with polyethylene.
- After emergence, maintain optimal temperature (18–20 °C) and soil moisture around 70% of field capacity in cultivation facilities.
- Watering should be done with small amounts of water to avoid short-term overwatering followed by prolonged drought.
- The difference between soil and air temperature should not exceed 6–8 ºC.
- Regular ventilation of cultivation facilities and shading when necessary.
- Preventive treatments of seedlings can be carried out every seven days at the cotyledon stage in vegetable crops with copper fungicides.
- If damping-off appears, diseased plants are removed, spots are burned with a 3% solution of blue stone or ammonium nitrate, watering is reduced, and healthy plants should be treated with an authorized systemic fungicide *Proplant 722 SL – 0.1% – 5 l/m2* solution against soil pathogens in tomatoes.

Disease/Pest	Causal Agent	Symptoms/Damage	Life Cycle
Aphids	fam. Aphididae	• as a result of feeding, they cause chlorotic spots and leaf deformations, stunting, and wilting of plants • contamination of the leaf surface by the "honeydew" secreted by aphids	• aphids are vectors of dangerous viral diseases

Control:

- Upon detection of individual specimens in seedling beds, treatment should be carried out immediately.
- The last treatment is performed immediately before taking the seedlings out to the field.
- Destruction of weed vegetation around and in the beds, which is a favorable environment for preservation and a source of viral infection.
- **Registered aphicides**: *Actara 25 WG – 20 g/decar (for application via drip irrigation system in greenhouses), Biskaya 240 OD – 60 ml/decar, Vaztak Nov 100 EC – 30 ml/decar, Danadim Progress*

Care in Seedling Production

400 EC/Rogor L 40 – 0.075%, Deca EC – 50 ml/decar, Decis 100 EC – 7.5 – 17.5 ml/decar, Confidor Energy – 60 ml/decar, Mavrik 20 F – 0.02%, Mospilan 20 SP – 0.0125%, Mospilan 20 SG – 20 g/decar, Nexide 015 CS – 20 ml/decar, Sumi Alpha 5 EC/Sumicidin 5 EC – 0.02%, Fury 10 EC – 0.015%, Hypo SP – 12.5 g/decar.

Disease/Pest	Causal Agent	Symptoms/Damage	Life Cycle
Root-knot Nematodes	Meloidogyne spp.	• formation of swellings and deformations on plant roots, called galls • disrupted sap flow in plants, reduced uptake of water and nutrients from the soil • with severe infestation, growth slows down, leaves begin to yellow and wilt	• the manifestation of symptoms on above-ground parts depends on the nematode density in the soil and on agroclimatic conditions (temperature, moisture, soil type, etc.)

Control:

- Soil analysis of areas intended for seedling and vegetable cultivation.
- Use of resistant varieties.
- Disinfection of soil intended for seedling production with registered nematicides against root-knot nematodes on greenhouse vegetables: *Basamid Granulat – 50–70 kg/decar*, 45-50 days before transplanting, *Bio Act WG – 0.4 kg/decar*, soil treatment 14 days before planting, sprayed with 10–50 l of working solution and incorporated at 10–15 cm, *Mocap 10 G – 5–8 kg/decar* – applied one week before transplanting; *Nemazol 510 – 8–10 l/decar* (final use date for existing quantities: 31.12.2014), applied via an applicator with rolling, as well as through drip irrigation systems, followed by rolling or covering with polyethylene.

Disease/Pest	Causal Agent	Symptoms/Damage	Life Cycle
Mole Cricket	Grillotalpa grillotalpa	• attacks all vegetable crops grown in cold frames, greenhouses, and in the field	• overwintering individuals become active in spring when the weather warms up, and in cultivation facilities for seedling production they are found as early as February

Control:

- Good soil tillage to destroy the tunnels and nests of the mole cricket and eliminate its various stages.
- Use of small areas of water traps buried in the soil up to the top edge of the container, or scattering piles of manure, in which the pest gathers.
- Application of a registered ready-made bait: *Mesurol Schneckenkorn 4 G – 250 g/decar*, applied over the area.