WEEKLY CROP UPDATE
UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

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

Cabbage
As soon as plants are set in the field, be sure to sample for cabbage looper and diamondback larvae. A treatment will be needed before larvae move into the hearts of the plants. In recent years, we have seen more Harlequin bug activity in cabbage. In general, most of the "worm" materials are not effective on Harlequin bugs. The pyrethroids have provided control in years past.

Lima Beans
Continue to scout for spider mites, stink bugs, lygus bugs and corn earworm. As soon as pin pods are present, be sure to watch carefully for plant bug and stinkbug adults and nymphs as well as corn earworm larvae. As a general guideline, treatment should be considered for plant bugs and stink bugs if you find 15 adults and/or nymphs per 50 sweeps. A treatment will be needed for corn earworm if you find one corn earworm larvae per 6 ft-of-row.

Melons
Continue to scout all melons for aphids, cucumber beetles, and spider mites. We continue to see an increase in aphid populations. Treatments should be applied before populations explode and leaf curling occurs.

Peppers
In areas where corn borers are being caught in local traps, fields should be sprayed on a 7-day schedule for corn borer control. As soon as corn borer trap catches increase to above 10 per night, a 5 to 7-day schedule may be needed. Since trap catches can increase quickly at this time of year, be sure to check local moth catches in your area by calling the Crop Pest Hotline (instate: 1-800-345-7544; out of state: 302-831-8851) or visiting our website at (http://ag.udel.edu/extension/IPM/traps/latestblt.html). We continue to find beet armyworms (BAW) so be sure to watch for feeding signs and apply treatments before significant webbing occurs. We continue to find aphids in fields and populations 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
At this time of year, you will need to consider a treatment for both corn borer and corn earworms. Sprays are needed at the bud and pin stages on processing beans for corn borer control. An earworm spray may also be needed at the pin stage. Just as a reminder, Orthene (acephate) will not provide effective corn earworm control in processing snap beans. If Orthene is used for corn borer control you will need to combine it with a corn earworm material. 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-day schedule should be maintained for corn borer and corn earworm control.

Sweet Corn
The first silk sprays will be needed as soon as ear shanks are visible. Be sure to check both blacklight and pheromone trap catches for silk spray schedules since the spray schedules can quickly change. Trap catches are generally updated on Tuesday and Friday mornings (http://ag.udel.edu/extension/IPM/traps/latestblt.html and http://ag.udel.edu/extension/IPM/thresh/silkspraythresh.html). You can also call the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851). A whorl stage treatment should be considered for fall armyworm when 12-15% of the plants are infested. Since fall armyworm feed deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control. Be sure to check all labels for days to harvest and maximum amount allowed per acre.

Vegetable Disease Updates - *Bob Mulrooney, Extension Plant Pathologist*; bobmul@udel.edu

Basil Downy Mildew
Basil downy mildew has been seen in nearby NJ. Any sweet basil growers should be scouting for this disease. Phosphite fungicides such as Prophyte have shown the best efficacy for controlling basil downy mildew.

Cucurbit Downy Mildew
Cucurbit downy mildew continues to be seen at low levels in commercial cucumber fields. The dry hot weather has been helping the fungicides to keep it in check. So far we have not seen it move into other cucurbits such as pumpkin. Keep scouting and check the 2011 Commercial Vegetable Productions Recommendations for fungicide suggestions. Once the cooler weather returns, and hopefully some rainfall, look for this disease to increase. Keep up with preventative fungicide applications.

Late Blight
We just received a confirmed report of late blight from Ann Arundel County in MD and in New Brunswick, Canada. Keep on the lookout for this disease on tomato and potato.

Watermelon
Cercospora leaf spot was diagnosed on watermelon last week. Cercospora leaf spot symptoms occur primarily on foliage, but petiole and stem lesions can develop when conditions are highly favorable for disease development. Fruit lesions are not known to occur. On older leaves, small, circular to irregular circular spots with tan to light brown lesions appear. The number and size of lesions increases, and eventually they coalesce and cause entire leaves to become diseased.

Lesion margins may appear dark purple or black, and may have yellow halos surrounding them. Severely infected leaves turn yellow, senesce, and fall off. On watermelon, lesions often form on younger rather than older foliage. Cercospora leaf spot can reduce fruit size and quality, but economic losses are rarely severe. Fungicides such as chlorothalonil (Bravo) and mancozeb including Gavel, as well as the triazole fungicides such as Inspire Super and strobilurins (Cabrio and Quadris) should provide good control of Cercospora leaf spot. As wilthall vine crops be sure to apply in enough water to get good coverage, usually a minimum of 15 gal/A.

Yellow Shoulders in Tomato a Big Problem This Season – *Jerry Brust, IPM Vegetable Specialist, University of Maryland*; jbrust@umd.edu

A very wide spread problem this year in tomatoes, especially some of the large-sized fruit, is yellow shoulders. Yellow shoulders is characterized by areas at the top of the fruit (shoulders of fruit) that stay green or yellow and as the fruit ripens tend to turn a more intense yellow. These areas will never ripen properly. The area beneath the yellow shoulders is firm and poor tasting. Unfortunately the cause of this problem is complex involving the environment

and plant physiology and there is no cure, but there are things that can be done to ease the symptoms. One of the main causes is one we have had lots of and one we can't do much about and that is intense heat (this past July was the hottest month on record for our area). High temperatures prevent lycopene production (red pigment of the tomato fruit) most often in the shoulders of tomato, as this part is more commonly exposed to the direct rays of the sun. We measured fruit (pulp) temperatures of between 86° and 105°F morning through evening hours in July. When temperatures are greater than 85-88°F lycopene is not produced. Temperatures need to drop below 85°F before it is consistently produced.

Inside the plant we see a reduction in potassium (K) just before yellow shoulders is seen. This year in our tissue testing we saw drops in K of 3-4% in a matter of weeks going from 4-6% (which is good) to 2-3% (which is poor). Usually within a week or two of this drop we see yellow shoulders start up. There are also drops in calcium (Ca), nitrogen and at times magnesium (Mg) as we move into mid-July and early August. All this is related to stress on a plant that has a full fruit load and the stress could be too little water, too much heat (most common), or high amounts of plant disease or insect problems. We see the same problems in high tunnels; only we see them a month earlier than in the field. For now, best recommendations are to add more potassium and calcium to plants and make sure plants are well watered. You can add either nutrient through the drip or as foliar sprays. Foliar sprays will help, but it is difficult to raise the potassium levels 2-4% points as would be needed. I have found that boron also plays a role in helping with the uptake of K, Ca, sulfur and Mg, but all the data are not in at this time to make a recommendation. Yellow shoulders is also a varietal problem, as some varieties are more prone to the problem than others. One unusual way of avoiding the problem all together is to harvest tomatoes when pink color is first seen and let the fruit ripen at room temperature in the dark. Because the lycopene is produced as the fruit ripens it is often possible to avoid yellow shoulders by removing the fruit from the high temperatures and other stresses.

Various forms of yellow shoulders on red tomato fruit

The Deadline to Remove Tolerance of Maneb Extended Until December 21, 2012
- Bob Mulrooney, Extension Plant Pathologist; bobmul@udel.edu

via Gene MacAvoy, University of Florida

The U.S. Environmental Protection Agency has taken into consideration written comments submitted by FFVA and others and agreed to delay the expiration of tolerances for the fungicide product maneb. Among its comments, FFVA reminded EPA that existing stocks of maneb may remain in growers' inventories and that a premature revocation of tolerances could generate complications such as disposal obstacles if all components were not carefully considered before a final decision. Therefore, to allow sufficient time for existing stocks that may remain in the channels of trade to be used and subsequent marketing of affected commodities, tolerances for maneb on food uses such as succulent beans, broccoli, cabbage, cauliflower, celery, collards, sweet corn, cucumbers, eggplant, endive, kale, lettuce, melons, mustard greens, papaya, peppers, potatoes, squash, tomatoes and turnips, will now not expire until Dec. 31, 2012.

Gavel 75DF from Gowan Company LLC Now Labeled for Pumpkin and Winter Squash - *Bob Mulrooney, Extension Plant Pathologist*; bobmul@udel.edu

Gavel has been labeled for use on pumpkin and winter squash for the control of Alternaria leaf spot, Cercospora leaf spot, downy mildew and Phytophthora fruit and stem rot. This is in addition to labels for use on cucumber, cantaloupe, summer squash and watermelon. Gavel is not recommended for downy mildew control on cucumbers but is recommended for control on pumpkin and winter squash as well as watermelon and cantaloupe. Remember that Gavel contains mancozeb, so some cantaloupe varieties might be sensitive. Go to http://www.cdms.net/LDat/ld4PP006.pdf to see updated label.

Fruit Crops

Mustard Seed Meal as a Chemical Fumigation Alternative – *Gordon Johnson, Extension Vegetable & Fruit Specialist;* gcjohn@udel.edu

With September strawberry planting season approaching for the annual plasticulture system, growers will be preparing beds and fumigating in the next 2 weeks. While several chemical fumigants are registered for strawberries, new fumigant use restrictions will make their use more of a challenge. In addition, strawberry growers that are organic or are using high tunnels with limited rotation are looking for effective fumigation alternatives.

One natural fumigant alternative that has shown great promise is mustard seed meal. According to researchers Dean Kopsell and Carl E. Sams, "studies conducted at The University of Tennessee showed that mustard seed meal has extremely high concentrations of isothiocyanates (ITCs). The seed meal is also a fertilizer source of nitrogen and other nutrients. When incorporated into the soil, ITCs act as effective biofumigants, reducing populations of pathogenic fungal species (*Sclerotium*, *Rhizoctonia*, *Phytophthora,* and *Pythium*), nematodes, weeds, and certain insect species." ITCs are the same compounds found in some commercial chemical fumigants.

Specific studies with strawberries showed yield increases of as much as 50% compared to untreated controls using mustard seed meal. Additional research is going on in the region (Virginia, Maryland, Delaware, and Pennsylvania) with this material.

For mustard seed meal to be effective as a fumigant it has to be thoroughly worked into the bed area and plastic layed immediately after incorporation. The bed must remain evenly moist so the meal can break down (dry pockets will have delayed break down and can cause problems later) so a moist soil is important. A waiting period of 20 days is advised similar to a commercial fumigant before planting.

Current supplies of mustard seed meal come from Tennessee and costs $1.00-1.20 per pound. Recommended rate is 1000 lbs per mulched acre.

Because mustard seed meal is a natural compound, fumigant restrictions do not apply. It is also OMRI certified for organic production.

Agronomic Crops

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

Alfalfa and Grass Hay Crops
We are starting to hear reports of the first occurrence of defoliators in hay crops. Fall armyworm can cause significant damage in grass hay so be sure to watch carefully since early detection is important to achieve effective control with labeled products. In alfalfa, a number of defoliators can cause problems including corn earworm, fall armyworm, beet armyworm and webworms. No thresholds are available; however, controls should be applied before significant defoliation occurs.

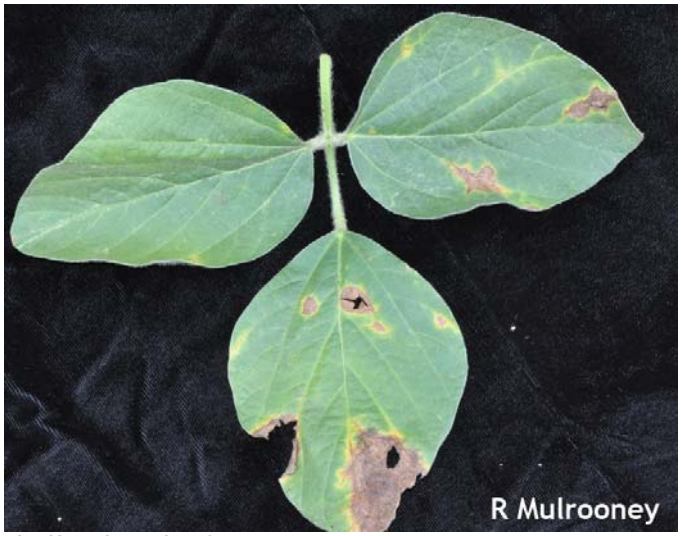
Soybeans
We continue to find fields with economic levels of spider mites. In areas that have received rain, it generally has helped beans to grow; however, if economic populations were present before the rain they can still be found. As a reminder, under heavy mite pressure and extended hot, dry weather, it often takes an extended period of free moisture on leaves, high humidity during the day and cool evening temperatures to get an increase in the fungal pathogens that can significantly reduce exploded mite populations. Although populations can start to decline by mid-August, we have not seen this decline yet so it is important to continue to scout and apply controls if economic populations are present.

Continue to scout for stinkbugs in fields that are in the pod development and pod fill stages. Economic damage is most likely to occur during these stages and threshold levels (a combination of species) can be found in fields throughout the state. You will need to sample for both adults and nymphs when making a treatment decision. Available thresholds are based on beans that are in the pod development and fill stages. As a general guideline, current thresholds for native stink bugs are set at 1 large nymph/adult (either brown or green stink bug) per row foot if using a beat sheet, or, 2.5 per 15 sweeps in narrow-row beans, or 3.5 per 15 sweeps in wide-row beans. We do not have a threshold for brown marmorated stink bugs (BMSB). In New Castle and Kent County, we continue to find a mix of native green and brown stink bugs as well as BMSBs. In situations where BMSBs are being found mainly on field edges, an edge treatment may be considered.

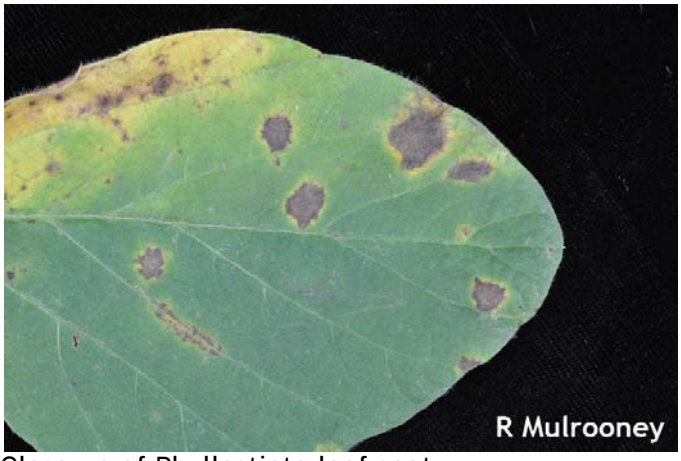
Corn earworm moth trap catches continue to increase so you should start to scout all fields (full season and double crop) for this insect pest. However, only time will tell if we will have a corn earworm outbreak in soybeans in our area. As we saw in 2010, trap catches can give an indication of the potential for a problem; however, only scouting on a routine basis will tell you if you have an economic problem. In the past, we have used the treatment threshold of 3 corn earworms per 25 sweeps in narrow fields and 5 corn earworms per 25 sweeps in wide row fields (20 inches or greater). These are static thresholds that were calculated for a 10-year average soybean bushel value of $6.28. A better approach to determining a threshold is to access the Corn Earworm Calculator (http://www.ipm.vt.edu/cew/) which estimates a threshold based on the actual treatment cost and bushel value you enter.

Soybean Disease Update - *Bob Mulrooney, Extension Plant Pathologist*; bobmul@udel.edu

Soybeans
Phyllosticta leaf spot was diagnosed on soybean this week. We have observed it in years past during periods of hot, dry weather on full season beans with a good canopy. It is a weak, pathogenic fungus and is probably infecting stressed plants. There should be no cause for concern since the disease is considered of minor importance. It will produce irregular spots often with small brown to black fruiting bodies of the fungus in the dead spots.



Phyllosticta leaf spot



Close up of Phyllosticta leaf spot

Alternaria leafspot on mite damaged soybean leaves.

With the dry weather look for the other drought related diseases in soybeans such as **charcoal rot,** and **Alternaria leafspot**. Alternaria is often observed when the leaves have been damaged from spider mites and this weak pathogenic fungus colonizes the leaves following the mite damage.

Watch for Potassium (K) Deficiency Symptoms in Soybeans

- *Richard Taylor, Extension Agronomist;* rtaylor@udel.edu

Although it shouldn't be a surprise, a few fields in the state have started showing potassium (K) deficiency symptoms. In the past, this condition usually shows up in the eastern sections of New Castle County at least every few years but reports this year indicate that other areas of the state are showing the symptoms. Since potash prices have been quite high the past few years, many growers have been cutting back K application rates or skipping a year or two between applications. These practices have lead to low soil test levels of K and now to at least some fields, usually with very light sandy soil and low organic matter content, showing K deficiency symptoms.

Many dryland corn fields have long had the corn leaves fire up or turn necrotic and even a lot of the irrigated fields I've been in during the past week are showing dead or firing lower leaves. The full dent growth stage is evident in even the irrigated fields probably due to the large number of heat units or degree days we've had this summer. So in the case of corn, we're probably too late to notice K deficiency symptoms but for soybeans that's not the case.

In soybeans the deficiency shows up as yellowing along the trifoliate leaflet edges on the oldest leaves of the plant (Photo 1). The yellowing of the edges intensifies and expands and can move up the plant (Photos 2 and 3). The reason the deficiency begins on the lower leaves is that the element K is mobile in the plant so that when there is an insufficient supply the plant will cannibalize the lower leaves and mobilize the K up to the new growing leaves. If the deficiency persists or worsens as the plant becomes larger and begins the reproductive phase, the yellowing

gradually turns brown and the leaf edges die and become ragged (Photo 4).

Photo 1. Note the very beginning of leaf yellowing along the leaflet margins on the very lowest leaves.

Photo 2. Note that leaf yellowing along the leaflet margins has expanded and has moved up the plant closer to the terminal.

Photo 3. Leaf edges are almost fully involved as the deficiency worsens.

Photo 4. At this stage, the leaf edges begin to show necrosis while other leaf edges have turned completely necrotic.

What can be done if you find deficiency symptoms? Various liquid formulations of K are available that could be applied as a foliar spray although the experiences I and other researchers have had suggests that the foliar burn from these products could easily cancel out the benefit of adding K. A problem with foliar sprays is that it is difficult to apply enough to the plant to supply the plant's need for K. If you increase the concentration or the amount of solution K applied, the burn potential increases and will cancel out the benefit of foliar K. Some work at Rutgers University (unpublished) showed that both potassium chloride and potassium carbonate significantly burned soybean plants and cancelled any yield increase.

Where does this leave the producer with a K deficiency? Essentially, we're back to broadcasting or flying on muriate of potash (0-0-60) at about 100 lbs/acre and then either irrigating the field if irrigation is available or hoping for a rain event to begin to dissolve the fertilizer and move it into the upper soil layer where many of the soybean roots are present. Again with the element being a plant mobile nutrient, the K will be moved by the plant to the growing points which will be the terminal where new leaves are being formed and to the reproductive sinks (flowers, pods, and seeds). This should be effective in helping to reduce the yield reduction possible with K deficiency.

If you can, look at the soil test to make sure there is adequate phosphorus (P) available for the crop. It's been shown that the addition of both P and K can have a synergistic effect where the yield increase is greater when both nutrients are applied versus just applying a single nutrient. If the soil test level of P is already high, as it is on many Delaware soils, then there likely will not be a benefit to adding both nutrients so an accurate soil test is essential when considering the combination product.

Grain Marketing Highlights

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

Private Forecasts Lower Production Estimates

USDA's next production forecast won't be issued until next Thursday, August 11. In the meantime, private forecasters are weighing in with their production estimates for 2011 corn and soybean production. FC Stone projects U.S. corn production at 13.002 billion bushels with a yield estimate of 153.2 bushels per acre and harvested acreage at 84.8 million acres. The Linn Group projects U.S. corn production at 12.775 billion bushels from a yield estimate of 152.1 bushels per acre. In July, USDA projected the nation's corn crop at 13.470 billion bushels with a yield of 158.7 bushels per acre and 84.9 million acres harvested. Total corn use was projected at 13.5 billion bushels in USDA's July estimate. Informa is expected to release their production forecasts today.

FC Stone estimated U.S. soybean production at 3.145 billion bushels with a yield of 42.4 bushels per acre and harvested acreage at 74.2 million. The Linn Group projects a yield of 43 bushels per acre and production at 3.148 billion bushels.

USDA Export Sales Report 08/04

Pre-report estimates for weekly export sales of soybeans ranged from 16.5 to 23.9 million bushels. The weekly report showed total old-crop and new-crop export sales of 25.5 million bushels, with old-crop cancellations of 14.9 million bushels bringing the yearly total to 1.531 billion bushels, above USDA's demand projection of 1.52 billion bushels. Total shipments of 7.5 million bushels were below the 16.4 million bushels needed this week. This report should be considered bearish.

Pre-report estimates had weekly corn export sales at 33.5 to 43.3 million bushels. The weekly report showed total old-crop and new-crop export sales of 28.6 million bushels, with old-crop sales of 11.7 million bushels, above the 3.7 million bushels needed this week to stay on pace with USDA's demand projection of 1.875 billion bushels. Total shipments of 30.6 million bushels were below the 47.8 million bushels needed this week. This report should be considered bearish.

Pre-report estimates for wheat ranged between 12.9 to 18.4 million bushels. The weekly report showed total export sales of 18.4 million bushels, above the 17.3 million bushels needed this week to stay on pace with USDA's 1.15 billion bushel demand projection. Total shipments of 17.4 million bushels were below the 22.1 million bushels needed this week. This report should be considered neutral-to-bearish.

Market Strategy

If ever there were a time when a mixed bag of factors were impacting the commodity markets then that time is now. 'Turn around Tuesday' saw a sharp double digit rally in corn and soybean futures only to be quickly eroded due to improving weather conditions and worsening financial news from around the world, reflected in a stronger dollar and a weakening DJIA. The University of Illinois released a report this week that suggests that U.S. corn and soybean stocks could rise in the September report due to slackening demand. Just think what might

happen to prices in the event that stocks are revised upward and USDA's August report comes close to their July estimates? For those needing to make additional sales, now is a good time to advance sales on new crop corn and soybeans. Before the day trade open, Dec '11 corn futures are at $7.13; Nov '11 soybean futures at $13.73; and July '12 SRW wheat at $8.07 per bushel.

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

Announcements

Notice to Hispanic and/or Women Farmers or Ranchers Compensation for Claims of Discrimination

If you believe that the United States Department of Agriculture (USDA) improperly denied farm loan benefits to you between 1981 and 2000 because you are Hispanic, or because you are female, you may be eligible to apply for compensation. This means you may be eligible if:

1. you sought a farm loan or farm-loan servicing during that period; and

2. the loan was denied, provided late, approved for a lesser amount than requested, or approved with restrictive conditions, or USDA failed to provide an appropriate loan service; and

3. you believe these actions were based on your being Hispanic, or your being female.

If you want to register your name to receive a claims packet, you can call the Farmer and Rancher Call Center at 1-888-508-4429 or access the following website: www.farmerclaims.gov

In 2011, a claims administrator will begin mailing claims packages to those who have requested one through the Call Center or website. The claims package will have detailed information about the eligibility and claims process.

For guidance, you may contact a lawyer or other legal services provider in your community.

If you are currently represented by counsel regarding allegations of discrimination or in a lawsuit claiming discrimination, you should contact your counsel regarding this claims process.

USDA Cannot Provide Legal Advice to You.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of July 28 to August 3, 2011

Readings Taken from Midnight to Midnight

Rainfall:

0.09 inch: August 1
0.01 inch: August 2
0.09 inch: August 3

Air Temperature:

Highs ranged from 97°F on July 29 to 81°F on August 3.

Lows ranged from 74°F on July 29 to 65°F on July 28.

Soil Temperature:

85.8°F average

Additional Delaware weather data is available at 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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