



# 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)*

### Cucumbers

With the continued hot, dry weather, be sure to continue to sample fields for aphids, which can explode quickly. A treatment should be applied for aphids if 10 to 20 percent of the plants are infested with aphids with 5 or more aphids per leaf.

### Lima Beans

Be sure to watch carefully for spider mites. Economic levels are being detected and controls are only effective if treatments are applied before populations explode. As soon as pin pods are present, be sure to watch carefully for plant bug and stinkbug adults and nymphs. As a general guideline, treatment should be considered if you find 15 adults and/or nymphs per 50 sweeps. Capture (bifenthrin), Mustang MAX, Proaxis and Warrior (lambdacyhalothrin) are labeled for both insects. The higher labeled rates will be needed if stinkbugs are the predominant insect present.

### Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mites. If spider mite populations are high at the time of treatment, 2 sprays spaced 5 days apart may be needed. Since beet armyworm moths can be found in pheromone traps, be sure to watch for

beet armyworms that can damage the rinds of plants. Intrepid and Spintor are labeled for armyworms on melons. **Note:** The Intrepid label is listed under the supplemental labels on line (<http://www.cdms.net/LDat/ld61K035.pdf>). Also be sure to read all labels for time between application and harvest.

### Peppers

In fields with small fruit, a corn borer treatment is needed. 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/latestbit.html>. You should also watch carefully for beet armyworms since moths can be found in pheromone traps. You can often find small beet armyworm larvae feeding in groups on young leaves and fine webbing is produced by smaller larvae near these feeding sites. It is important to spray as soon as you see small holes and before you see this webbing since defoliation can rapidly occur. You will also need to consider a treatment for pepper maggot.

### Potatoes

Continue to scout fields for Colorado potato beetle (CPB), leafhoppers and aphids. As a general guideline, controls should be applied for leafhoppers if you find ½ to one adult per sweep or one nymph per every 10 leaves. 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. At this time, 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 information to make a treatment decision in processing snap beans after bloom

(<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 7-10 day schedule should be maintained for corn borer control.

### Sweet Corn

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 corn earworm to make a treatment decision. This information should also be backed up with field scouting. 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/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 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. Multiple applications are often needed to achieve control.

### Potato Disease Advisory July 12, 2007 - Bob Mulrooney, Extension Plant Pathologist

Disease Severity Value (DSV) Accumulation as of July 11, 2007 is as follows:

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

Remember that 18 DSVs is the threshold to begin a spray program for late blight

Date	LATE BLIGHT			EARLY BLIGHT
	Daily DSV	Total DSV	Spray Recs	Accumulated P days*
6/30- 7/2	0	19	10 days	497
7/2- 7/4	0	19	10 days	516
7/5- 7/6	1	20	10 days	531
7/7- 7/8	0	20	10 days	544
7/9-7/10	2	22	10 days	552
7/10- 7/11	0	22	10 days	558

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, 558 P-days have accumulated at the site. **Note: Once 500 P-days have accumulated susceptibility increases and early blight susceptible varieties will need to be covered.**

18 severity values were reached but conditions for late blight have not been favorable. 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. For specific fungicide recommendations, see the 2007 Delaware Commercial Vegetable Production Recommendations Book.

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

### **Downy Mildew on Cucurbits**

There is a new report of downy mildew from Virginia Beach, VA. Steve Rideout has reported downy mildew on old squash and cucumber plants. The 2 acre field is reported as 25% infected. The trajectory for spore spread is over Delmarva but conditions for spread and survival are mixed resulting in a forecast of moderate risk for our area from Friday through Monday. There is an unconfirmed report of downy mildew in two 5 acre watermelon fields near Shippensburg (Franklin County), Pennsylvania located just north of State College. Michigan also reported downy mildew in a commercial pickle field on July 12. Downy mildew activity is increasing so be vigilant and be sure to include downy mildew fungicides in any cucurbit fungicide program. Be sure to check the downy mildew website for more information <http://www.ces.ncsu.edu/depts/pp/cucurbit/index.php>.

### **Peppers**

Two diseases that can be troublesome for growers are bacterial leaf spot and anthracnose. Both diseases depend on regular rainfall or irrigation to provide conditions that are suitable for infection. Although disease pressure from these two diseases would be considered light this year so far, a change in the weather could change things.

#### *Pepper Bacterial Leaf Spot*

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

spot of pepper please see the *2007 Delaware Commercial Vegetable Production Recommendations*.

#### *Pepper Anthracnose*

Symptoms of fruit infection 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, disease-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, alternate one of the following FRAC code 11 fungicides: azoxystrobin (Amistar 80WDG at 2 to 5 oz/A or 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 with maneb (M3) 75DF at 1.5 to 3 lb/A or OLF. *Andy Wyendandt, Rutgers University Cooperative Extension.*

## **Agronomic Crops**

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

### **Alfalfa**

Leafhoppers can easily be found in fields so be sure to scout fields on a weekly basis. Remember, once you see yellow plants, damage has already occurred. As a general guideline, treatment should be applied when you find 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. However, under drought stress conditions you may also need to reduce thresholds.

### **Soybeans**

Unfortunately, spider mite populations continue to increase, especially in drought stressed fields. Although populations are very high in Kent and Sussex Counties, we have seen mites in fields throughout the state. Therefore, be sure to check all fields carefully. *Early detection and*

*multiple applications will be needed under current conditions.* Unfortunately, the only available control options are dimethoate and Lorsban. Dimethoate is the only available systemic material; however, when plants are stressed control is often poor. In the past, when dimethoate was used, the addition of a penetrating surfactant like LI-700 or Penetrator plus, or a material like Hyperactive helped to improve control, especially in drought stressed fields. The addition of a penetrating surfactant may help although we have still seen poor control this year, especially in drought stressed fields with heavy pressure. Lorsban has provided better contact control this year; however, it will not provide residual control. In addition, the Lorsban label states that: (1) When large numbers of eggs are present, scout the treated area in 3-5 days and if newly hatched nymphs are present, make a follow up application with a non-chlorpyrifos product and (2) do not make a second application within 10 days of the first application. So before applying, be sure to read the label (like all products) for restrictions, maximum number of applications, etc. (<http://www.cdms.net/LDat/ld02A000.pdf>). Unfortunately, we are very limited in control options. In years past under similar weather conditions, the combination of a timely rainfall before or right after a miticide application provided the only control. Also, you will want to take note of Richard Taylor's article in this issue "Treating Manganese Deficient Soybeans."

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

### **Soybean Rust Update**

The first instance of rust in Mississippi this year was reported in Wilkinson County on kudzu. This county is directly opposite one of the Louisiana parishes with rust. In addition, Florida reported its first soybean rust find on this year's soybeans from a soybean sentinel plot in Marion County. So far in 2007, soybean rust has been detected in 10 counties in Florida, five counties in each of Georgia and Alabama, five Parishes in Louisiana, three counties Texas, and



one county in Mississippi. Weather conditions have been somewhat favorable in parts of the South and soybean rust monitoring continues throughout the soybean growing areas.

On the local scene we have begun regular sampling of 6 of the 7 sentinel plots that have reached flowering (R1-R2) for soybean rust. We are collecting 100 leaves per plot and incubating the leaves for 48 hours before looking for diseases. There was an addition to the arsenal of soybean rust fungicides Punch from DuPont was granted a section 18 for use in DE and the link for the label is <http://www.rec.udel.edu/update07/Punch.pdf>.

### **Soybean Downy Mildew**

Downy mildew was seen in one of the Sussex County sentinel plots this week. This is the first report of downy mildew on soybeans this season. Downy mildew has never been a serious disease for us and fungicide applications have never been warranted for downy mildew control. Downy mildew appears as small yellow spots on the upper leaf surface and the corresponding lower leaf surface will have small tufts of gray to beige fungus growth.

### **Corn Gray Leaf Spot**

Gray leaf spot was identified on irrigated corn from Sussex County this week. Although the weather has not been that favorable it is a good idea to be scouting for diseases. This is especially important in irrigated corn and hybrids that do not have good resistance to foliage diseases such as gray leaf spot.

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**Treating Manganese Deficient Soybeans** - *Richard Taylor, Extension Agronomy Specialist; [rtaylor@udel.edu](mailto:rtaylor@udel.edu)*

With the dry soil conditions prevalent in many areas of Delaware, soybeans are showing symptoms of manganese (Mn) deficiency. Since many single-crop soybeans (full-season) are beginning to flower and most double-crop beans are still in the vegetative stage, now is the time to apply Mn to help boost the yield potential in the affected fields. Be sure to test the soil for pH in the good and bad areas to determine if a

high soil pH is the underlying problem so that action can be taken to correct the problem. Unless the soil pH is lowered, Mn deficiency can occur on subsequent crops, especially barley and wheat. If the pH is high, consider using ammonium sulfate on this fall's small grain crop either at planting or next spring as part of your topdressing program.

The deficiency symptoms of Mn can be confused with other nutrient deficiencies unless you examine the plants carefully. Magnesium (Mg) also shows up as interveinal chlorosis (veins remain dark green but the tissue between turns yellow to white) but will be most severe on the older leaves whereas Mn deficiency is worse on the younger leaves (Photo 1). Many of the metal micronutrients show interveinal chlorosis on the younger leaves as their deficiency symptoms so a tissue test is needed to distinguish among the metal micronutrient deficiencies.



R. Taylor

Photo 1. Manganese deficiency on a sandy loam soil with a pH of about 6.5. Note that deficiency symptoms appear on the younger leaves and that the veins remain green. Also note that the weeds appear unaffected and that spider mite damage is also visible on the soybean leaves.

Where the symptoms are widespread and moderate to severe, foliar Mn applied at 1 to 2 lbs Mn per acre can boost yields significantly. If the crop has not reached flowering, a lower rate of 0.25 to 0.5 lb actual Mn per acre is effective although if the plants are very small more than one application may be needed. Once the crop reaches the reproductive stage (begins to

flower), a single application of 1 to 2 lbs Mn (4 to 8 lbs of techmangam or manganese sulfate) will be all that is needed. It should be noted that many chelated Mn products are also available.

There have been some anecdotal observations that suggest that the application of manganese sulfate products may reduce the damage of spider mites in soybean fields. If techmangam or manganese sulfate is used for this purpose, you should be careful not to apply it with certain miticides since it may be possible that the manganese sulfate may increase the risk of leaf burn from some of the available products.

Even if you do not apply foliar Mn, you should be making note of which fields and where in the field symptoms occur so you can monitor these areas in the future. If wheat or barley are to be planted this fall, careful monitoring early will allow you to apply Mn to the small grains before they are severely injured by Mn deficiency. You should also note the areas so you can do soil testing to determine the underlying problem. Check to see if the native Mn concentration in the soil is too low or whether the soil pH is too high since the higher the pH the lower the availability of Mn in the soil. Also, any factor restricting root growth (compaction, drought, etc.) can affect how early Mn deficiency symptoms appear because of changes in water and thus Mn uptake.

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### Potassium Deficiency Appearing on Corn - *Richard Taylor, Extension Agronomy Specialist;* [rtaylor@udel.edu](mailto:rtaylor@udel.edu)

I visited a field a few weeks ago that showed classic potash or potassium (K) deficiency symptoms and wanted to share some of the photos. I've seen similar instances of K deficiency on irrigated corn on very sandy soils and have often been asked whether the crop is running out of nitrogen when in fact the problem is too little K. The photos below are from a field in New Castle County in Delaware east of route 9 near an area where I have seen rather severe K deficiency symptoms (confirmed by soil testing and tissue testing) on soybeans in previous years.

The deficiency symptoms of K appear on the older corn leaves and, when severe, cause the plants to grow so slowly that they are stunted (Photos 1 and 2). Although the symptoms of marginal yellowing and then marginal burn or necrosis are not exactly like the symptoms seen with N deficiency (inverted V yellowing moving up the midrib), the stunting and yellowing effect of K deficiency often are confused with N deficiency (Photos 2 and 3). Be sure you diagnose the deficiency correctly since N fertilizer additions to K deficient plants can lead to more severe lodging problems and potential yield losses.



R. Taylor

Photo 1. Potassium (K) deficiency on silt loam soil New Castle County Delaware. Note that although deficiency symptoms appeared on plants in the foreground as well as in the background, the more severe deficiency in the foreground caused delayed and stunted growth of corn.



R. Taylor

Photo 2. Potassium deficiency on corn from a New Castle County field in an area known to

have low soil potash (K) levels. Note that deficiency symptoms appear on the older leaves and when severe can cause significant stunting of the crop.



R. Taylor

Photo 3. Potash (K) deficiency symptoms appear as yellowing of the leaf blade margins followed by death of the margin tissue resulting in tattered looking older corn leaves.

Since K is taken up from the soil by diffusion processes, the dry weather in many areas may have worsened the inherent low soil K level, resulting in the symptoms we saw in these fields. Other areas to watch for K deficiency are: high yielding irrigated sandy soils that haven't been fertilized recently with K; very low pH soils where hydrogen or aluminum replaces the K on soil cation exchange sites and forces the K into soil solution where it can be leached out of the root zone; and other fields where high rates of N fertilizer have been applied but not K. If you notice areas showing symptoms similar to those shown above, check your soil test reports or take a new sample to find out the K status of your soil.

# Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of July 5 to July 11, 2007

Readings Taken from Midnight to Midnight

## Rainfall:

no rainfall recorded

## Air Temperature:

Highs Ranged from 96°F on July 9 to 84°F on July 5.

Lows Ranged from 74°F on July 10 to 64°F on July 7.

## Soil Temperature:

84°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>

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