



UMASS
EXTENSION



Vegetable Notes

For Vegetable Farmers in Massachusetts

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CROP CONDITIONS

Planting continued this week despite frequent rains. Cooler temperatures slowed down the fast growth of last week. Growers are seeding winter squash, zucchini, corn, pumpkins, and succession crops like brassicas and lettuce. Tomato, eggplant, and pepper transplants are starting to go out on a larger scale. It's been one of the best months of May for planting and growing in quite a few years. Even winter squash has emerged rapidly and is off to a good start. Winter-kill has been noted in some garlic fields that were not mulched, probably due to low snow depth and cold temperatures. Harvest of asparagus, rhubarb, spinach and other greens is going well, though cold temperatures slowed the growth of asparagus spears this week. The potato crop is about half emerged and Colorado potato beetles are starting to show up.

Good growth applies to weeds, too, and one challenge of



Uprooted weed needs a dry sunny day to prevent re-rooting

the past week has been frequent rains that settle uprooted weeds back into the soil where they can re-establish. A few warm, sunny days now would allow growers to catch up on cultivation and bake the uprooted weeds. Whether you used herbicide or not, many crops will need cultivation soon. Basket weeders provide excellent close cultivation for small crops with several rows on a bed (see photo).



Paul Ziomek, Hadley, MA using basket weeder for close cultivation in onions

AN EVENING ON CUT FLOWERS: JUNE 22

3:30-7:30 PM

Tues, June 22, 2004

Andrew's Greenhouse, Southeast St., Amherst, MA

Jaqui and Andy Cowle of Andrew's Greenhouse will be celebrating 25 years in business this June. Their business is a first generation greenhouse and cut flower business located on a picturesque 150 acre farm in south Amherst. Andrew's has a reputation of selling quality spring plants, specializing in unusual annuals and perennials for retail sale. In addition to 20,000 square feet of greenhouses, Andrew's has cut-your-own perennial and annual flower gardens. Guests are invited to partake in the 25th anniversary celebration. The afternoon will begin with a tour through cut flower gardens which will include information on the fertilization of cut flowers presented by Doug Cox, as well as a review of pest management practices presented by Paul Lopes and Tina Smith. Following the tour guests will be served a planned dinner. A demonstration on harvesting and handling field-grown cut flowers will be held after dinner and will be facilitated by Susan Han. Cost for the event is \$35 per person including dinner. For more information contact: Paul Lopes, 508-295-2212 ext.24 or Tina Smith, 413-545-5306

CILANTRO OR CULANTRO?

This is the first of several articles this season on “ethnic” crops that the UMass Vegetable Team has evaluated in its research and extension programs over the past several years. A generation ago if you used the term “ethnic” in Massachusetts it would refer to Italian-Americans, Irish-Americans, French Canadians, among others. In many cases, those “ethnic” groups have become assimilated into the mainstream. Today when the term “ethnic” is used it often times refers to the newer immigrant groups living in the United States, in particular Latinos and Asians. In order to provide farmers with information on crops that are popular with these growing ethnic groups, a website, www.worldcrops.org, has been launched by UMass, Rutgers, and Cornell as part of a USDA-funded project. The goal of this website is to give commercial farmers the information they would need to grow and market a given crop. Currently a beta version is up and running. A newer version for the site will be launched in July.

There are two herbs that are very similar in taste and aroma that are popular among most Latinos and many Asians: cilantro and culantro. They are both in the same family, Apiaceae, and are sometimes confused due to their similar aroma and taste. This is especially true in Latino cuisine since there are so many different names for these two crops. In most Spanish-speaking countries the same word we use for cilantro is used in Spanish; however in some countries they will call cilantro (Figure 1) culantro (Figure 2). In one of the Largest Latino markets in Boston, cilantro and culantro are sold in bins next to each other. These crops will be placed in a bin labeled “cilantro” or “culantro” depending on the country of origin of the produce manager that day. The center of origin of cilantro is the Mediterranean area while culantro evolved in the New World. It is possible that cilantro became so popular in Latino cuisine because when it was brought to the Americas



Figure 1. Cilantro growing on a commercial farm in Weston, Mass.

after Columbus it was readily adopted because it is much easier to grow than culantro.

Cilantro (*Coriandrum sativum*) is an annual herb that closely resembles parsley and is commonly known as Coriander, Cilantro, or Chinese parsley. Its name is said to be derived from *koris*, Greek for “bedbug” since the plant smelled strongly of the insect. While the leaves are used as an herb, the dried seeds, called coriander seed, are used as a spice and have an entirely different taste. Cilantro grows best in full sun. Plant the seed 1/4 to 1/2 inch deep every 1 inch in rows 12 inches apart. Keep moist until seeds germinate, which should take about 7 to 10 days. No thinning is required. Some growers will seed cilantro thicker than this (30 - 40 seeds/foot). The denser plant population competes more effectively with weeds in the row. In addition, the thicker planting makes harvesting easier since plants are bunched in the field. The “seed” of cilantro is actually the whole fruit with two embryos inside. This means that if you plant 10 “seeds” and get 100% germination you will have 20 cilantro plants.

Cilantro grows best under cool conditions while hot weather encourages it to flower. Cilantro will withstand temperatures as low as 10 F°, which makes it an excellent fall crop. Plantings of cilantro are usually made every 7 to 10 days during the season to ensure a steady supply. Many growers cut cilantro off 1 inch above the ground at harvest. The plant can regrow for a second cutting; however, it does not regrow as efficiently as parsley. For that reason many growers just harvest it once. Cilantro can also be harvested by pulling out the whole plant. Some ethnic groups prefer to buy the plant with the roots intact. Some Asian groups will use the roots in their cuisine. Latinos surveyed at a farmers’ market in Massachusetts stated that they prefer cilantro with roots intact since they feel it stays fresher longer. In a variety trial on a commercial farm in Massachusetts in 1999, the highest yielding varieties were Santo and Pokey Joe. Jantar, a slow bolting variety, did not yield as well, but was slower to go to seed.

Culantro (*Eryngium foetidum* L.) is a culinary and medicinal leafy green herb commonly used throughout the West Indies, Latin America, Central America, West Africa, and many Asian countries. The herb is mainly used as a seasoning in the preparation of a range of foods including vegetable and meat dishes, sauces, chutneys, and preserves. This herb has many names, depending on the country where it is used. Examples are ngo gai (Vietnam), recaó and culantro (Puerto Rico and the Dominican Republic), Culantro de Pata (Honduras), and Chicória (Brazil). Culantro is a tender perennial and is grown as an annual in the Northeastern US. Due to the fact that it is frost sensitive and can take up to three weeks to germinate, transplants are recommended. Transplants should be set out after the danger of frost has passed and spaced 4 - 6 inches within the row and no closer

than 6 inches apart between the rows. It is recommended to use the same fertility you would use for leafy greens. When culantro begins to produce flowers, the leaves become tough and less suitable for eating. The flower stalks must be pruned regularly in order to maintain vegetative

the Northeast. Based on field and greenhouse trials at the University of Massachusetts, a possible niche for culantro is as a bedding plant for customers to grow in their homes and gardens. Fact sheets on this use can be found at the UMass Vegetable website (www.umassvegetable.org) under “New Growers”.

-Frank Mangan, Dept. of Plant and Soil Sciences, University of Massachusetts

BRASSICAS

Brassica crops are growing well. Flea beetles are active and can damage cotyledons and new leaves quickly. Where row covers provide less than great control, look for holes or places where edges or ends are not sealed well. A note for organic growers: if you find beetles under the cover when its removed for weeding, a spray with spinosad (organic formulation, Entrust™) can kill beetles that are present; make sure to seal it well when you replace the cover. Pyrethrin (*PyGanic EC5.0*) is another approved organic option; use high label rates. Cabbage maggot eggs are hatching in brassica crops; scout for eggs at the base of the stem, or maggots in the roots. Cabbage and onion growers have applied a soil drench. See last weeks newsletter for more details.

R. Hazzard

DRIVING FARM MACHINERY ON PUBLIC ROADS

Are your farm workers experienced in driving farm machinery on public roads? Here are a few tips that you might want to share with them.

Always stop at the end of the driveway or lane and look both ways before pulling onto the road. Switch on the flashing lights. Adjust travel speed to road conditions. Special problems include frost bumps, highroad crowns, soft shoulders and narrow right-of-ways. Signal slow-downs, stops and turns. Avoid sudden maneuvers. Before turning left, watch for cars that might try to pass. Never turn left immediately in front of oncoming traffic.

Extra safety must be taken when pulling loads on public roads. Pull only from the drawbar unless using hitch-mounted equipment. Make sure the hitch is sound and the load secured. Stay away from ditches and roadside obstacles. Never operate attachments during transport. Keep the PTO lever in neutral.

If possible, move wide equipment during the day and when traffic volume is relatively low. Switch on all lights. If transporting equipment on a flatbed, make sure to comply with local and state highway regulations. Use an escort car or a lookout to help you on blind curves or bridges. Avoid sudden unexpected maneuvers, swerves,



Culantro as a bedding plant

growth and maximize yields. The harvest is achieved by cutting the entire rosette at soil level. Although cultivation of culantro is possible in full sun, the plants tend to flower sooner than shade-grown plants and have an inferior quality due to decreased leaf size and a loss of succulence. Plants grown under shade produce larger and greener leaves that are more marketable because of their better appearance, texture, and pungent aroma. Research at the University of Massachusetts indicates that culantro is sensitive to day-length. The onset and rate of flowering is enhanced as the day length increases. Since the production of flowers is detrimental to the growth of leaves, the long days of summer make this a difficult crop to produce commercially in



Culantro growing at the UMass Research Station in Deerfield, Mass.

stops or turns.

Drive tractors on the shoulder of paved highways, if possible. Do not drive with the tractor and machinery over part of the shoulder and part of the paved lane. If it is not possible to drive on the shoulder, drive on the paved lane. Do not force a line of cars or trucks to stay behind a slow moving tractor or machinery. If a suitable shoulder is available, pull over to permit traffic to pass.

Traffic signs at many rural intersections may be missing, damaged or hidden by vegetation. Always slow and prepare to stop at intersections, narrow bridges and all rural railroad crossings. BE SEEN!

Use flashing warning lights, a legible slow-moving vehicle (SMV) emblem and other lights to see and be seen on public roads. Replace your slow moving vehicle emblem centers every two years. The red reflective borders, for nighttime visibility, often last for seven or more years. The orange fluorescent centers, for daylight visibility, fade and last an average of only two years. Properly position SMV emblems two to six feet above the ground with the point up in the center of the vehicle. The SMV emblem color and shape are visible at a half mile in daylight.

Drive Defensively!

Adapted from University of Maine Extension Bulletin #2310, by D.L. Cyr and S.B. Johnson

SWEET CORN: TRAPPING NETWORK FOR THE REGION- AND ON YOUR FARM

The University of Massachusetts Vegetable Program – and other Extension systems across the Northeast – are busy setting up sweet corn trapping networks for the season. We will again be reporting trap captures from across the state. We encourage growers to use this data network – but you can also benefit from setting up traps on your own farm.

It is time to set up traps for the first generation of European corn borer. Why trap for them on your farm? Trap data tells you when the flight begins, how heavy it is at your farm, and maybe even more important, when it ends. To determine if and when to spray the tassel, you have to get out and scout the field -- traps won't tell you that. But they will tell you if your early corn will need sprays for corn borer during silking. Especially with corn started under plastic or row cover, silking may begin while ECB flight is still high. At that stage, egg masses are deposited on leaves near the ears, and new larvae tend to move directly into the ear. You might not see this with scouting. If flight remains high during silking, controls may be needed.

So -- now is the time to get ECB traps set up! Use two *Heliothis Scentry*TM traps, one baited with the lure for the Z (Iowa, I) strain and one for the E (New York, II) strain. The moths and larvae of these two strains of ECB look

identical, but the male moths respond to a slightly different chemical blend wafting on the night air.

Place in weedy borders near early corn, with the base of the trap close to the top of the weed canopy. As ECB moths prefer the humid, protected areas of weedy borders, more are captured there. Place traps at least 50 feet apart to prevent cross-contamination of the pheromone plume that attracts the male moths. Hang lures in the center of the lower opening. Traps cost about \$50 each and lures about \$2.00 each. The field life of each lure is 3-4 weeks according to the supplier; however, we usually change lures every 2 weeks. Lures should be stored in the freezer until they are used. Lures from previous years that have been kept frozen will be perfectly good this year.

The following businesses provide traps and other IPM supplies.

--Gempler's (general supplier) P.O. Box 270, Mt. Horeb, WI 53572 (800) 382-8473

--Great Lakes IPM (general supplier) 10220 Church Street, NE, Vestaburg, MI 48891 (517) 268-5693

--Trece, Inc. (manufacturer of pheromone lures and traps) P.O. Box 6278, Salinas, CA 93912 (408) 758-0204

Every year several growers, and vegetable specialists generously offer to report their weekly capture data to the UMass Extension newsletter. If you'd like to be one of them, we would be happy to help you set up your traps and learn how to check them! Call the UMass Extension Vegetable Program at 413-545-3696

WEED CONTROL IN CUCURBITS

Many growers are still becoming acquainted with the relatively new herbicides that are available for vine crops. Below are tips on two cucurbit herbicides, Strategy and Sandea 75WSG

Strategy (ethalfluralin + clomazone)

Strategy is a premix of Curbit (ethalfluralin) and Command (clomazone). It is intended for preemergence control of annual grasses and many broadleaf weeds in cucumber, melon, pumpkin, summer squash, winter squash, and watermelon. Broadleaf weeds controlled include, common lambsquarters, pigweed, common purslane, velvetleaf, common ragweed, and Pennsylvania smartweed. This product may be applied to the soil surface after direct seeding on bare ground. It may also be banded between plastic for both direct-seeded and transplanted crops. The formulation of Command contained in this product is the ME (microencapsulated) formulation which does not need to be incorporated. There are many precautions on the label including some replant precautions. For squash and pumpkin, this product will be the treatment of choice since it controls

so many weed species. In cucumber and melon, however, Curbit tank-mixed with Alanap (naptalam) may still be a good option since most of the same weeds are controlled but the carryover concerns with clomazone are not present.

Sandea 75WSG (halosulfuron)

New label covers cucurbits, tomatoes, fruiting vegetables, asparagus, dry beans, and snap & lima beans. Sandea provides preemergence and postemergence control of many weeds. Most weeds are controlled by either a pre-emergence or postemergence application; however, common lambsquarters is controlled best by a preemergence application while yellow nutsedge is controlled best by a postemergence application. Postemergence applications require the use of a non-ionic surfactant at a rate of 1 quart per 100 gallons spray mix. Heavy rains following preemergence applications can lead to severe crop injury. There is the potential for crop stunting and a slight maturity delay with the use of Sandea over the top of the crop. Growers should limit their use of Sandea initially to gain experience. Use the correct amount of product per acre. The most common use rate will be ½ ounce per acre. If the directions are not followed, the potential for severe crop injury does exist. A brief summary of use directions follows. Consult the label for complete directions. Consider using Sandea only if current management strategies are not working or as a supplement to existing management strategies to control certain problem weeds. This herbicide may carryover to the following year and can cause severe injury in crucifers, greens, spinach, beets, carrots, onions, and other crops. See the label for details.

Cucumbers: Apply preemergence after seeding and before crop emerges. Can also be applied when a seeded crop has 2-5 true leaves but the potential for crop stunting and yield delay should limit postemergence use to areas where weed pressure is high and yield reductions due to weeds would be unacceptable. Can also be used between plastic mulch with direct-seeded or transplanted cucumbers. In cucumbers, with a shorter life cycle than most other cucurbits, it might make sense to use this product preemergence alone or in addition to Strategy, or Curbit, or Alanap

Pumpkins and Winter Squash: Apply postemergence when the seeded crop has 2 to 5 true leaves. Crop injury and some delay may result. Can also be used preemergence after seeding; however excess rainfall or irrigation may cause unacceptable crop stunting. Can also be used between plastic mulch with direct-seeded or transplanted winter squash and pumpkins. Perhaps the best fit for this product in winter squash and pumpkins is for postemergence control after preemergence use of another product (Curbit, Strategy, Prefar, or Command). Sandea will provide postemergence control of yellow nutsedge, redroot pigweed, velvetleaf, common ragweed, and many

other broadleaf weeds

Summer Squash, Muskmelons, Watermelons:

Apply between rows of plastic mulch avoiding contact with the plastic and crop. May also be used in row middles without plastic; any crop contact or use in the crop row will cause injury.

Tomato: Apply either over the top of transplanted tomatoes at least 14 days after transplanting, under plastic mulch, or in row middles. The greatest potential for crop injury occurs when the crop is contacted.

Pepper, Eggplant, Tomatillo: Apply between rows of plastic mulch avoiding contact with the plastic and crop. May also be used in row middles without plastic; any crop contact or use in the crop row will cause injury. If a shielded sprayer is not available, consider applying Sandea to the row middles after the plastic is down but before the crop is transplanted.

Dry Beans, Lima Beans, Snap Beans: Apply preemergence after seeding but before crop emerges. Use lower rates on lighter soils.

Asparagus: May be used during the cutting season after a clear cut or after final harvest. If ferns are present, direct the application to the base of the ferns to avoid injury.

Please read the label entirely regarding application directions and precautions. Accurate measurement and application is essential to minimize crop stunting and delay. A plastic measuring cup should be included with the herbicide container. Results during 2002 in Massachusetts on winter squash, cucumbers, and pumpkins were generally favorable although some severe injury did exist. Crop stunting was common but plants, in most cases, recovered with only a slight yield delay.

*-Rich Bonanno, University of Massachusetts Extension
Weed Management Specialist*

COOL WEATHER PRESENTS PROBLEMS FOR TRANSPLANTS

Warm weather, alternating sunny and rainy cloudy weather has presented a number of problems for growers who use transplants. Early seeding and transplanting so far this year have probably not given growers the jump on the season they have been hoping for.

First, if you are growing your own vegetable transplants, a number of problems may have arisen in the greenhouse. Several days of clouds creates low light conditions in the greenhouse. Transplants tend to etiolate (grow taller) as they “seek” the light. Transplants grown under these conditions tend to have weaker stems and longer stem area between the nodes. Studies done several years ago have shown that if you brush across the tops of the plants with a piece of styrofoam or even your hand on a daily basis, the

transplants will not grow as tall. This is especially true for tomatoes. Though this is something to start as soon as the tomatoes emerge from the soil media, there is still some beneficial effect from the brushing even now. I tried it with tomatoes plants in my research greenhouse this year and was pleased with the results. If possible, plant tomatoes and peppers deeper than usual. More roots will form along the stem and transplants are sturdier. Frank Mangan did studies that showed that peppers could be planted up to the first true leaf without any detrimental effect on the plant or later yields.

Another problem under cloudy conditions is that the stomates (the holes in the leaf where carbon dioxide and oxygen exchange) tend to stay closed. Open stomates are what moves water and nutrient uptake from the roots to the leaves. Thus, on cloudy days, plants may look yellow even though you are fertilizing them. Usually, this goes away once the sun comes out and translocation occurs at a more rapid rate. Remember that soils may not be drying out as rapidly under cloudy conditions. Over watering can cause nutrient leaching, increase problems with fungus gnats, and cause damping off and botrytis.

Table 1: Soil Temperature Requirements for Direct-Seeded Cucurbits

Species	Min. Temp. (°F)	Max Temp. (°F)	Optimum Temp. (°F)
Cucumber	60	105	60 - 95
Muskmelon	60	100	75 - 95
Pumpkin	60	100	70 - 90
Squash	60	100	70 - 95
Watermelon	60	105	70 - 95

Source: Knott's Handbook for Vegetable Growers

Weather conditions in the field have the same effect on transplants. Air temperatures have averaged in the low 60's and there has been little solar radiation to warm the soil. As in the greenhouse, water and nutrient uptake is virtually non-existent when soil temperatures are below 60 °F. Transplants can actually dry out even if they are sitting in field-capacity soils, especially if there is wind. Cool, cloudy days exacerbate the problem as stomates are only partially open or completely closed. Growth is slow and the transplant basically sits in the ground in the same condition as it was in the greenhouse. This can be remedied by planting into plastic mulch to warm the soils.

Transplants that have been under low light in the greenhouse are more light sensitive in the field. Try to plant in the afternoon, with the sun waning, or on cloudy days (not a problem). A clear day can cause sun burn. Symptoms of sunburn include pale, tan or silvery blotches on the leaves which will die back quickly.

If there is enough room in the greenhouse and your transplants are not too big, keep the transplants in the greenhouse as long as you can. Warmer greenhouse temperatures (especially root temperatures) will at least allow growth to continue. Some growers have found that transplants of the same age that are held in the greenhouse until the soil temperatures warm-up will actually blossom and yield before transplants that were set out in the field when soil and air temperatures are low. This is especially true for tomatoes and peppers. However, if the plants are tending to become root bound it may be a benefit to get them into the field. This is also a good year to apply a dilute solution of fertilizer to the root ball just prior to planting or into the transplant hole. The plants could use the extra boost to recover from all its potential problems.

-Anne Carter, Dept. of Plant and Soil Sciences, University of Massachusetts

UPCOMING TWILIGHT MEETINGS IN MA + CT: MARK YOUR CALENDARS!

Wednesday, June 23, 2004

Dumas Farm- Oxford, MA

Blueberry and Tomatoes

Wednesday, July 1, 2004

Czajkowski Farms- Hadley, MA

Vegetables, Berries and Tobacco

Tuesday, October 12, 2004

Seeds of Solidarity- Orange, MA

Sustainable Production Methods, Farm Energy Saving, Farm to School Program Speakers

MORE DATES TO COME IN NEXT ISSUE...

Vegetable Notes, Ruth Hazzard, Editor. Ben Hunsdorfer, Assistant Editor. *Vegetable Notes* 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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