



# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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## Vegetables

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

### Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mites. As a general guideline, a treatment should be considered when you find 20-30% of the plants infested with 1-2 mites per leaf. Acramite (one application only), Agri-Mek, bifenthrin, Danitol, Oberon, and Zeal (one application only; ground application only) are labeled on melons for mite control. Be sure to check all labels for rates, precautions and restrictions, especially as they apply to pollinators. Just a few comments about our newer miticides:

Oberon is considered active against all life stages including eggs (juvenile stages are often more susceptible than adults). It has surface and translaminar activity. See link for technical bulletin for more information (<http://www.bayercropwest.com/=file:District-Literature/11170437173294490a02022173973622/doc>).

Zeal is described as predominately an ovicide/larvacide. Adult mites will not be controlled so initial activity may appear slow, although eggs laid by treated mites will not be viable (sterilizes the adults). In evaluations in other states, it has been highly effective and long lasting, but results may not be apparent for one week – so do not evaluate control soon

after treatment. In a recent evaluation on melons, it appears to have provided good control but we will continue to evaluate this study and keep you updated. It has both contact and translaminar activity. See the following link for more information

(<http://www.plantmanagementnetwork.org/pub/php/news/2005/zeal/>). *As a reminder, this material cannot be applied by air.*

### Peppers

As soon as the first flowers can be found, be sure to consider a corn borer treatment. Depending on local corn borer trap catches, sprays should be applied on a 7 to 10-day schedule once pepper fruit is ¼ - ½ inch in diameter. Be sure to check local moth catches in your area by calling the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851) or visiting our website at

(<http://ag.udel.edu/extension/IPM/traps/latest/blt.html>). You will also need to consider a treatment for pepper maggot. Be sure to watch carefully for beet armyworm larvae since they can quickly defoliate plants.

### Potatoes

Continue to scout fields for Colorado potato beetle (CPB), aphids and leafhoppers. Controls will be needed for green peach aphids if you find 2 aphids per leaf during bloom and 4 aphids per leaf post bloom. This threshold increases to 10 per leaf at 2 weeks from vine death/kill. If melon aphids are found, the threshold should be reduced by half.

## Snap Beans

Continue to scout for leafhopper and thrips activity in seedling stage beans. As a general guideline, 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. Acephate can be used at the bud and pin stages on processing beans but remember it has a 14-day wait until harvest. Additional sprays may be needed after the pin spray on processing beans. Since trap catches can change quickly, be sure to check our website for the most recent trap catches and information on how to use this data to make a treatment decision in processing snap beans after bloom

(<http://ag.udel.edu/extension/IPM/traps/latest/blt.html>) and

(<http://ag.udel.edu/extension/IPM/thresh/snapbeanecbthresh.html>). 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.

## Sweet Corn

Continue to sample seedling stage fields for cutworms and flea beetles. You should also sample all fields from the whorl through pre-tassel stage for corn borers and corn earworms. The first silk sprays will be needed for corn earworm 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/latest/blt.html>) and

(<http://ag.udel.edu/extension/IPM/thresh/silksp raythresh.html>). You can also call the Crop Pest Hotline (in state: 1-800-345-7544; out of state: 302-831-8851). Be sure to watch for the first fall armyworm larvae in whorl stage sweet corn. A treatment should be considered when 12-15% of the plants are infested. Since fall armyworm feeds deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control.

## Heat Necrosis in Transplants -Gordon Johnson, Extension Ag Agent, Kent Co.; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

I have seen several cases of heat necrosis of transplants on black plastic mulch in the last two weeks. This is a common problem in later plantings of peppers and tomatoes in particular. Black plastic can heat up to well over 110°F on hot days in the late spring and summer. Vegetable transplants are exposed to these high soil temperatures at the soil line around the transplant hole. The stem tissue just at or above the level of the plastic will be killed at these high temperatures and the transplants will then collapse and die. Small transplants do not have the ability to dissipate heat around the stem as roots are not yet grown out into the soil and water uptake is limited. Another factor in heat necrosis is that there is little or no shading of the mulch with the leaves of small transplants.

There are a number of practices that can reduce heat necrosis in later planted vegetable transplants:

- Avoid using tender transplants that have not been hardened off.
- Use larger transplants with greater stem diameters and more leaves to shade.
- Make a larger planting hole, cutting or burning out the plastic.
- When transplanting into the plastic, make sure the stems of transplants do not touch the plastic once set.
- Water sufficiently in the hole to reduce heat load.
- Plant in the evening once the plastic has cooled down or in the very early morning.
- Avoid transplanting on very hot days or when extended hot, sunny weather is forecast.
- Switch to white or aluminized plastic mulch for later plantings. This will reduce the heat loading significantly.
- In smaller plantings you may paint the planting zone on the black plastic mulch white with latex paint and then plant through this white strip once dry. You can also mulch around the planting holes with wet straw to reduce heat loading.
- Use overhead irrigation after planting to keep the plastic cooler.

**Potato Disease Advisory #14 - July 3, 2008** - Bob Mulrooney, Extension Plant Pathologist;  
[bobmul@udel.edu](mailto:bobmul@udel.edu)

Disease Severity Value (DSV) Accumulation as of July 2, 2008 is as follows:

Location: Broad Acres, Zimmerman Farm, Rt. 9, Kent County

Greenrow: April 27

Date	LATE BLIGHT			EARLY BLIGHT
	Daily DSV	Total DSV	Spray Recs	Accumulated P days
6/4-6/5	4	40	5-day interval	279
6/5-6/6	2	42	5-day interval	288
6/6-6/7	1	43	5-day interval	298
6/7-6/11	0	43	10-day interval	321
6/12-6/15	1	44	10-day interval	350
6/15-6/18	0	44	10-day interval	376
6/19-6/22	0	44	10-day interval	409
6/22-6/23	1	45	10-day interval	418
6/23-6/25	0	45	10-day interval	435
6/26-6/30	0	45	10-day interval	466
6/30-7/2	0	45	10-day interval	482

#### 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, 482 P-days have accumulated at the site.

#### Early Blight and Black Dot

Many fields are flowering or have flowered and this is a good time to consider switching to an application or two of Gem, Headline, Quadris, or Evito (no black dot label) for early blight susceptible varieties. This can also be helpful for late season varieties including russets if stress makes plants susceptible to black dot later. Make one or two applications at the end of flowering and repeat 14 days later. Apply mancozeb or chlorothalonil 7-days later between the two applications. Otherwise maintain fungicide applications for early blight control.

#### Early Dying

Early dying symptoms were seen this past week. We are isolating from the dying stems to confirm the presence of *Verticillium*, the fungus that causes early dying. Lesion nematodes can often be present as well, which can greatly increase the symptoms and reduce yields. As most of you know 'Superior' is pretty susceptible to early dying. Resistant varieties, long rotations away from potatoes or fumigation are the most recommended treatments. There is some evidence that using Sudan grass in the rotation can reduce early dying as well.

For specific fungicide recommendations, see the 2008 Delaware Commercial Vegetable Production Recommendations Book.

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**Seed Quality Issues Lead to Reduced Stands** -Gordon Johnson, Extension Ag Agent, Kent Co.; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

I have looked at sweet corn, soybean, and lima bean fields recently with reduced stands and low vigor plants due to poor seed quality. It is often assumed that summer plantings will not have stand issues as soil temperatures are warm and seeds should germinate and emerge quickly (if there is adequate moisture). 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).

The following are some pictures of a summer lima bean planting with reduced stands due to poor seed quality.



Abnormal lima bean seedling with distorted leaves



Uneven and reduced lima bean stand due to poor seed quality



Low vigor lima bean seedling - note the stunted and white appearance

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

**Tomato Spotted Wilt Virus**

Tomato spotted wilt virus was identified and confirmed today by ELISA on tomato plants from across the line in MD. We don't see this very often but the symptoms are pretty obvious most of the time. It can be a problem when tomato transplants are produced with ornamental bedding plants, which harbor the virus. The virus is often then transmitted to tomatoes by Western flower thrips. The virus can be transmitted from weeds and perennial

ornamentals as well by nine species of thrips. Young leaves are bronze colored and later develop numerous small dark spots. Growing points may die and stems of terminals may be streaked.



Tomato spotted wilt on tomato

#### Bacterial Wilt in Cucurbits\*

Symptoms of bacterial wilt will vary depending on the cucurbit crop. In general, plants may wilt during the day in hot weather and 'recover' during cooler parts of the evening and morning. Margins and interveinal areas of leaves become necrotic which cause leaves to appear 'scorched'. Look for beetle feeding scars on cotyledons and stems of young plants. Healthy green plants will turn chlorotic (yellow) with time and infected plants will eventually collapse and die, exposing fruit to sunscald injury. Cutting through stem tissue at the base of infected plants often reveals a coppery-tan color where the bacterium causes the vascular tissue to 'plug up'. Control of bacterial wilt begins with controlling striped and spotted cucumber beetles which vector the pathogen early in the growing season as plants emerge. Late-season beetle control will remain important as fruit begins to mature. Late-season beetle feeding may cause injury to stems ruining aesthetic quality. For more information on cucumber beetle and bacterial wilt control please see the *2008 Delaware Commercial Vegetable Production Recommendations Guide*.

#### Anthracnose of Pepper

Symptoms of anthracnose infection in pepper fruit include sunken, circular spots which develop blackish-tan to orange concentric rings

as lesions develop. Lesions on stems and leaves appear as grayish-brown spots with dark margins and can easily be overlooked.

Control of anthracnose begins with using clean-free seed and/or transplants. A three-year crop rotation with non-solanaceous crops is recommended. After the harvest season, pepper fields should be disced and plowed under thoroughly to bury crop debris. Beginning at flowering and as small fruit begin to set, alternate maneb (M3) at 1.5 to 3 lb/A 75DF with one of the following FRAC code 11 fungicides:

azoxystrobin (Quadris at 6.2 to 15.4 fl oz 2.08F/A)

or

Flint (trifloxystrobin) 50WDG at 2 to 4 oz/A

or

Cabrio (pyraclostrobin) 20EG at 8 to 12 oz/A

or

Tanos (famoxodone + cymoxanil, 11 + 27) at 8 to 20 50WDG/A.



Anthracnose on pepper fruit

#### Bacterial Leaf Spot of Pepper\*

Symptoms of bacterial spot on pepper leaves include small, brown water-soaked lesions that turn brown and necrotic in the centers. Spots may coalesce and form large blighted areas on leaves and premature defoliation can occur. On fruit, brown lesions can form which have a roughened, cracked wart-like appearance. High temperatures, high relative humidity and rainfall favor bacterial spot development. Loss from bacterial spot can be reduced somewhat by maintaining high levels of fertility, which will stimulate new growth. Applying a fixed copper



(M1) at labeled rates *plus* maneb (M3) at 1.5 lbs 75DF/A or 8 to 10 oz Tanos (famoxadone + cymoxanil, 11 + 27) may help suppress spread. For more information on control of Bacterial leaf spot of pepper please see the *2008 Delaware Commercial Vegetable Production Recommendations*.

*\*From Andy Wyenandt, Rutgers University*

## Agronomic Crops

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

### Alfalfa

Continue to sample for potato leafhoppers on a weekly basis. 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.

### Soybeans

We can find a number of insect pests as well as spider mites feeding on soybeans. A number of defoliators can be found including grasshoppers, green cloverworm, velvet bean caterpillar and Japanese beetles. In some fields, growers and consultants are reporting significant defoliation from green cloverworm (over 30% in some fields). Green cloverworm larvae are light green with three pairs of white stripes running the length of the body. In addition to the three pairs of legs near the head, they have three pairs of fleshy legs near the middle of the body, and one additional pair at the end of the body. Larvae wiggle vigorously when disturbed. Smaller larvae may drop from the leaf when disturbed. Young larvae skeletonize the underside of the leaf. Older larvae chew irregular shaped holes in the leaves and can eat all of the leaf except large veins. There are also velvet bean caterpillars present in fields. This insect is a migratory pest and has four pairs of fleshy prolegs which will help to distinguish it from the green cloverworm. Large larvae can also consume the entire leaf, except for the leaf veins. Please follow this link for pictures of both larvae (<http://www.ag.ndsu.nodak.edu/aginfo/entomo>)

[logy/ndsucpr/Years/2007/august/16/ent\\_16aug07.htm](http://www.ndsu.nodak.edu/ndsucpr/Years/2007/august/16/ent_16aug07.htm)).

Although populations of green cloverworm generally increase in number from July through September, the dry weather may have resulted in earlier than normal populations. In addition, fungal pathogens often crash populations; however, under dry weather conditions this will not occur. We are just starting to see an increase in Japanese beetles so be sure to watch carefully for them in the next week. With the continued dry conditions, as well as increased value of soybeans, you should consider using a lower defoliation threshold to make a treatment decision. As a general guideline, you may want to reduce thresholds by at least  $\frac{1}{3}$ . In addition, remember that double crop soybeans can not tolerate as much defoliation as full season beans so be sure to watch newly emerged fields carefully.

We continue to find mites in a number of fields and economic levels can now be detected. Control options include dimethoate, Lorsban (chlorpyrifos) and Hero. Remember, with all of these products early detection will be needed to achieve control.

We have also started our soybean aphid survey and no aphids have been detected so far. In states where aphids overwinter (remember they are still considered a migratory pest for us) either no or very low levels of aphids have been detected. A combination of low aphid overwintering plus numerous beneficial insects are combining to keep aphids at low numbers in areas to our north and west. As always, the situation can change quickly so we will keep you updated throughout the season.

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

### Corn

Gray leaf spot was identified this week from an irrigated field in Sussex County. The lesions were on the lowest leaves and not very numerous but a cause for concern since it is relatively early for this disease to be showing up. The corn was just beginning to tassel so this field is a good

candidate for a yield response from a fungicide application. If strobilurin fungicides (Quadris, Headline, Stratego) are used on corn be sure to wait until tassel emergence, there have been some problems in the Midwest with early fungicide applications causing some strange symptoms on corn especially “beer can ears”.



Early symptoms of gray leafspot - note rectangular lesions

#### Soybean Rust Update

Things are slow on the soybean rust front. However there was more rain last week in northern Florida and south Georgia so we may see some activity this coming week. Let's hope not.

Soybean rust was confirmed in Taylor County, Florida, on kudzu on June 20<sup>th</sup>. This is the first find in that county in 2008. Since the beginning of 2008, soybean rust has been reported on kudzu in one county in Alabama; eleven counties in Florida (two of these counties had reports on coral bean and snap bean, and one county had a report on soybean); three counties in Louisiana; one county in Mississippi, and three counties in Texas. Reported infected kudzu sites in many counties have been destroyed. Rust was also reported in three states (5 municipalities) in Mexico on yam bean and soybean. These too have been destroyed or are no longer active, except for the find in Chiapas.

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

#### World Corn Output Predicted to Fall; Stocks to Decline

Global corn production is expected to decline 2% in the '08/'09 marketing year to 771 million metric tons due to flooding in the U.S. Corn Belt and frost in Brazil, according to Rabobank. World corn production is expected to lag demand by about 9%, leading to a corresponding reduction in year on year world corn stocks that will plunge them to the lowest level in 35 years. Current high prices for corn are expected to continue due to the need to ration demand. A downside to the positive price outlook that this scenario presents is that it will also lead to some demand destruction in the process of making adjustments. Hardest hit is likely to be the livestock and ethanol industries.

#### World Soybean Output to Rise; Stocks to Decline

Global production of soybeans is predicted to rise 9% in the '08/'09 marketing year to 238 mmt. However, despite an expected rise in production, low carryover stocks and an expected 2.2% consumption growth, soybean stocks are expected to erode in the '08/'09 marketing year.

China's consumer price inflation rate was 8.1% in the first five months of this year. China is partly sheltered from global grain-price increases because it is largely self-sufficient in grains.

#### Marketing Strategy

After a slow start to yesterday's trading corn, soybeans, and wheat surged higher on the day. Dec '08 corn futures closed at \$7.80 per bushel; Nov '08 soybean futures closed at \$16.30 per bushel; July '08 SRW wheat closed at \$8.65 per bushel and Dec '08 SRW wheat at \$9.03 per bushel. Leading the way to the higher close for commodities was the energy market with nearby crude closing at \$143.57 per bushel. The nearby U.S. dollar index closed at 72.405. Trading is expected to be lighter and softer in today's trading due to the holiday weekend and lower overnight closes. Predictions of adverse growing conditions (either to much rain or too hot and

dry) are kicking in the afterburners of this weather. Combine the weather market with run away energy prices and the low value of the dollar and we are once again redefining the meaning of price volatility. USDA's next supply and demand report will be released on Friday, July 11<sup>th</sup>. For technical assistance on grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

## Announcements

### DSU Smyrna Outreach and Research Center Open House

Thursday, July 10, 2008 6:00 p.m.  
DSU Smyrna Outreach and Research Center  
884 Smyrna-Leipsic Rd., Smyrna, DE

Come see our research and demonstration projects for 2008! We have pole lima beans, ethnic vegetables, a high tunnel, small fruits and many more.

Light refreshments served.

Please call (302) 857-6462 to register.

*This workshop is part of the 2008 Small/ Beginning Farm Workshop Series held by Delaware State University.*

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### Warm Season Grass Pasture Walk

Monday, July 7, 2008 7:00 – 8:30 p.m.  
Morris' Choice Bison Ranch

Have you ever been curious about how warm season grasses can improve the grazing efficiency of your pastures? Then mark your calendar for the Warm Season Grass Pasture Walk at Morris' Choice Bison Ranch!

Representatives from the Baltimore County Cooperative Extension Service and the Baltimore County Soil Conservation District will lead the pasture walk and be available to answer questions.

Contact the Baltimore County Cooperative Extension Service at (410) 666-1022 or the Baltimore County Soil Conservation District at (410) 666-1188 ext. 3 for more information.

**For Current Agricultural Information from the UD Kent Co. Extension Office Visit**  
[www.kentagextension.blogspot.com](http://www.kentagextension.blogspot.com)

#### Recent Topics:

Lambquarters Not Being Killed by Glyphosate  
Good Barley and Wheat Yields this Year  
Abnormal Soybean Seedlings  
Corn Down, Soybeans Up  
Are You Prepared to Irrigate to Corn Crop Needs?  
Stunted Hay Regrowth  
Dairy – Summer Feed Intake Problems Can Lead to Fall Lameness  
Poultry – Heat Removal in Broilers  
Fusarium Crown Rot, Root Rot, and Wilt of Cucurbits  
Corn Pollination Coming Up – How Yield is Lost

## Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of June 26 to July 2, 2008

Readings Taken from Midnight to Midnight

#### Rainfall:

0.01 inch: June 27  
0.12 inch: June 29  
0.16 inch: June 30

#### Air Temperature:

Highs ranged from 92°F on June 26, June 27 and June 28 to 82°F on July 1.

Lows ranged from 72°F on June 27 and June 29 to 63°F on July 2.

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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