

Vegetable IPM Message

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Crop Conditions

We finally had a dose of warmth and sun this week. This made it easier to catch up on field work and has given crops a boost. Although we suffered from a long cold wet period, Massachusetts has fared better than states west and north of us which have had substantially above-normal rainfall this spring. We have good soil moisture and at this point most fields are able to be worked. However, some heavy or river bottom fields have been flooded or waterlogged and impossible to plant.

Damping off has been observed in onion seedlings in the field. In this instance the soil pH was low, and onions do not grow well in low pH soils. Any combination of conditions that cause seedlings to have weak growth --including the cool wet soils of recent weeks -- can give damping off fungi (including *Pythium*, *Phytophthora*, *Rhizoctonia*, and *Alternaria*) the opportunity to invade roots or stems. Vigorous plants are less likely to succumb to damping off.

--J. Lerner, J. Howell

Summer Cover Crops.

Now is the time to think about summer cover cropping, especially if you have to order seed. Any time during the growing season you should be aware of land that is not in production and will not be planted for several weeks - this is when it is worth seeding a cover crop. Cover crops protect the soil from wind and rain erosion, can add substantial amounts of organic matter, and in the case of a legume, substantial amounts of nitrogen that is fixed from the atmosphere. We usually think of these issues being important in the fall, but they are important considerations all year. On a mixed vegetable farm you have crops coming off and going on at all times of the year. The cover crops below can be used after an early crop such as a brassica or lettuce come off the field when you don't plan on double cropping, or in the case of land that you haven't planted yet and don't plan on doing so until much later in the season.

Sudangrass or Sorghum x sudangrass - These are fast growing cover crops that are frost sensitive and if seeded now can grow over eight feet high by frost. These crops have

higher fertility requirements than most other commonly used cover crops. We did a trial with sorghum x sudangrass in which plants that received 50 lbs. N/acre grew much bigger than those plants that did not receive fertilizer. The addition of fertilizer for cover crops is not usually recommended, especially in the fall, but in this case it may be worth it. As the name implies, sorghum x sudangrass is a cross between sudangrass and forage sorghum. One nice characteristic of this cover crop is that the seed produced is sterile so there is no concern of it becoming a weed problem.

There has been some concern about how to manage these crops in the fall. My experience with sorghum x sudangrass a couple of years ago was that it was not difficult to manage in the fall, however you may want to seed a little of it the first time in order to get some experience with it. Some growers mow it during the season to keep it from getting to big (if it is mowed before it gets over 3 feet high it will regrow). You can either leave it till the following spring or incorporate it after a frost and seed rye. Seeding rate - 40 - 50 lbs/acre.

Oat - Unlike winter rye, oat will grow very vigorously and straight up when seeded in the summer. I frequently seeded this cover crop during the summer months at the Research Farm in S. Deerfield on land that is not in production. It is readily available, but beware that you do not get oats that have been cooked (used for animal feed). Oat seeded now will produce viable seed before frost. For this reason you might want to incorporate it (or simply mow it) before it goes to seed. Seeding rate - 100 lbs/acre.

Buckwheat - This is a fast growing cover crop that is used by growers to suppress weeds and hold the soil because of its quick growth. It does not produce much organic matter, which makes it very easy to incorporate. Mow or incorporate when flowering so that it does not produce viable seed that can become a weed in subsequent plantings.

In general, the summer is not a good time to establish a legume. Frost sensitive legumes seeded now will release tremendous amounts of nitrogen in the soil when they die in the early fall, a time when the potential for leaching is at its highest. Perennial legumes such as clover are difficult to establish in the summer due to weed competition.

There are other cover crops available that you may want to consider. Consult the *New England Vegetable Management Guide* for other choices. It is always a good idea to try different cover crops at the same time so that you can evaluate them yourself in your particular situation. Give me a call if you have a particular situation where you want to find the right cover crop.

Frank Mangan (978 422-6374)

Crucifers

Root maggot fly activity is down, as indicated by lower fly captures in yellow pan traps and low numbers of eggs on new plantings. In the Connecticut River Valley, scouted fields of transplants set after May 20 have had 0.1 to 0.3 maggot eggs per stem -- well

below the threshold for treatment. New plantings should be checked, but the likelihood of needing controls is declining. **Imported cabbageworm** numbers were very low this week in scouted fields and no recommendations have been made for foliar sprays. **Flea beetles** are still active.

SWEET CORN

The corn started under plastic or row covers is way ahead of the bare ground corn, due to the cold soil temperatures. Some growers are experiencing serious ripping and tearing of floating row covers especially at seams of 50-foot wide covers. Row covers (when they are intact) can be left on throughout whorl stage if placed loosely and covered well at the edges. Even in June they will still provide a growth benefit due to warmer soil and air temperatures both day and night, without burning corn on hot days. They will also protect from egg laying by European corn borer, possibly saving some sprays.

--R Hazzard, M Yates

GUIDELINES FOR MANAGING PHYTOPHTHORA BLIGHT

Editor's note: At the end of last season, heavy rains and saturated soils brought a devastating outbreak of Phytophthora to many fields where pumpkins and winter squash fruit were just about ready to harvest. This year, growers should be aware of the potential for carryover of the Phytophthora fungus in those fields. Rotate those fields out of cucurbits, pepper, tomato, or eggplant if at all possible. Use as many cultural practices as possible to reduce the risk of Phytophthora. This is not a disease that can be handled by chemical controls alone! The following article by Margaret McGrath of Department of Plant Pathology, Long Island Horticultural Research Laboratory, Cornell University, NY provides an excellent summary of management practices.

Phytophthora blight of cucurbits can strike any time from planting through harvest affecting leaves, stems, and fruit. All cucurbit growers should be concerned. It has been described as 'like the plague' and the 'most destructive disease of cucurbits' because 'nothing causes greater loss'. Symptoms include seedling damping-off, crown rot, stem lesions, foliar blight, leaf spots and fruit rot. Crown rot causes the entire plant to completely collapse and die in a short period of time. Summer squashes often die back from the growing tip. Initial symptoms of fruit rot are a water-soaked or depressed spot. The underside of the fruit that is in contact with the ground often is affected first. Symptoms can also begin around the stem due to systemic infection from the vine. Fruit can become completely affected and collapse. Fruit symptoms also can develop rapidly after harvest. The fungus produces a white yeast-like growth on the fruit that is mostly *sporangia*, a type of spore, especially under moist conditions. Sporangia cause new infections when they are dispersed to healthy fruit.

A combination of the following practices are recommended for managing Phytophthora blight. Phytophthora blight can be devastating because it has proven to be difficult to control. An integrated program is very important. *Managing soil moisture to avoid*

saturated conditions is extremely important to prevent the disease from getting started. Prevention is very important because Phytophthora blight is hard to control once it starts and after it has occurred on a farm it is difficult to continue growing susceptible crops without Phytophthora blight reoccurring.

1. **Select fields where Phytophthora blight has never occurred when possible.** The fungus that affects cucurbits also causes blight in pepper, fruit rot in eggplant, and buckeye rot in tomato. An effective rotational period has not been identified yet. Two years has been shown to be insufficient, therefore select a field where susceptible crops have not been grown for at least 3 years. Selected fields should be isolated from fields where Phytophthora diseases have occurred to avoid the potential of the fungus being moved (in water or on farm equipment) from the infested field into the cucurbit crop. **Select well-drained fields.**
2. **Physically separate plantings of susceptible crops** (cucurbits, pepper, eggplant, and tomato). Plantings should be located such that there is no opportunity for water to move from one planting to another.
3. **When growing small-fruited pumpkins, select varieties producing hard, gourd-like rinds** (such as Lil' Ironsides). These have been shown to be substantially less susceptible than varieties with conventional rinds.
4. **Minimize hardpans and plowpans** by subsoiling or chisel plowing before planting and by not driving through wet fields. . **Subsoil between rows** after planting and before vining to improve drainage.
5. **Do not plant the crop in areas of the field that do not drain well.** Plant a cover crop in place of the crop in these areas.
6. **Prepare raised dome-shaped beds** for summer squash and other bush-type crops.
8. **Clean farm equipment, shoes, etc. of soil between fields. Movement in soil on equipment and shoes probably is an important means by which Phytophthora has been spread** between fields on farms and may account for the occurrence of Phytophthora blight in fields with no previous history of susceptible crops.
9. **Avoid over irrigating.** Normal irrigation practices usually do not encourage Phytophthora blight except when leaks frequently occur.
10. **Fungicides have provided minimal control in efficacy trials and therefore should not be used alone without the cultural practices listed here.** None of the fungicide programs evaluated in NY and elsewhere in the U.S. provided the level of control considered necessary for commercial production. Fungicides that have been tested include Bravo, Aliette, Ridomil, Acrobat, copper fungicides, and new experimental materials. Aliette is registered for managing this disease. Bravo and copper fungicides can also provide some control; they are registered for other diseases. A preventive spray

program is expected to be more effective than waiting until symptoms occur.

11. **Scout fields** for symptoms routinely, especially after major rain storms. Include any areas where water did not drain well and near the end of irrigation pipe.

12. **When symptoms are localized in a small area of a field, disking the area** is worthwhile. Begin with a border of healthy-appearing crop around the affected area.

13. **Do not discard cull fruit in the field**, including fruit that are healthy but over-sized or over-ripe. This includes fruit that was bought in for the farmstand and shows symptoms of fruit rot!

14. **Fruit that look healthy should be removed from infested fields** as soon as possible and checked routinely for symptom development so that fruit developing symptoms after harvest can be discarded before the fungus spreads further. Infected fruit that does not show symptoms yet should develop symptoms within a week. Unfortunately, no disinfectants are registered for this use. Furthermore, applying a disinfectant to fruit will only kill *Phytophthora* spores on the fruit at the time; it will not stop the fungus if it has already started to infect the fruit.

15. **Do not display pumpkin fruit for sale in a field where *Phytophthora* blight developed in previous years:** healthy fruit have developed fruit rot in these situations.

Any other practice which will improve water management will help control *Phytophthora*.

Other management practices evaluated in New York include yard-waste compost amended to soil at 60 or 120 tons/A (repeated a second year in same location), sorghum sudangrass cover crop, soil solarization (solar heating) following incorporation of a mustard crop, rye and oat straw mulches, and ryegrass living mulch. These were found to be ineffective or only slightly effective. Resistant varieties may be a solution in the future.

Potatoes

If you have not taken care of your cull pile(s), this should be done as soon as possible as they are potential sources of late blight. The best method for destroying these piles is by burying, but if you cannot bury them at this time for whatever reason, applying a herbicide such as paraquat to destroy any green tissue will help until the pile can be buried. Dumping culls into the nearest ravine is asking for trouble -- these piles can't be buried or sprayed, and can become a source for late blight for the surrounding area.

Adapted from C. Bornt, Lake Plains PestMinder Weekly

Cucurbits: BEETLES ARE HERE

Striped cucumber beetles are colonizing transplants and emerging seedlings. Scout by searching top and bottom of leaves and cracks in the soil near the plants.

Vegetable IPM Message, Ruth Hazzard, Editor. The Vegetable IPM Message is published weekly from May to September and includes contributions from the UMass Extension Vegetable Program faculty and staff, growers, and private IPM consultants. Authors of articles are noted; author is R. Hazzard if none is cited.

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