



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 15, Issue 7

May 11, 2007

Vegetables

Vegetable Crop Insects - *Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu*

Melons

The first aphids can be found on plants ready to be set in the field. Once plants are placed in the field, be sure to watch carefully for increases in melon aphids as well as beneficial insects. The treatment threshold for aphids is 20% infested plants with at least 5 aphids per leaf. Foliar materials labeled on melons for melon aphid control include Fulfill, Lannate and Thionex. These materials should be applied before aphid populations explode. The Fulfill label states that the addition of a penetrating type spray adjuvant is recommended to provide optimum coverage and penetration.

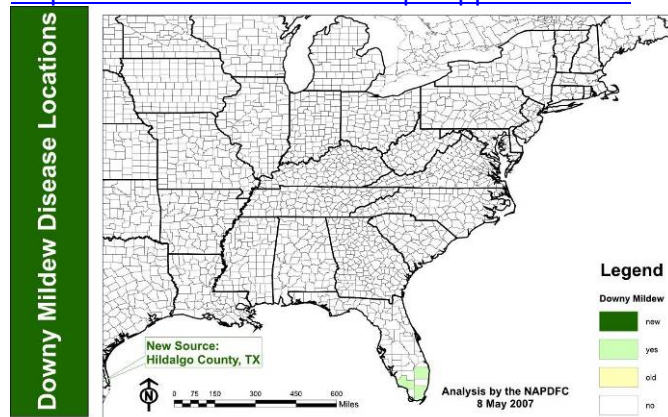
Potatoes

The first adult Colorado potato beetles can be found in fields where at-planting insecticides were not used. A treatment should not be needed for adults until you find 25 beetles per 50 plants and defoliation has reached the 10% level. If a neonicotinoid insecticide was used at planting (i.e. Admire, Platinum, Venom, Cruiser or Gaucho), you should not apply a foliar neonicotinoid in season (i.e. Actara, Assail, Leverage, or Provado). Low levels of corn borer moths have been caught in light traps. A corn borer spray may be needed 3-5 days after an increase in trap catches or when we reach 700-degree days (base 50). If you are scouting for

infested terminals, the first treatment should be applied when 10% (fresh market) or 20-25% (processing) of the terminals are infested with small larvae.

Cucurbit Downy Mildew Forecasting - *Bob Mulrooney; Extension Plant Pathologist; bobmul@udel.edu*

After some uncertainty that the Disease Forecasting Center would be able to continue to operate I am glad to inform you that it is well and operational. Known as the North American Disease Forecast Center the center is located on the campus of North Carolina State University in Raleigh, NC. The center is forecasting downy mildew of cucurbits and blue mold on tobacco. It is no longer forecasting Asian soybean rust which is being done by USDA/APHIS personnel. Currently downy mildew is present in south Florida and Hidalgo County Texas, i.e. southern Texas. The website for the forecast is <http://www.ces.ncsu.edu/depts/pp/cucurbit/>



Late Blight Advisory

This is the first report for 2007. If you would like a FAX or email report please call 302-831-4865, or email bobmul@udel.edu

We are using the E-WEATHER SERVICE from SkyBit, Inc. as we have in the past. The service determines specific requested weather parameters (temperature, relative humidity and rainfall) based on calculations of data from the nearest National Weather Service stations. This weather data is used in the WISDOM software program for predicting late blight and making spray recommendations.

Disease Severity Value (DSV) Accumulation as of May 9, 2007 is as follows:

Location: Broad Acres, Zimmerman Farm, Rt 9, Greenrow: May 2

Remember that 18 DSV's is the threshold to begin a spray program

Date	Total DSV	Spray Recommendation
5/2- 5/9	2	none

Disease severity values have been accumulating very slowly so far this season. The threat of late blight from seed infection is low, but more of a potential problem than last year.

Remember that these values are for potatoes that would have about 50% emergence and made a row that you can see on or before May 2.

Growers who do not want to rely only on the DSV calculations for scheduling fungicide applications should apply at least 1-2 sprays of mancozeb (Dithane, Manzate, Pencozeb, Manex II) or Bravo (chlorothalonil) before plants canopy down the row. Late blight has not been a problem here in Delaware for many years and unless you have seed from an unknown source the risk of late blight is low.

Vegetable Growers Guide to Understanding the Strobilurin Fungicides (FRAC Code 11) -

Bob Mulrooney; Extension Plant Pathologist;
bobmul@udel.edu

The strobilurin, or QoI, fungicides (FRAC code 11) have been extremely useful in controlling a broad spectrum of common vegetable pathogens. You may know some strobilurins as azoxystrobin (Amistar or Quadris), trifloxystrobin (Flint), pyraclostrobin (Cabrio), or Pristine (pyraclostrobin + boscalid, 11 + 7). All strobilurin fungicides inhibit fungal respiration by binding to the cytochrome b complex III at the Q0 site in mitochondrial respiration. Simply said, the fungicide works by inhibiting the fungi's ability to undergo normal respiration. The strobilurin chemistries have a very specific target site, or mode-of-action (MOA). Although highly effective, fungicide chemistries like those in FRAC code 11, with a very specific MOA, are

susceptible to fungicide resistance development by some fungi. Why is that? In the strobilurins, a single nucleotide polymorphism of the cytochrome b gene leads to an amino acid substitution of glycine with alanine at position 143 of the cytochrome b protein. For us, knowing the specifics on the technical jargon isn't so important, it's understanding what is at stake. So, if we hear someone speak about G143A resistance development to the QoI fungicides (where resistance is already known in cucurbit powdery mildew and downy mildew), we know what they are talking about and how important it is! So much so that if cucurbit powdery mildew develops resistance to one strobilurin compound it may develop what is known as cross resistance and become resistant to all chemistries in FRAC code 11, even if only one chemistry has been used!

So, how do we avoid the chances for fungicide resistance like this to develop? It's simple, don't let the fungus 'figure out' what it is being sprayed with and do this by rotating different fungicide chemistries (i.e. FRAC codes). Proper fungicide rotations are necessary when fungicides with specific MOAs are used in spray programs for controlling important diseases. That's why it is important to follow the fungicide label precisely and be certain that some fungicide chemistries aren't overused. All strobilurin fungicides should be tank mixed with a protectant fungicide, when possible. Remember tank-mixing high-risk fungicides (i.e. FRAC code 11) with low-risk, protectant fungicides (FRAC codes M1-M9) helps reduce (and/or delay) the chances for fungicide resistance development. Never tank mix strobilurins together and never apply any strobilurin fungicide (either the same chemistry or different chemistry) in consecutive applications if stated by the label. Remember, azoxystrobin acts against the fungus the same way as trifloxystrobin does and so on. Even though you are spraying two different fungicides, each has the similar MOA and is acting against the fungus in the same exact way. *Adapted from an article by Andy Wyenandt; Extension Vegetable Pathologist, Rutgers University; wyenandt@rci.rutgers.edu*

Agronomic Crops

Agronomic Crop Insects - Joanne Whalen, *Extension IPM Specialist; jwhalen@udel.edu*

Field Corn

As corn emerges from the ground, be sure to check fields for cutworm damage. Although pheromone trap catches were low for most of the season, catches during the last 2 week period were higher. (<http://ag.udel.edu/extension/IPM/traps/currentbcwtraps.html>) Therefore there is still a potential to see economic levels.

We have also had a report of damage to seedling stage corn from high levels of millipedes. Although I have never seen this before, reports from other areas of the country and Canada

indicate that they can be a problem. Typically, millipedes are beneficials since they help to decompose organic matter. However, when populations are high and we have a cool, moist spring where seed sits in the ground, they can take the opportunity to feed on the seed. Millipedes are not insects even though they are often misidentified as wireworms. They get their name from the thousands of legs they have. Remember, true insects only have 3 pairs of legs. Millipedes have 2 pairs of legs for every segment along their bodies and when disturbed they curl up tight. Adult millipedes are brown/black in color and have hardened bodies (which is why they are often confused with wireworms) while the immature millipedes are white and have fewer legs. Reports from other areas indicate that soil and seed treatment insecticides do not give good control of millipedes. As the weather warms up and the crops start growing more quickly, their impact should be reduced.

Small Grains

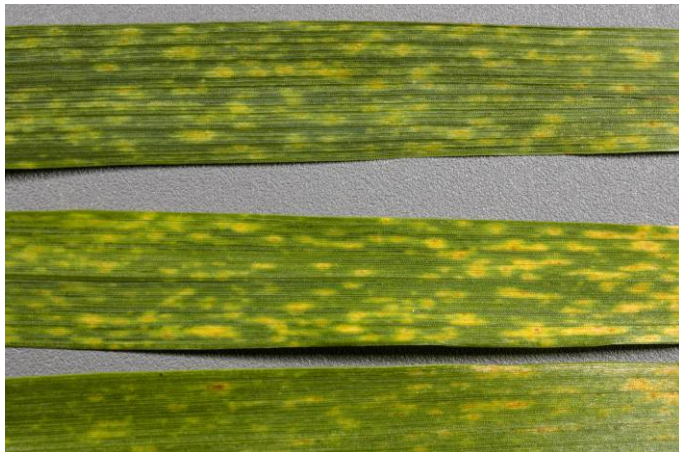
Cereal leaf beetles (adults, eggs and small larvae) as well as aphids can be found in fields throughout the state; however, in most cases populations are still below treatment threshold levels. With the warmer weather at the end of the week, levels could increase so be sure to scout for both insects. True armyworm and sawfly populations remain low in most areas.

Agronomic Crop Diseases - Bob Mulrooney; *Extension Plant Pathologist; bobmul@udel.edu*

Wheat

We just received a positive confirmation of wheat spindle streak mosaic virus (WSSMV) from a field in Sussex County. There have been other reports and a few samples of virus-like symptoms in wheat the last few weeks. The wet and relatively warm December and January favored infection by the root infecting fungus that vectors the virus and transmits it to wheat. These virus symptoms can be confused with the early stages of powdery mildew infection and possibly leaf rust infection. Remember that powdery mildew will produce the white to tan tufts of mold on the leaf surface and leaf rust

produces small raised pustules on the leaves. If you are not sure what you have, get a sample to the county agents or other knowledgeable person and confirm the presence or absence of powdery mildew or leaf rust before investing in a spray application. Virus diseases are not controlled by fungicides.



R. Mulrooney

Virus-like symptoms on wheat. There are no raised pustules of leaf rust and no powdery mildew growth.

Cutting Alfalfa Early to Control Alfalfa Weevil - *Richard Taylor, Extension Agronomy Specialist; rtaylor@udel.edu*

Questions came up this week concerning the IPM practice of cutting alfalfa either prebud or very early bud to help control alfalfa weevil. From an IPM point of view, the practice is a sound one.

When late infestations of alfalfa weevil threaten the crop, early harvest can often control the insect without the need for an expensive pesticide application. However from an agronomic viewpoint, there are several questions that come up. The questions include:

- Is it harmful to the crop to cut early?
- Why do you need to delay one of the subsequent harvests?
- Is it necessary to delay the second harvest until 1/10 bloom or even full bloom?
- Must the lengthened harvest interval be between the first and second harvest, or can it be delayed until the third or fourth harvest?

To answer the above questions, you need some understanding of how alfalfa grows and how it stores energy to support the plant during the winter and early spring and following each harvest when all the leaf area is removed. First, alfalfa stores its energy reserves in the tap root and uses the stored sugars to support plant survival during the winter and to support plant growth in early spring or after the above ground foliage is removed by a harvest. In the fall, a combination of temperature and shortening days signals alfalfa plants to send most of the sugar made through photosynthesis to the roots leaving little available for top growth, hence the reason we see alfalfa taking the rosette form in late fall/early winter. The stored root reserves are used during the winter months for respiration and then to support renewed growth when dormancy breaks in the spring. As the spring crown buds begin growth, they use up almost all of the root reserves. Not until tillers are about 8 inches tall will the leaf area available for photosynthesis be enough to begin replacement of the root reserves. Root reserves gradually build back to adequate levels by the time the plant reaches the bloom stage, although they can continue to increase until seed set. After each cutting root reserves are mobilized to support crown bud (new tiller) growth and production of leaves. Again the drawdown in energy reserves continues until the tillers are about 8 inches tall when net photosynthesis exceeds energy demands for growth and respiration. If plants are cut too young, the root reserves are not replaced so each cutting cycle uses up more and more of the root reserves until the plants run out of energy.

Does early harvest harm an alfalfa stand? If the stand is at the early to late bud stage, early harvest will generally not damage the stand as long as subsequent harvest intervals are not shortened. Harvesting before bud stage can lead to stand losses but to a large degree this is dependent on just how early the harvest takes place and whether a subsequent harvest is delayed enough for root reserves to be replaced (allowed to go to full bloom or given an extra week to ten days between harvests).

Why do you need to delay one of the subsequent harvests? The reason is that when

the alfalfa is cut early, only a portion of the normal energy reserves have been replaced in the roots. An early harvest, especially pre-bud, will place a severe drain on the reserves while the dormant crown buds break dormancy and grow enough to begin energy reserve replacement. Normally when the first harvest takes place at late bud or 1/10 bloom, the crown buds have broken dormancy and are beginning to grow. This allows for a very fast recovery and higher yields.

Is it necessary to delay the second harvest until 1/10 bloom or even full bloom? For alfalfa cut in the bud stage, it is necessary to delay one of the subsequent harvests (see below). Generally a lot of the root reserve has been replayed by the time blooms are visible on the regrowth but in mid-summer alfalfa often reaches full bloom before the normal 32 to 35 day interval has elapsed. Some producers even go with a 28 day interval. The best way to ensure that root reserves have been replenished is to delay the next harvest by a week to ten days with the longer interval selected for the earliest harvested alfalfa stands. When delaying the second harvest, you can use the days and growth stage together but if you wait until a later harvest use the number of days as your criteria for harvest.

Must the lengthened harvest interval be between the first and second harvest or can it be delayed until the third or fourth harvest? For alfalfa under irrigation, the lengthened harvest interval can be between any of the harvests. Although technically that holds for dryland alfalfa too, I would recommend that the increased interval take place between the first and second harvest. The reason for this is that by the time we get to the third and fourth harvest in Delaware, the potential for significant drought and heat stress is very high especially on our lighter soils. I feel that the cooler and often wetter May and June period will be beneficial to alfalfa trying to replace root reserves whereas July and August will not allow enough reserve replacement to avoid some stand injury from the initial early harvest.

Selecting Species and Establishing Goat Pastures – Richard Taylor, Extension Agronomy Specialist; rtaylor@udel.edu

The interest in raising goats for meat, dairy, and show has been increasing over the past few years. Seed dealers are beginning to be asked for recommendations on establishing pastures for goats. The requested recommendations include information on species and variety selection, establishment methods, and pasture blends. Having been asked for information on this topic, I thought I'd share some of my findings.

A major concern and sometimes limiting factor in goat production is parasite control. There are management strategies available that can help with this issue such as rotational grazing with an adequate number of paddocks, grazing multiple animal species in sequence over the paddocks, dragging paddocks to break up manure piles, and an aggressive, veterinarian-approved deworming program. Internal parasite management, especially of *Haemonchus contortus* (barber pole worm, stomach worm), is a primary concern for the majority of sheep and goat producers in many areas of the country. These parasites have become more difficult to manage because they have developed resistance to nearly all available dewormers.

Researchers from around the country have been looking at the use of certain plants to control the barber pole worm. Forages, such as clover, vetches, chicory, and sericea lespedeza contain condensed tannins. Research has shown that the condensed tannins and especially those found in sericea lespedeza can reduce the number of stomach worms and egg production. Lower numbers of both abomasal (*H. contortus*, *Ostertagia circumcincta*) and small intestinal (*Trichostrongylus colubriformis*) nematodes have been reported when goats graze sericea lespedeza. Also, feeding sericea lespedeza hay to goats was found to reduce fecal eggs counts by 80 percent and so can be considered a natural deworming agent against *Haemonchus contortus* infection in goats.

Can sericea lespedeza be grown as forage in Delaware? Yes, although not widely used as forage here since it is not very palatable to beef

or dairy cattle, it has been used in conservation and wildlife plantings in the past.

How should the crop be established? Sericea has a very weak, vulnerable seedling stage so it must be carefully established first when used in mixtures. There are improved varieties of sericea lespedeza available and in particular 'AU Grazer' is very tolerant to close grazing. The plant is a legume (see below for comments on its ability to fix and share nitrogen) and must be inoculated at the time of seeding. The seed should be coated or inoculated with the cowpea miscellaneous cross-inoculation group inoculum. Seeding rates in the literature vary from 15 to 30 lb per acre alone and from 8 to 15 lb per acre in mixtures. Certified seed should be used since dodder is sometimes a contaminant in lespedeza seed. Seed should be planted about ¼ inch deep in a weed-free well-prepared seedbed from late March through May. In Delaware, companion grass selection will mostly be limited to tall fescue (endophyte-free or the novel/friendly-endophyte infected tall fescue) or orchardgrass. For tall fescue mixtures with sericea lespedeza, the suggested seeding rate is 15 lb per acre of each species.

Sericea lespedeza does best at soil pH in the range of 5.5 to 6.5, will respond to phosphorus (P) if soil test levels are below optimum, and will respond to potash (K) fertilization if soil pH and P are adequate. Nitrogen (N) fertilization (30 lb N per acre per year) will favor the grass. Lespedeza fixes some N but very little is available for companion grasses.

Lespedeza should not be grazed less than four inches tall especially in late summer and autumn. Generally, grazing is begun when the lespedeza is 8 to 10 inches tall and is grazed down to a 4-inch stubble. If cut for hay, you should harvest at early bloom in mid-August and take a second cut after the first killing frost. Sericea is very tolerant to shade but once established it can easily shade grasses planted with it. To reduce shading of the grasses, you should keep sericea well grazed. Sericea lespedeza has been proven to be excellent forage during the hot and dry periods from June through August.

Grain Marketing Highlights - *Carl German, Extension Crops Marketing Specialist;*
clgerman@udel.edu

May Supply & Demand Highlights

USDA's May supply and demand report begins the forecasting for the '07/'08 (next) marketing year. This month's report is initially called bearish for old crop corn, bullish for new crop corn, neutral to bearish for soybeans and wheat.

Corn Analysis

Ending stocks for '06/'07 marketing year U.S. corn are now projected at 937 million bushels, as compared to 1.967 billion bushels for the '05/'06 marketing year and 877 million bushels a month ago. The average pre-report estimate was 875 million bushels. Ending stocks for the '07/'08 marketing year are forecast at 947 million bushels. The pre-report range in private forecaster ending stocks estimates was from 742 to 1.465 million bushels.

World corn ending stocks for the '06/'07 marketing year were placed at 93.2 million metric tons, as compared to 91.82 mmt a month ago. The preliminary estimate for corn ending stocks for the '07/'08 marketing year are estimated at 90.25 mmt. Southern Hemisphere '06/'07 corn production was left unchanged from the April estimate of 71.5 mmt. The Southern Hemisphere production forecast for the '07/'08 marketing year was placed at 74 mmt, believed to be a new record if materialized.

The season average farm price for the current marketing year is now placed at \$3.00 to \$3.20 per bushel. The preliminary season average price forecast for the '07/'08 marketing year is \$3.10 to \$3.70 per bushel.

Soybean Analysis

Ending stocks for '06/'07 marketing year U.S. soybeans are now placed at 610 million bushels, a 5 million bushel decrease from last month's estimate, compared to 449 million bushels a year ago. The average pre-report estimate for current marketing year soybean ending stocks was 605 million bushels. The ending stocks forecast for the '07/'08 marketing year for U.S. soybeans was placed at 320 million bushels.

World ending stocks for soybeans were estimated at 61.02 mmt in April. Southern Hemisphere production estimates were left unchanged from last month for the current marketing year totaling 104.3 mmt for Brazil and Argentina's '07 crops.

The season average farm price forecast for the '07/'08 marketing year for U.S. soybeans is from \$6.50 to \$7.50 per bushel, as compared to \$6.30 for the current marketing year.

Wheat Analysis

Ending stocks for '06/'07 marketing year U.S. wheat are now projected at 412 million bushels, as compared to 422 million bushels a month ago. The average pre-report estimate was at 420 million bushels. Ending stocks for the '07/'08 marketing year are forecast at 469 million bushels.

World ending stocks for wheat for the '06/'07 marketing year were reduced slightly from a month ago and are now placed at 120.36 mmt. World wheat ending stocks are projected to decline further for the '07/'08 marketing year, forecast at 113.36 mmt, believed to be the tightest in 25 years.

The season average farm price for wheat is forecast at \$4.35 to \$4.95 per bushel for the '07/'08 marketing year, as compared to \$4.27 per bushel for the current marketing year.

Market Strategy

Due to the preliminary nature of the supply and demand forecasts for the '07/'08 marketing year the market's attention will immediately return to U.S. planting progress, crop conditions and weather developments. Before the open, Dec '07 corn futures are at \$3.56 per bushel, Nov '07 soybean futures are \$7.75 per bushel, and July '07 wheat futures are \$4.81 per bushel. Trader focus will now turn to next Monday's planting progress report for U.S. corn and soybeans. For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist

General

Respiratory Hazards on Farms - *Ron Jester; Extension Safety Specialist (retired); rcjester@udel.edu*

Despite smoking less, farmers have increased rates of chronic bronchitis. Components of agricultural dusts are sufficiently irritating to the airways of the lung to cause mucus overproduction leading to repeated cough with phlegm. This dust is also a factor in asthma and allergy problems (runny nose, irritated eyes) which may occur with entry to poultry and other confinement housing. Toxic fumes can also be encountered by people working in manure storage areas associated with animal confinement facilities. A wide range of morbidity and mortality findings suggests that respiratory hazards may represent the greatest health hazard to farmers.

Common respiratory hazards on Delmarva farms include but are not limited to the following:

- Dusts - organic dusts such as grain and poultry house dust. Dusts contaminated with mold and bacteria are especially hazardous
- Gases - ammonia and hydrogen sulfide from manure and fermentation of silage
- Pesticides
- Fumes from welding and hot work

Farmers need respirators to help prevent dusts, molds, and other hazards from entering their airways and lungs. Serious diseases can result from one-time and repeated exposure to respiratory hazards. Be sure your respirator is the right one for the job!

In general respirators should have two straps, fit your face tightly, be appropriate for the task, and approved by NIOSH. The following listing helps you select the proper respirator for the job:

- A N-95 for mold dust, grain dust, dust from poultry operations, and road or field dust
- A mechanical filter respirator approved for use with fumes for welding fumes
- An ammonia cartridge respirator with an added pre-filter for ammonia
- A chemical cartridge respirator for organic

vapors with a pre-filter for pesticide dusts, mists, vapors, and gases

Replace the respirator if it becomes difficult to breathe through, dirty or loses its original shape. Some respirators may need to be replaced within 30 days of first use; others need to be replaced based on the number of times you use them. Always follow the manufacturer's instructions.

How important is your health? If you want to continue to breathe freely and work on your farm, protect yourself from respiratory hazards. Safety does add value and you are the benefactor!

Announcements

Strawberry Twilight Meeting

Thursday, May 24, 2007 6:00-8:00 p.m.
Wye Research and Education Center

HEAR:

- Dr. Anne DeMarsay, UM plant pathologist will discuss current disease control strategies and products.
- Dr. Harry Swartz, UM small fruit breeder will discuss current work.
- Mr. Michael Embrey, UM-WREC apiary specialist, will discuss pollinator concerns
- Mr Michael Newell, UM- WREC, will discuss fall production research and field plasticulture variety trials.

SEE:

- 19 varieties on plastic from California, Florida and USDA breeding programs as part of several research trials
- High tunnel fall production system using bag culture and 5 varieties.
- Living samples of strawberry insects and diseases if available. (Participants are asked to bring in samples.)

Light refreshments after the meeting

No pre-registration necessary

Questions? contact Mike Newell 410-827-7388 or email mnewell@umd.edu

Spring Crop Twilight Tour

Thursday, May 24, 2007 6:00 p.m.
Wye Research and Education Center

PRESENTERS:

- Jose Costa - small grain varieties
- Arv Grybauskas - crop disease status, current research initiatives, and predictions
- Bob Kratochvil - research projects with small grain, corn and soybeans
- Ron Ritter - current weed issues
- Galen Dively - current insect pressure and predictions

As always, we encourage growers, scouts and agents to bring up relevant situations they are encountering in the field for discussion.

Peanuts, drinks and strawberry dessert served!

Rain or shine, no pre-registration is necessary.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of May 3 to May 9, 2007

Readings Taken from Midnight to Midnight

Rainfall:

0.13 inch: May 5

Air Temperature:

Highs Ranged from 81 on May 9 to 58°F on May 6.

Lows Ranged from 56°F on May 9 to 40°F on May 7.

Soil Temperature:

61°F average.

(Soil temperature taken at a 2" depth, under sod)

Additional Delaware weather data is available at <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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