



WEEKLY CROP UPDATE

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Vegetable Crops

Seedless Watermelon Management - Thoughts Ahead of the Season - Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

Plastic is being laid across the region in anticipation of the first watermelon plantings about a month away. The following are some thoughts on watermelon management addressing questions received over the past year and in light of recent applied watermelon research.

Managing Fruit Size, Spacing, and Marketable Yield

Some growers have had a problem with producing too many oversized watermelons (which have limited markets) in the last 2 years. Fruit size is best managed by choosing varieties that have been evaluated and selected for filling different size classes. A variety that commonly produces a high percentage of 36 count watermelons may, under certain growing conditions, produce high numbers of oversized melons. Conversely, under heat stress conditions, a predominately 60 count watermelon variety may produce high numbers of undersized melons.

Watermelon yield and size is also affected by planting density. In reviewing the past research on plant density with seedless watermelons, marketable yield of standard sized seedless watermelons was optimized at densities of 8-10 sq ft per plant (1 ft. between plants). For mini-seedless watermelons and small ice-box types

optimal yields were at 4-5 sq ft per plant (0.5 ft. between plants). These are much higher densities than commonly used in our industry. Growers must strike a balance between cost of plants and potential yield. Industry standards in our area are between 20-28 sq ft per plant for standard seedless types (3-4 ft between plants) and 12-20 sq ft per plant for small fruited types (2-2.5 ft between plants). These common spacings maximum size potential. Wider spacings do not produce heavier watermelons. Fruit size can be reduced to a certain degree by reducing in-row spacing (increasing plant density). Reductions of average fruit size of 0.5-1.0 lbs per fruit can be expected for every foot of in-row spacing reduced.

Vine Management in Drive Rows and Row Middle Management

There has been interest in alternative vine management techniques to reduce labor costs and manage diseases. Vine turning in drive rows is time-consuming and requires hand labor. An alternative would be using discs to cut the vines which can be done mechanically. In research over the past 2 years we observed that vine cutting had no adverse yield effects as an alternative to vine turning. Of concern is the potential for disease transmission because a wound is made by the disc. This can potentially be mitigated by spraying these wounds with anti-microbial or bactericidal/fungicidal compounds. This will be focus of research this year.

Another interest has been in reducing the potential of *Phytophthora capsici* fruit rots in watermelons with row middle management. This disease proliferates when row middles remain

saturated or have standing water for extended periods of time. High volume rains (more than 2 inches received in a short period of time) and saturated soils are the risk factors. Therefore, the issue with Phytophthora in watermelons is two-fold: getting water off the field as quickly as possible, and how to manage row middles where water accumulates as it runs off the plastic. On flat fields with little or no slope these are major issues. Compaction from traffic between rows and in drive rows makes the problem worse.

Field planning to drain water off of watermelon row middles is a key. Orient beds to improve water movement and then install cross drains at regular intervals to move excess rain water off rapidly. Shaping between bed areas to expedite water removal and eliminate ponding is also important. Subsoiling between plastic beds is another potential practice to improve drainage. Increasing spacing between plastic beds may also reduce ponding by having more soil surface to allow for water infiltration.

Another practice to consider is using planted mulch cover between plastic beds to keep fruits from contacting the soil and to reduce soil splash which can move Phytophthora onto fruits. This would require growing a cover between plastic beds and killing it. Rye windbreaks between every row also serve this function.

Pythium and Fusarium in Potatoes - *Nathan Kleczewski, Extension Specialist - Plant Pathology*; nkleczew@udel.edu

Nancy Gregory received several samples of potatoes over the last 10 days that were affected by Fusarium and Pythium, which can cause tuber rot and impact seed quality. Wounding at harvest can facilitate infection by these pathogens, as can swelling and enlarged lenticels.

Potato plants can compensate for stand losses of approximately 3%, and seed is very limited this season. Therefore, there is no guarantee that subsequent lots will be any better in terms of quality. If you have low levels of these pathogens in your potatoes or do not want to roll the dice on a new load and potentially delay planting, an in furrow application of Ridomil

Gold + Quadris will help minimize any additional issues with these diseases during the growing season. As always, make sure to save your seed certification certificate and lot number for future reference.



Pythium and Fusarium can cause severe tuber rot in some cases.

Agronomic Crops

Scouting for Alfalfa Weevil - *Bill Cissel, Extension Agent - Integrated Pest Management*; bcissel@udel.edu

Begin sampling alfalfa for alfalfa weevils by examining 10 random stems per field on a weekly basis until first cutting, noting the presence of alfalfa weevil larvae and feeding injury. If damage or larvae are found, a full stem sampling should be conducted by randomly collecting 30 stems throughout the field. Once the stems have been collected, separate them into 3-4 bundles and beat them against the inside of a bucket to dislodge larvae from the stems. Count and record the total number of larvae found from the 30 stems. Measure the length of the stems to determine the average stem height and note the percentage of plant in the bud or flower stage. Refer to our Extension Fact Sheet for thresholds and control decisions:

<http://extension.udel.edu/factsheets/alfalfa-weevil-control-in-alfalfa-2/>

If alfalfa is in the full-bud stage and economic levels are present, early harvest is an option if harvest is possible within 3 days and populations

are increasing. If cutting early versus spraying, be sure to check fields within one week for damage to re-growth. Re-growth can be significantly damaged from alfalfa weevils and in some cases; a stubble treatment may be needed if you find 2 or more weevils per stem. If cutting early is not an option, please refer to our Insect Control in Alfalfa Recommendations for chemical control options found at:

<https://cdn.extension.udel.edu/wp-content/uploads/2012/05/18063238/Insect-Control-in-Alfalfa-final-for-2017.pdf>



Know Your Field Corn Bt Traits - *Bill Cissel, Extension Agent - Integrated Pest Management; bcissel@udel.edu*

Don't get caught with your plants down!

With so many corn hybrids containing one or more Bt traits for insect control, it's easy to get confused about the spectrum of control they provide. Different Bt traits and packages provide varying levels of control for different insects and it's important to know what will and what won't be controlled so that you don't "get caught with your plants down". To help in determining the spectrum of pests controlled with Bt corn trait packages and their Bt proteins, Michigan State University has updated their "Handy Bt Trait Table" found at:

<http://msuent.com/assets/pdf/BtTraitTable15March2017.pdf>

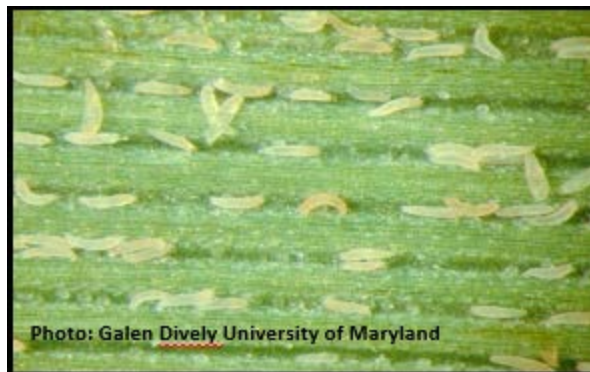
This table not only provides information on the event and protein expressed for each trade name but also includes a listing of the spectrum of insects controlled, herbicide tolerance, and refuge requirements. To prevent economic losses from occurring, make sure you know what Bt proteins your hybrid expresses and what it controls.

Cereal Rust Mite in Timothy - *Bill Cissel, Extension Agent - Integrated Pest Management; bcissel@udel.edu*

Cereal rust mites have piercing-sucking mouth parts and damage timothy by feeding on bulliform cells which play an important role in reducing water loss during drought stress. Cereal rust mite feeding injury on timothy results in stunted plants, often exhibiting signs of drought stress, even if there is adequate soil moisture. If your timothy is slow to "green-up" and appears stunted or leaf blades are curled, check for cereal rust mites by selecting a few random plants throughout the field and examining the leaf blade for mites and eggs. A 20X hand lens is recommended. There are no economic thresholds that have been established for cereal rust mites. However, treatment is recommended if a field has a previous history of rust mites and/or when 25% of the plant tillers exhibit curled tips on the new leaf blades within several weeks following green-up. The only approved and effective chemical control for cereal rust mite in grasses grown for hay is Sevin XLR Plus. Spray volume of at least 20-25 gallons per acres should be used.

Additional information on Cereal Rust Mite in Timothy can be found at:

<http://extension.udel.edu/factsheets/cereal-rust-mite-in-timothy/>



Know Your Rusts - *Nathan Kleczewski, Extension Specialist - Plant Pathology; nkleczew@udel.edu*

Stripe Rust is active in the Eastern shore of Virginia on susceptible wheat varieties. Last week I wrote an article on management recommendations and scouting information on the Field Crop Disease Management blog: <http://extension.udel.edu/fieldcropdisease/2017/03/30/stripe-rust-present-in-virginia/>.

Understanding your resistance rating to stripe rust is key in determining if this disease should be a concern for you if it moves into the area and temperatures remain cool and humid (below 70°F during the day, and 60°F during the night). Check your seed catalogues or contact your dealers for ratings to stripe rust.



Stripe rust on wheat. Notice the bright orange "pustules" that are arranged in long strips.

Those growers planting varieties with very good to excellent resistance should not need to worry about additional fungicide applications. Those with **susceptible varieties** need to pay close

attention to their fields and reports of the disease, and consider a fungicide application if the disease is detected nearby or in the field. Yield loss is related to the growth stage of the plant relative to arrival of the pathogen. Plants infected earlier in growth (prior to heading) may suffer significant losses under appropriate conditions.

Several people have asked about if leaf rust and stripe rust ratings are the same. No they are not.

Resistance to these diseases is controlled by different genes and therefore a variety with excellent leaf rust resistance may not be resistant to stripe rust. Ratings for many stripe rust varieties in the region can be found at the Field Crops Plant Pathology website under the heading "Small Grains" (<http://extension.udel.edu/ag/field-crop-resources/variety-trials-corn-hybrids-small-grains-soybeans/#grains>) as well as the Virginia Tech Small Grains Variety Trials webpage (<http://www.grains.cses.vt.edu/>).

Prowl H2O for Pastures - *Mark VanGessel, Extension Weed Specialist; mjv@udel.edu and Quintin Johnson, Research Associate, Weed Science; quintin@udel.edu*

Prowl H2O received a label for pastures last season and we had trials to control large crabgrass in an established orchardgrass field. We tried Prowl H2O rates at 1 to 4 qts/A applied in March and compared that with two applications (first in March and a second right after the first cutting). On sandy soils in Delaware, we needed two applications in order to control crabgrass grasses the full season; even the 4 qts in March did not provide full-season control. The key is to get the Prowl H2O applied before the grasses start to emerge since it will not control any emerged plants. Using Prowl H2O in the spring or summer may limit over-seeding in the fall. Be sure to consider this if you are thinking about fall seeding (or over seeding).

Killing Cover Crops - Mark VanGessel,
Extension Weed Specialist; mjv@udel.edu

It is important to be sure cover crops are dead prior to planting. Once the crop has emerged there are fewer options for killing the cover crop. The cool, overcast weather has further complicated terminating cover crops. All herbicides need actively growing plants to be effective, and the recent weather has slowed (or reduced) herbicide activity. Allow 7 to 10 days for glyphosate to achieve maximum effectiveness and scout to be sure burndown programs were successful. Tankmixtures with triazine herbicides or mixtures containing Valor (flumioxazin) can reduce glyphosate effectiveness under poor growing conditions. On the other hand, tankmixing a triazine with paraquat can improve overall effectiveness. When tankmixing, analyze each component herbicide to avoid a reduction in effectiveness. Some growers are planting first and spraying the cover crop after planting. This is a unique situation that requires the proper planter and attachments to manage the residue, and paying close attention to be sure the cover crop does not take up too much moisture before planting. We will be evaluating this concept of "planting green" this spring for both corn and soybeans.

Residual Herbicides for Palmer Amaranth Control - Mark VanGessel, *Extension Weed Specialist*; mjv@udel.edu

Palmer amaranth has a tendency to emerge throughout the summer; and it grows very rapidly during the heat of June and July when many other species are suffering from the temperatures. Thus, it is very important to include effective herbicides that provide residual weed control. It is also important to apply these products at a time when they will provide the best weed control for the crop.

Most residual herbicides for corn and soybeans will provide about 4 weeks of effective control, so the longer before planting they are applied, the sooner after planting they will start to break down. Therefore, if a product provides 4 weeks of control and it is applied 2 weeks before planting, the Palmer amaranth is likely to start

emerging 2 weeks after planting. However, if that same product is applied at planting, it should provide control until 4 weeks after planting.

General

Guess the Pest! - Bill Cissel, *Extension Agent - Integrated Pest Management*; bcissel@udel.edu

Do you know what caused the damage in the picture below?



What's your best guess? Guess correctly and your name will be put into a hat for a chance to win a \$100.00 Visa gift card at the end of the season. Each week, one lucky winner will also be selected to have their name entered into the end of season raffle not once but 5 times. Click on the "Guess the Pest" logo or go to <https://goo.gl/forms/pWjHQUpmjABFB0v32> to submit your guess.



Announcements

Growing Farmers Workshops

Coverdale Farm Preserve is a 356-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 Michele Wales: michele@delnature.org.*

Spring 2017 Series: Protected Culture Growing includes the use of greenhouses, high tunnels, low tunnels, hoop houses, and caterpillar tunnels. Both high and low tech options are designed to help defend your crops against the extremes of nature from torrential rains, parching drought, scorching heat, and frigid cold. Protected Culture Growing extends your seasons, brings harvests earlier in spring and later in fall to your customers, and can be used on acres of open field to urban raised bed gardens. Engage in hands-on workshops that take you from construction to production targeting key topics for your growing success.

High Tunnel Construction II & “Ground Breaking”

Wednesday, April 19, 8:00pm – 12:00pm
Rain/Wind date: Friday, April 21, 8:00am – 12:00pm

This continuation from Protected Culture Construction I will complete the 24' x 96' high tunnel with the installation of the plastic exterior shell. Then move inside the newly constructed tunnel and focus on the soil and preparations for planting. Learn how to test soil (free soil test kits for all participants), methods for soil amendments, laying plastic, and installing a fertigation system.

Vegetable Production in High Tunnels

Wednesday, May 17, 8:00am – 12:00pm
Rain Date: Friday, May 19, 8:00am – 12:00pm

Vegetables are the focus of this workshop with particular attention to selected varieties trailed for protected culture growing, operating and managing irrigation and fertigation systems, utilizing a vine clip trellis system, plant health, pruning, and planting schedules for maximized production.

Troubleshooting in High Tunnels

Wednesday, June 21, 6:00pm – 8:00pm

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.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of March 30 to April 5, 2017

Readings Taken from Midnight to Midnight

Rainfall:

0.12 inches: March 31
0.28 inch: April 1
0.13 inch: April 3
0.13 inch: April 4

Air Temperature:

Highs ranged from 79°F on April 4 to 51°F on March 30.
Lows ranged from 57°F on April 4 to 36°F on March 30

Soil Temperature:

55.2°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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