



# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 20, Issue 10

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## Vegetable Crops

**Vegetable Crop Insects** - *Joanne Whalen, Extension IPM Specialist; [jwhalen@udel.edu](mailto:jwhalen@udel.edu)*

### Cucumbers

Be sure to scout for cucumber beetles and aphids. Fresh market cucumbers are susceptible to bacterial wilt, so treatments should be applied before beetles feed extensively on cotyledons and first true leaves. Although pickling cucumbers have a tolerance to wilt, a treatment may still be needed for machine-harvested pickling cucumbers when 5% of plants are infested with beetles and/or plants are showing fresh feeding injury. A treatment should be applied for aphids if 10 to 20 percent of the plants are infested with aphids with 5 or more aphids per leaf.

### Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mites. The treatment threshold for aphids is 20% infested plants with at least 5 aphids per leaf. The first spider mites are being found in watermelons. The threshold for mites is 20-30% infested crowns with 1-2 mites per leaf. We have also seen an increase in cucumber beetle activity, especially in cantaloupe fields. Since beetles can continue to re-infest fields as well as hide under the plastic, be sure to scout carefully for beetles both under the plastic and on plants. With the predicted hot weather this weekend, we could see a rapid increase in populations.

### Potatoes

Fields should be scouted for Colorado potato beetle (CPB), corn borers (ECB) and leafhoppers. Adult CPB as well as the first small larvae can now be found in fields not treated at planting. A treatment should be considered for adults when you find 25 beetles per 50 plants and defoliation has reached the 10% level. Once larvae are detected, the threshold is 4 small larvae per plant or 1.5 large larvae per plant. As a general guideline, controls should be applied for leafhoppers if you find 0.5 to 1 adult per sweep and/or one nymph per every 10 leaves.

### Snap Beans

Continue to sample all seedling stage fields for leafhopper and thrips activity. The thrips threshold is 5-6 per leaflet and the leafhopper threshold is 5 per sweep. If both insects are present, the threshold for each should be reduced by  $\frac{1}{3}$ . Once corn borer catches reach 2 per night, fresh market and processing snap beans in the bud to pin stages should be sprayed for corn borer. Sprays will be needed at the bud and pin stages on processing beans. Once pins are present on fresh market snap beans and corn borer trap catches are above 2 per night, a 7 to 10-day schedule should be maintained for corn borer control.

(<http://ag.udel.edu/extension/IPM/traps/latestblt.html>).

### Sweet Corn

We have received reports of an increase in wireworm damage, especially in fields where damage has occurred in past years. Although most, if not all seed is treated with one of the

commercial applied neonicotinoid seed treatments, a soil insecticide may also be needed in fields with heavy population pressure. Once fields emerge, be sure to sample for cutworms and flea beetles. You should also sample all whorl stage corn for corn borers. A treatment should be applied if 15% of the plants are infested. The first silk sprays will be needed for corn earworm as soon as ear shanks are visible. Be sure to check trap catches since the spray schedules can quickly change. You can call the Crop Pest Hotline for the most recent trap catches (in state: 1-800-345-7544; out of state: 302-831-8851) or check our website at <http://ag.udel.edu/extension/IPM/traps/latestbit.html>.

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**Early Planted Lima Beans** - *Gordon Johnson, Extension Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)*

Lima bean planting has begun in the region. With the expected warming trend, there is good potential for rapid germination and emergence this year due to higher soil temperatures. It is interesting to note that the variety Cypress was bred for good emergence under cooler planting conditions in Canada. We planted a trial using Cypress the first week in May this year and had excellent germination and emergence. We will harvest this trial the last week in July and then allow it to regrow and harvest a second time from the regrowth in October. Unfortunately, Cypress is very susceptible to pod drop due to heat. May planted lima beans, both at our research station and on growers farms in 2011 had very poor yields in the summer due to severe pod drop, even though some fields were well irrigated.

This illustrates the problem with May and early June planted lima beans: they most often have a lower yield potential than late June and early July plantings because they flower and set pods during summer conditions when day and night temperatures are high. Day temperatures greater than 90°F cause stomates to close early during the day to limit water loss, reducing lima bean photosynthesis. This results in fewer pods being carried by the plant. Night temperatures in the 70s or higher will also adversely affect

yields because higher levels of carbohydrates are consumed in night respiration, limiting the plants ability to set and retain pods. Plants will reflower when cooler conditions recur, but this may lead to split sets.

Unfortunately, until more heat tolerant varieties are available (at the University of Delaware, one of our lima bean breeding objectives is to select for greater heat tolerance), growers are limited in what they can do to maintain yields in early lima bean plantings. Fields closer to water bodies where temperatures are moderated by fog, heavy dew, high humidity, and cooling breezes during summer are the best candidates for early plantings. In addition, irrigate early planted fields, paying particular attention to the flowering and early pod set period and do not plant early lima beans dryland. Daytime irrigation can also help to moderate high temperature effects during hot summer periods. It is critical to keep early planted lima bean plants from being water stressed during this period.

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**Poor Stands or Stand Loss Due to Poor Seed or Plant Quality** - *Gordon Johnson, Extension Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)*

As spring planting season continues at a rapid pace, there are more reports of poor stands or stand losses in vegetable crops. The culprits are often soil insects or diseases; however, poor quality seed or plants can also be a source of the problem. You will most commonly see problems with poor quality plants or seeds when there is a cold period right after planting.

As we progress into the warmer part of the planting season, it is often assumed that late spring and summer plantings will not have stand issues as soil temperatures are warm and seeds should germinate and emerge quickly and plants should root out quickly if there is adequate moisture. With seeds, this is not always the case, especially if seed lots are of low vigor. Signs of low vigor seed will be abnormal appearance in the bag (shriveled, cracked, off color, misshapen), small seedlings that emerge late or do not emerge at all, abnormal growth (twisting, snaking, or corkscrewing), small

shriveled cotyledons in beans, small or distorted true leaves, swollen or split hypocotyls or coleoptiles, and bleached out seedlings. Another issue affecting seed germination and emergence would be uneven or inadequately applied seed treatments (fungicides and insecticides).

Seed companies do a very good job of producing quality seed and most seed is produced in drier areas where seed diseases are limited. Once seed is harvested it is conditioned, treated, packaged, and stored. As seed is distributed it often goes through several phases of where it is handled and stored in different environments. Larger lots may be broken in to smaller units and then repackaged by resellers. Once seed arrives at the grower it will be stored and handled again, finally making it to the planter. In each new storage and handling activity, there is potential to do damage to the seed. Rough handling, high temperatures, and high humidity are particularly damaging to seeds.

Poor quality plants can be due to diseases or other pest damage. There are however other causes of quality issues in plants such as being poorly hardened off, overwatered, stressed, over or under fertilized, overgrown or leggy, over mature, or root bound. Chemical phytotoxicity can be another problem. As with seeds, improper plant handling can lead to quality problems including overcrowding in greenhouse and holding areas, rough handling of trays, and storing in light limited conditions for extended periods. Breaking plant stems plants, especially those that with excessive growth, is a common problem in transplanting as is damage to roots when pulling plants out of trays.

When troubleshooting stand losses it is important to consider these issues affecting seed or plant quality.

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**Spinach Foliar Diseases** - *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland; [keverts@umd.edu](mailto:keverts@umd.edu)*

Downy mildew of spinach has been found in the mid-Atlantic. This disease is not common in Maryland or Delaware, but I do see it occasionally. Symptoms begin with light spots on

the upper surface of the leaf, followed by purple to grey fungal growth on the lower leaf surface (Figure 1).



Figure 1. Downy mildew sporulation on spinach leaves.

White rust (*Albugo occidentalis*) occurs more frequently in Maryland and Delaware. White rust symptoms begin with light green areas on the upper surface of the leaves. However in the case of white rust, the sporulation on the underside of the leaves is white, not grey (Figure 2). A third common spinach disease is anthracnose (Figure 3). Anthracnose is characterized by small tan lesions on leaves. Scout your spinach plantings and determine whether a disease is present. See the [Commercial Vegetable Recommendation Guide](#) for several effective fungicide options. Read the labels carefully because some fungicides applied at high temperatures may be phytotoxic, and many available and effective products, if used improperly, will result in resistance development. Alternate fungicide classes within a spray program, and follow resistance management guidelines on the label.



Figure 2. White rust infected leaves with chlorotic (yellow) lesions on the upper surface and sporulation on the under surface.



Figure 3. Anthracnose lesions are tan necrotic (dead) spots on spinach leaves.

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**Apply Preventative Fungicides for Late Blight on Potato and Tomato** - *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland; [keverts@umd.edu](mailto:keverts@umd.edu)*

Late blight has been found on potato in central New Jersey. The grower was applying preventative fungicides, however lesions occurred in a part of the field that the sprayer missed. All potato and tomato crops are susceptible to this disease. Growers should scout and apply preventative fungicides to protect their crops. Chlorothalonil, mancozeb or Polyram can be applied to potato and chlorothalonil, Gavel, or mancozeb can be applied to tomato. Complete coverage of the field is extremely important. Once late blight has been found close to a grower's field, switch to a fungicide that is late blight specific. More information on available fungicides for this disease can be found at <http://ag.udel.edu/extension/vegprogram/publications.htm#vegrecs>.

Controlling late blight in organic systems is extremely difficult. Organic growers should apply a protectant such as copper to their crop. Serenade, Sonata and Sporatec are OMRI listed, and labeled for late blight. (However, there are very few research trials on efficacy of these products). It is critical to apply these materials with adequate coverage and at short spray intervals.

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

Cucumber growers should monitor their crops for downy mildew. Symptoms of downy mildew on cucumber are angular yellow to tan lesions on the upper surface of the leaf and brown to black sporulation on the lower surface.

Downy mildew was found a second time last week in North Carolina on greenhouse grown cucumbers. This outbreak may have started two months ago. Although there are no reports north of the Carolinas, it is extremely troubling that downy mildew is present there so early in the season. Growers should scout their fields and monitor the Cucurbit Downy Mildew ipmPIPE site <http://cdm.ipmpipe.org/> for the progress of the disease. Preventative fungicide applications should begin when disease occurrence is predicted in our region.



Downy mildew on cucumber leaf. Angular necrosis on upper leaf surface and dark sporulation on lower leaf surface.

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**Potato Disease Advisory #6 - May 24, 2012** - Phillip Sylvester, Kent Co., Ag Agent; [phillip@udel.edu](mailto:phillip@udel.edu) and Nancy Gregory, Plant Diagnostician; [ngregory@udel.edu](mailto:ngregory@udel.edu)

#### LATE BLIGHT ON POTATO ALERT:

*From Andy Wyenandt, Extension Vegetable Pathologist, Rutgers University: Late blight was confirmed on actively sporulating leaf lesions from an 8 acre potato field in Burlington County, New Jersey. The few infected plants were found at the end of a row where the boom sprayer was most likely turned off. The grower had preventative applications of manzate followed by chlorothalonil prior. Seed pieces were sourced from Maine. This is the first report of Late blight in New Jersey on potato or tomato this year.*

Continue to scout for Late blight symptoms in local potato fields. Please notify and submit samples with symptoms to your local county extension office (Kent: 302-730-4000 Sussex: 302-856-7303) or contact the UD Plant Diagnostic clinic (302-831-1390) to have the sample confirmed. You may also email Nancy Gregory at [ngregory@udel.edu](mailto:ngregory@udel.edu) or Phillip Sylvester at [phillip@udel.edu](mailto:phillip@udel.edu) if you have a sample to submit.

Good coverage with preventative fungicides application is very important for Late blight control. Commercial fungicide recommendations can be found in the 2012 Delaware Commercial Vegetable Recommendations Guide at <http://ag.udel.edu/extension/vegprogram/pdf/potatoes.pdf>

#### Late blight Advisory

*Location: Art and Keith Wicks Farm, Rt 9, Leipsic, Kent County  
Greenrow: April 20*

Date	DSV	Total DSV	Accumulated P-Days	Spray Interval Recommendations
4/20 - 4/30	12	12		None
4/30 - 5/1	8	20		7-days
5/1 - 5-8	15	35		5-days
5/8 - 5/10	4	39		5-days
5/10 - 5/13	0	39	149	10-days
5/13 - 5/16	5	44	177	7-days
5/17-5/20	0	44	209	7-days
5/20-5/22	11	55	229	5-days
5/22-5/23	2	57	238	5-days

*The threshold of 18 DSVs has been exceeded. Fifty-seven (57) DSVs have accumulated as of Wednesday, May 23. This includes any potatoes that established green row (approximately 50% emergence) prior to and on April 20. An additional thirteen (13) DSVs accumulated from Sunday, May 20 to Wednesday, May 23. Recent weather conditions have been favorable for late blight development since the last report. The predicted hot weather would make conditions less favorable for Late blight. The spray interval recommendation has been lowered to **5 days**.*

#### Early Blight

We are using the predictive model WISDOM to determine the first fungicide application for prevention of **early blight**. The model predicts the first seasonal rise in the number of spores of the early blight fungus based on the accumulation of 300 physiological days (a type of degree-day unit, referred to as **P-days**) from green row. A total of **238 P-days** have accumulated at this site as of Wednesday, May 23. Once **300 P-days** have accumulated, the first fungicide for early blight control should be applied. This usually occurs when rows are touching.

# Agronomic Crops

**Agronomic Crop Insects** - Joanne Whalen, Extension IPM Specialist; [jwhalen@udel.edu](mailto:jwhalen@udel.edu)

## Alfalfa

Potato leafhoppers are now present in fields so be sure to sample on a weekly basis. Once plants are yellow, yield loss has already occurred. The treatment thresholds are 20 per 100 sweeps on alfalfa 3 inches or less in height, 50 per 100 sweeps in 4-6 inch tall alfalfa and 100 per 100 sweeps in 7-11 inch tall alfalfa.

## Field Corn

True armyworms can now be found in corn fields. There have also been reports of yellow striped armyworm in fields which I have not seen before. As small grain dries down, be sure to watch for true armyworms moving out of small grain and into adjacent corn fields. You should also scout corn for true armyworms in fields that were planted into a small grain cover.

Remember, worms must be less than 1 inch long to achieve effective control. The treatment threshold for true armyworms in corn is 25% infested plants with larvae less than one-inch long. Large larvae feeding deep in the whorls will be difficult to control.

## Soybeans

This past week we saw a significant increase in slug damage in no-till soybeans, especially in fields planted into heavy corn stalk or double crop soybean stubble. Slugs are extremely difficult to manage in soybeans because the damage can occur below the ground before plants emerge. Damage to soybean can be more severe than damage to corn because the plant's growing point is within the emerging cotyledons. If soybean plants are able to emerge, the plant may be able to send out the unifoliate leaves where slug feeding will be noticeable. However, slugs often feed on the cotyledons below ground and/or just as the beans are cracking through the surface feeding on the growing point. This type of feeding results in the death of the plant and significant stand loss. In 2010, we saw significant stand losses from slugs feeding below ground before plants emerged. With the continued cool, wet weather in 2010, the only

effective control option was to till fields, then wait until fields dried out and the weather was warmer to encourage quick germination before re-planting. In 2010, it was also extremely difficult to time a bait application. This year, a bait application could be an option if you are scouting fields routinely, plants are just emerging and before there is significant feeding on the growing point. We have had very limited experience with bait applications in soybeans, especially with applications ahead of plant emergence. We will be evaluating fields treated recently to determine the effectiveness and timing of the bait applications.

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**Control of Palmer Amaranth** - Mark VanGessel, Extension Weed Specialist; [mjv@udel.edu](mailto:mjv@udel.edu)

Palmer amaranth was seen in a number of locations in DE and MD eastern shore last summer. We found fields near Dover and throughout Sussex County with Palmer amaranth infestations. We talked about this plant at most of our winter meetings. It looks much like smooth or redroot pigweed early in its growth. The link below will show you some bulletins on how best to identify Palmer amaranth, but the watermark is very diagnostic. However, many plants never develop these "V" markings on the leaves.

<http://agdev.anr.udel.edu/weeklycropupdate/?p=3146>



This species needs to be taken very seriously; it can overwhelm a field in a few years. It is a

species that has developed resistance to glyphosate very quickly and once that happens, it will make control very difficult. (If you think glyphosate-resistant marestail has been a headache; Palmer amaranth is much worse.)

Palmer amaranth grows very rapidly, which means you have only a few days to make postemergence herbicide decisions and get the field treated. Without effective control, Palmer amaranth will grow 5 to 6 feet tall. If you know you have Palmer amaranth, or you suspect you might have it, do not rely on glyphosate alone for postemergence control. Options for corn include HPPD-inhibiting herbicides (Group 27, Callisto, Impact, or Laudis); ALS-inhibiting herbicides (Group 2, Resolve, Steadfast, Permit Plus, Capreno, plus many others); and plant growth regulators (Group 4, such as Status).

Postemergence options in soybeans include PPO-inhibiting herbicide (Group 14, Reflex) and ALS-inhibiting herbicides (Group 2, FirstRate, Pursuit, Classic, etc).

We had a number of reports of poor performance with glyphosate last year for Palmer amaranth control, and so tankmixes will be essential for resistance management. Most of these postemergence options need to be applied to Palmer amaranth before Palmer amaranth plants are 4 inches tall.

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### **Texas Panicum Control** - *Mark VanGessel, Extension Weed Specialist; [mjv@udel.edu](mailto:mjv@udel.edu)*

In 2011, there were a number of fields with severe infestations of Texas panicum in corn and soybeans. Texas panicum is a grass species that needs to be controlled with postemergence herbicides. UD Weed Research program currently has trials for control in both corn and soybeans, so local data is limited. Based on research in the southern US, options in corn include Accent, Laudis or Impact. These products will provide some residual control, which appears to be adequate for full-season control. Glyphosate or Liberty, which provide no residual control, often require two applications for full-season control. Options for soybeans include glyphosate or Liberty (possibly requiring two applications) or

postemergence grass herbicide such as Select, Assure II, Poast, or Fusilade.

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### **Marestail Causing Headaches this Spring** - *Mark VanGessel, Extension Weed Specialist; [mjv@udel.edu](mailto:mjv@udel.edu)*

This spring has been very challenging for marestail control. A number of fields were sprayed early, when horseweed plants were under 6 inches tall, and got excellent control of emerged plants. But this spring we have seen fields with lots of plants that emerged after the initial burndown treatment. In many cases horseweed plants that emerged in April were controlled with a second burndown application that included Liberty or Gramoxone. More frustrating are those plants that were not killed with the initial burndown treatment. Most of these plants were treated when they were over 6 inches tall, or not treated with a full rate of the burndown mixtures. At this time, options are very limited for these fields and often decisions need to be made on a field by field basis.

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### **Grain Marketing Highlights** - *Carl German, Extension Crops Marketing Specialist; [clgerman@udel.edu](mailto:clgerman@udel.edu)*

#### **Will Greece Stay or Go?**

Uncertainty in world equity markets, dry conditions in portions of the U.S. Corn Belt, needed rain in the Russian wheat region, strengthening of the dollar, a commodity sell-off driven by non-commercial fund trading, and tight old crop corn and soybean supplies have kept market participants hopping this past week. Most notable is the commodity sell-off that occurred on Tuesday due to the EU situation that has seen the Euro decline in value and the U.S. dollar strengthen. The matter of whether Greece stays a part of the Euro or goes on its own is still pending? Either way the economic problems of the EU will not be going away anytime soon.

#### **Crop Progress**

U.S. corn planting was reported to be 96 percent complete, 76 percent emerged, with the crop condition rated at 77 percent good to excellent.

U.S. soybeans were 76 percent planted and 35 percent emerged. The U.S. winter wheat crop was reported as 79 percent headed, with 58 percent in the good to excellent category, and 3 percent harvested. Spring wheat was reported to be 99 percent planted, 86 percent emerged, with 74 percent in the good to excellent category.

Overall, crop progress and condition ratings are well ahead of the five year average(s). However, the ink was no sooner dry on this week's report when market analysts began expressing concerns about portions of the Corn Belt needing rain in order to maintain the current lofty 2012 crop ratings. We have officially entered into a weather market. Decent rains occurring over the weekend would send new crop prices tumbling while insufficient rains would send prices soaring.

#### **USDA Export Sales Report 05/24**

Pre-report estimates called for weekly corn export sales at 35.4 to 78.7 million bushels. Total export sales of only 19 million bushels were reported with 6.1 million bushels scheduled for '11/'12. This was below the 13.1 million bushels needed this week to stay on pace with USDA'S demand projection of 1.7 billion bushels. Weekly shipments of 27.1 million bushels were below the 36.1 million bushels needed this week. This report should be viewed as bearish.

Pre-report estimates for weekly export sales of soybeans ranged from 25.7 to 40.4 million bushels. Total export sales were reported at 35 million bushels with 29.4 million bushels scheduled for '11/'12. This was well above the 1.6 million bushels needed this week to stay on pace with USDA's export demand projection of 1.315 billion bushels. Shipments of 14.7 million bushels were above the 13.3 million bushels needed this week. This report should be viewed as bullish.

Pre-report estimates for weekly wheat export sales ranged from 14.7 to 29.4 million bushels. Total export sales were reported at 30.4 million bushels with 2.7 million bushels slated for '11/'12. This was above the 0.9 million bushels needed this week to stay on pace with USDA's demand projection of 1.025 billion bushels.

Weekly shipments of 20.9 million bushels were below the 36.9 million bushels needed this week. This report should be viewed as bearish.

#### **Market Strategy**

Commodity prices are bidding higher in e-trade with soybeans showing double digit gains. It could be that the markets were becoming oversold or that the advancing dollar stabilized, if only briefly. The Dow is currently higher on the day at 12,523. Nearby crude is down about \$20 per barrel since the first of March, now at \$90 per barrel for nearby crude.

Commodity prices can be expected to remain extremely volatile over the near term. The weather and crop development are likely to take precedence over outside forces in determining whether opportunities for advancing sales are presented in the near term. Rain was reported earlier in the week to have occurred in the Russian wheat region. Traders will be paying close attention to rain events now occurring across the U.S. Corn Belt. Position squaring can be expected ahead of the three day Memorial Day holiday weekend. Currently, Dec '12 corn futures are trading at \$5.21; Nov '12 soybeans at \$12.71; and July '12 SRW wheat at \$6.71m per bushel.

For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

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## Announcements

### University of Delaware Pea Twilight

Wednesday June 6, 2012 6:00-8:00 p.m.

Carvel Research and Education Center

16483 County Seat Highway

Georgetown, DE 19947

Tour the late pea variety trial and discuss preliminary results from the early pea trial.

Hear about recent work with cover crops and no-till peas.

UD Extension personnel will be on hand to answer questions.

There will be refreshments following the tour.

To register, contact Karen Adams at (302) 856-2585 ext. 540 or [adams@udel.edu](mailto:adams@udel.edu) by Monday, June 4.

For additional program information, contact Emmalea Ernest at (302) 856-2585 ext. 587 or [emmalea@udel.edu](mailto:emmalea@udel.edu).

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## Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of May 17 to May 23, 2012

Readings Taken from Midnight to Midnight

### Rainfall:

0.85 inch: May 20

0.05 inch: May 21

0.01 inch: May 22

### Air Temperature:

Highs ranged from 79°F on May 23 to 70°F on May 18.

Lows ranged from 63°F on May 23 to 46°F on May 18.

### Soil Temperature:

69.2°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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