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Seed Maggots Very Bad This Spring

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This unseasonably cool moist spring has been perfect weather for an old pest of early planted seeds and bulbs—the seed corn maggot *Delia platura* (SCM) and other seed maggots such as Cabbage maggot *Delia radicum* (it prefers to feed on cole crops) and Onion maggot *Delia antiqua* (it feeds on crops in the onion family). The seed corn maggot is one of the earliest seed maggots in a field and it has a huge host range of seeds and plants that it attacks. Our previous 2-3 springs were unseasonably warm and at times dry, two conditions that do not favor the maggots and is why we did not see a lot of damage for those few years like we are this spring. The seed maggots overwinter as pupae in the soil and in early spring (usually early March for SCM and mid-April for onion maggot), the adults emerge. Adults are elongated and dark greyish-brown, with wings that overlap their bodies when they are at rest (Fig. 1). Large swarms of flies can be seen in the spring flying over newly tilled fields. The flies mate within 2-3 days after

emerging and lay eggs in soil that has a great deal of decaying organic matter, which includes any rotting vegetation or manure as well as germinating seeds or newly set transplants—SCM flies are not finicky and will target the artificial media in the root balls of transplants. The eggs hatch in 2-4 days in temperatures as low as 50° F. The larvae develop over a large temperature range: 50°F-90° F. However I have found that the flies do not like to lay eggs in soil that has reached 71°F at a 4-inch soil depth for 2-3 days in a row. Therefore, once soils warm up the flies tend not to lay eggs any more. Larvae or maggots are yellowish-white, about ¼ inch in length, legless with head-ends that are wedge-shaped (Fig. 2). The maggots complete their entire development within the soil by burrowing into seeds or feeding on cotyledons emerging from seeds. The pupae are brown, oval-shaped capsules 1/5 inch in length



(Fig. 2). Generally, seed corn maggots complete their life cycle within three weeks and have 3-4 generations. It is the first generation that causes the most crop damage in our area.

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Seed maggots cause damage by burrowing into seeds or cotyledons and hollowing them out (Fig. 3). Although it can take 5 maggots per snap bean seed to cause significant damage, once the seed has been opened up by the maggots the seed becomes much more susceptible to invasion from soil borne pathogens. The maggots also can burrow into the bulb or stem of transplants such as watermelon or cantaloupe as well as cole crops, garlic, onions, etc. (Fig. 4).

University of Massachusetts has a good publication on maggots and lists the Growing Degree Days for emergence of the flies in the spring, found at: [http://extension.umass.edu/vegetable/articles/cabbage-and-onion-maggot-flies\(link is external\)](http://extension.umass.edu/vegetable/articles/cabbage-and-onion-maggot-flies(link%20is%20external)). There is a good report on growing degree days in the IPM report from May 12 of last year. It is available at: [http://ipmnet.umd.edu/landscape/LndscpAlerts/2012/12May11L.pdf\(link is external\)](http://ipmnet.umd.edu/landscape/LndscpAlerts/2012/12May11L.pdf(link%20is%20external)). Peak flights for seed corn and cabbage maggots already have occurred with peak flight for onion maggots just about ready to occur.

Management: As most of you know there is no rescue treatment once maggots are found in the seed or plant. Fields with moist, heavy-textured soil usually have the worst problems. To reduce the appeal of a field to egg-laying adults, disc or plow early in the season to incorporate residues from the previous crop and allow time for residues to completely decompose before planting. Destroy any weed growth. Avoid planting a crop following root crops or cole crops such as cabbage and cauliflower or after fall tomatoes. Ensure rapid seed germination by planting in moist soil not very deep when weather conditions are good. Later-season plantings may avoid the early season infestation of this pest. For crops like onions or garlic row covers can be used as soon as transplants are put in the field. Plants can remain covered until the ground warms. Diazinon as a broadcast application **before** planting can be used with some vegetables (be sure to check the label for each crop and see the Commercial Vegetable Production Recommendations 2013 guide). Entrust is labeled for commercial seed treatment in several crops-check the label.