



# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 21, Issue 15

July 5, 2013

## Vegetable Crops

**Acephate Use on Succulent Green Beans** -  
*Joanne Whalen, Extension IPM Specialist;*  
[jwhalen@udel.edu](mailto:jwhalen@udel.edu)

A number of questions have recently been asked about the use of acephate on succulent green beans this season. This change affects all registrants of acephate with the use on their labels. The removal of succulent green bean use from all acephate labels was due to dietary (food only) risk assessment. Therefore EPA technical registrants (i.e. the registrants of the technical material) were asked to voluntarily cancel the use on their technical (ai) labels. The removal of the use on succulent beans on the end use labels is a result of this action. Attached is UPI's Technical Bulletin that addresses the changes in the label including information on use of existing stocks:

<http://extension.udel.edu/weekcropupdate/files/2013/07/AcephateLabelAmendmentBulletinFeb2013.pdf>

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**Crusted Soils and Replanting Decisions in Lima Beans** - *Gordon Johnson, Extension Vegetable & Fruit Specialist;* [gjohn@udel.edu](mailto:gjohn@udel.edu)

Each year there are some lima bean fields that end up with lower stands than expected due to poor field conditions such as crusting after heavy rains, planter malfunctions, seed quality issues,

or errors in setting planting rates. We also have seen stand losses due to herbicide damage.

Soil crusting can be a major concern in lima beans. As the lima bean seed germinates, the cotyledons or seed leaves are actually the two halves of the seed and provide the stored energy reserves for the young seedling. They must emerge from the soil intact for the young seedling to grow well. During emergence, if the soil crusts, the soil force may be so great that the large cotyledons are trapped in the soil and the seedling stem, the hypocotyl, breaks in half. The resulting "headless" seedlings will not recover. Similarly, if only one of the two cotyledons emerges intact, the plant will be stunted because only half the stored seed reserves are available. These stunted plants will not be productive.

In compacted surface soils, if the soils remain moist, the force required for the lima bean seed to emerge with both cotyledons intact will be reduced. However if the soil dries and forms a crust, the force required increases to a critical point.

To reduce problems with crusting, do not work soils or plant when wet (a problem this year). Limit trips across the fields with tillage equipment, especially disc harrows and use planters with furrow closers that do not compact immediately above the seed. Adjust closers to limit compaction if planting must be done in damper soils. Consider ways to reduce tillage while forming a good seed bed. From a soil health standpoint, maintaining good organic

matter levels in soils will also reduce crusting in fields.

In fields that have crusted, use of a rotary hoe to break the crust may improve emergence. However this must be weighed against damage to cotyledons. Another option on soils that are crusted is to do a light irrigation to reduce the force required for emergence. If emergence is variable, as long as stands have not been reduced more than 30 %, then no action may be necessary until first cultivation which can break the crust and aerate the soil. This cultivation should take place as soon as plants are large enough to cultivate.

For baby lima beans, recommendations are for a stand of 3 to 4 plants per foot of row. However, lima beans have a great ability to compensate for lower populations by producing larger plants. In a study by Dr. Wally Pill at the University of Delaware, baby lima bean seeds were sown at the recommended rate and then some plots were thinned within 2 weeks of planting to provide 0%, 16.7%, 33.3%, and 50.0% stand reduction. The research showed that even at 50% stand reduction, overall plant biomass per area was only reduced by 14-21%. The conclusion of this research was that lima bean tolerates a considerable loss of plant stand with little or no effect on yield. Other research and field observations support this claim.

In evaluating a lima bean field with stand losses, the following guidelines are suggested:

- If stand losses are 33% or less, then replanting should not be considered. The yield potential will be close to a full stand.
- If the stand losses are between 33% and 50% and there are not a high percentage of large gaps, then replanting should not be considered. The yield potential will be 85-90% of a full stand.
- If the stand losses are between 33% and 50% and there are a high percentage of large gaps, then replanting may be considered. If fields can be reasonably divided into low stand and high stand areas, then replant only the low stand areas.

- For stands less than 50% then replanting should be considered up to July 15 (working with your processor).

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### Watermelon Pollination, Fruit Set and Fruit Carry Issues - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

We have had a number of reports of growers concerned with poor fruit set in watermelons or significant abortion of fruits in watermelons. A healthy, full sized triploid watermelon plant will normally carry 2-3 fruits at any time (mini watermelon varieties will carry more). This carrying capacity is limited by the amount of photosynthates (sugars) being produced by the plant. Plants that have healthy foliage and that are vigorous will carry the most fruits.

A watermelon plant will produce many more female flowers than will be set, and will set many more fruit than it will carry to harvest. Aborted flowers and small fruit are a normal occurrence. However, delayed set, where early female flowers or fruit are aborted, or reduced set where, on average, less than 2 melons are carried per plant in the field, are indications of problems with pollination or with plant vigor and health. As plants are harvested, as long as vine health is maintained, the plant will continue to carry 2-3 fruits (another fruit replaces the one that was harvested).

A female watermelon flower will need around 500-1000 pollen grains to be fertilized effectively. This will require a minimum of 8 visits by a honey bee. Research has shown that over 20 visits may be required to achieve full set and full size.

The crown set in watermelon is fruit that set on one of the first 8 nodes of the plant. This is often the most profitable, especially early in the season. This year (2013), crown sets in watermelon may be off due to poor weather during early flowering. Bees flights are reduced significantly in rain and when winds are 15 mph or greater. Cloudy weather also reduces bee activity. Bees also do not fly much below 55° F, so on cold mornings, as we often had in June, bee activity will not pick up until later in the

morning. Unfortunately, female watermelon flowers open early in the morning, are most receptive before 10 am, and then close in the afternoon.

In addition, in early mornings and during poor weather, bees usually visit plants closest to the hives. As the temperature rises or the weather improves, the bees will forage further from the hive. This means that in bad weather watermelons closest to the hives will have the best set and furthest from the hives will have the worst.

This year another problem is that some watermelon fields have lost significant pollinizer plants due to poor weather conditions during or after planting. This means that pollen will be limiting. Research has shown that where pollen is limiting, fruit numbers will be reduced with distance from a pollen source. In fields with limited pollen, expect reduced fruit set or reduced fruit size in areas where pollinizers are missing.

Watermelon growers can manage crops for improved pollination, fruit set, and fruit carry several ways:

- Increase the number of honey bee hives for early watermelon crops.
- Consider bumble bees for early crops as they fly in more adverse conditions than honey bees.
- Place hives in several locations in a field rather than just on one edge. While bees will fly over a mile, the best pollination activity is closest to the hives.
- Pay attention to early plant vigor to improve crown sets by reducing environmental stresses. The best way to do this is with rye windbreaks between every row, having proper soil conditions so that a good crowned bed can be produced with plastic tight against the soil during plastic laying (this improves heat transfer), using high quality transplants that are hardened off properly, transplanting on a warming trend, and eliminating herbicide injury (making sure herbicides are washed off of plastic and avoiding damage during shielded row middle applications).

- Ensure that pollinizer plants are of high quality and replace any pollinizers that were lost after planting as soon as possible.

- Maintain plant health and vigor to improve fruit carry. Do not plant second or third years in the same field. Pay attention to disease, insect, and mite control programs to eliminate or reduce pest pressures. Maintain good fertility programs but do not apply excess nitrogen.

- Have ample sources of pollen by planting pollinizers at a ratio of one pollinizer per every 3 seedless plants. Use the most effective pollinizers as shown by local trials. In-row pollinizers should have limited competitiveness with the seedless melons.

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**Bee Attractants** - Gordon Johnson, *Extension Vegetable & Fruit Specialist*; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

We have had questions on the potential for using bee attractants in watermelons to improve yields or to make up for pollinizer losses. Bee attractants come in several forms. The most effective have been pheromone based products such as Bee-Scent or FruitBoost. Research on use of bee attractants in watermelons has been very mixed. North Carolina and Georgia research has shown no benefit. However, research in Florida did show some benefit. In work by Elmstrom and Maynard they found that when two applications of Bee-Scent, a bee attractant, were made to watermelon on five farms in central and southwest Florida, only on a few occasions was increased honey bee activity noted. However, application of bee attractant increased total yield in one field in central Florida and resulted in an increase in early yield at all three locations in southwest Florida. This work was done in the 90s with seeded watermelons but should transfer to triploids.

If bee attractants increase bee visits, this should result in improved fruit set and increased fruit weights in a healthy field with good pollen sources. However, it will not fully make up for a lack of pollen where pollinizers were lost. In this case more bee activity can transfer more pollen but fewer pollinizers will limit the pollen that the bees will come in contact with.

Attractants will also not increase bee flights in poor weather or compensate for poor plant health or plant vigor.

Another factor with honey bees is flower preference. Watermelons and other cucurbits such as cucumbers are not particularly attractive to honey bees. Other, more attractive sources of nectar can draw honey bees away from watermelon and cucumber fields. This is why we do not recommend placing bees in fields until some flowers are present. In Georgia research where watermelons were planted next to sunflowers, bee attractants sprayed on watermelons did not compensate for the preferential attraction of honey bees to the sunflowers.

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### Late Blight Management in Organic Potatoes and Tomatoes - *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland; [keverts@umd.edu](mailto:keverts@umd.edu)*

Currently, late blight has been reported in a conventionally managed tomato planting in Maryland and in a conventionally managed potato field in Delaware. Interested potato growers in Maryland and Delaware can receive regular Potato Late Forecasts, which are provided by both states. To receive these reports in Delaware contact Phillip Sylvester at 302-730-4000, and in Maryland contact Kate Everts at 410-742-8788 or [keverts@umd.edu](mailto:keverts@umd.edu). Because the information in these forecasts is more focused on conventionally managed fields and I have received several questions from organic potato and tomato growers on how to manage late blight in their fields.

Two excellent resources are available for organic growers. One was written by Dr. Amanda Gevens at the University of Wisconsin and can be viewed here

<http://extension.umd.edu/mdvegetables/vegetable-plant-pathology/disease-alerts>. The other article is from the extension web site eOrganic, <http://www.extension.org/pages/18351/organic-management-of-late-blight-of-potato-and-tomato-with-copper-products>. Both provide researched-based information on late blight management in organic production. The articles

are very comprehensive, but a few of the highlights are:

- In field trials of organically managed crops, copper products have provided the best control of late blight, although preliminary lab studies indicate some other products may also be effective.
- Be Proactive. Preventive treatments are necessary to manage late blight on an organic farm. It is always better to apply the products before late blight onset than to wait to treat after late blight is present.
- If late blight gets out of hand, the potato or tomato crop should be destroyed to limit risk for other fields on your farm as well as fields on adjacent farms. This is a community disease and management by all growers is necessary to reduce damage within a region.
- When deciding if it is worthwhile to try to manage the disease (vs. destroying the crop), consider how close the crop is to harvest. One study estimated that applications of copper treatments for late blight will prolong potato plant productivity for two to four weeks. Remember also that the length of time a crop will survive is dependent on the weather; cool temperatures and lots of rain will make the disease progress very rapidly.

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### New Late Blight Scouting Video - *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland; [keverts@umd.edu](mailto:keverts@umd.edu)*

A late blight scouting video with great photos and information has just been developed and can be viewed on Youtube. See <http://www.youtube.com/watch?v=uCzIFVfyNow&feature=youtu.be>.

**Potato Late Blight Confirmed in Delaware -**  
*Nathan Kleczewski, Extension Specialist - Plant Pathology; [nkleczew@udel.edu](mailto:nkleczew@udel.edu)*

On July 1, 2013 we confirmed late blight on a commercial potato field near Leipsic, Delaware. The disease was limited to a corner of the field and fungicide coverage in this area may have been poor. This is the first report of late blight in Delaware for 2013. In addition, late blight was reported on two commercial potato fields and one processing tomato field in Salem, New Jersey on July 2, 2013. An up to date map of late blight reports in the area can be located here: <http://www.usablight.org/map>

All tomato and potato growers should aggressively scout their plants for symptoms and signs of the disease and apply fungicides preventatively. Recommended fungicides for late blight control are found in the 2013 Commercial Vegetable Production Recommendations Guide. An online copy of this document can be found at the University of Delaware Cooperative Extension Website: <http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/>

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**Potato Disease Advisory #10 - July 5, 2013 -** *Nathan Kleczewski, Extension Specialist - Plant Pathology; [nkleczew@udel.edu](mailto:nkleczew@udel.edu) and Phillip Sylvester, Kent Co. Ag Agent; [phillip@udel.edu](mailto:phillip@udel.edu)*

*Location: Art and Keith Wicks Farm, Rt 9, Leipsic, Kent County  
Greenrow: May 5*

| Date        | DSV | Total DSV | Accumulated P-Days | Spray Interval Recommendation |
|-------------|-----|-----------|--------------------|-------------------------------|
| 5/15 - 5/20 | 11  | 32        |                    | 5-days                        |
| 5/20 - 5/23 | 2   | 34        |                    | 5-days                        |
| 5/23 - 5/27 | 5   | 39        |                    | 5-days                        |
| 5/27 - 5/30 | 0   | 39        |                    | 10-days                       |
| 5/30 - 6/6  | 2   | 41        | 251                | 10-days                       |
| 6/6 - 6/7   | 10  | 51        | 261                | 5-days                        |
| 6/7 - 6/9   | 10  | 61        | 280                | 5-days                        |
| 6/9 - 6-13  | 4   | 65        | 314                | 7-days                        |
| 6/16 - 6/20 | 13  | 78        | 377                | 7-days                        |
| 6/20 - 6/27 | 6   | 84        | 420                | 7-days                        |
| 6/28 - 7/4  | 24  | 108       | 477                | 5-days                        |

**Late Blight**

The threshold of 18 DSVs has been exceeded. One hundred and eight (108) DSVs have accumulated so far for any potatoes that established green row (approximately 50% emergence) prior to and since May 5. Late blight was reported on a commercial potato field near Leipsic, Delaware as of July 2, 2013. Growers should aggressively scout their potato fields and apply preventative sprays at a 5-day spray interval. Any suspicious samples can be sent to the UD Plant Diagnostic Lab or dropped off at your local Extension office. See the 2013 Commercial Vegetable Production Recommendations-Delaware: <http://extension.udel.edu/ag/files/2012/03/Potatoes.pdf>. The website USABlight tracks tomato and potato late blight across the nation and can be found here: <http://usablight.org/>

**Early Blight**

The threshold of 300 P-Days has been exceeded. Four hundred and seventy seven (477) P-days have accumulated. A fungicide for early blight control is recommended. Commercial fungicide recommendations can be found in the 2013 Delaware Commercial Vegetable Recommendations Guide at <http://extension.udel.edu/ag/files/2012/03/Potatoes.pdf>

**Cucurbit Downy Mildew Update** - *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland;*  
[keverts@umd.edu](mailto:keverts@umd.edu)

Downy mildew on cucumber has been reported in Delaware and Maryland as of July 3. However, our region remains at high risk for onset of downy mildew on additional cucurbits species. In addition, expect further spread of downy mildew to cucumber more fields in the region.

## Fruit Crops

**Section 18 for Brown Marmorated Stink Bug** - *Joanne Whalen, Extension IPM Specialist;*  
[jwhalen@udel.edu](mailto:jwhalen@udel.edu)

Section 18 for Brown Marmorated Stink Bug (BMSB) Management on Stone and Pome Fruit

In an earlier newsletter, we said we would also post the Scorpion Section 18 label as soon as it is available. Here is the label that you will need in your possession to use:

<http://extension.udel.edu/weeklycropupdate/files/2013/07/DEScorpion35SLPomeAndStoneFruitEPAApproved31May2013.pdf>. Please refer to past newsletters for links to the Venom Section 18

label (June 7, <http://extension.udel.edu/weeklycropupdate/?p=5710>) as well as the Bifenture Section 18 labels (June 14,

<http://extension.udel.edu/weeklycropupdate/?p=5750>). We will post the Brigade WSB label as soon as it is available. Please contact either David Pyne at the Delaware Department of Agriculture ([David.Pyne@state.de.us](mailto:David.Pyne@state.de.us)) or Joanne Whalen ([jwhalen@udel.edu](mailto:jwhalen@udel.edu)) for more information.

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**Wet Season Fruit Problems** - *Gordon Johnson, Extension Vegetable & Fruit Specialist;*  
[gcjohn@udel.edu](mailto:gcjohn@udel.edu)

It has been a wet week and excess moisture can cause problems in fruit crops. It has been so wet that during blackberry harvest we are seeing slugs on ripe fruit (we even saw some slugs on blueberries!). While slugs are not a normal

problem in fruit, excess moisture is a problem in some years. Currently, brambles (raspberries and blackberries), blueberries, peaches, plums, and apricots are being harvested. Cherry season is past but we did have wet weather during cherry harvest.

Of the fruit crops, sweet cherries are the most sensitive to excess moisture. Cracking due to excess moisture is a major reason that we have problems growing sweet cherries on Delmarva. It is not the uptake of water through the plant root system that causes the cracking; it is the absorption of water through the cherry fruit cuticle that causes the fruit splitting. The theory is that as a cherry nears ripening with the accumulation of sugars, cherry fruit exposed to extended periods of wetness from rain, dew, or high humidity conditions will absorb water through the fruit skin and swell until the fruit cracks. Some cherry varieties are more susceptible to cracking than others.

Growers of sweet cherries in the east often lose large portions of their crop due to fruit cracking. In the past, the tools that growers have used are to physically remove water from cherry fruit surfaces using helicopters or blower sprayers. Use of Calcium Chloride sprays prior to rain events acts to reduce the osmotic potential of rain water. Chemical barriers have also been tried to prevent water movement into the fruit with varying success.

There has been great interest in the use of high tunnels with dwarf sweet cherries to control cracking by eliminating wetness on fruit surfaces with these plastic covers. There is a new planting of dwarf sweet cherries in a high tunnel at T.S. Smith and Sons in Bridgeville, DE as a part of a Specialty Crop Block Grant from the Delaware Department of Agriculture. We will be holding workshops on this production technique over the next 3 years.

Similar skin cracking can occur in nectarines, plums, and peaches. When the skin of these fruits stays wet for an extended period near ripening, the fruit can absorb so much moisture that it also cracks. This is a problem for growers that do "tree ripe" fruit. Earlier harvest and ripening off the tree can help control this problem.

Some blueberry varieties are also susceptible to fruit cracking at ripening. Research has shown that both fruit absorption of water and internal water accumulation from root uptake cause this cracking.

## General

**Kudzu Bug Detected in Delaware** - *Joanne Whalen, Extension IPM Specialist;*  
[jwhalen@udel.edu](mailto:jwhalen@udel.edu)

Identification of the first find of the Kudzu bug in Delaware was recently confirmed as the result of a collaborative effort between the University of Delaware Cooperative Extension and consultants (who found the first bugs), the Delaware Department of Agriculture's Plant Industries Section who submitted the bug found by the University of Delaware to the USDA identifier and the USDA folks who responded quickly to the request to provide a positive confirmation. The first find came from a pole lima bean field in Sussex County. Entomologists at the Un of DE and DDA who looked at the specimen were fairly confident of the ID but we needed to hear back from the USDA identifier to officially confirm the identification and establish this find as a new state record. We also received another specimen from a soybean field in Sussex County last Friday.

So, be sure to carefully sample all beans crops (soybeans and all succulent beans) for this new insect pest. If you have suspect specimens you can contact Joanne Whalen at [jwhalen@udel.edu](mailto:jwhalen@udel.edu) or call 302-831-1303.

Entomologists in the south have done a great job of developing sound management strategies for Kudzu bug in soybeans that should apply to management of this bug in soybeans in Delaware. In addition, they have evaluated a number of insecticides labeled in soybeans for control of this insect and there are a number of effective labeled options.

Information on the identification and management of Kudzu bug can be found at the following link -- <http://www.kudzubug.org/>. You should also follow Virginia's Plant Pest Advisory

since my colleague Ames Herbert does a great job of updating what is occurring in Virginia - including documenting the range of spread in Virginia and management options --  
<http://www.sripmc.org/Virginia/View.cfm?lngNewsID=992>.

Here is a brief summary of information on management from the south on soybeans:

(a) A threshold of one immature nymph (big enough to see) per sweep should be used in fields that are flowering or developing pods. Information on the kudzu bug.org website also indicates that if adult populations are extremely high and beans are stressed for some other reason, a control should be considered. However, this is a judgment call since they do not have a threshold for adults at this stage of crop development.

(b) Since many fields will be planted late this year and you may see bugs on small plants, there is new research from Georgia regarding management on seedling and vegetative plants. They recommended treating at V2-V3 stage soybeans if you find an average of 5 bugs (adults and/or nymphs) per plant. The threshold increases to 10 bugs per plant for plants from 1-2 feet tall. The established threshold of one nymph per sweep should be used for plants above 2 feet tall. It should also be noted that you do not want to treat too early for adults and you will want to sample the entire field - not just field edges. In other areas, treating too early has resulted in the need to make multiple applications for this insect pest.

Most of the management work on Kudzu bugs has been done with soybeans regarding treatment timing and yield impacts. However there is current work being done in Georgia looking at host plant preference, including succulent beans. Initial findings are that they do not prefer non-soybean beans, but will occur on them. They will be continuing this work this summer and have more information by the fall. In the meantime, you will want to watch succulent beans to see if this trend is true in our area. We may have to use the information developed for soybeans this season to help us make management decisions in succulent beans if the

need arises. We will keep you posted of any new finds as well as new management information as it is developed.

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**Bacterial Stalk Rot of Corn** - *Nathan Kleczewski, Extension Specialist - Plant Pathology*; [nkleczew@udel.edu](mailto:nkleczew@udel.edu)

A sweet corn sample arrived in the plant clinic this week with bacterial stalk rot. This disease can be an issue where overhead irrigation is used and the water is pumped a surface source such as a lake, ditch, or stream. Disease development is favored by hot temperatures (85-95°F), poor air circulation, and extended periods of wet, humid weather.

The bacterium overwinters in residue above the soil surface and can be inoculated onto corn seedlings through overhead irrigation water. Following inoculation, the bacterium and water are trapped in the whorl and leaf sheaths and enter the plant through natural openings and/or wounds. A soft rot may develop at the base of the whorl and spread into leaves and the stalk. As the disease progresses, a fetid, sweet odor may be detected emanating from the plants. Split stalks typically show internal discoloration and soft rot initiating at the nodes.



Corn with symptoms of bacterial stalk rot.

Typically affected plants are scattered throughout the field and the disease does not spread from plant to plant. As a result, chemical control with copper-based products is not recommended. If the disease is a reoccurring

problem, treating irrigation water in the system with hypochlorite is an option. Fall tillage may help reduce the level of inoculum. During the growing season growers should avoid the excessive use of overhead irrigation to limit disease spread and severity.

## Announcements

### Delaware Soybean Board Tour Thursday, August 22, 2013

Tour sponsored by the Delaware Soybean Board

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### Respect the Rotation

Thursday, August 22 4:00-6:00 p.m.  
UD Research and Education Center  
Georgetown, DE

Respect the Rotation is an initiative to elevate the importance and adoption of herbicide diversity and integrated weed management.

#### Rotate Modes of Action

Reduce the selection pressure of a single mode of action by using multiple modes of action during both the growing season and from year to year.

#### Rotate Crops

Crop rotation diversifies weed management tools.

#### Rotate Herbicide-Tolerant Traits

Alternate herbicide-tolerant (HT) traits and/or use HT trait stacks for more efficient herbicide rotation.

Overreliance on a single weed-control method causes resistant weeds to develop and puts the herbicide-tolerant system used and the ability to grow a crop in a specific field in jeopardy. When resistant weeds develop, farmers face the additional costs required to control them—unplanned herbicide applications, intense manual labor, and in extreme cases, total crop loss. Integrated Weed Management practices help to preempt these issues and result in successful management of resistant weed populations. Field plots and demonstrations on rotations for integrated weed management will be discussed.

*Supported by Bayer CropScience and in collaboration with Delaware Soybean Board. For more information contact Mark VanGessel (302) 856-7303*



## Organic and Sustainable Agriculture Field Tour

Wednesday, September 4, 2013

Hold this date for a late afternoon or evening field day highlighting research and demonstration projects for organic and sustainable agricultural production. More details to follow.

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## Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of June 27 to July 3, 2013

Readings Taken from Midnight to Midnight

### Rainfall:

0.52 inch: June 27  
0.81 inch: June 28  
0.03 inch: June 29  
0.10 inch: June 30  
2.08 inches: July 1  
0.18 inch: July 2

### Air Temperature:

Highs ranged from 89°F on June 28 to 78°F on July 1.

Lows ranged from 72°F on June 30 to 67°F on June 28 and June 29.

### Soil Temperature:

79.8°F average

Additional Delaware weather data is available at [http://www.deos.udel.edu/monthly\\_retrieval.html](http://www.deos.udel.edu/monthly_retrieval.html) and <http://www.rec.udel.edu/TopLevel/Weather.htm>

*Weekly Crop Update is compiled and edited by Emmalea Ernest, Extension Associate - Vegetable Crops*

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