



# 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)

### Cabbage

As soon as plants are set in the field, be sure to sample 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 in seedling stage beans. Early detection and treatment will be needed to achieve spider mite control. Unfortunately we are limited in our control options for spider mites: dimethoate and bifenthrin (Capture) are the only available, labeled materials. In addition, multiple sprays will be needed for mites just like in soybeans, especially if populations are high at treatment time and/or numerous eggs are present. 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. Since earworm catches have started to increase and we have observed moths laying eggs in fields, be sure to sample for 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  $\frac{1}{4}$  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 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. Aphid 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

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. As earworm trap catches increase, an earworm spray will also be

needed at the pin stage. 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/latestblt.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.

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**Downey Mildew on Cucumber and Other Cucurbits** - *Kate Everts; Vegetable Pathologist, University of Delaware and University of Maryland; [keverts@umd.edu](mailto:keverts@umd.edu)*

The dry weather conditions in our area have kept our risk of downy mildew on cucumber relatively low (the North Carolina web site rates the risk to Delmarva as "weakly moderate"). A new source of downy mildew on cucumber has been reported in New York. Also, downy mildew was reported in a watermelon field in North Carolina this week. While we have been fortunate so far, continue to be vigilant and scout fields.

## Agronomic Crops

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

### Alfalfa

Continue to scout fields for potato leafhopper. We continue to see fields with damage. Remember, once yellowing is found 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 mites continue to be the main pest at this point. In some cases, a combination of grasshoppers and spider mites are now present. In areas of the state where plants *are not* extremely drought stressed and/or populations have not exploded, dimethoate should still be considered for mite control; however, either a penetrating surfactant or an adjuvant like Hyperactive should be added to the mix. In some cases, producers have reported improved control using Hyperactive. In addition, it is very important that at least 25 gallons of water should be used to achieve adequate coverage (label states 25-40 gallons of water per acre for ground application). Reports still vary with control from dimethoate from no control to some reduction. Lorsban has provided good contact control in most situations when applied in enough water to get good coverage. In speaking with the research and development rep for our area from Dow AgroSciences (the manufacturer of Lorsban), he suggested that the addition of a petroleum oil may help to improve control with Lorsban. He ran trials with research cooperators in 2006 using petroleum oils plus Lorsban on soybeans (such as Damoil and stylett oils) and did not see phytotoxicity. However, I have not had any experience with the use of these oils in soybeans, especially under drought stress conditions. As we know, the Lorsban will only provide control of the motile mites and he suggested from work in other crops that the oil

when applied correctly should help to smother eggs present and therefore provide a longer period of control.

*NOTE: For growers with crop insurance, it is critical that you contact your crop insurance folks before making the decision regarding whether or not to treat or continue to treat for spider mites. The following is advised by Jackie King of King Crop Insurance: "Before a producer makes a choice not to spray I will suggest they seek advice from our ag experts, if an adjuster has not visited the fields."*

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### Comments from Corn Agronomists on Double Eared Corn Plants - Richard Taylor, Extension Agronomist; [rtaylor@udel.edu](mailto:rtaylor@udel.edu)

I've noticed in communications among corn agronomists from across the country, that many are seeing quite a few corn plants with double ears indicating that either dominance among developing ear shoots was disrupted allowing several shoots to reach silking simultaneously or that anther (tassel) development was delayed just enough so that pollen shed occurred after the first ear was well into silk development. In the southern part of Delmarva, conditions such as high light intensity with less haze and cloud cover have occurred this year and these conditions could increase the potential for two ears. In the northern portion of Delmarva, although we've not had quite as much light intensity, we have had weather conditions that would have delayed tassel emergence and development. In addition, I've seen the same tendency towards double-eared plants in at least some of the corn fields I've walked. I thought it would be worthwhile to add below a few quotes from some of the corn agronomists about this situation.

From Chad Lee at the University of Kentucky, "I am seeing a lot of corn at decent populations (27 to 33K) with two ears. The corn plants are shorter, presumably from water stress, and both ears have 14 to 18 rows and about 30 to 40 kernels per row. I assume this is due to the fact that the corn has not produced near the canopy we would like to see at this point, allowing more

sunlight through the canopy and encouraging the second ear to develop."

From Emerson D. Nafziger at the University of Illinois, "Chad, we're starting to hear about the same thing. Rather than sunlight getting through the canopy, I think it reflects the unusually good conditions (and likely high plant sugar content) that we had at the time of pollination. There might also have been some subtle temperature effects that diminished top-ear dominance, but our temps were not that unusual at pollination time."

"In many of our fields, silking started early, perhaps as a result of 'relieved' water stress (perhaps delayed tassel development and emergence) that threw off normal synchrony. This unusually early silking was indicated by large silk mass visible in most fields at and after pollination. I'm speculating a little, but unusually early silking of primary ears might have also meant an earlier break in dominance that allowed the second ear to develop quickly. Pollen shed began late relative to silking of the primary ears, so lasted long enough to pollinate the second ear. We usually see second ears the same size as primary ears only under very low populations. I don't know if pollen shed is extended under such low pops or if large second ears are due to effects like those I mentioned above, with each plant getting so much light."

"One concern with second ears as large as those you describe is that they represent such a draw on the crop that stalk quality problems are much more likely. That's especially true if you don't have the best canopy, in which case there may well not be enough sugars to go around. Unless some truly remarkable things happen, plants may well give out before they can fill 1,000 kernels per plant or 30 million per acre (333 bu per acre at 90,000 kernels per bushel) to normal size."

From Dr. Bob Nielsen of Purdue University, "Could also be that more of today's hybrids are genetically prone to developing the second ear when conditions are 'right', though I'm not sure we fully understand what "right" means. Relative to light, my perception is that we've had more days of quality light this season in Indiana

because of fewer days of typically muggy hazy conditions."

"Let me also suggest, tongue in cheek, that maybe one of the benefits of all this fungicide being sprayed on corn is that it encourages two ears." I'll (Richard) add a comment here as well and that is where the strobilurin fungicides have been used we sometimes see less stalk lodging. If there are many double-eared plants in a field and if the plants are smaller than usual because of early season stresses, stalk lodging shortly after the corn reaches maturity will be a real concern. It would be wise for producers to scout fields to see if unusual numbers of plants have double ears and if so to assign those fields to be harvested first or as soon after reaching harvest moisture as possible.

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**Small Grain Results Available** - Bob Uniatowski, Associate Scientist;  
[bobuni@udel.edu](mailto:bobuni@udel.edu)

The preliminary 2007 Delaware Small Grain Results for Kent and Sussex County can be found on the following site:  
<http://ag.udel.edu/extension/information/varietaltrials/index.html>.

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

**Markets Await August S & D Report**  
The National Weather Service 6-10 day and the 10-14 day weather forecasts are calling for hotter temperatures and drier conditions throughout the Corn Belt this morning. With large portions of the Corn Belt considered to be in good shape concerning crop development this forecast is likely to cause a near term rally, not a bull market.

Industry analysts are now turning their attention to forecasting '07 U.S. corn and soybean yields. For corn, the national average yield is being forecast at anywhere between 147 to 155 bushels per acre. At the lower yield the national average farm price for '07/'08 marketing year

corn projects to \$3.30-\$3.80, at 151 bushels per acre the farm price projects to \$2.70 to \$3.40, and at 155 bushels per acre the farm price projects to \$2.50 to \$2.80 per bushel. For soybeans, the national average yield is being projected at anywhere between 39 to 44 bushels per acre. At the lower yield the national average '07/'08 marketing year farm price for soybeans projects to \$8.00-\$9.00, at 42 bushels per acre the farm price projects to \$7.00-\$8.00, and at 44 bushels per acre the farm price projects to \$6.50 - \$7.50 per bushel.

### **Marketing Strategy**

Providing that the weather forecast does not change, an opportunity is currently being presented to get remaining bushels of corn and soybeans priced that must be delivered and sold at harvest, if not done so already. New crop corn and soybean basis offers, delivered into Salisbury, are currently at 5 over Dec for corn and 10 under Nov for soybeans. Dec '07 corn futures are currently trading at \$3.35 per bushel; Nov '07 soybean futures are trading at \$8.50 per bushel. For technical assistance on making grain marketing decisions contact Carl L. German, Extension Crops Marketing Specialist.

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**Management of Drought Stressed Corn for Silage** - Limin Kung, Jr; Cooperative Extension, University of Delaware; [lksililage@udel.edu](mailto:lksililage@udel.edu)

### **Harvesting Drought Stressed Corn**

Many parts of the region are experiencing drought conditions. Here are some guidelines for dealing with this situation.

Drought stressed corn should be harvested at the same dry matter (DM) for normal corn: 32-35% DM. *Determining whole plant dry matter or moisture is critical because visual assessments can be very inaccurate! Many plants that look dry contain a significant amount of moisture in the stalk.* Use of a microwave oven or Koster Moisture Tester is recommended. Under hot dry conditions, plants may dry down at 1-2 points per day. Ensiling corn at less than 28-30% DM will result in excess nutrient runoff and extremely acidic silages. Harvesting corn too dry (greater than 40% DM)

restricts fermentation, reduces the loss of nitrates, results in forage that is difficult to pack, and can result in excessive spoilage and poor bunk stability.

Chop forage at a theoretical setting of 3/8 to 3/4 inch if harvested at the optimum DM. If you have already missed the optimum dry matter for harvest and the plants are very dry, (more than 40% DM) consider, chopping your forage finer to improve packing (but remember you will have to balance the TMR for adequate effective fiber during feedout).

If the forage is not well eared, mechanical processing may not be needed. Process if the amount and maturity of the kernels warrants it.

As always, filling fast, packing tight and sealing immediately will help to ensure a good fermentation. Be sure to have adequate tractor weight on the pile as drier forages are more difficult to pack. Allow silage to ferment for at least 3-4 weeks (longer would be preferable) prior to feeding and gradually introduce new silage to animals.

#### Silage Additives for Drought Stressed Corn

➤ Homolactic acid bacteria (microbial inoculants): Severely drought stressed corn forage may contain lower numbers of naturally occurring lactic acid bacteria and may need some help during fermentation. If forage is in the normal range for DM, consider using a homolactic acid bacteria. Some strains of *Lactobacillus plantarum* may help with the reduction in nitrates.

➤ Heterolactic acid bacteria - *Lactobacillus buchneri*: Drought stressed corn silage often has a high sugar content and can be highly prone to spoilage when exposed to air. *Lactobacillus buchneri* is an organism that safely produces acetic acid, which reduces aerobic spoilage organisms and improves bunk life.

➤ Buffered propionic acid-based preservatives: Silage additives based on buffered propionic acid may be an acceptable additive for drought stressed forage especially if the DM% of the whole plant is high: greater than 38 - 40%. Addition of 2-4 lb./ton of such products per ton

of wet forage can improve aerobic stability of the silage and reduce DM losses in the silo and during feedout. Higher application rates will increase the probability of effectiveness. Although this may seem costly, such preservation easily pays for itself by preventing drops in intake and milk production that would occur if cows were fed spoiled silage.

➤ Water: Water can be added to increase the moisture level of overly dry forage, but the amounts needed to have a substantial impact are large. For example to decrease the dry matter of forage at 50% to 45%, one would have to add 200 lb of water per ton of forage! In addition, added water can cause run off problems as it is not absorbed efficiently by the forage mass.

➤ Sugars/molasses: Drought stressed corn forage usually contains moderately high concentrations of fermentable sugars. Thus, the addition of molasses or other fermentable substrates is usually not warranted if the forage is harvested at the proper DM content.

➤ Non protein nitrogen additives: Non protein nitrogen (NPN) additives (urea and anhydrous ammonia) should not be used on very dry, drought stressed forages.

#### Nitrate Poisoning From Drought Stressed Forages

Many plants can accumulate nitrate under stressful conditions (excessive fertilization or water stress from rain after a drought). Sunflowers, corn, wheat, barley, rape, bromegrass, and sweet clover are some of the more common plants that can accumulate high levels of nitrates. High nitrates cause toxicity because once they are absorbed into the blood stream, they are converted to nitrites that binds to hemoglobin and reduces the oxygen carrying capacity of the blood. Acute poisoning can be observed within 6 hours of forage consumption and is characterized by dark-brown blood, labored breathing, tremors, and weakness. The following information is primarily aimed at the management of drought stressed corn silage but general concepts are valid for other forages as well.

- Do not graze or feed green chopped forages that have been drought stressed.
- Ensiling is the best method to manage forages with potentially high levels of nitrates.
- Wait at least 4 to 5 days before chopping drought stressed forage if it is heavily rained on.
- Although extremely high nitrate levels are rare, we recommend that you test your corn forage before chopping and after ensiling (before feeding).

*Test for nitrates at chopping:* If the levels of nitrates are extremely high (Table 1) you may want to raise your cutter bar during harvest and leave about 10-12 inches of stalk in the field (this is because nitrates tend to accumulate in the stalk of the plant). We realize this will further lower yields, but high yields with toxic levels of nitrates are undesirable.

When sending samples into the lab, you must obtain representative samples from the field. It is best if this material is chopped. (Do not send in large pieces of plants and stalks.) Labs like Cumberland Valley Analytical, UPS/FEDEX: 14515 Industry Drive, Hagerstown, MD 21742 Phone: 1-800-282-7522 can return results of a nitrate test back to you within a 24 h period.

*Test for nitrates before feedout:* Although ensiling will decrease nitrate levels by about 50 to 60% we would recommend that you test your drought stressed corn silage feed according to the guidelines (Table 1). If nitrate levels are high in feeds, check for nitrates and nitrites in water as these can also contribute to toxicity issues.

### Silo Gas Caution

***Use extreme caution around silos because nitrogen oxide gasses that are generated during the first few days of ensiling are lethal to animals and humans!*** These gasses tend to accumulate in low areas and are colorless to reddish-brown. Run the blower for 15 to 20 minutes before entering an upright silo and use caution around vents in silo bags. Use a respirator before entering a silo. In severe cases, the gasses will stain forages and other items. In some instances patches of yellowish silage may

be observed. If these spots of silage have a very low pH (1 - 3) it is possible that nitric acid was formed.

Table 1. Safe and toxic nitrate (NO<sub>3</sub>) levels in feeds.

Nitrate ion, % dry matter basis	Recommendations
0 - 0.44	Safe to feed.
0.45 - 0.88	Usually safe to feed with balanced diet. Limit to 50% of DM intake in pregnant animals.
0.89 - 1.50	Limit intake to 20-25% of DM intake. Use caution. Do not feed to pregnant animals.
> 1.50	Toxic!

### Manage the Plastic on Your Silage Piles and Bunkers

- *Limin Kung, Jr; Cooperative Extension, University of Delaware; [ksililage@udel.edu](mailto:ksililage@udel.edu) and Chris Hallada, Forage Technical Service Manager and Dairy Nutritionist, Vita Plus Corporation, Madison, WI.*

The primary purpose of covering silage with plastic and tires is to prevent air from interacting with the silage mass. Air allows for the growth of detrimental microbes that initiate a process leading to the destructing of nutrients and potential for increased loads of various toxins. Although bunker and pile silos are covered with "plastic and tires", often times their management is less than desirable. Several scenarios are common. First, inadequate amounts of tires are used and/or the amount of weight provided by the tires (because they are sidewalls only) is insufficient to keep air from penetrating under the plastic. Billowing plastic or plastic that "ripples" is a good sign of this. Next, plastic is often torn from natural causes, equipment or animals and not repaired. Another common problem is that plastic is often cut in advance, too far back from the leading edge of the feeding face. This exposes the surface of the silage to air for too many days before feeding. Lastly, sidewall plastic has been used to help

prevent water seepage into the silage mass but often times the silage is damaged by pack tractors or there is potential that the plastic is damaged with small holes as it lies on the wall during filling (plastic can be scraped on the sharp edges of a concrete wall as the plastic moves during filling).

To use the plastic and tires effectively we suggest the following. First, silos should be sealed with plastic and good weights as soon as possible after filling. This eliminates air and allows fermentation to proceed. Use more weights at the edges and at any seams. For example, use of whole tires, gravel bags, lime, or dirt around the perimeter of piles works well. Gravel bags have worked well at the walls (Figure 1). Overlap the plastic by about 4 to 5 ft at any major seam. Some people have actually glued or taped these seams together as they are lying the tarp down to keep them in place during sealing. If you are using plastic on the side walls, protect the draped plastic from being damaged by the sharp edges of the concrete wall. Placing thin strips of old carpet or cutting a ribbed plastic drain pipe down the center and fitting it on top of the wall (Figure 2) are some practices that have been used.



Figure 1. Gravel bags at the wall in a bunker silo.



Figure 2. Plastic drain pipe used to cover the top of the wall to prevent side wall plastic from being torn or punctured.

During feedout, try to minimize the time that the top layer of silage is exposed to air (especially in hot weather) by cutting back only enough plastic to expose 1 to 2 days worth of feeding. This needs to be balanced with safety. Silage on the top of bunkers and piles is less tightly packed and prone to “cave ins” so use common sense and caution when deciding how much plastic to cut. It is also extremely important that the plastic at the leading edge of the feeding face be securely weighted down. Think of this edge as another “seam”. Use of heavier tires, split tires stacked 3 or 4 high (Figure 3) or gravel bags at this edge (Figure 4) will prevent air from penetrating under the plastic. We have found gravel bags work well since they can be rolled back prior to cutting the plastic. Start the heavier weights at this leading edge as soon as possible after opening the silo. Once a significant amount of air has been trapped under the plastic, placing heavier weights at that edge will trap some of that air under the plastic. Lastly, repair rips and holes in plastic as soon as possible. Assign someone to check for tears at least once to twice a week. The use of alcohol around the perimeter of the rip, to dry the plastic, and tape specifically for repairing bunker or bag plastic will work better than duct tape. Remember, the primary cause of hot, moldy silages and spoilage layers on the tops of silos is due to exposure to air. Thus, minimize this exposure by managing your plastic and weights effectively.



Figure 3. Split tires stacked at the feeding face to prevent air from penetrating under the plastic.



Figure 4. Gravel bags at the feeding face to prevent air from penetrating under the plastic.

## General

**The Adjuvant Puzzle - Adjuvants and Systemic Pesticides** - *Gordon Johnson, Kent County Extension Agriculture Agent;* [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

An adjuvant is a chemical that is added to a pesticide, either in the pesticide formulation, or as an additive in the spray tank, that enhances the action of the pesticide by modifying its characteristics in relation to the target. The world of adjuvants is very confusing with much information being proprietary. Often it is recommended by manufacturers or by

researchers that specific adjuvants be used with systemic pesticides including herbicides, insecticides, and fungicides, to improve their activity or efficacy. Terms such as surfactant, penetrant, and activator are used to describe what the adjuvant does, and to some degree, the general nature of the additive.

There are two basic actions that must be successful for a systemic pesticide to be effective. First, the chemical must enter into the plant. Second, it must be distributed in the plant to the site of action. Adjuvants are used to enhance entry into the plant.

The chemical nature of the pesticide drives what adjuvant is needed to enhance the uptake of that pesticide. Chemical properties, such as whether the chemical is hydrophobic-lipophilic or hydrophilic-polar, are determinate factors in adjuvant choice.

There are several important uptake pathways for pesticide entry through the leaf of the plant. The first is the cuticle. The cuticle is a complex matrix of polyesters and waxes. The waxes are crystalline in nature and may form filaments, plates, ribbons, rods, or other structures. There are also carbohydrate fibers extending from the underlying leaf cell into the cuticle. The chemical and physical nature of the cuticle on a given plant will affect the entry of specific pesticides. Leaves with thinner cuticles will allow pesticides to enter more readily. That is one of the reasons why pesticide activity is greater in younger plants. For hydrophobic (lipophilic) pesticides, the wax layer is the most likely entry pathway through the cuticle. For hydrophilic (polar) pesticides the polyester and carbohydrate fiber portion of the cuticle are a likely pathway. Stomata are another entry pathway for some pesticides but entry is restricted by surface tension.

Leaf cellular structure also affects uptake. Basal trichome cells, cells overlying veins, and the area between cell walls in leaves (think of them as joints) are major areas of entry for pesticides.

Adjuvants are added to help the chemical pesticide cover over the leaf surface, move through the cuticle, and in some cases, move

into the stomata. Surfactants are a major category of adjuvants. They reduce the surface energy of chemicals applied and water, allowing the chemical to spread over the leaf surface more readily. They have both hydrophilic and hydrophobic components thus working with a wide range of pesticides (whether hydrophilic or hydrophobic). Depending on their formulation, they may work to emulsify, disperse, spread/wet, or solubilize the added pesticide as they interact with the leaf surface.

Surfactants act in a number of ways depending on formulation. They may increase the area of contact of spray droplets with the leaf, increase spray retention, act as a humectant to keep spray droplets moist for a longer time, modify the cuticle by allowing dual solubility in hydrophilic and hydrophobic components as the pesticide moves through the cuticle, produce hydrophilic channels for those pesticides with that characteristic, increase the permeability of the cuticle and cell membrane of the underlying leaf cells, complex with pesticides and lower their surface tension, lower tensions allowing movement between cell walls of the leaf, and enhance entry into stomata.

Organosilicone adjuvants have been shown to enhance the movement of chemicals into the stomates as a major mode of entry for pesticides. Oil based adjuvants are diverse with two broad categories: petroleum based and vegetable based. Oils work to reduce vapor loss of a pesticide and for some pesticides, improve entry into the leaf by a number of mechanisms.

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**New Labels/Label Expansions** - *Joanne Whalen, Extension IPM Specialist;*  
[jwhalen@udel.edu](mailto:jwhalen@udel.edu)

#### **Avaunt**

Our development rep from DuPont has just informed us that a new Avaunt label was just approved by the EPA. There are now additional 84 crops added to the label, made possible by crop groupings. Unfortunately, succulent beans are still not labeled. The link for this new label has not been posted to the Dupont website yet -

we will include it in future newsletters when it is posted.

#### **Actara**

A new label has been issued for Actara by Syngenta which includes cucurbits, fruiting vegetables and other additions. *It will be very important that you read the label carefully and observe all label precautions including applications related to bees and blooming crops and weeds* The following is a link to labels to the supplemental label:  
<http://www.cdms.net/LDat/Id55M009.pdf> and the label that covers applications and bees  
<http://www.cdms.net/LDat/Id55M006.pdf>.

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**Tractors and Highway Safety** - *Ron Jester; Extension Safety Specialist (retired);*  
[rcjester@udel.edu](mailto:rcjester@udel.edu)

Safety leaders are focusing on rural roadway safety to spotlight the problem of large, slow-moving farm equipment and the interacting with fast moving motorists on highways. It is estimated that 15,000 collisions occur each year on public roadways between agricultural equipment and motorists.

At this time of year and increasingly as fall harvest approaches, you will find an increased amount of slow-moving farm equipment, especially combines and farm trucks, on Delmarva highways. Farmers and the motoring public need to be aware of the increased risk and take proper precautions to avoid needless crashes. As you will discover, the mixing of cars and slow-moving vehicles is a challenge for both the farm equipment operator and the motorist.

Farming is a dangerous occupation, and the risks don't lessen when a farmer leaves the field and enters a public road with a tractor, farm truck or other piece of equipment. Despite the use of SMV emblems and emergency lights, there are still far too many deaths and injuries to farm equipment operators and motorists on Maryland and Delaware highways.

Most farm machinery accidents happen during daylight hours on dry highways that are open and

level. The three most common types of collision involves the following: left-turn collisions that happen as motorists pass left-turning tractors; rear-end collisions, when the motorist fails to slow down for slow-moving tractors; and collisions as other motorists try to pass extra-wide or long farm vehicles.

Studies have concluded that no one device is adequate to warn the motorist of a slow-moving vehicle (SMV). Tests at Iowa State University indicated that a SMV emblem, highly visible flag, and flashing and rotating lights were all effective in warning motorists of the need to slow down.

Older tractors may present special concerns such as not being equipped with appropriate warning signals. In this case, farmers might want to try battery-powered intermittent lights. Also, farmers can purchase light signals that may be plugged into a receptacle on the tractor. This enables a signals system to be connected from the tractor to a piece of towed equipment. This is important because motorists generally cannot see past a wide load to the operator's hand signals or directional lights on a conventional tractor.

Other important traffic safety tips include:

- prepare the equipment for road travel, especially older grain trucks that have been idle during most of the year
- use routes that are less traveled but with good road conditions
- avoid travel at dawn, dusk or whenever visibility is poor
- use proper procedures for signaling and stopping
- secure the load and assure the tractor and/or truck are capable of controlling the load when pulling or stopping
- only licensed drivers should operate slow-moving vehicles on public roads
- lock brakes together for road travel
- turn on tractor head lights and rotating lights whenever you are on the highway
- keep equipment on the traveled portion of the road, not the shoulders
- make a safe pullover and allow vehicles to pass before continuing if 5 or more accumulate behind you

- use a safety hitch pin and safety chain when towing wagons and farm implements
- use an extendable rearview mirror
- don't pull out on a road if oncoming traffic is closer than 1,000 feet
- never allow passengers on farm equipment - on or off the highway
- carry emergency tools such as fire extinguishers, flares, etc.
- wear a seat belt if your tractor has ROPS
- obey all traffic rules.

Motorists need to be aware that farm equipment is moving slower than they are, and should reduce their speed accordingly. This disparity in speed is often the critical factor in car-farm machinery crashes. Therefore when you see a SMV emblem and/or flashing lights, slow down to assess the situation. Also be aware that farm equipment requires a lot of space and may almost come to a standstill when turning off the highway and into a field.

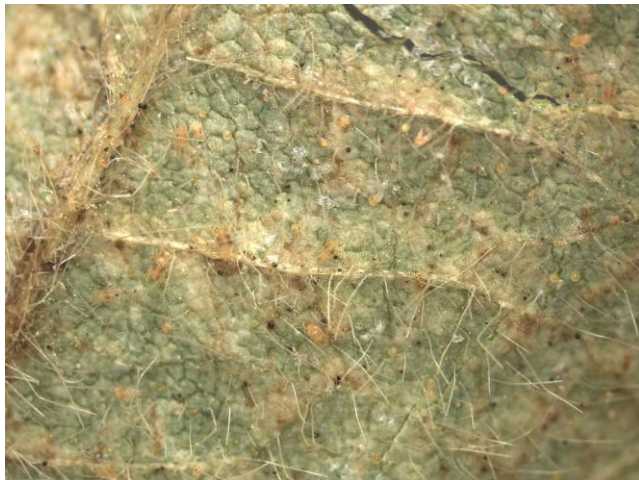
Tractor-motor vehicle accidents occur too frequently and have created a real concern for both the motoring public and farmers. Farmers are encouraged to be defensive and follow all safety precautions; motorists are encouraged to slow down when you see the SMV emblem or recognize a tractor or other piece of farm machinery. It takes only a minute to prevent an accident - to save a life.

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**Photos of Some Current Crop Problems -**  
*Gordon Johnson, Kent County Extension  
Agriculture Agent; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)*



Root knot nematode on summer squash grown on plastic (no fumigation or nematicide was used).



Spider mites on soybeans

## Announcements

### New UD Ag Extension Weblog for Kent County

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

All those in the agriculture community who use the internet are invited to view the new Kent County, Delaware, Agricultural Extension weblog. This blog will be used to post important and timely extension information and images from the University of Delaware, College of Agriculture and Natural Resources, for agricultural producers, farm advisors, industry representatives, and landowners in the county.

Come back frequently as it will be updated regularly.



## On-Line Pesticide Applicator Training for Delaware Applicators

The Delaware Pesticide Information web site has been up-dated to include on-line training for applicators preparing for the certification exam. Now applicators have an alternative to attending training. They may study at their own pace in their own home by going to: <http://ag.udel.edu/extension/pesticide/index.php> And selecting: [On-Line Training](#)

Also on the Delaware Pesticide Information front page are links to:

[Core Manual on-line](#)  
[PAT Manual Order Form](#)

Pesticide Training will still be held every March and September in Dover for those applicators who wish to attend formal training. The certification exam will be given in Dover in March, June, September, and December. Dates and times will be announced at: <http://ag.udel.edu/extension/pesticide/index.php>

## Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of July 19 to July 25, 2007

Readings Taken from Midnight to Midnight

### Rainfall:

0.16 inch: July 19

### Air Temperature:

Highs Ranged from 95°F on July 19 to 82°F on July 20 and July 23.

Lows Ranged from 72°F on July 19 to 58°F on July 22.

### 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>

*Weekly Crop Update is compiled and edited by Emmalea Ernest, Extension Associate - Vegetable Crops*

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