

Detecting and Managing Bloat Nematode in Garlic

Crystal Stewart, Capital District Vegetable and Small Fruit Program, Cornell University
Cooperative Extension. cls263@cornell.edu. 518.775.0018

Over the last two years it has been determined that bloat nematode (GBN), *Didylenchus dipsasci*, is widespread on garlic in many parts of the Northeast. As the industry works to control the spread of this nematode to now nematode-free growers, we are simultaneously working to help growers who do have GBN work to eliminate it while preserving their existing crops, if possible. The following steps should be taken by anyone who is unsure if they have GBN.

- 1) **Determine if you have bloat nematode.** Dr. Abawi's lab at the NYSAES can analyze samples of new infestation sites and those in field research trials—please contact Crystal Stewart for updated rates and protocols if you are interested.
- 2) **Only plant clean seed.** Bloat nematode is introduced and perpetuated by planting seed that is infested. **Do not replant any of your garlic from an infested lot.** Even if bulbs appear normal (symptomless), low levels of bloat nematodes can increase a thousand fold during one growing season. This means that garlic that showed no symptoms when it was planted could become heavily infested by the time it is harvested the next season. There is currently no NYS certification program for garlic seed, so you will have to work with suppliers to determine how they have ensured their seed is clean. If you or your supplier have not had seed tested, it cannot be guaranteed to be nematode free. Even if seed tests clean, it does not guarantee that bloat nematode does not occur, it just means that it is undetectable. It is recommended to have clean seed re-tested every at least 5 years.
- 3) **Do not sell bloat nematode infested garlic for seed.** Selling quality bulbs infested with bloat nematode for food is acceptable. Garlic festivals may have more detailed rules.
- 4) **Plant garlic in a location that has not been cropped to garlic at least 4 years.** Bloat nematodes can also live in the soil and on alternate hosts. To eliminate and/or to prevent build-up of the nematode populations in the field, rotate away from any *Allium* crops (garlic, onions, leek, chives), celery, parsley, or salsify, and areas with high populations of hairy nightshade weeds. Also, do not plant garlic and control nightshades for at least 4 years in the area where garlic was grown in 2010. Please note, this recommendation may change in the future—preliminary results indicate GBN may not be able to survive winters consistently in the Northeast.
- 5) **Plant cover crops after harvesting garlic.** Mustard, sorghum-sudangrass, and other cover crops have been shown to reduce nematode populations due to their bio-fumigant effect. Thus, they may effectively reduce bloat nematode populations. For information on seeding rates, fertility needs and seeds sources, visit the cover crop website at <http://calshort-lamp.cit.cornell.edu/bjorkman/covercrops/fall-mustard.php> or contact your vegetable specialist.
- 6) If possible, **Keep fields moist:** Bloat nematodes cannot survive for long periods in moist soils, but they do in dry soils.

7) ***Treat infested fields with a conventional fumigant-type nematicide.*** This is an option for conventional growers. Custom applications of Telone-C17 or Vapam are available for use in some states including New York as pre-plant treatments and are highly effective against the bloat and other plant-parasitic nematodes, where appropriate and cost-effective.

8) Vydate may also be labeled for control of GBN—please see your state’s pesticide guidelines to verify whether this is the case. Hot water treatments are being examined as a treatment option, but are not considered a reliable way to eliminate 100% of the GBN’s at this time.