



# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

Volume 15, Issue 19

August 3, 2007

## Vegetables

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

### Cabbage

Continue to sample fields for cabbage looper and diamondback larvae. We can find small larvae and a treatment will be needed before larvae move into the hearts of the plants. If both species are present, Avaunt, a Bt, Proclaim, Rimon or Spintor have provided control in the past. If cabbage looper is the predominant species, a pyrethroid, Intrepid, or Confirm will also provide control.

### Lima Beans

Continue to scout for spider mites, stink bugs and lygus bugs. Early detection and treatment will be needed to achieve spider mite control. Treatment for lygus and stinkbugs should be considered if you find 15 adults and/or nymphs per 50 sweeps. The higher labeled rates of insecticides will be needed if stinkbugs are the predominant insect present. Continue to sample for corn earworm larvae as soon as pin pods are present. A treatment will be needed if you find one corn earworm larvae per 6 ft-of-row.

### Melons

Be sure to scout carefully for spider mites and aphids, especially in your later planted fields. Economic levels of both can still be found. As harvest continues, be sure to watch for

cucumber beetles and beet armyworm larvae feeding on rinds.

### Peppers

In areas where corn borers are being caught in local traps and pepper fruit is ¼ inch or more in diameter, fields should be sprayed on a 7-day schedule for corn borer control. Be sure to check local moth catches in your area at <http://ag.udel.edu/extension/IPM/traps/latestblt.html>. You will also need to consider a treatment for pepper maggot. In addition to beet armyworm feeding on leaves you should also watch for an increase in aphid populations. We are starting to find aphid populations increasing and they can explode quickly, especially where beneficial insect activity is low. As a general guideline, treatment may be needed if you find one or more aphids per leaf and beneficial activity is low.

### Snap Beans

As corn borer and corn earworm populations start to increase, you will need to consider treatments for both insect pests. Sprays are needed at the bud and pin stages on processing beans for corn borer control. At this time, an earworm spray will also be needed at the pin stage. Just as a reminder, Orthene has not provided effective corn earworm control on processing snap beans. You will need to check our website for the most recent trap catches to help decide on the spray interval between the pin stage and harvest for processing snap beans (<http://ag.udel.edu/extension/IPM/traps/latestblt.html>) and

<http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>). Once pins are present on fresh market snap beans, a 7 to 10-day schedule should be maintained for corn borer and corn earworm control.

### Sweet Corn

In general, fresh market, silking sweet corn should be sprayed on a 3-day schedule. However, be sure to check trap catches for the current spray schedule since trap catches quickly change. Trap catches are generally updated on Tuesday and Friday mornings (<http://ag.udel.edu/extension/IPM/traps/latest>

[blt.html](#) and <http://ag.udel.edu/extension/IPM/thresh/silksp raythresh.html>). You can also call the Crop Pest Hotline for current trap catches (in state: (800) 345-7544; out of state: (302) 831-8851). Also, continue to watch for FAW larvae in whorl stage corn. We are starting to see an increase in whorl stage feeding, with some fields showing heavy infestation levels (over 50% plants infested). In addition, if you are seeing whorl stage damage from fall armyworm in your area then you will need to combine a fall armyworm material with a pyrethroid for the first 2-3 silk sprays.

## Potato Disease Advisory August 2, 2007 - Bob Mulrooney, Extension Plant Pathologist

### Final Edition of the Late Blight Advisory

Disease Severity Value (DSV) Accumulation as of August 1, 2007 is as follows:

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

Date	LATE BLIGHT			EARLY BLIGHT
	Daily DSV	Total DSV	Spray Recs	Accumulated P days*
7/15 -7/18	0	22	10 days	607
7/18- 7/19	1	23	10 days	622
7/19- 7/24	0	23	10 days	657
7/25- 7/26	2	25	10 days	673
7/26 - 7/27	1	26	10 days	679
7/27 -7/28	1	27	10 days	686
7/28- 7/29	2	29	7 days	694
7/29 7/30	3	32	7 days	703
7/30 -7/31	2	34	7 days	709
8/1	0	34	7 days	715

**P days-** We use the predictive model WISDOM to determine the first fungicide application for prevention of early blight as well. 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. To date, 715 P-days have accumulated at the site.

There have been no reports of late blight in the region on potatoes or tomatoes. Continue preventative fungicide applications for early blight and late blight until vine kill.

For specific fungicide recommendations, see the 2007 Delaware Commercial Vegetable Production Recommendations Book.

This report concludes the regular Potato Disease Advisory for the 2007 season. If you have any suggestions for improving this advisory, please email or call at [bobmul@udel.edu](mailto:bobmul@udel.edu) or 302-831-4865.

## Downy Mildew on Cucurbits

Downy mildew was confirmed today (8-3-07) on pickling cucumber in Sussex County, Delaware and in Dorchester and Caroline counties in Maryland. See WCU Volume 15, Issue 14 for fungicide recommendations (<http://www.rec.udel.edu/Update07/Voume15,Issue14.htm>). Keep current on the NC State forecast that is posted on Tuesday and Thursday at <http://www.ces.ncsu.edu/depts/pp/cucurbit/>.

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## Damaging Levels of Harlequin Bugs in Crucifer Fields - Jerry Brust, IPM Vegetable Specialist, University of Maryland; [jbrust@umd.edu](mailto:jbrust@umd.edu)

I have been getting calls and have seen several crucifer (kale, cabbage, broccoli, Brussels sprouts, etc.) fields with large, and, in some cases, extraordinarily large harlequin bug populations. No harvest of kale was possible in some fields with very high populations of the bugs. The adult is a black, shield-shaped bug that is brightly colored with orange, red, and yellow markings. It varies from 7 to 10 mm in length. Eggs are barrel-shaped, about 1 mm long, and are light gray or pale yellow. The eggs have two black bands (one at the top, the other near the bottom) and a black spot centered between the two bands. Eggs are laid in clusters on leaves and hatch in 4 to 5 days. Eggs are laid in double-row clusters of 10 to 13 until each female has deposited approximately 155 eggs. There are two to maybe three generations per year. Nymphs have five or six instars that resemble the adults.

Adults and nymphs pierce stalks, leaves, and veins with their needle-like mouthparts and extract plant juices of crucifers, but should not cause economic damage to other non cruciferous vegetables (i.e., pepper, tomato, pumpkin, squash, etc.). While all crucifers are fed upon, harlequin bugs prefer collards and Brussels sprouts. Stems and leaves that are fed on develop irregular cloudy spots around the puncture wound. Young plants, leaves and parts of leaves that are heavily fed upon are likely to

wilt, turn brown, and eventually die; while older plants may be stunted.

Growers should rotate their fields out of crucifers for 1-2 years to another vegetable or field crop. Growing any crucifer for several years in the same general area will gradually increase harlequin bug populations and make their control more difficult each season. Growers can use a pyrethroid (Baythroid, Capture, and Warrior) or Thionex (one spray application per season) for control. Best control is achieved when small instars are targeted and the underside of the foliage is thoroughly covered. Unfortunately for organic growers there is little that works well in the control of harlequin bugs. Pyrethrum applied to nymphs is a possible control procedure. Be sure to read and follow label instructions.



R Bessin, 2000

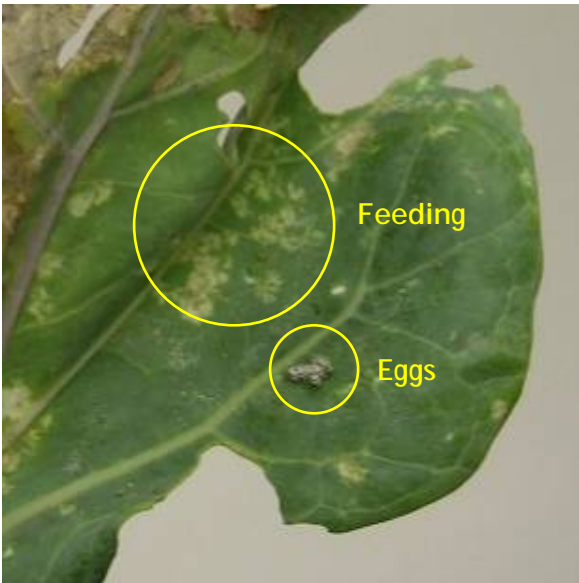
Harlequin bug adult and nymphs



Harlequin bug eggs; note bands and spot



Harlequin bug damage to broccoli



Harlequin bug eggs and feeding stipples

**Green Manure Crop After Vegetables** -  
*Gordon Johnson, Kent County Extension  
Agriculture Agent; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)*

There is an opportunity to build soil organic matter after vegetable crop harvest this summer, if fall vegetables are not planned, and if there is sufficient soil moisture (from rainfall or irrigation). Sudangrass or a sorghum/sudangrass hybrid (forage species of Sorghum) can be planted now and then plowed under prior to frost. This can then be followed with small grain in October. These crops produce great amounts of biomass, adding significant organic matter, and have the added advantage of providing soil disease control because they produce a natural soil fumigant in the leaves.

Research has shown reductions in nematode levels after incorporation of these sorghum species. One disadvantage is that there is so much biomass that they can be difficult to plow under.

## Agronomic Crops

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

### Beet Armyworm and Corn Earworm Information from Virginia

Although we have not seen the increase in trap catches in our area and have only found a few beet armyworms in soybeans so far, you should all be aware of what is being found in Virginia. With the weather patterns this year, we were afraid that we could see heavy pressure from beet armyworm and corn earworm late this season and at least in Virginia it looks like the corn earworm pressure will be heavy in the next few weeks. In Virginia, they do a corn survey to determine the potential for earworms in soybeans and other late season crops. In the recent Virginia Ag Advisory, Ames Herbert states: "With regional averages ranging from 45 to 53% infested ears, we can expect pretty intense pest pressure over the next few weeks. Add in the dry weather, which favors egg and larval survival, and you have a recipe for trouble." We should expect a similar increase in our area soon and even if our local pressure does not increase, these moths will migrate north so we will need to be very vigilant over the next few weeks. Please go to the following link for more information

[\(http://www.sripmc.org/Virginia/\)](http://www.sripmc.org/Virginia/). NOTE -- not all chemicals that Ames speaks about in his articles are labeled for soybeans in DE (i.e. Tracer) -- so be sure to read all labels for rates and restrictions.

### Alfalfa

In addition to leafhoppers, be sure to watch for blister beetles. Populations are higher than normal this year. Please read Gordon Johnson's article in this issue of WCU, "Blister Beetles in Higher Numbers this Year", for more about this

pest and why it is important to control blister beetles in alfalfa.

### Soybeans

After the rains this week, many are wondering if they should spray for spider mites. If fields have recovered and greened up after the rain, you may get better control with dimethoate. It will also be important to spray before plants are stressed again. You may also want to see if populations are starting to decline. However, in most cases it takes a period of extended wet, cooler weather to reduce mite populations -- with the return of hot weather we may not see the decline we would have hoped for. Under cool temperatures and high humidity a fungus disease can develop which can destroy the mites in a few days.

In New Castle County, we have started to find the first soybean aphids. With the current hot weather, population levels still remain low. However, remember that this aphid is favored by cooler temperatures so we could still see population increases, especially if we experience moderate temperatures later in August. We have also seen high populations of bean leaf beetles in spots in New Castle County. In cases where treatment has been needed, defoliation has been significant. Remember, at the pod fill stage, the defoliation threshold drops to 15% defoliation. This insect can also feed on pods. This insect can clip pods or plant diseases may enter the pod through their feeding sites. This can result in seeds that appear shrunken, discolored, and moldy resulting in a reduction in seed quality. Although we have not established thresholds for pod feeding in our area, the following link provides information that is used in the Midwest.

<http://www.ipm.iastate.edu/ipm/icm/2000/8-21-2000/1blroof.html>

Although we do not want to think about additional pests in soybeans, it is also time to begin scouting for corn earworm. Preliminary results of Virginia's corn earworm survey indicate a higher potential in certain areas and they are starting to see an increase in moth activity. We have not seen a sharp increase in our trap catches but that could happen at any time. In addition, in years where corn is

extremely drought stressed, we often see significant corn earworm pressure in soybeans - however only time will tell. As trap catches increase, open canopy blooming fields will be attractive to egg laying moths. A treatment should be considered if you find 3 podworms per 25 sweeps in narrow fields and 5 podworms per 25 sweeps in wide row fields (20 inches or greater).

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**Agronomic Crop Diseases** - Bob Mulrooney;  
Extension Plant Pathologist; [bobmul@udel.edu](mailto:bobmul@udel.edu)

### Soybean Rust Update

Soybean rust activity has been increasing in TX, OK, and two nearby counties in AR. Activity has been slow on the panhandle of FL but there is one report now of soybean rust in FL from a sentinel plot in Escambia County (the county adjacent to Mobile, AL). This is about where we were last year in respect to the amount of disease in FL. Conditions have been favorable for rust in the Gulf States. There are no reports of rust in GA or SC.



Soybean rust was reported in Colorado County, Texas (8/1). Rust has now been detected in 22 counties in Texas (21 soybean). In 2007, rust has also been reported in five counties in Alabama (one soybean), two counties in Arkansas (soybean), 10 counties in Florida (one soybean), five counties in Georgia (all kudzu), six parishes in Louisiana (five soybean), one county in Mississippi (kudzu), and two counties in Oklahoma.

Our Group III varieties in the sentinel plots are now in R1 through R4. They are being sampled weekly. Mites and drought damage are the major issues. We are also participating in the Syngenta Spore Tracker System and thanks to Cory Whaley, Sussex County Extension Agent, slides are being sent weekly for soybean rust detection.

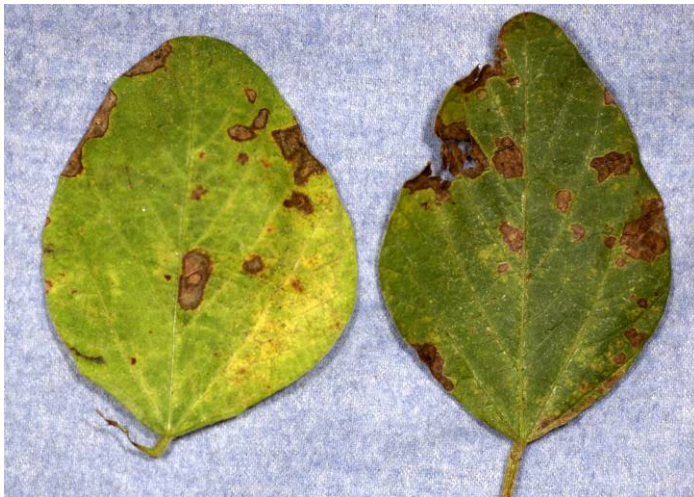
Keep current on new developments by checking the IPM PIPE website [www.sbrusa.net](http://www.sbrusa.net).

## Soybeans

Besides the terrible drought damage and mites, we are beginning to see what appears to be **Alternaria leaf spot** developing on drought and mite damaged soybeans leaves. There may be some situations where the *Alternaria* fungus is colonizing insecticide damaged leaves as well. There may be enough dew in areas to allow this fungus to infect these damaged leaves producing elliptical, brown, spots on the leaves. Plants from areas of the field with more moisture or heavier textured soil do not seem to be as severely affected. Other secondary fungi may be found in these spots as well.



Alternaria leaf spot on mite and drought stressed soybean leaf.



Alternaria leafspot on soybean leaves.

## Quick Forage Options - Gordon Johnson, Kent County Extension Agriculture Agent; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

I have had questions now that some areas have received a little soil moisture on possible late crops to plant to get a quick forage crop prior to frost to be followed by small grains. Options include forage types of pearl millet (60 days), sorghum-sudangrass crosses or other forage sorghums (50 days), teff (50 days), foxtail millet (50+ days - do not use for horses), and soybeans. Be careful of possible herbicide carryover if planting after crop destruct on droughted corn.

### Seeding rates:

Pearl Millet 20-25 lbs/a drilled

Foxtail Millet 20-30 lbs/a drilled

Teff 5 lbs/a

Sorghum/Sudangrass cross 15-40 lbs/a drilled

Soybeans 175,000-225,000 seeds/a drilled

Planting should be completed by August 7 to get enough growth before frost.

Fall emergency forage options include rye or oats planted early (end of August, early September), annual ryegrass, and Brassica species (forage turnips, tyfon, kale, mustards, rapeseed, swedes, hybrid crosses).

I found a very interesting factsheet from Cornell on the use of teff as an emergency forage. It can be found at this website:

<http://nmsp.css.cornell.edu/publications/factsheets/factsheet24.pdf>

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## Blister Beetles in Higher Numbers this Year

- Gordon Johnson, Kent County Extension Agriculture Agent; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

Blister beetles are being found in higher number in Delaware this year. They can feed on soybeans, vegetable, and landscape plants and are a major pest in the South. They also are a problem in alfalfa as a hay contaminant.

Several of the common members of this group of beetles contain a chemical that often causes blisters when applied to the skin; thus the name

blister beetles. The substance can be toxic to animals that eat a sufficient amount.

One major factor that increases potential for blister beetle problems is crimping, crushing, or conditioning hay. This crushes the beetles and leaves them in the hay where they can be eaten by animals. The second factor is a large increase in grasshopper numbers. The larval stages of these blister beetles develop on grasshopper egg pods in the soil. This generally results in increased blister beetle numbers, which in turn increases the potential for hay contamination. **If your area of the state has had grasshopper problems, you should also look for blister beetles and be cautious when making hay to avoid contamination (see following details).**

The adults feed on leaves in the tops of a plant but are especially attracted to flowers where they feed on nectar and pollen. They gather in groups, so large numbers can occur in concentrated clusters in a field. These beetles are mid to late summer insects, active in mid-July and early August which translates to the third or fourth cutting.



G. Johnson

#### Blister beetle

Cantharidin is the poisonous substance in blister beetles. It is comparable to cyanide and strychnine in toxicity. Although horses are considered to be very susceptible, comparable doses can poison cattle or sheep. Very small amounts of cantharidin can cause colic in horses. The substance is very stable and remains toxic in dead beetles. Animals may be poisoned by

ingesting beetles in cured hay. There is no sampling method that can detect toxic levels of blister beetles in cured hay.

Cantharidin can cause severe skin inflammation and blisters. It is absorbed through the intestine and can cause symptoms such as inflammation, colic, straining, elevated temperature, depression, increased heart rate and respiration, dehydration, sweating, and diarrhea. There is frequent urination during the first 24 hours after ingestion, accompanied by inflammation of the urinary tract. This irritation may also result in secondary infection and bleeding. In addition, calcium levels in horses may be drastically lowered and heart muscle tissues destroyed. Since animals can die within 72 hours, it is imperative to contact a veterinarian as soon as blister beetle poisoning is suspected.

The best way to deal with blister beetles is through management practices that will keep fields from being attractive. If practical, use the first cutting hay for horse feed since the beetles are not active then.

The major step is to cut on a schedule that keeps alfalfa and weeds from producing the flowers that attract beetles and keep them in the field. Cut before an advance bloom stage. This means hay with high quality and protein content and keeps attraction of beetles low. Practice good weed management to keep other flowering plants to a minimum.

Other practices are necessary if flowers and beetles are abundant. The worst thing that can be done is to crimp or crush hay if beetles are present. Crushed beetles remain in the hay and can poison animals. DO NOT use a hay conditioner when harvesting blister beetle infested alfalfa. Fields with flowered plants can be checked for blister beetles before harvest by using a sweep net as you would to sample for potato leafhoppers. This is not foolproof because large numbers of beetles can be concentrated in very small areas of a field. Collection of 100 sweeps for the field, as would be done for leafhoppers, is not sufficient to be confident that the beetles are not present unless flowering is limited to small areas.

Sickle bar mowers and some disc or drum mowers without crusher rolls cut and lay the hay down but do not crush it. Blister beetles have a behavioral characteristic that may be used against them. When plants are disturbed, blister beetles play "possum" and fall to the ground. As the hay dries and cures, the beetles will leave to seek food and moisture.

Excerpted from ENTFACT-102, BLISTER BEETLES IN ALFALFA  
by L.H. Townsend, Extension Entomologist  
University of Kentucky College of Agriculture

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

### **Export Sales Viewed as Bullish**

#### **Corn**

Pre-report estimates projected weekly corn export sales at 700,000 to 1,150,000 metric tons (27.6 to 45.3 million bushels). The weekly report placed sales at 806,000 metric tons (31.7 million bushels), well within the range of estimates and well above last week's figure. This places accumulated U.S. corn exports for the '06/'07 marketing year on pace with USDA's projection of 2.1 billion bushels.

#### **Soybeans**

Pre-report estimates for U.S. soybeans ranged from 50,000 to 600,000 metric tons (1.8 to 22 million bushels). The weekly report placed export sales at 440,300 metric tons (16.2 million bushels), split almost between old and new crop sales. Total accumulated sales for the '06/'07 marketing year continue to be above USDA's projected 1.09 billion bushels.

#### **Wheat**

Pre-report estimates for U.S. wheat export sales ranged between 450,000 to 1,200,000 metric tons (16.5 to 44.1 million bushels). The weekly report placed sales at 1,741,400 metric tons (64 million bushels) of new sales. This is well above the 13.6 million bushels needed to stay on pace with USDA's projected 1.05 billion bushels for the '07/'08 marketing year.

### **Marketing Strategy**

The commodity market's attention is now turned toward USDA's August Supply and Demand Report scheduled for release on Friday, August 10<sup>th</sup>, 8:30 a.m. ET. The big question looming in these markets hinges around whether the good production areas will offset the bad in order to give the U.S. trend line or better yields for the '07 growing season. One of the early pre-report production forecasts from F.C. Stone estimates U.S. corn production at 12.644 billion bushels (148 bushels per acre). The Stone forecast is 20% larger than last year's crop but smaller than the expectations of many analysts. Friday's supply and demand report will give us our first look at USDA's production estimates that are based upon sample yield counts taken from actual field surveys. The 'plug in' production estimate used since May for U.S. corn, at 150.3 bushels per acre, was 12.840 billion bushels.

The Stone production forecast for U.S. soybeans was placed at 2.681 billion bushels at a yield of 42.4 bushels per acre. Thus far USDA's 'plug in' production estimate, used since May, at 41.5 bushels per acre projected a U.S. soybean crop of 2.625 billion bushels.

The weather forecast has alleviated crop stress somewhat in the Northern Tier of the Corn Belt this morning; however that is expected to change. Before the open, Dec '07 corn futures are at \$3.36; Nov '07 soybeans are at \$8.48; and July '08 wheat is at \$5.55 per bushel. For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

# Announcements

## Twilight Workshop Announcement Profiting From a Few Acres with Small Fruits

Thursday, August 9, 2007 5:00 – 7:00 p.m.  
DSU Smyrna Outreach and Research Center

All those interested in the potential for planting blueberries, brambles (raspberries, blackberries), strawberries, and table grapes for profit are invited to attend a twilight workshop on the subject at the demonstration plots at the DSU SORC farm south of Smyrna. See the varieties that have been planted, sample blackberries and raspberries, and learn about production practices and profit potentials.  
*Maggie Moor-Orth, Ext. Ag. Educator, DSU*  
*Gordon Johnson, Agricultural Agent, UD*

### Registration:

Call (302) 730-4000 if you will be attending.

### Directions:

Take Rt. 13 toward Smyrna, just south of Smyrna, turn east on the Smyrna-Leipsic Road. Cross over Rt. 1 and the SORC farm will be on the south side of the road (white fences).

## For Current Agricultural Information from the UD Kent Co. Extension Office Visit the Internet Site

[www.kentagextension.blogspot.com](http://www.kentagextension.blogspot.com)

### Current Topics:

- Crop Insurance Considerations
- Mite Pressure Still High in Soybeans and Vegetable Crops
- Benefits of the Cover Crop Program
- Green Manure Crop after Vegetables
- Quick Forage Crop Options Planted Now
- Plant Back Restrictions after Crop Destruct on Corn
- NCSU Downy Mildew Forecast
- Downy Mildew in Cucurbits
- Small Grain Picks for 2007
- Understanding Spider Mites & Damage to Soybeans
- Does Rainfall Help Reduce Mites?
- Should You Spray Droughted Soybeans for Mites?
- Irrigated Corn Water Use
- Blister Beetles in Higher Numbers This Year
- Pricing Droughted Corn for Silage
- Small Grain Yield Trial Results Now Available
- Nematode Damage Very Evident This Year
- Mite Infestations and Lack of Control This Year
- Water & Heat Stress Interactions with Crops
- Nitrate Poisoning from Drought Stressed Forages

## Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of July 26 to August 1, 2007

Readings Taken from Midnight to Midnight

### Rainfall:

0.99 inch: July 29

0.38 inch: July 30

### Air Temperature:

Highs Ranged from 92°F on July 28 to 79°F on July 30.

Lows Ranged from 70°F on July 30 to 65°F on July 28.

### Soil Temperature:

85°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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