



VEGETABLE IPM MESSAGE

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CROP CONDITIONS

This week summer squash/zucchini, cucumbers, cabbage, cauliflower, broccoli, scallions, greens, snap and snow peas, cut flowers and the first crop of snap beans were harvested. The strawberry crop is winding down. Transplanted corn is also being harvested, with the corn that was seeded under plastic beginning this week, as well. The weather has been favorable for crop growth and fieldwork, with cooler temperatures and sometimes driving rains replacing the hot and muggy weather.

Heavy armyworm infestations affecting mainly hay fields and turf have been reported, primarily in the eastern part of the state. They also can cause problems in corn and other crops. See the article below for more information.

--P Westgate

COMMON ARMYWORM

There are numerous reports of common armyworm in turf and hay crops, in many areas of the state. This insect also attacks corn and, occasionally, some other vegetables especially peppers. The mature caterpillar is about 1 1/2 inches long, greenish yellow to brown, with a dark stripe along each side. At this time it appears that the caterpillars are full size and will likely pupate soon. Therefore, damage from this generation should not continue much longer. These are heavy feeders on the leaves, in the whorl and in the ear. Damaged leaves appear to have been shredded and this is characteristic of both the common and fall armyworms. Larvae enter fruits of pepper and can cause extensive damage. Typically, damage begins near

the edge of a field as the caterpillars move in from neighboring fields or grassy or weedy borders. This is likely to happen when they use up their food supply and move on to new areas. Be particularly watchful in fields that border hay.

Available insecticides for **corn** include Warrior, Spin Tor, Larvin, Ambush and Lannate. Apply in 75 to 100 gallons of water per acre. Make two applications five to seven days apart when damage exceeds 15% in the whorl or pretassel stages. In **peppers** damage is more likely to occur from fall armyworm, but a second generation of common armyworm is possible. Orthene, Pounce, Spin Tor, Confirm and Lannate are labeled. *Bacillus thuringiensis*, while available and effective on small larvae, is ineffective on the large larvae that are causing the damage out there now. See the New England Vegetable Management Guide and the label for more information. Growers may want to apply a treatment to the edges of fields to intercept migrating caterpillars.

--John Howell and Pam Westgate

COVER CROP UPDATE

You want to keep cover crops in mind when you are harvesting and are not going to double crop. Buckwheat and oats are good choices for this time of year. If seeded now, both will produce viable seed that can volunteer so you want to make sure that they are managed before they go to seed. Buckwheat will die with the first killing frost, whereas oats will grow until it gets down into the teens.

This is a good time of the year to seed hairy vetch in combination with oats. Hairy vetch can be seeded in late July or early August. This plant may be appropriate for growers

who have land coming out of production at this time. Instead of leaving this land fallow until the fall when cover crops are seeded, we are encouraging growers to take advantage of this time to seed cover crops that will be able to produce significant amounts of organic matter and nitrogen.

It is better to mix the vetch with oat at this time of the year instead of rye since the rye can get unmanageable the following spring when planted this early (oat doesn't overwinter in Massachusetts).

Seed 40 lbs/acre of oat with 30-35 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 lbs/acre is suggested.

The combination of hairy vetch and oat seeded in late July or early August will produce a tremendous amount of growth by late fall. As stated above, the oat will winter-kill with a hard frost, however the dead residue will leave a thick mat that will provide erosion control. Hairy vetch seeded this early has less of a possibility of overwintering than if it is seeded later in August or early September.

Timing of spring incorporation of these cover crops and planting of your cash crop will depend on several factors. Probably the most important factor is whether the vetch has survived the winter. If the vetch did not survive the winter than it is advisable to plant a cash crop early in the spring. As the soil begins to warm up in the spring, the nitrogen in the dead vetch tissue will begin to be converted to soluble forms of nitrogen. This nitrogen can be taken up by plants, however it can also be leached from the soil.

If the vetch has survived the winter you may want to wait a few weeks and get more growth out of the vetch which will translate into more nitrogen for your vegetable crop.

So, you need to think about what vegetable crops you plan on growing in a given field next season when considering the cover crop and when it will be seeded this season.

--Frank Mangan

WEED MANAGEMENT BETWEEN PLASTIC

This is just a reminder that now is an excellent time to clean up those row middles between plastic mulch. Weeds that look small now will likely overtake the field reducing yields and interfering with harvest. Techniques for removing weeds between plastic are as follows. Cultivation and hand weeding are always effective although time consuming and expensive. Weeds right next to the mulch are difficult to control without handwork. Flaming is another option.

The constraint with flaming is that weeds next to the plastic are difficult to control because the flame will melt the plastic. In addition, small grasses are usually not killed because the growing point is usually below ground. Herbicides registered for use include Gramoxone and Scythe. Both of these herbicides must be shielded or directed to avoid crop contact and injury. Scythe is registered for most crops. Gramoxone is registered for pepper, tomato, and eggplant in all 6 New England states and for cucurbits in Maine, New Hampshire, and Connecticut only. Low pressure, no wind, well-made shields, and proper rate selection are all important to insure good activity. Be especially careful with shields utilizing controlled droplet applicator nozzles. These nozzles produce a fine mist, which can move easily with minimal winds.

Shields should have non-absorbent curtains at their base, which hug the ground or plastic and minimize drift. Read the herbicide labels and check the New England Vegetable Management Guide for further information.

--Rich Bonanno

SCOUT CABBAGE TRANSPLANTS FOR SYMPTOMS OF BLACK ROT!

When buying into transplants, you may be buying into black rot. Black rot of crucifers is caused by the bacterium *Xanthomonas campestris* pv. *campestris*. The bacteria can infect plants at any growth stage. Initial symptoms consist of localized wilting at the leaf margin followed by a yellowing of

the tissue. The most characteristic symptom is a yellow “V-shaped” lesion on the edge of the leaf, with the base of the “V” toward the leaf center. Within the yellow tissue, leaf veins become black. The blackened veins may extend from the leaf to the main stem.

The bacteria can survive in infected plant debris and on or in the seed. Infection occurs through pores on the leaves (stomata & hydathodes), wounds or insect injuries. The bacteria need moisture (rain, dew, etc.) to infect and multiply. So the weather conditions we’ve had the first weeks in June are perfect for disease development. Warm days promote growth of the bacteria and symptom development, and morning dews provide the moisture needed by the bacteria.

Black rot is very difficult to control. Here are a few suggestions on how to avoid or minimize the problem:

- Scout greenhouses and seedbeds on a weekly basis. Characteristic V-shaped lesions are expressed on seedlings. The wilting and blackened veins distinguish the disease from symptoms of water stress or other physiological disorders.
- Keep varieties separated in the greenhouse and in seedbeds. The bacteria are rapidly spread in water, and close spacing in seedbeds and in the greenhouse are ideal for rapid disease development. Keeping the varieties separate will help you identify problematic varieties.
- Transplants should only be handled when the foliage is dry.
- If black rot is detected in a seedbed, consider all plants at the location to be contaminated. Do not attempt to separate healthy plants from diseased plants...many plants will be contaminated, but will not be showing symptoms.
- Destroy all remaining plants in a seedbed as soon as transplanting operations are completed.
- Clean all transplanting equipment before and after each use.
- Do not plant transplants showing black rot symptoms or transplants suspected of being contaminated.

- Flea beetles must be controlled in seedbeds and in production fields. Research has shown that flea beetles can transmit the bacteria from infected plants to healthy plants. Insect wounds provide a large window of opportunity for infection.
- Avoid using overhead irrigation, but if necessary irrigate during the time of day when the plants will dry quickly.
- Contaminated equipment, people, animals, overhead irrigation, and wind-driven rain will spread the disease. Always work in the diseased fields last and restrict activities in fields until late in the day when plants are completely dry to reduce the potential spread of the disease.
- A three-year rotation is recommended. Pathogenic bacteria will survive in the crop tissue until the tissue breaks down and rots.
- Infected cabbage heads should not be placed in storage.

If black rot shows up in your field, copper sprays are legal to use for disease control. Unfortunately, copper only does a fair job of controlling black rot.

--Helene R. Dillard, Department of Plant Pathology, Geneva Experiment Station

SWEET CORN

The first flight of the overwintered corn borers (ECB) is on the downswing, while we are in the upswing of the pre-tassel infestations. In fields where >10 moths are found in the traps we recommend to continue spraying silking corn on a weekly basis. There is still little cornearworm (CEW) activity, though remember that the threshold for treating is very low. Keep on the lookout for armyworm infestations that are decimating hay fields. The armyworm may find its way into corn and cause severe damage to the leaves, and to the ears in silking corn. The armyworms generally have a patchy distribution in the field and cause quite an obvious mess.

-P Westgate, R Cook, J Mussoni, R Pestle, D Riggs, M Yates

SWEET CORN TRAP CAPTURES AND SCOUTING DATA JUNE 29 - JULY 4

Town	Date	ECB Z1	ECB E2	TOTAL ECB	CEW	% PT
Berkshire Region						
N. Bennington.VT	28-Jun	3	3	6	0	0%
Stephentown.MA	2-Jul	4	0	4	0	0%
Conn. River Vallev North to South						
Walpole. NH	2-Jul	2	0	2	0	5%
Hatfield	2-Jul	2	1	0	0	19%
Hadlev	3-Jul	4	0	4	0	0%
Southwick	3-Jul	18	3	21	1	0%
Feeding Hills	2-Jul	0	1	1	0	15%
Sheffield	2-Jul	6	1	7	0	0%
East/Central MA. North to South						
Ipswich	2-Jul	0	0	0	0	17%
Dracut	4-Jul	2	4	6	1	--
Bolton	2-Jul	0	0	0	0	0%
Sutton	2-Jul	0	0	0	0	0%
Munson	2-Jul	0	0	0	0	15%
Leicester	2-Jul	1	0	1	0	18%
Millis	2-Jul	15	9	24	0	32%
Hopkinton	2-Jul	9	3	12	0	12%
Seekonk	3-Jul	1	3	4	1	--
Swansea	3-Jul	4	7	11	1	14%
Rochester	3-Jul	2	2	4	1	8%
Rehobeth	3-Jul	3	7	10	2	14%

-- Information not available.

CORN EARWORM THRESHOLDS

Moths/Night	Moths/Week	Spray Interval
0 - 0.2	0 - 1.4	no spray
0.2 - 0.5	1.4 - 3.5	6 days
0.5 - 1	3.5 - 7	5 days
1.0 - 13.0	7 - 91	4 days
over 13	Over 91	3 days

Note: spray intervals can be lengthened by one day if daily maximum temperatures were below 80 °F for the previous 2-3 days.

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