



UMASS
EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts



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CROP CONDITIONS

Remnants of hurricane Frances swept across the six-state region last week, causing riverbanks to overflow in some locations as well as flooding of fields in other areas. A solid period of dry weather followed, which has been very beneficial for curing and harvesting fall crops. Sweet corn harvest remained on schedule with last year and longterm averages, and has been called one of the best harvest seasons in years. The major problem, if any, has been supply in excess of demand. Fall vegetable harvest continued as farm stands have plenty of corn, potatoes, tomatoes, peppers, pumpkins and winter squash available. Growers are working to take care of fall cleanup and cover crop seeding along with harvest tasks. Farm stands are decked out for fall. Consumer response in farmers markets, CSA's and farmstands is excellent. The next issue of Vegetable Notes will be published the week of September 27.

--Adapted from NEW ENGLAND WEEKLY CROP WEATHER, NASS, 09/12/04

FALL WEED MANAGEMENT ADVICE

Weed management is still important at the end of the season. There are three main activities that need to be completed. They are: fall field scouting, preventing weed seed production, and controlling perennial weeds.

End of Year Weed Scouting

It is worthwhile to take the time to check fields for weed problems at this time of year. A quick scouting can identify problems that will be expensive to solve if they get out of control and can provide clues that will help in designing a weed management program for next year. Mapping weedy spots, and keeping some kind of permanent record of weed surveys, can help you evaluate your weed management over the years. Make a map of each field and fill in the following information:

How Many? How dense are the weeds? If weeds are very dense, they may be having an impact on yields. This is especially true if these weeds emerged early in the season, when competition is greatest. If weeds were actively growing during the period of greatest crop growth, consider

changing the weed management program.

Which Weeds? Identifying weeds can help identify potential problems before they get out of hand, and can help you decide if you need to modify your weed control program. Weeds like yellow nutsedge, field bindweed, and quackgrass are spreading perennials, which have underground parts that enable them to spread throughout whole fields. Because these weeds can be very damaging, and are very difficult to control, they are worth "nipping in the bud". In addition, keep an eye out for annual weeds that are new to a field or are increasing in numbers. Some weeds can be very difficult to control in some or all of the crops in your rotation. Galinsoga, for example, is hard to control in cole crops, peppers, and squash. Nightshades are difficult to control in tomatoes for growers who rely on herbicides for control, because they are in the same family as tomatoes. Velvetleaf is hard to control in sweet corn.

What worked? It is also useful to look at the whole field and evaluate the effectiveness of your weed control efforts. If some weeds are generally escaping, identify them. They may point to weaknesses in your herbicide or cultivation program. If mostly grasses, or mostly broadleaves are escaping, it may require an adjustment of either the rates or the timing of grass or broadleaf herbicides. You may also find the **New England Vegetable Management Guide** useful. This manual contains a chart listing the effectiveness of vegetable herbicides on most of the common weeds in New England. Use this guide to find an herbicide labeled for your crop that might give better control than the one which was used.

Where are the weeds? Weeds in the rows or planting holes are much more damaging to crop yields than between-row weeds. Weeds in rows may be an indication that cultivation equipment needs adjustment, or cultivation needs to be done earlier.

Preventing Weed Seed Production

Annual weeds produce incredible amounts of seeds. Annual grasses normally produce 3000 to 5000 seeds per plant, small seeded annual weeds such as pigweed and lambsquarters can produce 100,000 to 250,000 seeds per plant, and larger-seeded broadleaf weeds such as velvetleaf and smartweed can produce 5,000 or more seeds per plant. Perennial weeds can also produce seeds or other reproduc-

tive structures. For example, one yellow nutsedge plant can produce 2000 tubers. Perennial weed management is covered below.

Once fields are harvested, they should be tilled or disked as soon as possible to prevent seeds from maturing. Be especially concerned with weeds that are new to a field or are in abundant supply. If time is short, one alternative is to mow the weeds. This will remove the primary seed stalk but will also encourage lateral branching. Eventually, however, these branches will produce seeds and must be destroyed.

Perennial weed management

The best time to control perennial weeds is in the Fall. All perennial weeds have storage structures (tap roots or rhizomes) below ground that enable these plants to survive the winter and regenerate themselves the following year. Fall tillage of perennial weeds will kill top growth and fragment the storage organs but will not kill the weed. Frequent tillage will, over a long period of time, control perennial weeds but, in most cases, this is not practical.

Perhaps the best control technique for perennial weeds is an application of glyphosate (Roundup) before the plant goes dormant. Perennial broadleaf weeds such as bindweed or dandelion should be sprayed while they are still actively growing which is usually before a hard frost. Perennial grasses, such as quackgrass, can be sprayed as late as mid-November. Use 10 to 20 gallons of water per acre when spraying Roundup. Two quarts of the herbicide will provide much better control at 10 gallons of water per acre than at 40 gallons of water per acre. Spraying on a mild afternoon following a cold or cool morning is best to encourage translocation of the herbicide to the below-ground storage structures. Disking or tilling two weeks after application will also improve control of the weeds.

Many growers fight perennial weeds such as quackgrass in corn fields year after year because their primary goal in the Fall is to plant a cover crop. This is usually followed by a Spring application of Roundup which provides top kill but does not kill the whole weed. Applying Roundup at the proper time is the only way to achieve good control. Delaying the seeding of a cover crop may be a necessary evil in the fight against perennial weeds.

In conclusion remember to scout and map your fields, prevent weed seed production, and apply Roundup at the right time to control perennial weeds.

--Rich Bonanno, UMass Extension Weed Specialist

SWEDE MIDGE: A NEW PEST OF BRASSICA CROPS IN CANADA

The swede midge is native to Europe where it is a major pest of crucifer crops. The presence of the swede midge



Swede midge eggs

in North America was first confirmed in 2000 in Canada. The damage growers had seen since 1996 was mistakenly attributed to nutrient deficiency. No one knows how the swede midge reached North America or exactly how long it has been present in Canada. Growers in Canada have seen losses of up to 85% of the marketable yield. Swede midge has been found in 12 municipalities in Ontario and 1 in eastern Quebec.

Hosts

While swede midge will attack any member of the brassica family, the highest levels of damage have been seen on broccoli, Chinese broccoli (gai lan), Brussels sprouts, cauliflower, Chinese cabbage, and other Asian greens. Wild crucifers are also hosts for swede midge.

Life cycle and description

Multiple (3-4) overlapping generations have been seen in the field in Canada with major peaks occurring during late June, late-July-early August, and late-August / early



Larva of swede midge

September. The swede midge overwinters as pupae in the soil and emerges in the spring. The adult is a small (1.5-2mm) light brown fly with hairy wings indistinguishable



Adult swede midge

from other midges. Adults mate within 12 hours of emergence. A single female will lay 100 eggs in her short lifetime (1-4 days). Eggs are very small (0.3mm) and laid on the youngest parts of the plant (e.g. flowers buds, leaf bases) often near the growing point. Eggs are transparent when first laid and change

to a creamy white color as they mature. The larvae feed in groups in protected areas of the plant tissue typically near the growing point for 10-12 days before dropping to the soil to pupate. Full-grown larvae are 3-4 mm long and yellowish in color. Adults can emerge from the soil for the next generation in two weeks depending on climatic conditions.

Damage

Damage symptoms are caused by larval feeding. Larvae secrete substances to break down the cell during feeding causing changes in the physiology of the plant. The following damage can be caused by the swede midge: brown corky scarring especially along petioles, distorted and twisted leaf stalks, death of the growing point resulting in a blind head, crinkled and crumpled heart leaves, deformed and asymmetrical heads, and multi-headed or multi-



Swede midge damage on cabbage

stemmed plants resulting from destruction of growing tip.

Swede midge damage can look like other common physiological, nutritional, and insect problems found in cole crops. One needs to find larvae within the plant to confirm swede midge is the cause of the damage. Examine suspect plant tissue with a hand lens or place the affected plant part in a black plastic bag in the sun for several hours to force the larvae to leave the plant tissue. Swede midge damage is most often found in areas sheltered from the wind such as field edges and buildings because the swede midge is a poor flier and prefers areas of low wind movement.



Adult swede midge

Swede midge survey

Swede midge will be a target for the Cooperative Agricultural Pest Survey (CAPS) in Massachusetts during the summer of 2005. The CAPS program is a USDA, APHIS program aimed at early detection of new exotic pests in the United States to allow for containment and management of these pests. The Massachusetts Introduced Pests Outreach Project, a collaboration between the MA Dept. of Agricultural Resources and UMass Extension, is an educational component of the CAPS program aimed at educating growers about new exotic pests of importance to Massachusetts. For up-to-date information on exotic pests of importance and to sign up for pest alerts visit the **Massachusetts Introduced Pests** website <http://www.massnrc.org/pests>. Photos of swede midge damage and references used for this article can be found on the swede midge fact sheet under "search for pest info" on the website. For more information about this project or the swede midge contact **Julie Callahan** at callahan@ent.umass.edu or 413.577.0809.

*-Julie Callahan, MA Introduced Pests Outreach Project,
University of Massachusetts*

TWILIGHT MEETING REMINDER

Seeds of Solidarity, Orange, MA

Tuesday, October 12, 2004

3:00-6:00 p.m. Contact: Anne Carter at (413)-545-5216

Seeds of Solidarity Farm, owned and operated by Deb-Habib and Ricky Baruc, is a working model of a profitable small farm enterprise utilizing alternative energy. Take a tour of this property, and see solar greenhouses used to extend the growing season, solar electricity used to power their farm and buildings, and biodiesel used to fuel their farm truck. Their high quality greens, garlic, herbs, and flowers are grown intensively and marketed directly to restaurants and food coops. Ricky Baruc will be speaking about his production methods, which utilize soil building techniques and permanent no-till raised beds. Cathy Roth will speak about saving energy on the farm. Ruth Hazzard will talk about pest management, especially management of flea beetles in greens. Learn of the North Quabbin Garlic and Arts Festival, a highly successful yearly event to promote garlic, local agriculture, and local artisans. Located on the same property is the **SOL** (Seeds of Leadership) Garden. An educational program created in 1998, SOL inspires service and activism among teens as they use their hearts, minds, and bodies to cultivate food and a hopeful future. Deb Habib, Anne Carter, and Margaret Christi will talk about getting local foods into local schools (known as farm to school) and the creation of local hero school systems. Refreshments served at 5-5:30 courtesy of MARS. Recertification credits: 0.5 hour.

DIRECTIONS FROM ROUTE 2: Take Exit 14 (West River Street, Lake Mattawa). Turn South off exit ramp (from the west, turn right, from the east, turn left) onto Holtshire Road. Follow this road approximately 1.5 miles to the first intersection at which point you will see, but not pass a large lake (Mattawa). Turn right onto Chestnut Hill Road. Proceed uphill 1/2 mile to the "T". Turn left (still on Chestnut Hill Rd.). In approx.. 1/2 mile the road forks--bear right (still Chestnut Hill --do not take the left fork which is Lower Chestnut Hill!). Continue 3/4 mile.

FROM ROUTE 202 AND POINTS SOUTH: Route 202N to New Salem. At the yellow blinking light, turn left onto Wendell Road (just before the New Salem General Store). From points north (Athol) turn right onto Wendell Rd. at the yellow blinking light. Follow Wendell Road approximately 3 miles to the end. There is no stop sign, but the road curves sharply to the right, placing you on Neilson Road. Go 1/8 mile to the first left which is Crowl Road (a dirt road). Continue 1/2 mile.

LIFE IS GOOD PUMPKIN FESTIVAL TO SUPPORT CAMP SUNSHINE SEEKS PUMPKINS

The Life is good Pumpkin Festival will attempt to "smash" the Guinness Book of World Records for most lit jack-O-lanterns in one place at one time. To be held, Saturday, October 23 on Boston Common, the event will benefit Camp Sunshine of Casco Maine. Camp Sunshine is a retreat for children with life threatening illnesses and their families. Last year's event in Portland Maine raised over \$52,000 for Camp Sunshine.

The festival will feature live music, magicians, pie eating contests, parades, hayrides, fireworks and of course, pumpkins!

Camp Sunshine has the distinction of being the only program in the nation whose mission is to address the impact of a life threatening illness on every member of the immediate family. Since its inception, Camp Sunshine has provided a haven for over 16,000 individuals from diverse cultural backgrounds.

Thousands of pumpkins are needed to beat the Guinness Book of World Records for most lit jack-o-lanterns. If you are interested in donating pumpkins contact **Michael Smith** at 207-655-3800 or email mbsmith@campsunshine.org. Visit www.lifeisgood.com for more information.

SWEET CORN

This is the last sweet corn report of the season. We'd like to thank all of the farmers, consultants, USDA staff, and Extension staff who have provided information, often for free, as a service to growers around the region. Special thanks to Wayne Kingsley, Charles Leitch, Bruce Howden, Tom Harlow, Boisvert Farms, Jim Golonka, The Matuszko Family, Mark Brown, Dave Dumaresq, David Rose, Paul Willard, Stephen Verrill, Skowhegan Farmers Market, Koran's Farm, Marini Farms, Breezy Gardens, Foppema's Farm, Parlee Farms, the Clegg Family, and Ward's Berry Farm

Sweet corn management is winding down and that's generally a welcome change. It is difficult to keep focused on sweet corn while harvest of vine crops and fruit crops is a high priority.

The second generation **European corn borer** flight is about over, with trap captures down to zero at many locations. The CT Valley still has some flight but still lower than last week. **Corn earworm** is also down, despite the storm that came through last week. Where there is still fresh silk, sprays are still warranted. Spray schedules can be extended a day at this time of year because of cooler temperatures. Night temperatures, especially, are low enough to reduce moth activity and slow hatching periods. A few spots are over the threshold for a what should now be

a five day, not four day schedule (7 moths per week). The remaining sweet corn fields with green silk will be increasingly attractive to moths as other options for egg-laying decrease. **Pepper growers** can pretty much stop spraying for ECB, since there will be few new borers hatching from here on out.

SWEET CORN TRAP COUNTS 9/13 - 9-16

Town	Date	ECB Z1	ECB E2	Total ECB	CEW (Avg.)	FAW	%PT
Berkshires/ Champlain Valley							
Brandon, VT	9-15	-	-	-	0	-	-
Pittsfield	9-15	-	-	-	20	-	-
CT River Valley							
S. Deerfield	9-16	2	9	11	0	-	-
N. Hadley	9-16	0	4	4	6	-	-
Hatfield	9-16	25	5	30	35	-	-
Hadley (pepp.)	9-16	0	2	2	-	-	-
Feeding Hills	9-14	2	2	4	5	5	-
C.&E. MA							
N. Andover	9-9	0	0	0	22	0	-
Concord	9-13	0	0	0	2	1	-
Ipswich	9-10	0	0	0	6	-	-
Leicester/ Spencer	9-15	0	2	2	1	0	-
Northbridge	9-15	1	0	1	9	1	-
Tyngsboro	9-13	0	0	0	5	0	-

--J. Mussoni, D. Rose, J. Golonka, P. Willard, B. Howden, W. Kingsley,

A. Duphily, P. Westgate, T. Harlow, S. Peabody, and R. Hazzard

GET YOUR SWEET CORN FIELDS READY FOR NEXT YEAR:

1. Plow down corn stalks and stubble to destroy overwintering larvae of European corn borer.
2. Plant a cover crop, such as winter rye, to prevent soil erosion and add organic matter to soil.
3. Take a soil test to determine if lime or other nutrients should be applied.
4. Plan to rotate your crops to prevent pests from building up in any one location.
5. Evaluate your weed management results. What worked well and what didn't? Which weed species were the biggest problems? How can you improve control next year?

--David Handley, UMaine Extension, from VERMONT VEGETABLE AND BERRY NEWS, September 15, Vern Grubinger, University of Vermont Extension

CABBAGE AND OTHER BRASSICAS

Insect pressure is down; most flea beetles have departed for overwintering sites outside the field, and its now possible to grow greens without damage. Cabbage root maggot

may have caused damage to late season root crops but soil samples at our research farm indicate that maggot activity may now have declined. Watch for imported cabbageworm which can cause new injury at this time of year, despite cooler temperatures. Also scout long season crops such as Brussels sprouts for build up of cabbage aphid.

Alternaria leaf spot commonly occurs this time of year and is favored by wet weather. The leaf spots begin on older foliage as dark, circular spots about 1/4 to 1/3 inch in diameter. The spots usually have a sunken center surrounded by concentric rings that give them a target-like appearance. They may be surrounded by a yellow halo. With adequate moisture, the spots may be covered with a sooty black layer of spores. The spots may start at the edges of the oldest leaves and converge so that the entire tip of the leaf dies. However, close examination reveals the characteristic target-like concentric rings. Many growers in our area have put on protective Bravo sprays. Watch the progression of the disease. A small amount of *Alternaria* infection on the lower leaves late in the season is tolerable. However, when lesions occur in the harvestable portions of the plant (upper frame leaves or head), this damage can be economical. In storage, *Alternaria* leaf spot infections can result in additional trim loss and the production of ethylene, which causes premature yellowing and senescence. Crop debris should be destroyed as soon as possible to remove the source of disease for other plantings and to initiate decomposition. Equipment should be washed before moving to other fields that will have crucifer crops. A minimum rotation of three years out of cruciferous crops is recommended. **Slugs** can be a problem along field edges that border treelines or hedgerows or in weedy patches in the field. They are favored by cool wet weather. In cabbage, slug feeding leaves large holes in the leaves with the veins intact. In Brussel sprouts, they can eat holes in the sprouts deeming them unmarketable. Slugs can be a contaminant of cabbage when they squeeze between the leaves. Met-aldehyde in the form of baits is the best control measure against slugs. Apply Deadline Bullets at 10 lbs/acre. Tony Shelton, NYSEAS, trialed Warrior and Lannate as well as some organic materials against slugs and found that these insecticides provided about 50% control compared to the untreated.

-- adapted from Ontario, Wayne, Yates, & Steuben Counties Weekly Vegetable Update - 9/15/2004 C.R. MacNeil & Julie Kikkert and **PestMinder** 11.20 2, September 15, 2004, CES Lake Plains Vegetable Program

INDIAN CORN

Harvest by hand when the husk is dry. Break off ears with a quick downward motion. Spread the ears out to dry in a shallow pile where there is good air circulation and under cover if the weather has been damp. Pull the husk back if

it is not completely dry at harvest to avoid mold growth. When husks and ears are dry, tie the ears together with twine or rubber bands in bunches of two or three around the base of the ears and allow them to dry in a warm, dark, airy place. **DO NOT** box or bag ears when they are first harvested or they may mold. Ears can be used for ornamental purposes after a week of drying.

-Univ. of Kentucky

SWEET POTATOES

Harvest sweet potatoes before temperatures drop below 40°F. Sweet potatoes should be placed under curing conditions, (4-7 days at 85F, 90% relative humidity), within one hour of harvest. After curing they should be stored at 55-60°F with 85-90% relative humidity and ventilated. Sweet potatoes will deteriorate very quickly at temperatures below 55°F and when ventilation is inadequate. They need at least one air exchange per day.

- North Carolina State University)

VINE CROPS

Growers have been taking advantage of periods of dry weather to bring in squash and pumpkin crops. Massachusetts weather conditions have been favorable for vine crops and yields appear to be decent. Downy mildew is widespread but arrived late enough that the impact on yield may be modest. See August 26 issue (www.umassvegetable.org) for discussion of harvest, curing and storing winter squash and pumpkin. If you have pumpkins that will remain in the field for a while, walk the field to check for buildup of cucumber beetles or squash bugs on fruit. If you find high numbers, consider harvesting very soon, or an insecticide may be a good idea. After the fruit matures, cucumber beetles will dig into the skin, making small holes. Handles can also be damaged.

-adapted from John Mishanec, Cornell, Capital District.

SALVAGING GOOD PUMPKINS FROM A FIELD WITH PHYTOPHTHORA

Harvest healthy-appearing fruit as soon as they are ready. Harvesting after several days without rain or irrigation is ideal because fruit without symptoms are most likely not infected. A final fungicide treatment of copper and/or Bravo may be worthwhile to protect the fruit. Fruit can be removed from plants and put in rows for treatment; this will reduce the amount of fungicide needed and spray coverage will be improved. Treating fruit with Clorox or hydrogen peroxide will kill any Phytophthora spores that have not started to infect the fruit. These materials have no residual activity and thus will not protect the fruit from spores that land on the fruit after treatment, in contrast with fungicides. Fruit should be removed from the field as soon as possible, especially if rain is forecast. Examine

harvested fruit daily for symptoms; immediately dispose of affected fruit to minimize spread to other fruit. In Cornell experiments examining several postharvest treatments, removing fruit from the field had the greatest impact. Even fruit removed and put in another field on straw had much less disease than those left in the infested field

-Meg McGrath, Cornell, Long Island

Vegetable Notes, Ruth Hazzard, editor and Ben Hunsdorfer, Assistant Editor. *Vegetable Notes* is published weekly from May to September and includes contributions from the faculty and staff of the UMass Extension Vegetable Program, other universities and USDA agencies, growers, and private IPM consultants. Authors of articles are noted; author is R. Hazzard if none is cited.

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