



UMASS
EXTENSION



Vegetable Notes

For Vegetable Farmers in Massachusetts

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CROP CONDITIONS

Rain from earlier this week as well as anticipated rain later in the week makes irrigation unnecessary for most Connecticut Valley farmers. Farm stands are busy despite a rocky start to the season. Some winter squash is beginning to be harvested and tomatoes and peppers are ripening, but corn is growing slower due to recent low temperatures. People are beginning to think about sowing cover crops; inquiry about seed availability has shown that some suppliers are beginning to sell out. Good places to find cover crop seeds are Johnny's Selected Seeds and CPS. For organic seed, visit baystateorganic.org. See the article below for more detailed information on fall cover crops.

SWEET CORN UPDATE

Corn earworm counts rose this week across the state thanks to the storm that came through the region last weekend. Counts were very high inland (Pittsfield, MA at 197 moths caught in one week) and also on the coast (Rehoboth, MA 249 moths caught in one week). All silking corn should be treated to control corn earworm.

If your preferred method of corn earworm control is to chop the tips off the ends of the ear, expect to do a lot of chopping since much of the state has a significant level of corn earworm infestation.

Organic

For organic corn earworm control treat with corn or soy oil mixed with Bt or Entrust. Use the labelled rate for corn earworm in sweet corn. Treat the ears when most of the ears in the field have silk that is turning brown and drying at the ends. This should be at about 6-8 days after 50% of the ears in the field first showed silk. The critical point is to not treat the corn too early- the best way to tell is to carefully husk a representative ear to see how much silk is still attached. If >1" of the tip of the ear has silks that are still attached after gently shaking the loose silks off then it would be best to wait a day or so. If you have slightly older corn that is still in silk but is more than 5 or 6 days from harvest, go ahead and oil that corn, as well, because although the CEW prefers fresh silk, it can still cause damage in the older corn.

If you prefer to spray your corn, use Entrust and follow the spray recommendations described below.

Non-organic

CEW remains the driving force behind spray schedules in silking corn. A four day spray schedule is recommended in most areas except where captures were over 90 per week. If you are catching over 90 per week you should be on a three day schedule unless maximum day time temperatures are below 80 degrees in your area. If you are fortunate enough to have caught under 7 moths per week you can move to a five day spray schedule. However, even though day time temperatures will start dropping below 80, this is not the time to start slacking off on sprays. As another storm comes through the state this weekend, we should expect CEW trap captures to remain high next week, too. Unless your sweet corn season stops at Labor Day, there does not seem to be an end in sight for spraying for CEW.

Fall armyworm trap counts remain consistently high, indicating that there is still egg laying and hatch occurring. Although FAW moths prefer to lay eggs in whorl stage corn where they can hide, they will lay eggs on silking corn if there is no whorl stage corn around. Ears can be infested with the small larvae that will tunnel down the silk or eat into the side. CEW sprays should control FAW caterpillars that are still feeding, but oil treatments to the silk will not control FWA that enters from the side.

European corn borer flight has gone down to almost no flight in most areas. After harvest make sure that you disk well to kill ECB that are in the stalks.

Corn Earworm Thresholds

Moths/Night	Moths/Week	Spray interval
0-0.2	0-1.4	no spray
0.3-0.5	1.5-3.5	every 6 days
0.6-1	3.6-7	every 5 days
1.1-13.0	7.1-91	every 4 days
Over 13	Over 91	every 3 days

Corn Earworm thresholds apply only to silking corn up to 5-7 days before harvest. Lengthen spray intervals by one day if maximum daily temperature is less than 80 degrees F.

European Corn Borer Thresholds

Pre-tassel-Silk: 15% or more of plants scouted are infested .

Silk: 5 or more moths caught in pheromone traps in one week, or 5% of plants are infested.

Fall Armyworm Spray Thresholds for Pheromone traps and Field Scouting

Whorl Stage: 30% or more of plants are infested

Pre-tassel stage to emerging tassel 15% or plants are infested (add # plants infested with ECB)

Silk: 3 or more moths captured per trap per week: Spray silk every five to seven days; five days if captures continue to be over 3 moths per week.

•Weekly European Corn Borer and Fall Armyworm and Nightly Corn Earworm Trap Counts

Location	Z I	E II	CEW (per night)	FAW
Brandon, VT	-	-	0	-
Sheffield	1.5	0	-	-
Pittsfield	-	-	13.85	-
S. Deerfield (UMass)	6	7	8.3	10 avg
Deerfield	3	9	7.4	61.5 avg
Whately	2	2	19.14	-
Hadley (1)	1	3	4.9	-
Hadley (2)	9	4	5.6	-
N. Hadley	24	10	2.8	9
Sunderland	4	2	0.57	2
Easthampton	6	3	2.5	23
Feeding Hills	2	3	9.14	0
Still River	0	1	1	-
Rehobeth	13	21	1.14	-
Seekonk	-	-	35.57	40
Concord	6	1	1.85	0
Leicester/Spencer	10	4	4.42	0
Northbridge	6	6	6	8
Tyngsboro	21	13	2.28	5
Univ. of RI	1	3	18.57	-
Mason, NH	0	0	0/71	2
Hollis, NH	0	12	3.28	1
Litchfield, NH	1	0	3.14	22

--Thanks to our scouting network: R.Hazzard, A.Duphily, K. Reidel, J.Mussoni, D.Dumaresq, D.Rose, J.Otto, T.Gallagher, J.Golonka, W.Kingsley, P.Willard, G.Hamilton, C. Leich, B. Howden, S. Clegg, J. Ward

ALTERNARIA DISEASES OF BRASSICAS

Three species of *Alternaria* cause serious damage to brassicas: *Alternaria brassicicola*, *A. brassicae*, and *A. raphani*. *Alternaria brassicicola* and *A. brassicae* infect broccoli, Brussels sprouts, cabbage, cauliflower, Chinese cabbage, kohlrabi, kale, rutabaga, and turnip. *A. raphani* is most often found on radish, but can infect other brassica crops.

The most common symptom of *Alternaria* diseases is yellow, dark brown to black circular leaf spots with target like, concentric rings. Lesion centers may fall out, giving the leaf spots a shot-hole appearance. Individual spots coalesce into



Alternaria on Broccoli

large necrotic areas and leaf drop can occur. Lesions can occur on petioles, stems, flowers, flower pedicels, and seed pods. Pod infection causes distortion, premature shattering, and shriveled, diseased seed that germinates poorly.

Alternaria species are simple parasites that survive saprophytically outside the host, diseased crop debris is the primary site of survival from year to year. Resting spores (chlamydospores, microsclerotia) have been reported. The disease is favored by warm temperatures (60-78° F) and at least 12 hours of relative humidity of 90 % or more. The fungi sporulate profusely and are spread throughout fields by wind, splashing water, equipment, and workers. The main means of introduction into new areas is on infested seed.

Management:

- Buy seed certified as disease-free or treat seed with hot water.
- Practice long rotations with non-brassica crops.
- Incorporate diseased plant debris into the soil.
- Eliminate cull piles.
- Control brassica weeds.
- Avoid overhead irrigation during head development.
- Keep seedbeds disease-free to prevent the spread of disease and locate seedbeds so as to avoid wind-borne inoculum.
- Control of *Alternaria* leaf spot on cabbage heads in the field is necessary for long-term storage.

Chemical Recommendations

- azoxystrobin (Amistar): 2-5 oz/A (0 dh, REI 4h). Apply prior to disease development and continue at 7-14 day intervals. Do not make more than one application of Amistar before alternating with a fungicide with a different mode of action.
- chlorothalonil (Bravo Ultrex 82WDG): 1.4 lb/A (7 dh, REI 12h). Apply at the first sign of disease and repeat at 7-10 day intervals.

•cyprodinil plus fludioxonil (Switch 62.5WDG): 11-14 oz/A (7dh, REI 12h). Apply at the first sign of disease and repeat at 7-10 day intervals. Only turnip varieties harvested for their leaves may be treated.

•maneb (Maneb, Manex): Rates vary depending on the formulation. (7 dh, REI 24h).

Options for organic growers can be found through the Organic Materials Review Institute (OMRI) at <http://www.omri.org/> as well as through Crop Data Management Systems (CDMS) at <http://www.cdms.net/manuf/manuf.asp>

--Bess Dicklow and Rob Wick, UMass Plant Diagnostic Clinic

FALL COVER CROPS

Now is the time to think about cover crops for the fall especially if you need to order the seed. Here is some information about some of the more common cover crop choices for Massachusetts:

Non-Legumes

Winter rye is easily the most common cover crop used by growers in Massachusetts, and for good reason. It is inexpensive, easy to get and establish, and can be seeded fairly late into the fall and still take. It consistently overwinters here and will continue to grow in the spring producing lots of organic matter. Some growers find it difficult to incorporate in the spring if it is left to grow into May. Seeding rate: 90 – 120 lbs./acre.

Oats can be seeded in the fall and will come up quickly, similar to winter rye. Unlike winter rye, oats will winterkill here in Massachusetts and will not regrow in the spring. For this reason some growers prefer it over winter rye since it is easier to manage in the spring. It might have to be lightly incorporated into the soil in order to germinate. Enough growth is required in the fall to give adequate cover through the winter and early spring. Try to seed by Sept. 1. Growers along the coast can plant later. Make sure the oats have not been cooked (used as an animal feed). Seeding rate: 100 lbs./acre.

Ryegrass is used by some growers because of its thick root system that is thought to mop up more nitrogen than winter rye or oat. There are two types: annual and perennial. Despite their names, the annual ryegrass may overwinter and the perennial ryegrass may winterkill depending on when you seed them. If you have not seeded them before and would like to evaluate them, I would recommend that you seed a little of each in order to see their growth habits. I have only used these cover crops in the early spring. The seed is small and light, so specialized equipment will be needed if seeding a large area. Seeding rate: 30 – 40 lbs./acre.

Legumes

Clovers are used by some growers as a nitrogen source. There are several types available. Like ryegrass, I have only used clovers as an early spring cover crop. A clover will have approximately 2.5% nitrogen whereas hairy vetch (see below) averages around 3.5% (this compares to winter rye that is usually below 1%). Clovers are a very small-seeded cover crop that need specialized equipment to establish. They can be seeded by hand in a small area, but if you want to do several acres, you will need specialized equipment. Seeding rate: 10 – 20 lbs./acre.

Hairy Vetch is an excellent cover crop for Massachusetts. It can be seeded up to mid September and will survive the winter. Growers near the coast or on the cape and islands can seed vetch up till October or even later. When left to grow long enough in the spring, hairy vetch has supplied over 100 lbs./acre of nitrogen.

It is very important that the appropriate rhizobia species is used for hairy vetch (the rhizobia for hairy vetch will work for all vetches and peas). Without the rhizobia the vetch will not give the desired effects.

We have been recommending you mix the vetch with either winter rye or oat. There are several reasons for this:

1. Both oat and winter rye are very efficient in taking up nitrogen from the soil (remember, the vetch is getting most of its nitrogen from the atmosphere, so it does not need much from the soil). By taking up more nitrogen in the late summer and fall we are reducing the risk of contaminating surface or ground water and the nitrogen is recycled so that it can be used by next years cash crop.
2. The oat and rye can produce tremendous amounts of valuable organic matter if allowed to grow long enough.
3. Both of these cover crops will give better erosion control than vetch alone since they emerge and establish themselves more quickly than vetch. This is especially important when vetch is seeded after September 1.

We have been recommending 40 lbs./acre of oat or rye with 30-40 lbs./acre of hairy vetch. If you are using a grain drill then you can use seeding rates as low as 30 lbs./acre of vetch. If you are spinning the cover crop on and lightly disking it in then a rate of 35 - 40 lbs./acre is suggested.

Many growers prefer the use of oat rather than rye because of the tremendous growth of rye that occurs in the spring. This can be desirable if you are looking for increased organic matter in your soils, however some growers find the amount of biomass created by these two cover crops too much to handle. In addition, we have found that we get much more growth of the vetch in the spring when seeded with oat than when seeded with rye. The rye will compete with the vetch in the spring.

THE 2006 NEW ENGLAND GREENHOUSE CONFERENCE

The New England Greenhouse Conference will be held November 1-3 at the DCU Center in Worcester, Massachusetts with a trade show on November 2nd and 3rd. Wednesday, November 1st, is a pre-conference day featuring in-depth workshops and short courses.

Jim Barrett from the University of Florida and Peter Konjoian from Konjoian's Floriculture Education Services will be offering two growth regulator workshops.

On Wednesday morning, November 1st, Jim and Peter will conduct the workshop, "Introduction to Using Growth Regulators." Proper use of plant growth regulators is a critical part of producing high quality crops that do not become overgrown in your production or retail greenhouse, but do grow out for customers and are not stunted. Jim and Peter will share the basics for using commercially available growth regulators to effectively manage plant size. Learn how they work, and when to use sprays, srenches (heavy soil surface spray), drenches, and liner dips. Come learn how to best use growth regulators on plugs, bedding plants, vegetative annuals, pot crops and more.

On Wednesday afternoon, Jim and Peter will conduct the workshop "Advanced Workshop on Using Plant Growth Regulators" What's new in PGR's? How do growing media components affect PGR activity? Get your questions answered and come hear about new ways to use plant growth regulators. Stretch your knowledge base with cutting-edge research-based information presented by Jim and Peter.

To be added to our mailing list to receive the 2006 New England Greenhouse Conference Program or for more information, contact: Cindy Delaney, Show Coordinator, 1 Main Street, No. 36, Winooski, VT 05404, Phone: 802-655-7769, Fax: 802-655-7769 Email: delaney@sover.net or visit our web site: www.negreenhouse.org

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