



DAMPING-OFF AND SEEDLING BLIGHTS OF VEGETABLES

Vegetable seedlings often do not grow well under humid conditions, particularly if the soil is cold and wet. The grower then has the choice of keeping weak, sickly plants or undertaking the costly operation of replanting. This kind of damage is usually caused by one or more soil-borne fungi that attack under conditions unfavorable for rapid seed germination and growth.

In preemergence damping-off, seeds may rot and seedlings may decay before they emerge. Young plants that do emerge may pale, curl, wilt, and collapse from a rot at the soil line and below (postemergence damping-off). The base of the stem is generally water-soaked at first, then turns gray to brown or black, and then rots. Seedlings of plants such as cabbage, cauliflower, tomato, and beans are girdled by brown or black sunken cankers. These plants may shrivel and become dark and woody, causing wirestem or collar rot, but they do not normally collapse. Transplants grow slowly or die.

Control

1. Buy the highest-quality seed of recommended varieties.
2. Treat seed before planting.
3. Plant in a light, well-drained, well-prepared, fertile seedbed at the time recommended for your area. If at all possible, pasteurize the soil – preferably with heat – before planting.
4. Apply a soil insecticide, such as diazinon, to the soil surface before planting, and immediately work it into the top 3 to 5 inches of soil. Follow the manufacturer's directions printed on the package label. This treatment controls root aphids, grubs, wireworms, ants, maggots, cutworms, and webworms, all of which injure underground parts, allowing soil-borne organisms to enter and produce decay.
5. Be sure that flats, tools, plant containers, and benches are clean and free of plant pathogens. It is important that these materials be clean because they can introduce damping-off pathogens into clean soil, often with disastrous results. Tools, equipment, plant containers, flats, and other items can be disinfested by (1) steaming them at 180°F to 200°F for 30 minutes; (2) dipping and swabbing them with a formaldehyde solution (1 pint formaldehyde in 15 gallons of water); (3) dipping them in household liquid bleach solution (6 gallons household bleach in 100 gallons water) for 10 seconds – materials should first be brushed free of soil, sprayed with clean bleach solution, and allowed to dry; (4) fumigating with methyl bromide-chloropicrin mixtures; or (5) dipping or swabbing them with full-strength alcohol (70 to 100 percent) for 1 to 2 minutes – do not rinse.

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6. AVOID heavy soils, heavy seeding and overcrowding, poor air circulation, careless handling, planting too deep, and overfertilizing (especially with nitrogen).
7. Keep the seedbed soil on the dry side after planting. Allow plenty of bright light.
8. Practices 1 through 7 normally will prevent damping-off. If damping-off becomes a problem, consult Table 1 for fungicides that may be used for control. Captan, captan plus PCNB, and metalaxyl can also be used as preventative drenches or dust type soil treatments. Follow label directions.
9. Captan sprays may be helpful as a follow-up to drench treatments.

Table 1. Fungicides that can be used for control of Damping-Off

Crop	Chemical ^a
Beet (garden and sugar)	captan, mefenoxan, metalaxyl, thiram
Cabbage, broccoli, brussels sprouts, cauliflower	captain, mefenoxan, PCNB, thiram,
Cucumber	captan, mefenoxan, metalaxyl, thiram
Cantaloupe, pumpkin, squash, watermelon	captan, ziram
Carrots	mefenoxan, metalaxyl, thiram
Eggplant	mefenoxan, thiram
Legume vegetables	captan, mefenoxan, metalaxyl, PCNB, thiram
Lettuce	iprodione, mefenoxan, thiram
Onion	thiram
Pepper	captan, mefenoxan, PCNB, thiram
Popcorn	fludioxonil
Spinach	captan, mefenoxan, metalaxyl, thiram
Sweet corn	captan, fludioxonil, thiram
Sweet potato	.thiabendazole
Tomato	.captan, mefenoxan, PCNB, thiram

^aCaptan is sold as Captan as various formulations.

Fludioxonil is sold as Maxim 4FS.

Iprodione is sold as Rovral.

Mefenoxan is sold as Apron XL LS and Ridomil Gold as various formulations.

Metalaxyl is sold as Allegiance FL

PCNB is sold as Terraclor as various formulations.

Thiabendazole is sold as Mertect 340-F.

Thiram is sold as Spotrete or Thiram as various formulations

READ AND FOLLOW ALL LABEL DIRECTIONS.