



WEEKLY CROP UPDATE

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Vegetables

Growers Guide to Understanding the DMI or SI Fungicides (FRAC Code 3) - Bob Mulrooney; Extension Plant Pathologist; bobmul@udel.edu

The DMI (DeMethylation Inhibitors) or Sterol Inhibiting (SI) fungicides belong to FRAC code 3 which include the triazoles and imidazoles. Some of these fungicides are commonly known as Tilt (propiconazole), Nova (myclobutanil) and Procure (triflumizole). SIs work by inhibiting the biosynthesis of ergosterol, which is a major component of the plasma membrane of certain fungi and needed for fungal growth.

Resistance of fungi to the SI fungicides has been characterized and is generally known to be controlled by the accumulation of several independent mutations, or what is known as 'continuous selection' or 'shifting', in the fungus. Such that, in any given field population the sensitivity to the SI fungicide by the fungus may range from highly sensitive (i.e. will be controlled by fungicide) to moderate (partially sensitive) or low (mostly resistant to fungicide). This type of resistance is also known as quantitative resistance. With quantitative resistance there are different levels of resistance to the fungicide due to independent mutations, which is unlike the target mutations that occur in qualitative resistance associated with the QoI fungicides (FRAC code 11).

Because different levels of resistance to the SI fungicide may exist in the field, the fungal population may behave differently to different rates of the SI fungicide being applied. Consequently, it is suggested that using a higher rate of a SI fungicide, may improve control when lower rates have failed. For example, let's say that a powdery mildew population on pumpkin has 25% high, 50% moderate, and 25% low sensitivity to a SI fungicide. If fungicide is applied at the low rate, only 25% of the population (highly sensitive) may be controlled. However, if the high rate was used, 75% of population may have been controlled. The main point here is that if low rates of SI fungicides have been used and control seems to be weakening, bumping to a higher rate may improve control. Unfortunately, it is difficult to determine what proportion of the powdery mildew population is sensitive or not sensitive by looking at the field until you have begun spraying.

The best advice -- if you are using a low rate and the low rate is not working as you expected, the rate should be bumped up to the high rate the next time the fungicide is sprayed, and if the high rate doesn't work it may be safe to assume the fungal population has grown mostly resistant. Importantly, if the high rate fails and control does not seem adequate, whether you bumped up to a high rate or started with one, *do not continue* to use the fungicide. *Recognizing if and when fungicide chemistries are failing and when fungicide resistance is developing is critical* to producing successful crops and is why

scouting on a regular basis, at least before and after each fungicide application, is important. Regular scouting can help reduce unwarranted and ineffective fungicide applications and help reduce costs.

Remember to always tank mix SI fungicides with protectant (M) fungicides (i.e. chlorothalonil or mancozeb) to help reduce the chances for fungicide resistance developing. Always apply SI fungicides according to label rates and resistance management recommendations and always be aware of the fungicide rates you are applying. *Adapted from an article by Andy Wyenandt; Extension Vegetable Pathologist, Rutgers University; wyenandt@rci.rutgers.edu*

Sinbar (Watermelon) and Reflex (Snap Bean) on Federal Labels - *Mark VanGessel, Extension Weed Specialist; mjv@udel.edu*

Over the past few years, Delaware and surrounding states have been granted Section 18s for use of Sinbar on watermelon and Reflex on snap bean. Since last summer, these uses have been added to the federal labels and special labels are not necessary.

General

First on the Scene - *Ron Jester; Extension Safety Specialist (retired); rcjester@udel.edu*

Now is the time of year that I update my CPR certification and that reminder prompted this topic. If an accident occurs on your farm or in your business or a member of the family is stricken with a heart attack, are you and your employees prepared? Preparation includes but is not limited to the following:

- being able to administer CPR and the Heimlich maneuver
- knowing how to disengage power and shut off the engine if someone becomes caught or pinned under a piece of farm equipment
- knowing the Poison Control Center number and when to dilute or induce vomiting in the event of

an accidental poisoning

- having a first aid kit accessible and in strategic locations such as on the combine or tractor
- having emergency numbers and directions to your farm posted
- having an escape plan in the event of a house fire

According to the National Safety Council's 2006 Injury Facts, agricultural work-related accidents accounted for over 700 deaths and 90,000 disabling injuries in the U.S. alone. The welcome news is that the number of fatalities and the death rate are at an all-time low for agriculture. Nevertheless, safety experts agree the rate can be further reduced if farm families work more diligently at reducing risks and developing emergency preparedness programs.

Recent surveys indicate that there will be a disabling injury on 1 out of every 14 farms on the Delmarva Peninsula. Some of those will be traumatic, life-threatening injuries where every second counts. Emergency scenarios on the farm include shock, severe bleeding, poisonings, animal bites, allergic reactions and, of course, childhood injuries.

The ability to make the right decisions when an emergency occurs depends on whether you have been trained in assessing farm accident scenes and are knowledgeable of first aid and emergency procedures. One must be familiar with the operation and hazards so that decisions made will not further injure the victim or put you in danger. For example, knowing that high levels of toxic hydrogen sulfide gas can accumulate in manure pits and that such structures should not be entered without self-contained breathing apparatus, can save your life.

The primary goal as the first person on the scene is to keep the victim alive until the ambulance arrives. Training in CPR (cardiopulmonary resuscitation) and first aid is required to judge whether the victim needs resuscitation and then to perform the procedure properly. Intuition cannot be used in these situations. Everyone should know first aid and CPR. Those first 4 or 5 critical minutes between when something

happens and when professional help arrives can mean the difference between life and death.

Contact the American Heart Association, the American Red Cross or your local fire department to locate the nearest training center for a CPR class or first aid training in your area. These courses are inexpensive, take little time and yet can help you save a life!

Remember, the first person on the scene of an accident can help turn a tragedy into a second chance. Are you, your family members and employees prepared with the knowledge and skills to save a life?

Agronomic Crops

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

Alfalfa

We have received reports of economic levels of alfalfa weevils in Sussex County. Since warmer weather is projected and larvae can be found in fields throughout the state, damage can occur quickly so be sure to sample fields carefully for larvae. With the warm fall and early winter, eggs were laid last fall and the damage we see now is most likely from fall laid eggs. Numerous pyrethroids are now labeled for alfalfa weevil including Baythroid, Mustang MAX, permethrin, Proaxis and Warrior. Furadan, Imidan, Lorsban, Lannate and Steward are also labeled for alfalfa weevil control.

Field Corn

If you plan to use a granular soil insecticide on corn this year, here are a few last minute reminders:

- (1) Be sure to calibrate your insecticide boxes and use the correct rate -- control failures can occur when reduced rates are used or if insecticide boxes are not calibrated
- (2) Be sure to consider herbicide/soil insecticide interactions
- (3) If you are looking to control grubs, wireworms and/or seed corn maggot, soil insecticides should be placed in-furrow. In

comparison, effective control of economic levels of cutworm is only achieved with granular insecticides labeled for cutworm control if they are T-banded.

Wheat

Although we had observed cereal leaf beetle egg laying last week, some consultants are reporting high egg mortality - most likely resulting from a combination of weather factors and parasitism. However, with the predicted warmer weather, be sure to check fields with a history of problems since populations can explode quickly.

Agronomic Crop Diseases - *Bob Mulrooney, Extension Plant Pathologist*; bobmul@udel.edu

Soybean Rust Update

The soybean rust situation has not changed much since last week. The dry conditions in the southeast have really been unfavorable for soybean rust infection even though kudzu is regrowing in many areas after the hard freeze in early April. Many areas in Florida, Georgia and Alabama that had infected kudzu before the frost are not reporting any soybean rust at the present time. Sentinel plot planting is progressing on schedule in the South. I will begin to plant our sentinel plots beginning in early May.

Small grains

The cool weather is slowing development of small grain diseases, but there does appear to be some spot blotch on barley beginning to appear in some areas. We have received several samples with spot blotch symptoms but have not confirmed it as yet. This disease does appear when cool, wet weather predominates for an extended period. Usually it does not affect yield unless the upper leaves are heavily infected.

I should have stated last week that in addition to Tilt and Propimax, Quilt is also applied widely for powdery mildew control. Syngenta Crop Protection obtained a section 3 label (nationwide) for the application of Tilt and Quilt through head emergence (Feekes 10.5). Section 24c special local needs labels are no longer necessary in Delaware.

Pre-packaged Mixtures for Corn - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

There have been changes in formulation and ratios of products for many pre-packaged herbicides over the past few years. As a result, check the label for your product of choice since often the new formulations recommend lower use rates than what was previously labeled. Below is a chart on rates of the most common pre-packaged mixtures used in the area, general use rate, and the amount of products they are providing:

Herbicide	Rates	Atrazine	Chloroacetamide (grass herbicide)
Bicep II Magnum	1.6 qts	1.24 qt	1.0 pt Dual II Magnum
Fultime	3.0 qts	1.2 qt	2.25 qt Topnotch
Guardman Max	2.0 qts	1.3 qt	14.5 oz Outlook
Keystone	2.6 qts	1.5 qt ¹	2.4 qt Topnotch ²
Harness Xtra 5.6L	1.7 qts	1.1 qt	0.76 qt Harness
Lumax	2.5 qts	0.625 qt	1.76 pt Dual II Magnum AND 5.4 oz Callisto ³
Lexar	3.0 qts	1.3 qt	1.3 pt Dual II Magnum AND 5.4 oz Callisto ³

¹The atrazine formulation in Keystone is not available in other products.

²Not a true comparison since Topnotch is a capsule suspension formulation and the acetachlor in Keystone is a suspo-emulsion formulation.

³Callisto is not a chloroacetamide

Soil Applied Herbicides for Soybeans - Mark VanGessel, Extension Weed Specialist; mjv@udel.edu

Over the past year, a number of herbicide combinations have been registered for soil-application with soybeans. These products are prepackaged or co-packs of existing herbicides. Most of these products control a wide-spectrum of broadleaf weed species, but they are not very effective for grass control. The rate of these products depends on the need. Higher rates will provide a longer period of weed control. All of these products have recommended rates for use with Roundup Ready soybean (given below); but higher rates should be used if applications are made more than 2 weeks prior to planting. Higher rates should also be used if non-Roundup Ready soybeans are planted.

Product Name	Rate (oz/A)	Contains	Rate	Also Contains	Rate
Synchrony XP	1.5 oz/A	Classic	1.3 oz/A	Harmony GT	0.14 oz/A
Canopy	3.0 oz/A	Classic	1.3 oz/A	Sencor	2.57 oz/A
Canopy EX	2.0 oz/A	Classic	1.8 oz/A	Express	0.18 oz/A
Valor XLT	3.0 oz/A	Classic	1.2 oz/A	Valor	1.8 oz/A
Gangster	3.0 oz/A	FirstRate	0.5 oz/A	Valor	2.5 oz/A
Authority First or Sonic	3.2 oz/A	FirstRate	0.3 oz/A	Authority	2.7 oz/A

Canopy EX has recently received registration for use at least 7 days before planting (at least a 7-day interval between application and planting); previous label was 45 days prior to planting.

Reminders on Acetochlor Use Restrictions -
Mark VanGessel, Extension Weed Specialist;
mjv@udel.edu

Acetochlor is a preemergence herbicide for corn that controls annual grasses and some broadleaf weeds. It is in the following products: Harness, Harness Extra, Degree, Degree Extra, Topnotch, Fultime, and Keystone. There are restrictions that are important in our area. The restrictions pertain to groundwater quality. The restrictions are based on depth of groundwater within one month of planting and the combination of soil type and organic matter. Do not apply acetochlor if the groundwater depth is within 30 feet and you have sands with less than 3% organic matter, loamy sands with less than 2% organic matter, or sandy loam with less than 1% organic matter.

Weed Control in Forages - *Mark VanGessel,*
Extension Weed Specialist; mjv@udel.edu

If you have not done so yet, be sure to examine your hay, pasture, and alfalfa fields for weed infestations. Earlier applications are much more effective than later ones, as weeds get larger and start to produce seeds. For grass hayfields or pastures, weed control options include dicamba (Banvel or Clarity), 2,4-D, Overdrive, Crossbow, or Cimarron. Cimarron and Crossbow provide residual control, while the other products do not.

For pure alfalfa fields, Buctril, 2,4-DB, Pursuit or Raptor are labeled. Pursuit and Raptor will provide both postemergence control as well as residual control. For mixed stands of legumes and grasses, Pursuit is an option.

Be sure to read the label and follow all precautions concerning grazing and haying restrictions as well as overseeding and re-seeding restrictions.

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

Weather Delays Planting Progress

Cold and wet weather throughout the Corn Belt has delayed '07 corn crop planting progress thus far this season. Still too early to call, the question begins to build as to whether U.S. farmers are going to be able to get their planting intentions of 90.4 million acres of corn in the ground. It is important to add, providing planters start to roll in earnest within the next week, there is plenty of time left to get as many acres of corn planted as U.S. farmers are willing to ante up. Cold temperatures have also been noted as possibly having had a detrimental impact on the U.S. winter wheat crop. Commodity traders will be trying to decipher to what extent that freeze damage may have occurred to the winter wheat crop. Presently, the wheat market is reacting in a "buy the rumor - sell the fact" mode with Jul '07 soft red wheat prices now trading back over \$5.00 per bushel. Just for the record Dec '07 corn futures are currently trading at \$3.82 per bushel, 5 cents below the same time last week.

Marketing Strategy

An assumption is being made that forward contracting needs are complete for the '07 crop year for corn, soybeans, and wheat. Furthermore, in the event that soybean and wheat sales are not up to date then it is advisable to do so at this time. Soybean prices could further decline from current levels (\$7.65/bushel), having already declined another 20 cents per bushel since this time last week. This is possible for two reasons: a large crop is presently being harvested in the Southern Hemisphere; and in the event corn acres get reduced from the 90 million acre planting level there will be more soybean acres planted. The soybean carry projected for the end of this marketing year is also duly noted as being the largest on record. In the case of wheat, we are approaching being just a couple months away from the next U.S. wheat harvest. Wheat harvest generally brings declining prices through harvest. The same is likely to be true this year. The only exception to that rule would be huge acreage losses.

Announcements

Strawberry Twilight Meeting

Thursday May 24, 2007 6:00-8:00 p.m.
Wye Research and Education Center

HEAR:

- Dr. Anne DeMarsay, UM plant pathologist will discuss current disease control strategies and products.
- Dr. Harry Swartz, UM small fruit breeder will discuss current work.
- Mr. Michael Embrey, UM-WREC apiary specialist, will discuss pollinator concerns
- Mr Michael Newell, UM- WREC, will discuss fall production research and field plasticulture variety trials.

SEE:

- 19 varieties on plastic from California, Florida and USDA breeding programs as part of several research trials
- High tunnel fall production system using bag culture and 5 varieties.
- Living samples of strawberry insects and diseases if available. (Participants are asked to bring in samples.)

Light refreshments after the meeting

No pre-registration necessary

Questions? contact Mike Newell 410-827-7388 or email mnewell@umd.edu



Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of April 12 to April 18, 2007

Readings Taken from Midnight to Midnight

Rainfall:

0.77 inch: April 12
0.05 inch: April 14
1.58 inch: April 15
0.26 inch: April 16

Air Temperature:

Highs Ranged from 65 on April 12 to 47°F on April 16.

Lows Ranged from 46°F on April 12 to 32°F on April 14.

Soil Temperature:

50°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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