



# WEEKLY CROP UPDATE

UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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## Vegetable Crops

**Vegetable Insect Updates** - David Owens, Extension Entomologist, [owensd@udel.edu](mailto:owensd@udel.edu) and Bill Cissel, Extension Agent - Integrated Pest Management; [bcissel@udel.edu](mailto:bcissel@udel.edu)

### Beans

by David Owens

Earworm larvae and loopers are present in lima bean and snap bean fields. Lima bean thresholds are 1 corn earworm larva per 6 row-ft. Predatory insects are often abundant in beans, delaying worm treatment until a third of the larvae are ½ inch will help conserve predators. If you need to treat for loopers, be aware that pyrethroids perform poorly on this pest. Stink bugs and Lygus bugs are present. Stink bug thresholds are 7 per 50 sweeps and tarnished plant bugs are 15 per 50 sweeps.

### Sweet Corn

by Bill Cissel and David Owens

We continue to catch large numbers of earworms in the pheromone traps. Monday trap capture can be found at (<http://agdev.anr.udel.edu/trap/trap.php>), and Monday trap captures were higher than last week's from all sites. Thursday trap captures were slightly higher than Monday's in most traps. As a reminder, what is reported on the web is on a per night basis, the table below is cumulative over Monday, Tuesday, and Wednesday night. Remember to rotate among chemistries; do not rely solely on pyrethroids. Also, be sure to treat any Bt sweet corn that does not have the VIP

gene in it, earworms have demonstrated resistance to all other traits.

Trap Location	BLT - CEW	Pheromone CEW
	3 nights total catch	
Dover	4	48
Harrington	3	86
Milford	6	97
Rising Sun	0	31
Wyoming	2	94
Bridgeville	1	55
Concord	6	51
Georgetown	3	46
Greenwood	2	---
Laurel	2	117
Seaford	8	56

**Calcium and Boron Deficiencies in Brassica Crops** - Gordon Johnson, Extension Vegetable & Fruit Specialist; [gcjohn@udel.edu](mailto:gcjohn@udel.edu)

### Calcium Deficiency

Calcium deficiency is most commonly seen as tipburn of cauliflower, cabbage, and Brussels sprouts. Chinese cabbage (Napa cabbage) is also susceptible to tipburn. This problem can cause severe economic losses. Tipburn is a breakdown of plant tissue inside the head of cabbage and Chinese cabbage, individual sprouts in Brussels sprouts, and on the inner wrapper leaves of cauliflower. It is a physiological disorder which is associated with an inadequate supply of calcium in the affected leaves, causing a collapse of the tissue and death of the cells. Calcium deficiency may occur where the soil calcium is low or

where there is an imbalance of nutrients in the soil along with certain weather and soil nutrient conditions, such as high humidity, low soil moisture, high potash or high nitrogen all of which can reduce calcium availability. Secondary rot caused by bacteria can follow tipburn and heads of cauliflower can be severely affected. Some cabbage and cauliflower cultivars are relatively free of tipburn problems. Green cabbage varieties with good resistance to tipburn include Blue Vantage, Bobcat, Cecile, Emblem, Padok, Platinum Dynasty, Quick Start, Royal Vantage, Solid Blue 780, Superstar, Thunderhead, Vantage Point and Viceroy. Red cabbage is less susceptible to tipburn. Check with your seed supplier for tipburn ratings for other varieties.

Controlling tipburn starts with managing liming so that soil pH is above 6.0. Limit ammonium forms of nitrogen, and ensure an adequate and even supply of water. Adjust planting date so that head maturation occurs during cooler temperatures. Plant a cultivar that is less susceptible to the disorder. In general, calcium foliar sprays have not been shown to be effective for controlling tipburn incidence.



Severe tipburn in cabbage. *Photo credit David B. Langston, University of Georgia, Bugwood.org*

### Boron Deficiency

Cole crops have a high boron requirement. Symptoms of boron deficiency vary with the cole crop. Cabbage heads may simply be small and yellow. Most cole crops develop cracked and corky stems, petioles and midribs. The stems of broccoli, cabbage and cauliflower can be hollow

and are sometimes discolored. Cauliflower curds become brown and leaves may roll and curl. It is important to note that cole crops are also sensitive to boron toxicity if boron is over-applied. Toxicity symptoms appear as scorching on the margins of older leaves.

It is recommended in broccoli and kale to apply 1.5-3 pounds of boron (B) per acre in mixed fertilizer prior to planting. In Brussels sprouts, cabbage, collards and cauliflower, boron and molybdenum are recommended. Apply 1.5-3 pounds of boron (B) per acre and 0.2 pound molybdenum (Mo) applied as 0.5 pound sodium molybdate per acre with broadcast fertilizer. Boron may also be applied as a foliar treatment to cole crops if soil applications were not made. The recommended rate is 0.2-0.3 lb/acre of actual boron (1.0 to 1.5 lbs of Solubor 20.5%) in sufficient water (30 or more gallons) for coverage. Apply foliar boron prior to heading of cole crops.



Boron deficiency in broccoli causing hollow stem. *Photo credit Gerald Holmes, California Polytechnic State University at San Luis Obispo, Bugwood.org*

# Agronomic Crops

**Soybean Insect Scouting Update** - David Owens, *Extension Entomologist*, [owensd@udel.edu](mailto:owensd@udel.edu) and Bill Cissel, *Extension Agent - Integrated Pest Management*; [bcissel@udel.edu](mailto:bcissel@udel.edu)

Corn earworm, stink bugs, bean leaf beetles, and soybean loopers are the primary insect pests present in soybean. So far, only low numbers of earworms and loopers have been found, but we are seeing moth activity in fields and our pheromone traps have been capturing more earworms than last week. If loopers are present, use defoliation thresholds and keep in mind that pyrethroid resistance is prevalent in southern states. Corn earworms are also demonstrating reduced pyrethroid susceptibility. If a field is at threshold or only slightly above threshold (please visit the CEW threshold calculator and enter your application cost, soybean value, row spacing: (<https://soybeans.ces.ncsu.edu/2015/08/managing-corn-earworm-in-soybeans/>)) and the worms are small, pyrethroids should knock them back enough. If large numbers of worms are present, other useful products include Intrepid Edge, Steward, Radiant, or a diamide containing product (Besiege, Prevathon). Also note that if stink bugs are present at threshold (5 per 15 sweeps grain, 2.5 per 15 sweeps for seed) a pyrethroid will be necessary. We also continue to find low numbers of aphids. Thresholds are 250 per plant on most plants, with increasing numbers of aphids up until R6. After R6, aphid injury is inconsistent. In addition to defoliating, bean leaf beetles can feed on pods. Treatment may be necessary if 3- 4 beetles are present per sweep and 10% of the pods have been fed upon.

## General

### **USDA Encourages Farmers to Apply for Conservation Assistance**

Delaware agricultural producers are encouraged to apply for technical and financial assistance to improve and enhance natural resources on their farm and forest land. Funding is available through the Environmental Quality Incentives Program (EQIP) and Agricultural Management

Assistance (AMA) program administered by the USDA Natural Resources Conservation Service (NRCS). The first application cutoff date for fiscal year 2019 is October 19, 2018 for both EQIP and AMA.

Assistance is available through EQIP and AMA to help farmers plan and implement conservation practices to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forest land. Popular practices include waste storage structures, heavy use area pads, energy, cover crops, irrigation water management, poultry windbreaks and more.

NRCS conservationists will work with producers to develop a conservation plan on their land to identify concerns and opportunities, help determine objectives and recommend solutions. "Our high-quality comprehensive conservation plans can provide farmers with step-by-step recommendations they can use to improve their water quality, soil health and more -- all while reducing input costs," said Kasey Taylor, Delaware NRCS State Conservationist.

In FY 2018, Delaware approved a combined 187 EQIP and AMA contracts covering 36,853 acres for a total of \$6.6 million.

NRCS accepts applications year-round but makes funding selections at application cut-off deadlines. Delaware producers with applications in before October 19 will have a higher chance of application approval as funding is limited. Additional application cutoff dates are scheduled for the third Friday of each month until May 17, 2019.

To be eligible for program assistance, producers must have an eligible resource concern on their operation at the time of application.

To apply for financial assistance, contact your local USDA Service Center. In Sussex County, call 302-856-3990, ext. 3; in Kent County, call 302-741-2600, ext. 3; and in New Castle County, call 302-832-3100, ext. 3. Additional information on NRCS programs and services is available on the Delaware NRCS Web site at [www.de.nrcs.usda.gov](http://www.de.nrcs.usda.gov).

Delaware NRCS works with Delaware Conservation Districts in a partnership effort to address natural resource concerns on privately-owned agricultural and forest lands.

USDA is an equal opportunity provider, employer and lender.

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**Guess the Pest! Week #20 & 21 Answer:**  
***Trissolcus japonicus*** - Bill Cissel, Extension Agent - Integrated Pest Management; [bcissel@udel.edu](mailto:bcissel@udel.edu)

Congratulations to Greg Hawn (week 20 winner) and to Joseph Streett (week 21 winner) for correctly identifying the insect as *Trissolcus japonicus* and for being selected to be entered into the end of season raffle for \$100 not once but five times. Everyone else who guessed correctly will also have their name entered into the raffle. Click on the Guess the Pest logo to participate in this week's Guess the Pest challenge!

**Guess the Pest Week #20 - 21 Answer:**  
***Trissolcus japonicus***  
Bill Cissel, Extension Agent - Integrated Pest Management, Joe Kaser, Research Associate, USDA-ARS Beneficial Insects Introduction Research, and David Owens, Extension Entomologist

*Trissolcus japonicus*, a tiny wasp commonly referred to as the **Samurai wasp**, is an egg parasitoid of the invasive brown marmorated stink bug (BMSB). This particular species is native to Asia and has been in quarantine since 2007 and under evaluation for potential release as a classical biological control agent. In 2014, wild populations of *Trissolcus japonicus*, slightly different from the ones that were in quarantine, were detected in Beltsville, MD and since, additional discoveries have been made throughout the region, including Washington, D. C., Virginia, West Virginia, Pennsylvania, New Jersey, Ohio, and Delaware. It is believed that *Trissolcus japonicus* may have hitchhiked a ride in a BMSB egg mass that was on plant cargo shipped from Asia, but it is difficult to say exactly how it got here. In fact, it appears that the samurai wasp has hitchhiked here more than once!

A single *Trissolcus japonicus* female is capable of parasitizing an entire BMSB egg mass which typically contains ~28 eggs. When the male parasitoids emerge, they wait on the egg mass for the females to emerge so they can mate. They are capable of having up to ten generations per year.



To help with reducing BMSB populations in Delaware, we partnered with some of the folks at the USDA Beneficial Insects Introduction Research Laboratory in Newark, DE to redistribute *Trissolcus japonicas* throughout the state. When I share that we are releasing a parasitic wasp to help with BMSB control, the first reaction that I typically get is, "Will it sting me?" If you look at the photo with some wasps on the dime, you will understand why this is not a concern. Hopefully, this tiny wasp will live up to its name as the Samurai wasp and do its part in controlling BMSB.

**Fun Entomology Fact:** A female *Trissolcus japonicus* will chemically mark the BMSB eggs

that she laid eggs in and defend them against other parasitoids.



Chris Hedstrom



Kim Hoelmer

Here is a link to a very informative fact sheet from UF on *Trissolcus japonicus*:  
[http://entnemdept.ufl.edu/creatures/beneficial/wasps/Trissolcus\\_japonicus.htm](http://entnemdept.ufl.edu/creatures/beneficial/wasps/Trissolcus_japonicus.htm)

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**Guess the Pest! Week #22** - Bill Cissel,  
Extension Agent - Integrated Pest Management;  
[bcissel@udel.edu](mailto:bcissel@udel.edu)

Test your pest management knowledge by clicking on the GUESS THE PEST logo and submitting your best guess. For the 2018 season, we will have an "end of season" raffle for a \$100.00 gift card. Each week, one lucky winner will also be selected for a prize and have their name entered not once but five times into the end of season raffle.

This week, one lucky participant will also win A Farmer's Guide To Corn Diseases (\$29.95 value).

*You can't win if you don't play!*



B Cissel

[What is this insect?](#)



## Announcements

### Sussex Master Gardeners Summer & Fall Workshops

The Master Gardeners are planning an interesting array of workshops for the summer and fall. The classes are free, unless otherwise specified, and held at the Elbert N. and Ann V. Carvel Research and Education Center, 16483 County Seat Highway, Georgetown, DE 19947.

Pre-register for workshops by contacting Tammy Schirmer at (302) 856-2585, ext. 544 or by email at [tammys@udel.edu](mailto:tammys@udel.edu). You can also register online at <http://extension.udel.edu/lawngarden/mg/sussex-county/workshops/>.

**Tuesday, August 28, 1:00 p.m.** Master Gardeners Karen Wilkens and Linda Peters lead a hands-on class making **Stepping Stones**. Few projects are as practical, useful and kid-friendly as handmade garden stepping-

stones. They are easy and inexpensive to make. Limit 20 participants. **Fee \$3.00**

**Thursday, September 13, 1:00 p.m.** Master Gardener Sandi Dew will teach us how to make **Draped Hypertufa**. New to hypertufa or looking for new hypertufa project? This is a new, messy and fun adventure making draped hypertufa flowerpots. **Limit 14 participants. Fee \$15.00.** (please register, but receiving payment reserves your spot) Wear old clothes, bring an old bath towel and latex gloves.

**Tuesday, September 25, 1:00 p.m.** Master Gardener Judy Pfister will lead a program on common **Native Plant Seed Harvesting**. Workshop will also include propagation including when to harvest, how to dry and store them. We will also discuss testing seeds for viability before planting. Weather permitting, we will go into the demo garden to identify seed heads of fall bloomers and select some seeds for harvesting back in the classroom. Please bring a pair of tweezers and a magnifying glass if you have them.

**Tuesday, October 2, 6:30 p.m.** Master Gardener Terry Plummer will present a workshop on **Landscaping with Native Plants**. Make your garden life easier with less watering and less fuss. Plant native trees, shrubs, and perennials for a delightful landscape. Terry will introduce you to a wide variety of native plant materials, that will draw insects and the birds that love to eat them to your garden.

**Tuesday, October 16, 1:00 p.m., Woodland Trail** Master Gardeners will lead the group along a trail through the woods. The trail invites attendees to enjoy the woods and learn interesting things about trees, soil, and the residents of the woods. The trail is about a 40-minute walk. Wear closed-toe shoes and long-sleeved shirts or jackets.

**Tuesday, October 23, 1:00 p.m., Woodland Trail** Master Gardeners will lead the group along a trail through the woods. The trail invites school-aged children to enjoy the woods and learn interesting things about trees, soil, and the residents of the woods. The trail is about a 40-minute walk. Children must wear closed-toe shoes and long-sleeved shirts or jackets.

**Tuesday, October 30, 6:30 p.m.** Master Garden Joe Parish will discuss **Bats**, an organic choice for insect control. Bats are not just a cute Halloween creature but should become a part of your garden planning. Why not invite some in today.

*Master Gardeners are working volunteers and are supported by Delaware Cooperative Extension through the University of Delaware and Delaware State University Extension offices. Delaware Cooperative Extension's policy that no person shall be subjected to discrimination on the grounds of race, creed, color, sex, age, religion, national origin, sexual orientation, veteran or handicap status. If you have special needs that need to be accommodated, please contact the office two weeks prior to the event.*

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## Growing Farmers Workshops

Coverdale Farm Preserve  
543 Way Road, Greenville, DE 19807

Coverdale Farm Preserve is a 377-acre farm and nature preserve located in Greenville, DE. We are pleased to offer a series of free hands-on workshops for farmers of all levels of experience and scale of operation.

*Registration is required. To Register please contact Melinda Hardie: [melinda@delnature.org](mailto:melinda@delnature.org)*

### Fall 2018 Series

#### **Creating a Pick-Your-Own Program**

*Wednesday, August 29, 10:00am – 12:00pm*

*Rain date: Friday, August 31, 10:00am – 12:00pm*

A Pick-Your-Own (PYO) program is an engaging opportunity for your customers. Tour our successful PYO program and discover the best varieties to plant, techniques for low maintenance, pricing, and customer education. Let us share our experience to help you determine if this is a good fit for your operation.

#### **Troubleshooting in Specialty Crop Production**

*Wednesday, September 19, 10:00am – 12:00pm*

*Rain date: Friday, September 21, 10:00am – 12:00pm*

Keep your plants thriving and productive. Learn to identify common pests including insects, plant diseases, nutrient deficiencies. Discover preventative strategies, steps, and solutions to compromising conditions in order to maximize yields.

#### **Techniques for Successful Lettuce Production**

*Wednesday, October 10, 10:00am – 12:00pm*

*Rain Date: Friday, October 12, 10:00am – 12:00pm*

Lettuce is a fast growing and profitable 4-season crop. Explore our production fields to learn the methods we have refined over the years, the varieties that do best in both cool and hot seasons, as well as harvesting, cleaning, and storage tips.

### **Season Extension of Specialty Crops**

*Wednesday, October 17, 10:00am – 12:00pm*

*Rain Date: Friday, 19, 10:00am – 12:00pm*

Vegetables are the focus of this workshop with particular attention to selected varieties trialed for season extension. Learn how to maximize yields in shoulder season in both protected culture and field grown situations.

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### **Advanced Soil Health & Cover Crops Workshop**

Wednesday, September 12, 2018 9:00-3:00

St Jones Reserve Coastal Training Center

818 Kitts Hummock Rd Dover, DE 19901

#### **Topics Include:**

- Increasing soil organic matter
- Soil biology
- Impacts of herbicides on cover crops
- Benefits of species and mixes
- Farmer case studies

Featuring:

Dr. Sjoerd Duiker from Penn State  
& Dr. Mark VanGessel from UD

***CEU's are pending for this free workshop.***

Lunch is included.

Contact Jason Challandes for more information or to register at [jchallandes@desu.edu](mailto:jchallandes@desu.edu) or (302) 388-2241.

Cooperative Extension Education in Agriculture, 4-H and Home Economics, Delaware State University, University of Delaware and United States Department of Agriculture cooperating, Dr. Dyremple B. Marsh, Dean and Administrator. It is the policy of Delaware Cooperative Extension that no person shall be subjected to discrimination on the grounds of race, color, sex, disability, age, or national origin.

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### **Summer Cut Flower Tour**

Wednesday, September 12, 2018

8:40 a.m.-2:30 p.m.

Sponsored by:

University of Maryland Extension

Co-sponsors:

Association of Specialty Cut Flower Growers

Maryland Cut Flowers Growers Association

### **LOCATIONS**

Loveville Produce Auction

40454 Bishop Road, Mechanicsville, MD

Weaver's Cut Flower Farm

25964 Bishop Road, Mechanicsville, MD

Jacob Hertzler Farm

37011 New Market Road, Charlotte Hall, MD

### **SCHEDULE**

8:40 – 9:00 Check-in/Registration

9:00 – 10:00 Loveville Produce Auction

10:00 – 11:30 Weaver's Cut Flower Farm

11:30- 12:15 Ko Klaver – Botanical Trading Company, Bulbs for Cut Flowers

12:15 – 12:45 Lunch: Fried Chicken, Local Produce  
Fixin's and Homemade Ice Cream

12:45-1:15 Travel to Jacob Hertzler's in Charlotte Hall

1:15 – 2:30 Jacob Hertzler and Family Cut Flower Farm

Times are approximate. Farm stop times can vary.

University of Maryland Extension programs are open to all citizens without regard to race, color, gender, disability, religion, age, sexual orientation, marital or parental status, or national origin.

### **REGISTRATION**

*Cost: \$30 per person*

*Lunch is not guaranteed after September 10.*

*No refunds after September 11.*

*To register with a credit card go to:*

<http://2018cutflowertour.eventbrite.com>

[\*A form for mail-in registration is available.\*](#)

*For more information on the program or registration call (301) 596-9413 or email [sklick@umd.edu](mailto:sklick@umd.edu)*

# Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of August 16 to August 22, 2018

Readings Taken from Midnight to Midnight

## Rainfall:

0.02 inch: August 19

0.61 inch: August 21

0.01 inch: August 22

## Air Temperature:

Highs ranged from 93°F on August 17 to 78°F on August 20.

Lows ranged from 77°F on August 18 to 68°F on August 16

## Soil Temperature:

76.9°F average

Additional Delaware weather data is available at  
[http://www.deos.udel.edu/monthly\\_retrieval.html](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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**Reference to commercial products or trade names does not imply endorsement by University of Delaware Cooperative Extension or bias against those not mentioned.**

## 2018 Fusarium Head Blight Screening Nursery Factsheet

Nidhi Rawat, Ph.D. Small grain pathologist and Jason Wight, Ph.D. Field Trials coordinator

Department of Plant Science and Landscape Architecture, University of Maryland

Fusarium Head Blight (FHB) was the foremost challenge to wheat yields and quality in 2018 and should be an important consideration in making planting decisions for the coming seasons as well. Popular local varieties of wheat were evaluated for FHB reaction under heavy disease pressure in misted nursery conducted at the Beltsville research farm of University of Maryland. To provide the growers with consolidated information for making their planting decisions, we have combined data on statewide yield trials and FHB components: FHB index and DON content in the table below. The entries below have been sorted based on their average DON values. Green cells indicate moderate resistance/ tolerance to FHB, orange cells may be considered moderately susceptible, whereas those highlighted in blue depict highly susceptible varieties.

Entry	Brand	Statewide Yield Results			Fusarium Head Blight	
		Yield Rank	Yield	Test Wt	FHB Index	DON (ppm)
AgriMAXX 463	AgriMAXX	2	79.2	55.4	33.0	12.3
MBX18-A-237	Eddie Mercer Agriservices	57	64.3	56.3	34.6	12.6
MBX17-P-275	Eddie Mercer Agriservices	4	77.7	55.5	24.0	12.9
MAS67	Mid-Atlantic Seeds	9	74.2	55.2	21.3	13.4
AgriMAXX 480	AgriMAXX	39	67.7	57.4	44.9	14.5
DG 9772	Dyna-Gro	19	71.8	55.2	24.1	15.0
USG3228	UniSouth Genetics	3	78.0	55.3	28.0	15.8
FS878	Growmark	7	74.7	55.2	22.7	16.1
FS 875	Growmark	14	72.6	53.0	35.9	16.3
15MW315	University of Maryland	61	62.2	57.4	17.2	16.8
DG 9750	Dyna-Gro	13	73.2	54.8	22.1	17.0
TWS-2616	Tidewater	63	61.5	53.7	39.7	17.4
Momentum 106	Missouri Crop Improvement	34	68.8	56.5	36.1	17.6
USG 3197	UniSouth Genetics	30	69.5	54.5	23.7	18.4
MAS61	Mid-Atlantic Seeds	49	66.0	54.3	30.6	18.6
L11551	Limagrain Cereal Seeds	62	62.1	57.0	17.5	19.0
15MDX19	University of Maryland	58	63.8	56.0	31.8	19.1
USG3118	UniSouth Genetics	65	59.8	55.0	48.8	19.2
Ammo	Limagrain Cereal Seeds	46	66.4	55.4	33.5	19.3

MAS35	Mid-Atlantic Seeds	33	68.9	55.4	21.2	19.8
AgriMAXX 485	AgriMAXX	27	70.2	55.4	41.6	20.0
15MDX20	University of Maryland	55	64.6	56.2	29.7	20.1
MAS86	Mid-Atlantic Seeds	5	77.0	54.2	21.2	20.3
15MDX5	University of Maryland	67	58.6	57.3	39.2	21.0
25R74	Dupont Pioneer	25	70.7	55.4	30.1	21.4
USG3316	UniSouth Genetics	1	80.2	56.0	20.4	21.6
MBX17-M-245	Eddie Mercer Agriservices	24	70.7	54.1	69.5	23.2
MAS88	Mid-Atlantic Seeds	21	71.6	56.0	36.3	23.2
AgriMAXX 444	AgriMAXX	26	70.5	54.4	29.1	23.3
VA12W-68	Virginia Tech University	40	67.6	53.7	25.0	23.7
SY Viper	Syngenta	23	70.7	54.1	55.6	24.3
USG 3329	UniSouth Genetics	8	74.7	54.6	35.4	24.4
WX17775	Dyna-Gro	6	75.4	52.9	28.2	24.6
FSX 891	Growmark	22	71.2	55.8	33.0	24.8
AgriMAXX 415	AgriMAXX	20	71.8	56.8	40.0	25.2
FSX 892	Growmark	28	70.1	55.2	37.4	25.4
MAS84	Mid-Atlantic Seeds	52	65.2	54.7	55.3	26.4
USG 3429	UniSouth Genetics	48	66.2	56.4	28.5	26.8
MAS316	Mid-Atlantic Seeds	35	68.7	55.7	43.9	27.0
AgriMAXX 474	AgriMAXX	36	68.3	53.6	60.9	27.0
MAS116	Mid-Atlantic Seeds	47	66.3	54.1	34.3	27.2
15MDX18	University of Maryland	53	65.2	56.6	35.3	28.8
USG3895	UniSouth Genetics	37	67.8	52.9	51.6	28.8
TWS-3418	Tidewater	12	73.4	55.6	40.7	28.9
Hilliard	Virginia Tech University	64	61.0	54.0	47.4	29.0
SRW9606	Croplan	18	71.9	53.7	34.4	29.5
TWS-2818	Tidewater	10	74.0	53.6	40.2	29.7
Luisa	Cover Crop 200	60	63.1	57.0	31.1	29.7
DG 9811	Dyna-Gro	59	63.3	53.5	46.1	30.5
MAS85	Mid-Atlantic Seeds	15	72.4	51.1	34.5	30.5
MAS83	Mid-Atlantic Seeds	56	64.3	53.3	41.6	30.9
MAS65	Mid-Atlantic Seeds	32	69.0	53.7	63.2	31.1
25R25	Dupont Pioneer	11	73.6	54.2	18.8	31.3
MBX14-S-210	Eddie Mercer Agriservices	17	72.1	54.2	29.3	32.1
AgriMAXX 473	AgriMAXX	43	67.4	54.6	38.0	33.1
DG 9701	Dyna-Gro	44	67.2	54.3	37.7	33.5

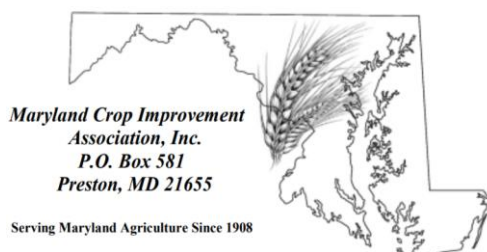
AgriMAXX 486	AgriMAXX	38	67.8	55.3	46.9	33.6
DG 9862	Dyna-Gro	29	70.1	56.3	38.6	36.9
SRW8550	Croplan	51	65.4	54.8	29.9	38.4
SY 100	Syngenta	50	65.8	51.1	52.7	39.7
USG3201	UniSouth Genetics	16	72.1	56.1	34.8	39.8
USG3536	UniSouth Genetics	42	67.5	53.9	36.0	41.7
Sy547	Syngenta	45	66.6	54.4	44.0	41.8
AgriMAXX 446	AgriMAXX	31	69.1	54.8	46.4	46.5
SRW9415	Croplan	41	67.6	54.8	39.9	51.1
DG Shirley	Dyna-Gro	66	58.8	50.8	46.8	51.7
L11719	Limagrain Cereal Seeds	54	65.1	54.7	38.0	52.6

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U.S. Wheat & Barley  
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