



Vol. 2, Issue 1
April 10, 2014

Weekly Vegetable Update

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Spring has Sprung!

Even though there is still some frost in the ground, some snow here and there, peas have been planted and that means the 2014 field season is upon us! We would like to take this opportunity to welcome you to the first issue of the 2104 edition of the Eastern NY Commercial Horticulture Program's *Weekly Vegetable Update!* This newsletter is intended to bring you timely information on crop stages, pest updates and general observations of what's going on with vegetables. Also, keep in mind that we offer these great companion seasonal newsletters: Berry News, Tree Fruit News and Grapes News. If you have questions or comments about this publication, other publications or other issues, please feel free to contact any one of the ENYCHP educators seen in the left-hand sidebar of this newsletter. -CDB

How Cold Has it Been?

With some pulling of Growing Degree Data (GDD) (base 40, starting Jan. 1) data from weather stations in the ENY region you can see that right now, we are not that much colder than we were at the same time last year. Each number is what was accumulated as of the FIRST of the month listed. We are, however, quite a bit behind 2012. For more data you can go to www.newa.cornell.edu. -MRU

GDD Data - Base 40 Accumulation starting Jan. 1

	Feb 1	Mar 1	Apr 1	May 1
Orange County				
2014	5	5	20	---
2013	13	13	41	316
2012	19	25	298	604
Albany County				
2014	7	7	14	---
2013	10	10	25	225
2012	10	16	286	544
Clinton County				
2014	2	2	2	---
2013	N/A	8	15	197
2012	0	2	202	380

Average heat accumulation is often referred to as Growing Degree Days (GDD). The summation of daily GDD units can be used for a variety of things:

- comparing one region to another,
- comparing one season to another, and
- predicting important stages in plant and insect development.

Scenes from the Muck....

It is awfully wet, and still frozen in spots, out there. I'm writing this on Friday the 4th and looking at the 10-day forecast with only 1 day above 60 and still several nights in the 30's with rain on many of the days ahead. So, what does that mean for onion planting? The best we can hope for is a turn that allows all of you to get out there and plant -like-crazy. Just keep note of a few early season weather phenomena that can lead to onion crop losses.

- 1) **Frost at loop stage.** When the seedlings are in loop stage they are quiet vulnerable to a freeze or even a frost. Their growing point is above ground and should that loop get too cold the plant may not survive.
- 2) **High soil temperatures for un-emerged seedlings.** Seedlings that have not emerged and suffer a sunny day with temps in the 80's (soil temps on the 90's) may wither and die without ever emerging. This can be confused for poor germination but when investigated you can find that the seed did, in fact, germinate and open.

Quick Reminder:

Save at least 200 seeds of each lot you plant should you need to send them for testing later. Put them in a regular envelope (no plastic) and label the envelope with variety, lot, treatments and what fields it was planted to. That last one is just a "double-check" for the notebook you keep should there ever be a question.

- 3) **Crusting.** The temptation to plant is great but soil that has a lower organic matter (OM) content, below 30%, is likely to crust when it's a bit too wet. Even higher OM soils can crust but it tends to be less brick-like. Of course, onion seedlings are weak little things that need every advantage early on. Crusting can significantly sap them of energy and definitely reduce stands.
- 4) **Wind.** OK, not a phenomena, really. Not only is wind a threat to uncovering germinating seeds, but also to those extra-sensitive loop onions that may sustain damage beyond recovery when pelted with soil particles. This is a year to be extra careful to not skimp on windbreak and be extra-certain it is evenly distributed in the field.

5) **Mites.** Again, not extraordinary in their appearance but in the past few years, I have been seeing more damage. More damage happens with slower-growing conditions too. Low temps or slow-starting seeds prevent good root growth. The mites eat what few roots are there, killing the seedling. -MRU

Last Call for Soil Tests

As all growers know, nothing is more important to the success of your crops than the quality of your soil. But in order to determine how much, if any, amendments would be helpful or even worth the cost of application, it's essential to have the soil tested. Each field should have a standard nutrient test done every few years; or annually if you're trying to adjust levels such as pH, phosphorus or potassium. I often hear growers say they're going to add various products before planting, but without testing first they could easily be over-applying or under-applying. It's also helpful to have a running record of your soils over the years so you can track your progress at bringing them into optimum production.

You don't have to use the Agro-One lab in Ithaca, although it is linked to the soil types and conditions throughout New York. The main thing is to choose one lab and stay with it, since different states and labs use different extractants. By staying with the same lab you'll be able to compare your soil tests from year to year in order to track your progress. If you use different labs, you'll need to convert the results in order to have numbers that are comparable to each other.

Your soil test results will only be as good as the sample you submit, so take the time to get a composite sample

made of a mixture of soil from several locations around the field or area to be tested. Look up your soil type on the NRCS web soil survey at

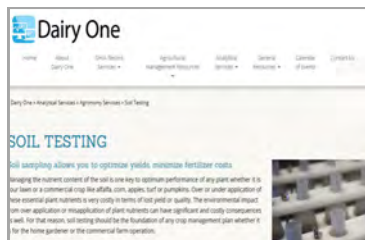
<http://websoilsurvey.nrcs.usda.gov>

and be sure to include that on your submission form.

You can download submission forms from Agro-One at <http://dairyone.com/analytical-services/agronomy-services/soil-testing/> and scroll down to the links to each type of soil test form. Be sure to use the V form for vegetables, and the F form for fruit. The cost is \$12/sample for these tests. If you have any questions, contact any of us on the team. The soils lab is going to be busy once the ground thaws so allow a good two week



turnaround time for your test results. Let the sample air dry before sending it in which means you'll want to get those samples pulled as soon as possible. -ADI



Handling and Cutting Potato Seed

Spring has sprung and I know that many of you are chomping at the bit to get out and get some soil turned and plant something and I suspect that potatoes will be on the short list to get in the ground as early as possible for many of you. I know that many of you might have seen this article on seed cutting before, but I don't think it hurts to look at it again as a refresher or for new employees to take a look at that might be handling your seed this year.

The following information is by Steven B. Johnson from the University of Maine. We have excerpted most of the article and pictures from the bulletin, but not all of it. If you want to see the full Bulletin, either go to <http://www.umext.maine.edu/onlinepubs/pdfpubs/2412.pdf> or call me (518-859-6213) and I will send a copy to you. -CDB

Potato Facts: Selecting, Cutting and Handling Potato Seed by Steve Johnson, University of Maine, Cooperative Extension Bulletin # 2414

Physiological Age of Seed: The physiological age of seed is an important factor in choosing potato seed. Factors affecting the physiological age of tubers include growers season stress, storage temperature and time. Temperature is very important because warmer storage temperatures will speed the aging process of the tubers. Since precutting seed also ages the seed physiologically, it helps to understand the stages of aging. To determine the physiological age of seed potatoes, gather a sample, place them indoors and allow them to sprout. Observe the sprouts that come from the sample to determine the physiological age of the seed. There are distinct stages through which potato seed passes.

Dormant Seed: If potatoes do not sprout at all, they may still be in a period of dormancy. Most potatoes undergo a dormant or resting period. The length of dormancy varies with the variety. There are chemical and nonchemical means to break or greatly reduce the dormancy period.

Young seed: Young seed is characterized by apical dominance. Young seed will have one or just a few sprouts. These sprouts emerge from eyes on the apical or bud end of the tuber. There is a strong, internal inhibitor that keeps eyes on the center and stem end of the tuber from sprouting. Eyes

distant from the apical end may never sprout. Young seed will produce a plant with few stems. A low stem number leads to a low tuber set. Larger, but fewer tubers would be expected from young seed.

Middle-aged Seed: Middle-aged seed will have multiple sprouts. All the eyes on the potato could sprout. There is no clear apical dominance; eyes from the bud end, the middle and the stem end will sprout. Middle-aged seed produces plants with multiple stems that lead to high tuber sets.



Young seed piece



Middle-aged seed piece



Old seed piece



"No top"

Old Seed: Old seed will have branched sprouts that can appear hairy. These sprouts are weak, and they will not produce a vigorous plant. Typically, plants from old seed will produce high tuber sets, but the plants lack the vigor to bulk the tubers to a desirable size.

Potato No Top: Seed can be so old that small tubers form on the sprouts once they emerge from the eyes. "Potato No Top" is the name given to this disorder of extremely old seed. Seed with "Potato No Top" disorder should not be used. Any stress during the growing season produces potatoes that are physiologically older than those grown without stresses.

Precutting Seed: Once good seed is selected, the decision must be made whether or not to pre-cut the seed. Precutting seed potatoes involves warming the tubers, cutting them to size and cooling the seed pieces back down to a holding temperature. **Not all seed potatoes should be pre-cut. Only seed of young or middle physiological age should be pre-cut, since precutting ages the seed.** Seed that is young can be pre-cut up to one month before planting. If the seed has previously sprouted, the seed should be cut only two weeks ahead. Middle-aged seed can be pre-cut up to two weeks ahead of planting only if it has not sprouted.

Middle-aged seed that has sprouted and been desprouted is old seed. Seed that is physiologically old should not be pre-cut. Old seed should only be cut a few days ahead of actual planting. Cutting any earlier may cause aging and "Potato No Top".

The temperatures at which to warm the seed and hold the cut seed vary from different aged seed. The younger the seed, the higher the cutting and holding temperatures. Young seed can be cut and held at about 50 degrees F. Older seed should not be warmed or held above 45 degrees F. Since sprouting

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Handling and Cutting Potato Seed, continued from p. 3

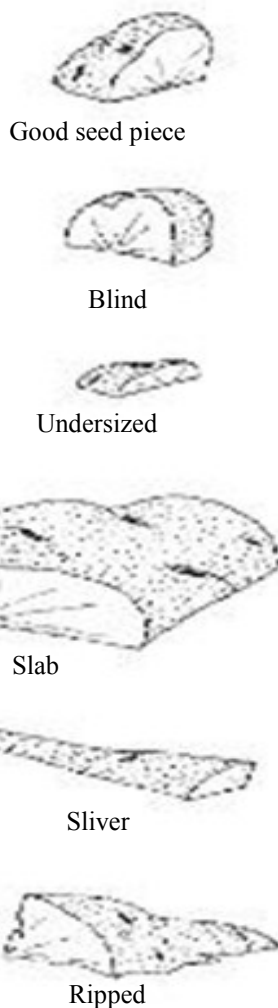
ages the tuber, temperatures should be lower for seed that has already sprouted. Adhere to temperatures and timing set by the physiological age carefully. Keep in mind that the cutting, the warming and the holding will all advance the physiological age of the seed. Remember, pre-cutting is not for all seed. Planting fresh cut seed is recommended when seed needs to be planted right away.

Cutting Seed Pieces: Once good seed has been selected and the decision to cut has been made, proper seed cutting and handling is essential. Properly cut seed pieces feed correctly into the planter and provide uniform plant stands. Mechanical cutters can handle large volumes of seed and cut tubers into two or four pieces. Hand cutting can minimize the number of blind pieces, but is slow and labor intensive. **Potatoes should be warmed prior to cutting. Seed tubers should not be washed. Do not try to salvage diseased potatoes or those that are breaking down. Grade out bent or very rough tubers for hand cutting. Size seed potatoes before cutting. Tubers under 1.5 ounces should not be planted. Tubers weighing between 1.5 ounces but under 3.0 ounces should be planted whole. Tubers 3.0—5.0 ounces should be cut into two pieces; 5.0—7.0 ounce tubers should be cut into three pieces. Sort out seed over 10 ounces for cutting by hand, or, preferably, for sale to other markets.** Disinfect all equipment before each seed cutting session and between seed lots. Calibrate the seed cutter daily and between lots. Keep the seed cutter knives sharp and straight to prevent ripping the potato surface. Ripping provides an ideal area for disease organisms to attach the seed.

Proper Seed-Piece Size: The size of a potato seed piece affects early plant vigor a great deal. Larger seed pieces usually emerge faster than smaller ones. Cut seed tubers into blocky pieces about 1.75 ounces in size. Discard poorly cut seed pieces, such as slivers or slabs. Remove seed pieces ripped or torn by dull knives. **Each seed piece should have at least one eye.** For varieties with poor eye distribution, consider cutting seed pieces closer to two ounces each. **An ideal seed size range is between 1.5 ounces and two ounces.** Seed pieces should average slightly larger at 2.0 -

2.5 ounces for “Russet Burbank” and similar varieties, with larger spacing between seed pieces. Seed pieces larger than three ounces many have some difficulty feeding through a planter. Planters require that at least 70 percent of the seed be in the 1.5 to three-ounce range.

Higher total yields are generally associated with larger seed pieces, but at some point the seed piece size will not result in increased yield. Bruise problems are more severe with very large seed pieces. Excess bruising increases the risk of seed decay problems. There is a greater cut surface area per seed piece with large seed. More stored energy will be used for wound healing and less is left to support new plant growth. Emergence will likely be slowed and plants will be less vigorous. A good rule is to keep the number of cut surfaces per tuber to a minimum. Undersized seed pieces can contribute greatly to the number of doubles or triples planted. Oversized seed pieces can cause skips and are also prone to fall out of the planter.



To assess your seed cutting operation, assess the weight distribution of the cut seed. If hand cutting, demonstrate the proper seed sizes and shapes to seed cutters. No more than 10 percent should be less than one ounce or more than 2.5 ounces. For example, if there are 100 seed pieces in 10 pounds, the average size is 1.6 ounces or count out 100 seed pieces and weigh them – 9.4 pounds would have an average size of 1.5 ounces, etc.

Curing Cut Potato Seed: Cool the cut seed to 38 to 40 degrees F (<45 degrees F), and do not pile it more than six feet deep. Good air circulation will keep the temperature uniform and prevent carbon dioxide buildup, which interferes with wound healing. Relative humidity levels

of 85 to 95 percent are needed to promote healing and prevent dehydration. Six to 10 days at these conditions will complete the curing process. If there is too much air flow and not enough humidity, a thin skin may form on the cut surfaces. This thin layer is not enough to provide wound protection and can be easily sloughed off when handled. Warm the seed tubers before taking them from storage, unless sprouting is a problem. Re-warm seed again for two days before planting to get sprouts growing again and to avoid condensation on the seed. Remember that this practice does not overcome deficiencies of poor quality seed.

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Handling and Cutting Potato Seed, continued from p. 4

Handling Cut Seed: Care in handling cut potato seed is perhaps the most underrated aspect of commercial potato production. Cut potato seed is much more easily bruised than whole potatoes of similar weights. The most vulnerable areas of the seed pieces are the edges of the cut surfaces. Very small impacts can damage cells on the edges of the cut seed. These damaged areas allow decay organisms present on the seed or in the soil to infect the seed piece. Damaged cells may not heal. The number of cut surfaces on the seed piece affects the rate of emergence, the rate of early growth, stem numbers, set, grade and final yield. The more cut surface area on the seed piece, the greater the seed decay potential, the slower the

emergence, the more stored energy in the seed that is dedicated to wound healing and suberization and, therefore, the less that is left to support new plant growth. -CDB

Seed per Acre Requirements at 34- and 36-Row Spacing with Plant Spacing from 7 to 12 Inches

Row Spacing (in inches)	Plant Spacing (in inches)	1.75-oz. Seed Cwt./ Acre	2.0-oz. Seed Cwt./ Acre	2.25-oz. Seed Cwt./ Acre	Seed Pieces per Acre
34	7	28.8	32.9	37.1	26,356
	8	25.2	28.8	32.4	23,061
	9	22.4	25.6	28.8	20,499
	10	20.2	23.1	17.3	18,449
	11	18.3	21.0	26.0	16,772
	12	16.8	19.2	21.6	15,374
36	7	27.2	31.1	35.0	24,891
	8	23.8	27.2	30.6	21,780
	9	21.2	24.2	27.6	19,360
	10	19.1	21.8	24.5	17,424
	11	17.3	19.8	21.8	15,480
	12	15.9	18.2	20.4	14,520

Weed Control in Asparagus

Now is the time to apply pre-emergent herbicides to asparagus plantings. I've talked with Weed Scientist Brad Majek at Rutgers University in New Jersey and their standard program is 2.5 lb Solicam DF plus 1-2 lbs Karmex DF, 14 days prior to spear emergence (that's the pre-harvest interval) which means applications need to be going out very soon if not immediately! This tank mix works on a wide range of pre-emergent broadleaves and grass weeds and is relatively safe to the asparagus. The addition of Calisto at 3.0 ozs per acre can also improve residual and Common Lambsquarter and horseweed (marestail or stickweed) control.

However, those are not the only materials labeled for asparagus weed control and below is a list of all the materials labeled in NYS, but targeted towards the more commonly used and effective materials as discussed with Robin Bellinder, Cornell Weed Specialist. The materials vary according to application timing (pre vs. post) and targeted weeds. As always, please consult the labels for rates and additional use precautions or call your local ENYCHP team member.

Karmex DF (pre spear and post harvest) - annual broadleaves and grasses. **For use on established beds.** Apply early spring before spear emergence. Repeat after harvest if annual weeds persist. Since Karmex is not active on emerged weeds, they must be killed by tillage before or after application. Do not exceed 3 lb per season. Moisture after application will improve control. Switch from Karmex to Lorox the last 2 years a field is in production to reduce

herbicide carryover and increase follow crop options.

Solicam DF (pre spear and weed emergence) - annual broadleaves and grasses. For use on established beds (beds must be established for at least a year). Apply early in spring before spear and weed emergence. Solicam DF must be moved into the weed seed germination zone to be effective. If no rainfall occurs within 4 weeks after application, the product must be incorporated by sprinkler irrigation. Apply in a minimum of 20 gals. of water per acre as a broadcast pre-emergence treatment. Do not apply within 14 days of harvest.

Callisto (pre spear and post harvest) - annual broadleaf weeds. Callisto controls largely broadleaf weeds and has soil residual as well as postemergence activity on sensitive species. Use 3.0 fl. oz. for postemergence control and 6.0-7.7 fl. oz. for preemergence control. **May be applied twice per season but may not exceed a total of 7.7 fl. oz., so be sure to take into account any pre-emergence applications.** See the label for adjuvant instructions.

Lorox 50DF (pre and post) Broadleaves and grasses. **Lorox may be applied preemergence (minimum of 15 gallons/acre) and post emergence (minimum of 25 gallons/acre)** on newly planted crowns or established beds. Do not tank mix Lorox with other herbicides or adjuvants. See label for recommended use of activated carbon with applications to new crowns. Three applications of 1-4 lbs can be made annually with a maximum use of 4 lbs/year.

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Weed Control in Asparagus, continued from p. 5

Dual Magnum (pre spear emergence) - annual grasses, yellow nutsedge, hairy galinsoga, suppression of other broadleaf weeds. A single application may be made to dormant, established beds in the spring prior to crop emergence but may fit best as an application right after your last cutting to control Yellow Nutsedge and Eastern Black Nightshade (pre-emergent). Choose rates based upon soil type. Because this label is a New York State's multi-crop 24(c) Special Local Need (SLN) supplemental label, you must acquire an indemnification from Syngenta in order to use this product. Syngenta has created a new means of acquiring this indemnification. The required product label and indemnification can only be obtained through the "special labels" link found at www.farmassist.com and must be obtained by the 'end-user'. If difficulties are encountered in using the website call the Syngenta Customer Resource Center at 866-796-4368. Be sure to use the Dual Magnum formulation as that is the product that is labeled for asparagus (do not use Dual II Magnum).

Clarity 2.5 EC (pre and post spear emergence)- sowthistle, mustard spp., redroot pigweed, Russian thistle, common chickweed, field bindweed. **Apply Clarity to emerged and actively growing weeds immediately after cutting the field but 24 hr before the next cutting.** Multiple applications may be made per season but may not exceed a maximum of 16 fl oz per acre per year. If spray contacts emerged spears, twisting may result. Label recommends 40 – 60 gallons of water/acre be used.

Prowl H2O (pre-spear emergence). Application must be made prior to spear emergence or remove emerged spears prior to making the application, however there is a 14 day PHI. Do not apply post emergent or injury will likely occur. Do not apply more than 2.4 pints if grown on sandy soils.

Sandea (pre and post) - Pre-emergence applications: galinsoga, lambsquarters, mustard/radish species, redroot pigweed, ragweed, velvet-leaf. **Post-emergence applications:** yellow nutsedge, galinsoga, redroot pigweed, mustard/radish species, ragweed, velvetleaf. Apply post emergence to established beds. May be applied during harvest season (1 day PHI) May be applied at the end of the harvest season but it is recommended to use a nonionic surfactant or COC with drop nozzles to maximize coverage of weeds while minimizing fern contact and injury to the asparagus. Do not exceed 2 oz/A/season.

Chateau WDG (pre spear and post harvest) — annual broadleaf weeds. Chateau SW should be applied at least 2 weeks prior to spear emergence or to dormant asparagus after harvest. **There is the possibility of injury if Chateau is applied less than two weeks before spear emergence.** Chateau may be used for residual weed control as well as to assist in postemergence burndown of some annual and perennial weeds in dormant asparagus. To control weeds postemergence use 0.25% v/v non-ionic surfactant and a spray grade nitrogen source. -CDB

Organic Weed Control in Asparagus

The main challenge to organic asparagus growers is weed control. Pre-planting strategies include selecting sites with low weed pressure, tillage, and the use of smother crops. No-till and minimum tillage systems, which can be used for conventional asparagus, are not recommended in organic asparagus production. While intensive weed control is especially important during establishment when weeds can easily outcompete the young crop, following good weed management practices throughout the life of the planting is also important. Cultivation and mowing are methods of reducing weed problems after planting; care must be taken to not damage crowns with equipment. Living mulch between rows provides an alternative method for weed management. Composted wood chips, weed-free hay or straw, or sawdust can be used as mulch to aid in weed suppression within rows. Once mulch is

applied, weeds will have to be removed by hand because machine cultivation will not be possible within rows. A smaller hoe, such as those typically used in nursery stock production, is more useful for getting between ferns than a standard row crop hoe. Organic mulches may have a cooling effect on the soil that may delay spear emergence in the spring. However, organic growers may need to mow and remove top growth soon after ferns have died back to the ground, generally about the time of the first hard frost. This provides better management of insect and/or disease problems by removing overwintering material. In addition, removing the tops in the fall facilitates mechanical weed control in the spring, whereas leaving the debris could clog cultivators.

Source: Excerpted from University of Kentucky Extension Bulletin. Reviewed by Shawn Wright, Extension Specialist (Revised 2012)

FREE WORKSHOPS

Managing fertility, water quality, irrigation and media in your greenhouse and/or high tunnel

May 6 and 7, 2014

Dr. Neil Mattson of Cornell University specializes in growing crops in protected culture. Please join us to learn more about managing food crops in these systems.

Farms are encouraged to bring water samples for testing pH, EC and alkalinity or soil and substrate samples for pH and EC testing.

Fledging Crow Farm
 Tuesday, May 6, 4-6 pm
 122 A. Robare Road, Keeseville, NY 12994

Ariel's Farm
 Wednesday, May 7, 3-5 pm
 194 Northern Pines Road, Gansevoort, NY 12831

The workshop is free, but registration is encouraged.
 Call Marcie at 518-272-4210 or mpp74@cornell.edu.



Professor Neil Mattson tests irrigation water alkalinity at seedling production site.

Rutgers Agricultural Experiment Station Launches a New Organic Weed Control Website

Educational resources were developed to address simple to use, easy to acquire tools to enhance organic weed control methodologies in small-scale vegetable crop production.

To learn more visit:
<http://www.mworks.com/SARE/index.html>



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