Diazinon Cancellations - (From Tom Kuhar's Eastern Shore Crop Pest Advisory).

EPA has received a request from Syngenta Crop Protection to voluntarily cancel the registrations for all of its remaining products (agricultural and outdoor non-agricultural) containing diazinon. Retailers will be able to sell outdoor NON-agricultural (such as lawn and garden) end-use products containing diazinon made by Syngenta until December 31, 2004. Product that has already been purchased can be used according to label directions until stocks are exhausted. Sales of agriculture end-use products containing diazinon made by Syngenta may continue until stocks are exhausted. Product already purchased can be used according to label directions until stocks are exhausted. All sales and distribution to retailers ends on August 31, 2003. The notice and information about diazinon use with Syngenta's cancellation is available at http://www.epa.gov/fedrgstr/EPA-PEST/2003/May/Day-30/p13436.htm.

In an additional response to questions, an EPA representative also stated: "Only Syngenta has requested cancellation of all their diazinon-containing products. Makhteshim-Agan is also a technical registrant. The other manufacturers that produce diazinon for agricultural uses are Gowan and Drexel. So there will still be agricultural products with diazinon available."

Vegetables

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

**Cucumbers.**

We are starting to find low levels of aphids in seedling stage cucumbers. A treatment should be applied for aphids if 10 to 20 percent of the plants are infested with aphids. Actara, Fulfill, Thiodan or Lannate will provide aphid control. A penetrating surfactant (e.g. LI-700 or AD-100) should be used with Fulfill.

**Lima Beans.**

Watch for leafhoppers on seedling stage beans. In most cases, limas can outgrow the damage. However, if nymphs are easily detected and you can find plant damage a treatment may be needed. As soon as pin pods are present, scout fields for lygus bugs and stinkbugs. Treatment should be considered if you find 15 adults and/or nymphs per 50 sweeps. Lannate, Capture or Warrior can be used if both species are present. A higher rate of Capture (4 oz/A), Mustang (4.3 oz/A) or Warrior (3.84 oz/A) will be needed if stinkbugs are the predominant insect present.

**Melons.**

Continue to scout all melons for aphids, cucumber beetles, and spider mites. Spider mite population levels continue to increase and multiple sprays may be needed. A treatment will be needed for spider mites if you find 20-30% of the plants
infested with 1-2 mites per leaf. If populations of mites have exploded and adult mites are the predominant life stage, Capture or Danitol should be used. If the population is a mixture of eggs, immature mites and lower levels of adult mites, Agri-Mek should be used at 8 oz/acre. A second miticide application may be needed in 3-7 days depending on the population level at treatment time. We are also starting to find a few melon aphids. The treatment threshold for aphids is 20% of the plants infested with at least 5 aphids per leaf. Fulfill, Lannate and Thiodan are labeled on melons and will provide melon aphid control. A penetrating surfactant (e.g. LI-700 or AD-100) should be used with Fulfill. Be sure to watch for bees foraging in the area and avoid insecticide applications on blooming crops. Be sure to follow all label restrictions regarding insecticide applications during bloom.

**Peppers.**

At the present time, all peppers that have fruit ½ inch in size or larger should be sprayed on a 7-day schedule for corn borer and pepper maggot control. A continuous pyrethroid program **should not** be used to avoid aphid explosions.

**Potatoes.**

Continue to sample fields for Colorado potato beetle adults and larvae. Remember Actara or Provado should not be used in fields where Admire, Platinum or Tops MZ-Gaucho were used at planting to avoid the development of resistance. You will need to use Spintor, cryolite, or Avaunt plus PBO. We are still finding threshold levels of green peach aphids in fields where Admire, Platinum or Tops MZ Gaucho **were not** used at planting. The threshold up to 2 weeks from harvest is 4 aphids per leaf. Once we are 2 weeks from harvest, the threshold increases to 10 per leaf. Provado, Fulfill, Monitor or Vydate will provide green peach aphid control. Vydate CLV formulation is labeled on potatoes and should be used at 1.5-2 pts/acre. Provado is only labeled for ground application for aphid control. A penetrating surfactant (e.g. LI-700 or AD-100) should be used with Fulfill.

**Snap Beans.**

Seedling beans should still be watched carefully for thrips and leafhopper activity. If both insects are present, the threshold for each should be reduced by 1/3. The thrips threshold is 5-6 per leaflet and the leafhopper threshold is 5 per sweep. If defoliators are feeding on pin pods, a treatment should be applied. Lannate, Asana, Warrior or Capture will provide the best control of defoliators. Since corn borer catches are starting to increase, corn borer sprays should be applied at the bud and pin stages on processing snap beans. After the pin spray, sprays will be needed on a 5-6 day schedule until harvest. Since this 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 ([http://www.udel.edu/IPM/traps/latestblt.html](http://www.udel.edu/IPM/traps/latestblt.html) and our link to [http://www.udel.edu/IPM/thresh/snapbeanecbthresh.html](http://www.udel.edu/IPM/thresh/snapbeanecbthresh.html)). As soon as pin pods are present, fresh market beans should be sprayed on a 7-day schedule. Lannate, Capture, Mustang or Warrior should be used.

**Sweet Corn.**

Fresh market silking sweet corn should be sprayed on a 4-5 day schedule except in the Greenwood, Milford and Wyoming areas where sprays are needed on a 3-4 day schedule. Be sure to check the IPM website for the most recent BLT catches in your area ([http://www.udel.edu/IPM/traps/latestblt.html](http://www.udel.edu/IPM/traps/latestblt.html)). Be sure to sample late-planted fields for fall armyworm larvae. We have detected our first larvae in the latest planted corn. No controls will be needed until 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. Sap beetles are also starting to show up in silking sweet corn. Warrior, Penncap-M and diazinon have provided the best control.
**Vegetable Crop Diseases – Bob Mulrooney**  
*Extension Plant Pathologist; bobmul@udel.edu*

**Potato Update.**  
Here are some comments from Dr. Tom Zitter, Extension Plant Pathologist from Cornell on the potato situation in NY. I had commented earlier on some of the same issues, but the discussion on early blight control and fungicide programs is very relevant for potatoes that are still going strong.

To date there have been no reports of late blight anywhere in New York or in the Northeast. The same holds true for all Midwestern states. This is good news, given that we have exceeded 18 severity values in most locations in the state. Growers and scouts need to remain vigilant for the symptoms of late blight in the coming weeks.

Early blight should begin to appear on the lower leaves where they touch the ground, are becoming senescent, and where the most favorable moist environment occurs. Remember, earlier heavy rains may have leached applied nitrogen, and this can lead to increasing plant susceptibility to the early blight fungus. Fungicides effective for early blight control include the strobilurin chemistries (like Quadris, Headline, or Gem) and should be tank mixed with a protectant fungicide such as chlorothalonil, mancozeb or metiram. The use of a tank mix will reduce the chance for the development of fungicide resistance of strobilurins to *Alternaria solani*. Researchers like Walt Stevenson in Wisconsin, and results from our own plots at Freeville, have shown that up to three sprays with this mixture alternated with chlorothalonil, mancozeb or metiram and then continuing at least weekly for the rest of the season with these latter materials will easily control early blight. Triphenyltin hydroxide mixed with chlorothalonil, mancozeb or metiram would also provide good control of early blight. Growers in the past relied heavily upon protectant fungicides such as chlorothalonil (Bravo), mancozeb (Dithane), metiram (Polyram), triphenyltin hydroxide (TPTH, Super Tin), and fixed coppers, and these fungicides continue to form the backbone of a preventative program for blight control. However, we now know that repeated use of some of these materials without alternation with different chemistries can result in *A. solani* and *A. alternata* becoming less sensitive to chlorothalonil and TPTH, and to aoxystrobin (Quadris) and mancozeb, respectively.

Black dot (*Colletotrichum coccodes*) was a major player during the last two stressful growing seasons, and was largely responsible for early vine decline seen in most varieties. This organism affects both plants and tubers, resulting in significant yield losses and tuber quality losses in storage. Black dot appears in the field in mid to late summer as chlorosis and wilting of the plant tops. These symptoms can be confused with Fusarium and Verticillium wilts, with normal plant stress, and with damage caused by potato leafhopper feeding. Plants will eventually die and many small black dots, which are sclerotia of the fungus, will appear on the stems and stolons. Infection of tubers will appear as grayish background discolorations beginning at the stolon attachment, and often resembles silver scurf. These symptoms will intensify while in storage. How much damage is seen on plants depends upon the length of the rotational period out of potatoes and how stressful the growing season is during July and August. The amount of soilborne inoculum increases as the rotational period is shortened (3 vs 2 vs 1). Considerable loss in vine health was noted in 2001 and 2002 when temperatures exceeded 88F during July and August (9 days and 26 days, respectively). Applying one strobilurin spray during July and two additional strobilurin sprays during August, with chlorothalonil applied in the intervening weeks, provided excellent potato vine control. By monitoring temperatures during that portion of the season, growers can decide how many strobilurin sprays to apply, but remembering that strobilurins also provide excellent early blight control as discussed above.
Vegetable Crop Diseases – Kate Everts, Extension Plant Pathologist-University of Maryland and University of Delaware; everts@udel.edu

Late Blight on Tomato.
Late blight on tomato is present in Sussex County. This disease is highly damaging and under conducive weather conditions, will cause whole plants to die. It will spread rapidly and entire fields may be lost. Symptoms begin with large gray green lesions eventually turning brown and necrotic. Stems and petioles are infected. Fruit symptoms are gray-green water soaked spots that enlarge and turn dark brown. Late blight develops quickly under cool, moist weather. Temperatures above 86° F will slow the spread of disease, however the pathogen will survive and can become active when temperatures decrease. Acrobat (6.4 oz 50 WP/A) or Gavel (1.5 – 2 lb 75 DF/A) are more effective on late blight than protectants and should be used now that the fungus is present and weather is conducive to spread. New strains of Phytophthora infestans (the fungus that causes late blight) are present in our area. These strains are aggressive on tomatoes and resistant to Ridomil Gold. Protectant fungicides for late blight management are chlorothalonil (Bravo, Echo, Equus at 1-3 pt 6 F/A) or Mancozeb (Dithane, Manex II, Manzate, Penncozeb at 3 lb 80 WP/A). Return to the use of protectant fungicides when weather conditions no longer favor development of late blight.

Cucurbit Powdery Mildew.
Initial powdery mildew infections have been detected in Sussex and Wicomico Counties on susceptible cucurbits. To determine if you have powdery mildew in your muskmelon (cantaloupe) pumpkin or squash field, examine the underside of 45 old leaves for white powdery lesions. When one lesion is found on the underside of 45 old leaves, begin spraying the following on a 7-day schedule: chlorothalonil plus Nova (2.5 – 5 oz 40 WP/A or Procure (4.8 oz 50 WS/A) and alternate with a strobilurin fungicide such as Cabrio (12-16 oz 20 EG/A), Flint (1.5 – 2 oz 50 WDG/A), Quadris (11 – 15.4 fl oz/A) or with chlorothalonil plus copper. Unfortunately, resistance of powdery mildew to strobilurins has been detected in Georgia, Virginia, North Carolina, South Carolina, Arizona and New York. Initial infections of powdery mildew result from wind blown spores that originate far away. Therefore, we may see resistance to this class of chemistry develop rapidly. To delay resistance development, add a broad-spectrum fungicide to applications of strobilurins. Another consideration is that no more than four strobilurin sprays (Flint or Quadris) should be applied to a crop in one season. Finally, remember that Quadris is highly phytotoxic to certain apple varieties.

Dual Magnum Receives Special Local Need Label (Section 24c) for use on Spinach in Delaware – Ed Kee, Extension Vegetable Specialist; kee@udel.edu

Dual Magnum has received a Special Local Need Label (Section 24c) for use on Spinach in Delaware. For several years, Dual has received an annual Emergency Label (Section 18). This new label is in place for five years and is a “third-party” label in cooperation with the Vegetable Growers Association of Delaware. User of Dual Magnum on spinach in Delaware must be a member of the VGAD and obtain a label and complete the liability waiver form. These are available from Ed Kee or Tracy Wootten.

Language from the Waiver of Liability form includes, “Neither the Vegetable Growers Association of Delaware (VGAD) nor Syngenta Crop Protection, Inc. recommends the use of Dual Magnum on spinach. The decision to use or not to use this herbicide must be made by each individual user and/or grower on the basis of possible crop injury from Dual Magnum, the severity of weed infestations, the cost of alternative weed controls, and other factors.”

Dual Magnum can be applied to spinach as a pre-emergent, surface broadcast application at a rate
of 0.33 to 0.67 pint/A. Use the lower rates on coarse, or sandier soils. Apply in at least 15 gallons of water per acre. Irrigate with sprinkler irrigation within two days of Dual Magnum application.

Dual Magnum has provided successful control of many grasses and some broadleaf weeds in Spinach under the previous Section 18 labeling. Read the label for complete instructions and restrictions.

**Tomato Maturity** – Ed Kee, Extension Vegetable Specialist; [kee@udel.edu](mailto:kee@udel.edu)

Tomatoes for fresh market need to be harvested when physiologically mature, i.e., when the seeds from a maturing fruit can germinate. This will occur when the fruit reach the “mature green” stage. Mature green and the Breaker stage are best for long term shipping. The other stages are best suited for local use or near-by shipping. The following table describes tomato growth stages:

<table>
<thead>
<tr>
<th>Harvest Stage</th>
<th>Days from Mature Green</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immature Green</td>
<td>--</td>
<td>Dull green color Seeds will not germinate</td>
</tr>
<tr>
<td>Mature Green</td>
<td>0</td>
<td>Bright to whitish green Seeds embedded in gel, seeds will Germinate Fruit will ripen under right conditions</td>
</tr>
<tr>
<td>Breaker</td>
<td>2</td>
<td>Pink at Blossom End</td>
</tr>
<tr>
<td>Turning</td>
<td>4</td>
<td>Pink extending from Blossom End Over 10-30% of fruit</td>
</tr>
<tr>
<td>Pink</td>
<td>6</td>
<td>Pink to Red over 30-60% of fruit</td>
</tr>
<tr>
<td>Light Red</td>
<td>8</td>
<td>Pink to Red over 60-90% of fruit</td>
</tr>
<tr>
<td>Red</td>
<td>10</td>
<td>Red over at least 90% of fruit</td>
</tr>
</tbody>
</table>

**Field Crops**

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

**Field Corn.**
Continue to watch for Japanese beetles and corn rootworm adult beetles feeding on silking corn. The decision to treat should be based on the number of beetles per silk as well as how far you are in the pollination period. In recent years, large numbers of rootworm beetles feeding on silks before 50% pollination have resulted in yield losses, especially along field edges. Under normal conditions only late-planted cornfields are at risk of poor ear fill because of silk clipping by corn rootworm and Japanese beetles. However, since plant growth and development is behind this year, more fields may be at risk. A treatment is recommended on silking corn if you can find 4-5 rootworm beetles per plant or 3 or more Japanese beetles per plant and they are clipping silks to less than ½ inch long before 50% pollination. Once brown silk is present, silk clipping will not affect ear fill.

**Soybeans.**
We continue to see a significant increase in potato leafhopper activity in soybeans, especially on recently emerged beans. As a general guideline, a spray may be needed if you find 4 per sweep in stressed beans and 8 per sweep in non-stressed fields. There are no thresholds for numbers per leaf however, if plant leafhoppers are easily detected and you can see symptoms of plant damage, a treatment may be needed.

You should also begin watching fields carefully for soybean aphids. We have detected our first aphids in New Castle County. There are a number of key characters that can be used to identify soybean aphids including their bright yellow
color, black cornicles ("tailpipes") and clear cauda with four pairs of setae (hairs).

Yield losses have ranged from 6 to 12 Bu/acre in numerous strip trials conducted throughout the Midwest. In 2002, soybean aphid was detected in Delaware, but no losses occurred. Timing of the insecticide application will be very critical. Observations from other states suggest that the greatest benefit from an insecticide application will come during or immediately following flowering. The later in the summer the insecticide application is made, the less the benefit from the spray. Spraying late in the season after pods have filled or following dispersal of winged aphids will be too late. As a general guideline the following information should be used to make a treatment decision if soybean aphids are detected:

1) The critical stage for treatment appears to be late vegetative to R2 stage -- best timing is mid-July to early August

2) Treatment at flowering would be recommended if aphids are abundant on most plants (200 aphids per plant in 2001 resulted in a yield loss of 6 BU/A). Current guidelines from the Midwest say treat if you find 25 or more aphids per leaflet.

3) Late season treatments have not shown to be beneficial

4) The following products are registered and have provided effective control: Asana, Furadan, Lorsban, Mustang MAX, Penncap-M, Pounce and Warrior.

Continue to scout for grasshoppers and spider mites in seedling stage beans. Grasshopper populations remain high, especially in soybeans planted after barley and wheat. Grasshoppers can be controlled with Asana, Baythroid, Dimethoate, Furadan, Lorsban or Warrior. Spider mites can be managed with Dimethoate, Lorsban or Parathion. Multiple applications may be needed to achieve control.

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**Field Crop Diseases** – Bob Mulrooney Extension Plant Pathologist; bobmul@udel.edu

**Wheat.**
Unfortunately I am still getting samples of wheat badly infected with head scab. It is had reduced yields as well as test weight. The extremely favorable weather for infection during flowering this season was responsible for this epidemic. There is still no effective fungicide for scab. Much research work is currently focused on finding genes for resistance in exotic germplasm. This situation will force many growers to sell what grain they can and start with new seed next season.

**Late Planting of Soybeans** - Richard W. Taylor Extension Agronomist, rtaylor@udel.edu and Bob Uniatowski, Associate Scientist; bobuni@udel.edu University of Delaware

Many folks are still working to finish planting this year’s soybean crop, but what can they expect from the crop and what maturity group bean is best for planting this late?

Several years ago we conducted a study that offers information that may be useful to you. We found that by this time in July a mid-group III cultivar was the best choice although when moisture conditions were favorable for growth during the remainder of the growing season early group III or even group II cultivars produced yields nearly identical to the mid-group III cultivar. Group IV and V cultivars were several bushels lower and could easily be damaged by an early frost.

What can be expected in the way of yield potential? Under ideal moisture conditions, a July 15 planting produced 33 bu/A, but in seasons when drought damaged plant growth this potential was reduced to around 15 bu/A; with yields ranging 5 to 20 bu/A. Under irrigation, expect yields for mid-July planted beans to average 25 to 35 bu/A. For dryland beans, yield potential will
depend a great deal on how long the rainfall pattern we’ve been in lasts. If we have adequate moisture through pod-fill, dryland beans should average from 20 to 30 bu/A, but if drought conditions develop that yield potential can quickly decline. As we move later into the month of July, you should figure that your yield potential will decline 1 bu/A per day after July 15.

UPCOMING EVENTS:

Farm and Home Field Day Set for August 13

Take a day to enjoy summertime in the country at the University of Delaware’s Farm and Home Field Day, Wednesday, August 13. Held from 8:30 a.m. until 1:30 p.m. on the grounds of the Research and Education Center, on 16684 County Seat Highway (U.S. Rt. 9) west of Georgetown, this annual event offers many fun-filled, educational activities, tours, interactive exhibits and demonstrations for homeowners and farmers alike.

Field tours by wagon will highlight agronomic and vegetable crops. Farmers can consult with Extension specialists about the latest research and pest control strategies. Visitors to Field Day can drop by the Master Gardener demonstration garden to view the wide array of plantings.

Children, parents, and caregivers will learn about keeping their young children safe during the summer months. This portion of the program will include many interactive exhibits and demonstrations plus costumed characters, children’s aerobics, face painting, finger printing, a petting zoo, and car seat check. Local 4-H clubs will set up a petting zoo and food booths. Consumer, environmental and commodity groups will staff informational booths in the Grove. Carriage and pony rides will round out the morning’s activities.

Farm and Home Field Day is free and open to the public, and plenty of free parking is available. Tickets for a traditional barbecued chicken luncheon at 12 noon can be purchased at the registration table for $6.00.

For more information, call Mark Isaacs at 302-856-1997 or Jay Windsor at 302-856-7303.

Weather Summary

http://www.rec.udel.edu/TopLevel/Weather.htm

Weeks of July 11 to July 16, 2003

Rainfall:
0.07 inches: July 11
1.51 inches: July 14

Readings taken for the previous 24 hours at 8 a.m.

Air Temperature:
Highs Ranged from 89°F on July 16 to 75°F on July 14.
Lows Ranged from 70°F on July 11 to 64°F on July 15.

Soil Temperature:
77°F average for the week.
(Soil temperature taken at a 2 inch depth, under sod)

Web Address for the U of D Research & Education Center:
http://www.rec.udel.edu

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