



WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

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

Lima Beans

You should continue to sample for mites, plant bugs and stinkbugs. It is also time to begin checking the earliest planted fields for corn earworm. A treatment will be needed for corn earworm if you find one corn earworm larvae per 6 foot-of-row.

Melons

You should continue to scout all melons for aphids, cucumber beetles, and spider mites. We are starting to see an increase in cucumber beetle adults that can feed on the rinds of melons. It is also the time of year to start watching for caterpillars, including beet armyworm, yellow striped armyworm and cabbage loopers, which can also feed on rinds. It will be important to determine if beetles and/or caterpillars are doing the damage since chemical selection will be different. ***Be sure to read all labels carefully for pollinator protection statements, rates and restrictions. Some materials are restricted to only one application as well as ground application only.***

Peppers

Depending on local corn borer trap catches, sprays should be applied on a 7 to 10-day schedule once pepper fruit is ¼ - ½ inch in diameter. Be sure to check local moth catches in your area by calling the Crop Pest Hotline (302-

831-8851) or visit our website at <http://agdev.anr.udel.edu/trap/trap.php>. At this time, you will also need to consider a treatment for pepper maggot. Be sure to also watch carefully for beet armyworm larvae since they can quickly defoliate plants. In addition, be sure to use a material that provides beet armyworm control - the pyrethroids have not provided control of this insect in past years.

Snap Beans

Depending on local trap catches, sprays may be needed at the bud and pin stages on processing beans for corn borer control. As earworm trap catches increase, an earworm spray may 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. Once pin pods are present on fresh market snap beans, a 7 to 10-day schedule should be maintained for corn borer and corn earworm control.

<http://agdev.anr.udel.edu/trap/trap.php>

<http://extension.udel.edu/ag/insect-management/insect-trapping-program/ecb-and-cew-moth-catch-thresholds-for-processing-snap-beans/>

Sweet Corn

At this time, the main whorl feeder being found is the fall armyworm (FAW). A treatment should be applied if 12-15% of the plants are infested with larvae. Since FAW feed deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to

achieve control. FAW can also be a problem in silk stage sweet corn, especially in outbreak years. The first silk sprays will be needed for "worm" control as soon as ear shanks are visible. Be sure to check both blacklight and pheromone trap catches since the spray schedules can quickly change. Trap catches are generally updated on Tuesday and Friday mornings on our website

(<http://agdev.anr.udel.edu/trap/trap.php>) and the Crop Pest Hotline (302-831-8851).

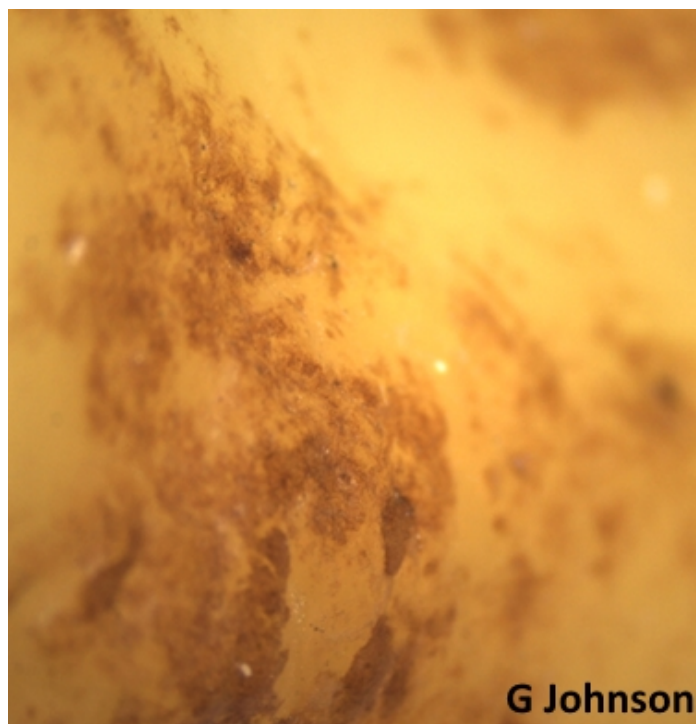
Information on scouting sweet corn and how to use the trap catch information can be found at <http://extension.udel.edu/ag/insect-management/insect-trapping-program/action-thresholds-for-silk-stage-sweet-corn/>.

Edema (Oedema) on Pepper Fruit - *Gordon Johnson, Extension Vegetable & Fruit Specialist; gjohn@udel.edu*

With recent wet, cloudy weather we are seeing some edema (or oedema) on bell pepper and banana pepper fruits. Edema is also called water blistering. The most common cause of edema is warm wet soils, high humidity in the air, low wind, and overcast (cloudy) skies. Under these conditions the roots of the pepper plant absorb water at a rate faster than is lost through transpiration. Excess water accumulates in the developing fruit, some fruit cells enlarge, stomatal openings become blocked by these enlarging cells, and water continues to accumulate in the fruit. The enlargement of these fruit cells then causes a rupture of the epidermis leaving raised bumps and scarring. To reduce edema, limit irrigation during cloudy, humid weather.



G Johnson
Edema in Banana Pepper Fruits. Note the raised brown bumps and scarring.



G Johnson
Magnified picture of ruptured epidermis on edema affected banana pepper fruit.

Potato Late Blight Update #22: July 29, 2016 - Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu

This will be the final late blight update for the 2016 season.

Green row: April 29th, 2016

Date	Townsend		Camden		Leipsic		Kenton	
	DSV	Total DSV	DSV	Total DSV	DSV	Total DSV	DSV	Total DSV
6/2-6/6	6	28	4	32	5	36	5	34
6/6-6/9	0	28	0	32	0	36	0	34
6/9-6/15	0	28	0	32	0	36	0	34
6/15-6/24	11	39	5	37	6	42	4	38
6/24-6/30	1	40	0	37	3	45	3	41
6/30-7/5	2	42	2	39	1	46	2	43
7/5-7/8	1	43	0	39	0	46	0	43
7/8-7/11	3	46	2	41	2	48	2	45
7/11-7/14	8	54	2	43	4	52	3	48
7/14-7/19	4	58	2	45	17	69	2	50
7/19-7/21	1	59	0	45	0	69	1	51
7/21-7/24	1	60	1	46	3	71	0	51
7/24-7/29	5	65	3	49	5	76	3	54

Notes: Season severity of 18 severity values indicates the need for the first fungicide application. An accumulated severity of 7 after fungicide application identifies the need for a subsequent fungicide application.

You can personalize your late blight forecasts for specific fields, sign up for email or text alerts, and enter in management information at <http://blight.eas.cornell.edu/blight/>. Real time fungicide application timing tables for locations within Delaware can be accessed at <http://blight.eas.cornell.edu/blight/DE>

See the [2016 Commercial Vegetable Production Recommendations-Delaware](#) for recommended fungicides.

Any suspect samples can be sent to the Plant Diagnostic Clinic or dropped off at your local extension office. Dr. Nathan Kleczewski can also be contacted at nkleczew@udel.edu or 302-300-6962.

The website USABlight tracks tomato and potato late blight across the nation and can be found here: <http://usablight.org/>. Information on scouting, symptomology, and management can also be found on this website.

Agronomic Crops

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

Alfalfa and Grass Hay Crops

During the upcoming week, be sure to start sampling fields on a weekly basis for defoliators in grass hay crops and alfalfa. True armyworm,

yellow striped armyworm and fall armyworm can all attack hay crops. We have heard reports of low levels of fall armyworm in fields. Populations are also starting to increase in southern states so we could also see migratory populations over the next month. Significant damage can occur in grass hay fields from these two insects so it is important to catch populations before significant damage has occurred and when larvae are small. In addition

to checking labels for rates, be sure to check for all restrictions including, but not limited to, comments on control under high populations and size of larvae; days to harvest and forage/silage restrictions. No thresholds are available in our area but areas to the south indicate that a treatment should be considered if you find three to four larvae per square foot. Controls should be applied before significant defoliation occurs. If fields are ready to harvest, harvesting is suggested rather than applying an insecticide.

Field Corn

It is time to begin looking for aphids in field corn, especially in the earliest planted fields. Often times, populations will be spotty within fields or are only found on field edges. Although there are no treatment thresholds for aphids in corn past tasseling here are some considerations developed by entomologist in the Midwest that can help you to make a treatment decision:

1. Are 80 percent of the plants infested with aphids?
2. Do most of the ears have aphids? What about the ear leaf and above?
3. How long has the field been infested and is the density increasing?
4. Do you see honeydew or sooty mold on the stalk, leaves or ear?
5. Are you seeing winged aphids or nymphs with wing pads? That may be a sign of migration out of the field.
6. Is the field under drought stress?
7. Do you see any bloated, off-color aphids? Natural fungi can quickly wipe out aphids. In addition, are beneficial insects/parasitized aphids present.
8. What is the corn growth stage? Fields reaching hard dent should be past the point of justifying a treatment.
9. Some insecticides have a long pre-harvest interval so be sure to check the label.

Sorghum

Although *NOT KNOWN* to occur in Delaware, you should scout sorghum for a new potential aphid species, the Sugar Cane Aphid (SCA). The following information was included in last week's Virginia Pest Alert: "This insect has moved north faster this year compared to last and has been found in Virginia. Fields need to be scouted once a week once SCA has been detected in a region. Research from the south has shown yields can be drastically reduced if insecticide application is delayed for several days once threshold levels are reached. States and regions in the south vary slightly in their recommended threshold levels, but in general, an insecticide application is justified when 50 aphids per leaf are present on 25 percent of the plants." Sugarcane aphids are yellow and can be distinguished from other aphids in sorghum by the presence of black tailpipes on the tail (cornicles) and black feet below their yellow legs.

Soybeans

We continue to see a mix of defoliators (grasshoppers, Japanese beetles, bean leaf beetles, yellow striped armyworm and green cloverworm) in full season and double crop soybeans. It is also time to start checking for corn earworms in soybeans. Although our corn earworm trap catches have been lower so far this season, we are starting to see an increase in a few locations. When populations are high, corn earworm larvae also feed on soybean leaves so you should include them in the mix when scouting for defoliators. The same defoliation thresholds used for other insects pre-bloom and during pod set would apply to corn earworm. We continue to see an increase in native stinkbug populations (native green and brown) in the earliest planted fields. Economic damage from stinkbugs occurs during the pod development and pod fill stages. You will need to sample for both adults and nymphs when making a treatment decision. Available thresholds are based on beans that are in the pod development and fill stages. As a general guideline, we are using a new threshold in the Mid-Atlantic Region -- 5 stink bugs per 15 sweeps. This is the threshold for soybeans produced for grain. If you are producing soybeans for seed, the threshold is still 2.5 per 15 sweeps.

2016 Fusarium Head Blight Screening

Nursery Results - Jason Wight, Agronomy Field Trials Coordinator, University of Maryland; jpwight@umd.edu and Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu

Overview

The misted nursery is a tool used to assess variety response to Fusarium head blight (FHB). The most significant losses due to FHB occur when flowering heads are infected with spores of the FHB pathogen, resulting in yield loss and probable elevation in vomitoxin (DON). Flowering occurs at different times in different varieties. Consequently, varieties may not be at a highly susceptible stage in development when environmental conditions favoring FHB infections occur (Figure 1). In addition, some seasons, conditions for FHB may not be favorable, resulting in little FHB and DON. The misted nursery helps to avoid these issues by prolonging the conditions that may be favorable for FHB infection, reducing the chance that varieties will escape infection due to sub-optimal environmental conditions and promoting disease development. In addition, because many companies provide ratings based only on their own standards, the misted nursery allows for head to head comparison of FHB responses across seed sources. The misted nursery data presented here should be used, in combination with data from the Virginia Tech Misted Wheat Nursery, to help guide growers in selecting high-yielding wheat varieties with moderate resistance to FHB and in particular, DON.

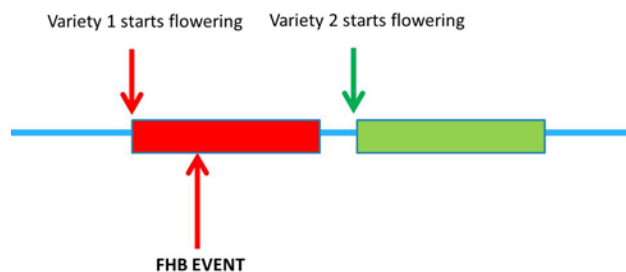


Figure 1. Varieties of wheat can vary significantly in maturity and flowering date. If natural conditions were used to assess FHB response, some varieties may escape disease, appearing to be moderately resistant, because they were not at the appropriate developmental stage when the FHB outbreak occurred. In

addition, if conditions were not favorable for FHB during the growing season, little to no FHB may be observed.

Methods

The misted nursery was planted at Beltsville, MD, in a randomized complete block design with three replications. Entries were evaluated in 7-row plots that were trimmed to 5-feet in length prior to inoculation. A seeding rate of two million live seed per acre was used. Recommended fertility and pest control measures were followed in the establishment and management of the tests. The field was artificially inoculated with corn kernels infested with aggressive *F. graminearum* isolated from infected wheat grain when plants reached approximately FGS 9. To increase infection by *F. graminearum* spores the field was misted for two, 20-minute intervals every night, with the intervals spaced 100 minutes apart, from inoculation until seven days before harvest. Plots were visually rated for symptoms of FHB approximately 21 days after flowering. Plots were harvested and samples were sent to the UMN wheat lab for assessment of DON.

Results

Table 1. DON, incidence (heads with any FHB symptoms), severity (amount of head with symptoms), and index (overall amount of plot with symptoms) for the 2016 wheat misted nursery trial located in Beltsville, MD. Green = DON levels statistically similar to MR standard Jamestown. Dark green = reduced DON by >45% compared to MS/S standard, Shirley.

Variety	DON (ppm)	Incidence (%)	Severity (%)	Index
MBX 15-E-229	7.9	36.0	14.1	5.1
MAS#67	8.9	34.7	19.0	7.0
FS 860	8.9	41.3	19.5	7.9
MAS#66	10.7	52.0	25.6	12.8
USG 3197	12.3	38.7	16.9	7.0
SW 59SR	12.5	37.3	23.8	8.6
FSX 871	12.6	29.3	23.3	7.4
JAMESTOWN	13.2	54.7	36.4	20.5
L 11941	14.2	45.3	15.1	7.0
SS8530	14.5	26.7	25.4	6.5
SY VIPER	14.9	62.7	25.9	15.5

Variety	DON (ppm)	Incidence (%)	Severity (%)	Index	Variety	DON (ppm)	Incidence (%)	Severity (%)	Index
SSEX 8550	16.5	52.0	15.9	8.8	DG 9552	53.8	77.3	28.5	22.0
15 MDX 19	16.6	45.3	21.5	10.4	FS 850	57.4	89.3	53.3	47.7
15 MDX 20	16.9	36.0	23.1	8.3	P 25R40	60.6	68.0	36.9	25.0
15 MW 134	17.4	48.0	14.1	6.7	SY 483	97.2	69.3	39.0	29.0
SY 007	17.5	56.0	22.8	13.8					
P 25R50	17.6	45.3	22.6	10.2					
15 MW 133	17.7	48.0	20.3	9.9					
USG 3201	18.0	48.0	18.2	8.7					
SS8340	19.7	41.3	17.9	7.3					
DG 9223	20.7	53.3	25.4	13.7					
MBX 14-S-210	20.7	57.3	28.7	16.6					
DG 9522	20.9	62.7	20.0	13.1					
FSX 870	21.0	64.0	25.6	16.4					
FS 854	21.1	52.0	21.3	11.2					
15 MW 315	21.1	48.0	27.4	12.8					
L 3677	21.4	77.3	31.5	24.4					
USG 3316	21.9	46.7	25.1	12.8					
USG 3523	21.9	49.3	19.0	9.6					
SS8513	22.5	48.0	34.4	17.7					
MBX 16-B-203	22.7	68.0	28.2	18.5					
USG 3404	22.9	54.7	22.8	13.1					
USG 3013	23.4	49.3	19.5	9.8					
MAS#6	24.9	56.0	27.2	16.1					
15 MW 64-134	25.0	60.0	38.2	23.2					
FSX 872	25.1	60.0	36.2	22.2					
WX 16771	25.9	38.7	21.8	8.6					
DG SHIRLEY	26.4	57.3	37.4	21.5					
DG 9692	26.6	53.3	18.2	10.3					
MBX 14-K-297	26.7	68.0	21.3	14.5					
HILLIARD	26.8	70.7	30.8	21.6					
SW 63SR	26.9	62.7	24.9	15.9					
MAS#7	27.4	64.0	25.9	16.6					
MBX 11-V-258	28.0	64.0	31.3	20.5					
VA12W-72	29.2	57.3	22.1	13.0					
USG 3895	29.8	77.3	29.7	23.3					
FS 865	31.1	62.7	21.5	13.4					
SY 547	31.5	42.7	22.6	9.6					
USG 3251	31.8	65.3	27.7	18.0					
MBX 16-A-206	33.1	80.0	25.4	20.3					
SS8360	33.6	58.7	30.8	18.6					
SS8415	48.9	80.0	51.5	40.9					
MAS#425	50.5	72.0	21.5	15.6					

Discussion

Growers should use this misted nursery data as a tool for selecting wheat varieties, but should understand that multiple sources of misted nursery results will provide more confidence in variety response. Growers should compare these responses with those available from other misted nurseries, which can be located at the scabsmart variety webpage: http://scabsmart.org/soft_red_winter_wheat_southern_region. Ultimately, continued use of a misted nursery in our region will allow for multi-year assessment of varieties.

Funded by the United States Wheat and Barley Scab Initiative, the Maryland Commodity Board, and the Maryland Small Grains Utilization Board.

Special thanks to Aaron Cooper, Louis Thorne, Alyssa Mills, Andy Kness, and Jake Jones for assistance with this project.

Announcements

Free Webinars in August, Sponsored by the Mid-Atlantic Women in Agriculture

8/10: Grant Writing for Agriculture Businesses - Grants are available for research, expansion of your operation, and training. This session will help identify resources for service providers and farmers looking for funding, review some grant programs targeted at farmers, and explain grant writing dos and don'ts.

8/24: Food Safety and Liability - Learn about the legal claims a litigant can assert in a food borne illness case, defenses that can be asserted to avoid liability and techniques that can be implemented to reduce the

cost and exposure to food borne illness liability. Also included will be an overview of the section of the Food Safety Modernization Act (FSMA) applicable to fruit and vegetable farmers known as the Produce Rule.

To register:

<http://www.eventbrite.com/e/wednesday-webinars-registration-11452674257>

Webinars begin at noon EST. Duration is approximately 1 hour. For optimal performance we suggest using Internet Explorer as your web browser and connecting via Ethernet connection instead of wireless (wireless will work, but a hard line is more stable)

See website for more information and other upcoming topics: <https://extension.umd.edu/womeninag/webinars>

If you do not have access to high speed internet and would like to participate in one of the above webinars, contact Tracy Wootten at wootten@udel.edu.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of July 21 to July 27, 2016

Readings Taken from Midnight to Midnight

Rainfall:

0.01 inch: July 25

1.34 inch: July 26

0.01 inch: July 27

Air Temperature:

Highs ranged from 96°F on July 25 to 84°F on July 21.

Lows ranged from 76°F on July 25 and July 27 to 66°F on July 21.

Soil Temperature:

84.4°F average

Additional Delaware weather data is available at http://www.deos.udel.edu/monthly_retrieval.html and

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

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

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