



WEEKLY CROP UPDATE

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Vegetable Crops

Early Transplanting - Gordon Johnson,
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Early warm season vegetables such as tomatoes and watermelons require protection when transplanted in April. The following are some considerations for these early plantings:

- Plant in your highest elevation fields with the lightest soils first and avoid low areas and frost pockets.
- Start planting only when a warming trend is in the forecast. This is when daytime temperatures are expected to increase during the week and nighttime temperatures do not drop below 40° F. Bed temperatures should be above 60° F. Do not plant on a cooling trend and avoid planting when cold, clear nights and high winds are in the forecast.
- Also avoid planting if extended cold, cloudy weather is in the forecast. It is critical to have warm soil conditions after transplanting to allow roots to grow out into the bed quickly. In cold, cloudy conditions, plants shut down physiologically, little root growth occurs, and the existing roots on the transplant do not function well, thus increasing the risk for transplant stunting or transplant losses.
- Target fields with well advanced (the tallest) rye windbreaks between each row for early plantings. Windbreaks reduce wind injury and

desiccation of transplants and also reduce the loss of heat from black plastic mulched beds, thus allowing more heat to be accumulated during the day (to be released at night).

- In areas without windbreaks, consider using floating row covers for cold sensitive crops for the first 2-3 weeks. Use wire hoops supports over the top of plants to avoid mechanical injury. Clear perforated plastic row covers also can be used to increase daytime temperatures and heat the plastic beds. However, clear row covers do not have the same insulating effect of floating row covers. Row covers may be required in addition to windbreaks in the earliest plantings.
- Only use well hardened-off plants for early plantings. Plants should be acclimated to outside conditions for 5 or more days before transplanting.

Wind Protection for Vegetables -Gordon Johnson, *Extension Vegetable & Fruit Specialist;*
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With the potential for more severe weather events, wind protection for young vegetable plants should be considered.

Windbreaks are a very useful tool for producing early vegetables. Most commonly, rye is used because it grows taller than other small grains and elongates in April. Using rye windbreaks requires planning because they are planted the previous fall (September-October).

Windbreaks can be planted between every vegetable bed, every 2-3 beds, or in drive row areas only. For early protection, every-bed windbreaks are recommended. Most commonly a drill is used and 2-4, 7" drill rows of rye are planted and the other drill spouts are blocked off to leave the area where the vegetable crop will grow (bed areas) unplanted. As an alternative, the field can be solid planted and areas between windbreaks can be tilled in early spring to terminate the rye in bed areas. Windbreaks can be used in bare ground systems but are most effective when combined with plasticulture

Windbreaks serve several functions:

- 1) Windbreaks block high winds, thus protecting transplants and seedlings from direct wind damage (whipping, tearing, shredding, and breaking stems and leaves).
- 2) Windbreaks reduce or eliminate "sandblasting" in sandy soils where fine sand particles are picked up by the wind. Sandblasting can severely damage young plants by shredding leaves and cutting stems.
- 3) Windbreaks reduce transpiration losses in young transplants thus reducing losses to wilting and desiccation.
- 4) Windbreaks reduce convectional heat losses from the soil, thus providing a warmer environment for early growth.
- 5) Windbreaks can serve as a mulch between plastic beds, reducing soil contact for vining crops such as melons, thus producing cleaner fruit and reducing the potential for soil borne diseases infecting fruits.

Rye is the most common crop used for windbreaks because of its early growth and height. Triticale (wheat/rye cross) matures 1-2 weeks later and also can be used as a windbreak. Barley is also early; however, modern varieties are shorter in stature and less effective as a windbreak. Wheat is later still and not as effective as rye for early plantings.

If rye windbreaks have not been fall-planted, then early spring planted mustard crops can be used as windbreaks; however, they are less dense than rye. March planted spring oats is

lower growing and much later in stem extension than rye thus limiting its use as a windbreak to late plantings.

If high winds are an issue for late spring and summer plantings or for fall crops then May-June planted sudangrass or sorghum/sudangrass crosses would be recommended as the preferred windbreak.

In no-till or strip till systems using rye covercrops or mixtures with rye, windbreaks can be left in the field by rolling some areas and leaving others unrolled as a windbreak.

Windbreak growth termination is also important. All rye (or other small grain) windbreaks should be killed using a non-selective herbicide before viable seed is produced, otherwise volunteer grain will come up in later crops. This is not a big problem for farms that only produce vegetables, but can be a major issue on farms that rotate with other crops (volunteer rye in a wheat field for grain is a problem).

Another caution on using windbreaks is that they can build up other pests such as mites, and when killed may serve as a reservoir to infest vegetable plantings (a common problem is mites moving out of windbreaks into watermelons). Therefore, fields with windbreaks should be monitored closely for these pests and treated accordingly.

Other Wind Protection Methods

Low tunnels with row covers (clear or spun) also are effective at protecting young plants. Covers must be well secured. Covers most often are removed once plants have significant growth.

Another method for protecting seeded vegetable from windblown sand that can cut off new seedlings is interplanting or co-planting with grass family crops such as small grains and ryegrass. These nurse crops are then killed with grass selective herbicides before they become competitive with the vegetable seedlings. (this system is not appropriate for sweet corn). No-till and strip-till plantings into killed cover crops can also serve this purpose.



Plastic mulch bed between every-bed-planted rye windbreak that is full height. This will provide maximum protection and heat accumulation.



Rye windbreak with drive row area for pesticide application and harvesting.

Agronomic Crops

Agronomic Crop Insect Scouting - David Owens, Extension Entomologist;
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Armyworm and Cutworm Trap Counts
 Cutworm adult counts have risen a bit since last week in several locations. I expect they will continue to rise, especially after storm fronts last Sunday and forecast for today. These storms literally rain moths. Trap counts are as follows:

Trap Location	True Armyworm per night	Black Cutworm per night
Willards, MD	0.1	0.7
Salisbury, MD	0.1	0.7
Laurel, DE	0.9	2.7

Seaford, DE	7.4	7.0
Bridgeville, DE	4.9	1.7
Harrington, DE	0.9	1.0
Wilson (6)	10.2	5.2
Owls Nest (6)	3.8	0.5
Thompson (6)	0.2	0.5
Sudlersville, MD	0	0.1

Corn

Insecticides are sometimes put in a herbicide burn down spray, usually with the intended target being black cutworm. Bt corn almost always comes with a neonic seed treatment, either Cruiser or Poncho. Both the traits and seed treatments will provide some protection vs small cutworm larvae. Larger larvae that cut plants are not going to be controlled by either. When might we see larger larvae? If a burndown spray is going out less than 1-2 weeks before planting, there is a possibility that cutworms are hiding in the cover and will not starve before the corn is up.

Scouting for rescue applications can be timed based on degree days. It takes up to 300 degree days (base 50) between an intense moth flight and larvae to reach a size where they begin cutting plants. The definition of an intense moth flight varies depending on the style of trap being used, but conservatively, we can use April 11 as a biofix date to begin accumulating degree days in DE. If we expect corn to emerge after 300 degree days, and corn is being planted into a cover crop within 1-2 weeks of termination, there is the possibility that large damaging larvae can be present. Severe infestations of cutworms are, however, infrequent.

There is a potential drawback to insecticide use at burndown: slugs. Survey work from Virginia in 2018 found a strong correlation between slug injury and early insecticide use. Pyrethroids will eliminate ground beetles that feed on slugs, but the insecticide will not touch the slug. If your field has had a history of slug issues, you may want to consider leaving the pyrethroid out to give beneficials a chance to work on the slugs.

Small Grains

According to degree day models, we are at peak cereal leaf beetle egg lay right now. CLB is very quiet, few adults and even fewer eggs have been observed in fields across the state. Our next

pests to be scouting for are sawfly and armyworm.

Aphid pressure in the last two weeks has increased in many fields. Although wasp activity is increasing, there are fields with well over 150 aphids per foot. In high pressure fields, honeydew is obvious, parasitoid activity is low. If heads are peaking out, pay attention to English Grain movement onto the head. Bird Cherry Oat Aphid is also present, it prefers the bottom half of the plant and can build up to numbers just as high as the EGA in the upper canopy/head. If you are planning a flagleaf spray, it may be worthwhile in some of these fields to include a pyrethroid. Having said that, there is not much data to indicate what, if any, yield response may result.

Wheat and Barley Disease Updates - Alyssa Koehler, *Extension Field Crops Pathologist*; akoehler@udel.edu

Overall wheat and barley are looking good across the state. With the warm weather and rainfall expected in the next week, continue to monitor your fields and keep an eye on foliar diseases. Some foliar diseases have begun to show up in lower canopies. As long as lesions have not crept too far up the plant, you can continue to wait and utilize potential fungicide application at the Fusarium Head Blight timing. We have remained at a low risk for our region on the Fusarium Head Blight Prediction Center this week <http://www.wheatcab.psu.edu/>. As barley gets close to heading, continue to keep track of the risk model and the weather forecast. Remember that application to manage FHB is most effective before barley head emergence and at flowering in wheat. It is best to avoid irrigating during these times to reduce the infection period. If you do plan to make a fungicide application for FHB remember that method of application is another factor to consider. Most fungicides are locally systemic so they protect the tissue where they are applied. Flat fan nozzles pointed 90° down are great at covering foliage but they do not provide good coverage on heads, which is the target for FHB management. Nozzles that

are angled forward 30-45° down from horizontal (30 degrees is better than 45) or dual nozzles angled both forward and backward give better contact with the head and increase fungicide efficacy. For ground sprays, fungicides should be applied in at least 10 gallons of water per acre.

Starter Nitrogen Fertilizer for Corn - Amy Shober, *Extension Nutrient Management and Environmental Quality Specialist*; ashober@udel.edu and Jarrod O. Miller, *Extension Agronomist*, jarrod@udel.edu

University of Delaware nitrogen (N) recommendations are based on a realistic yield goal with a base rate of 1 lb N per bushel of expected yield. Increased N use efficiency has been observed when 15 to 25% of the total N is applied as starter fertilizer and the remainder of the N is applied when corn plants are 12 to 15 inches tall (around V5 to V6). This is especially important for corn planted in Delaware's sandy, low organic matter soils, as these soils are susceptible to N leaching. Ultimately, split applying N to corn will help you get more N in your crop over the growing season.

It is important to consider salt index, placement, and crop sulfur (S) needs when making decisions about starter fertilizer application. Fertilizers are soluble salts that can damage germinating seeds. When N is placed in 2 × 2 placement (i.e., 2 inches beside and 2 inches below the seed), we recommend you apply < 75 lb/acre of N. If you also plan to apply potassium (K) as a starter fertilizer, limit the N + K₂O application to 75 lb/acre. Application at higher rates can damage the crop. The closer the fertilizer is placed to the seed, the larger the potential for salt damage. Therefore, we recommend limiting pop-up (in-furrow) N + K₂O applications to 10 lb/acre.

Commonly used N containing liquid starter fertilizer products include UAN (30 or 32%) and ammonium polyphosphate (10-34-0 or 11-37-0). These fertilizers may produce ammonia gas as a byproduct, which is also toxic to germinating seeds. Another popular starter fertilizer is ammonium sulfate (8-0-0-9S), which provides readily available S compared to ammonium

thiosulfate. High yielding, irrigated corn may require 30 to 40 lb/acre of sulfur, which can be split applied at planting and again at sidedress. Ammonium sulfate also has a strong acidifying effect, which can make certain micronutrients more available in high pH fields, averting deficiencies.

Applying 15-20% of the total N as a starter can sustain your corn until V5 to V6, at which time you can apply the remainder of the N. The sidedress N application occurs around the period of rapid N uptake on the crop.

General

Guess the Pest! Week 2 Answer: Lone Star Tick - David Owens, *Extension Entomologist*, owensd@udel.edu

Congratulations Michael Webb for correctly identifying last week's Guess the Pest challenge. This was a bit of a tricky one, everyone who correctly identified the critter as a tick or entered a tick-borne disease will be entered for the end of season raffle. Michael also wins a heavy duty sweep net which can double up as a tick sampling device.



The image was of a lone star tick nymph, and the big concern with any tick is disease transmission. Lyme disease is the most well known, but ticks can carry up to 90 different potential pathogenic organisms. (Just because I only reference a couple of diseases doesn't mean that is the only thing the tick can spread). In addition, lone star ticks can cause bite victims to develop allergies to red meat. Lone star ticks are extremely common in Delaware, and with

the warm weather, they became active earlier this month. Lone stars reportedly do not vector Lyme disease, but can vector Ehrlichiosis and STARI, Morgellon's diseases, and Powhassan virus. Other ticks of importance include deer ticks (primary Lyme disease vector), dog ticks (primary rocky mountain spotted fever vector), Asian longhorn tick (don't know what it might vector), and another newcomer, Gulf Coast tick, which can vector other diseases.

Almost a third of Lyme Disease infections do not present the 'bull's eye' rash. Conventional wisdom is that it takes at least 24 hours before a tick can transmit Lyme Disease, but if that tick has recently fed on a different organism and then finds you, it might be able to spread the disease much faster. Antibiotics prescribed shortly after tick bite or onset of symptoms may be helpful for a variety of these potential diseases.

Symptoms of many tick-borne diseases include rashes, nausea, joint pain, headaches, vision problems, poor concentration, anxiety, depression, sleep problems, restless leg syndrome, numbness and tingling, and a host of other non-specific symptoms that can lead to a misdiagnosis. Complicating matters is that tests for tick diseases, although much improved, still give elevated rates of false negatives.

The best way to prevent tick problems is to use repellents such as DEET or Picaridin. Some products containing essential oils can be repellent, but generally do not last much more than 2 hours. Clothing can be treated with permethrin. Long socks and pants can also help. Woodlines, brushy areas, and edges of soybean fields are the most likely places to encounter ticks. If you are in such a place, do a full body check as soon as you can afterwards. The best way to remove a tick is to grasp it with tweezers and quickly yank upwards.

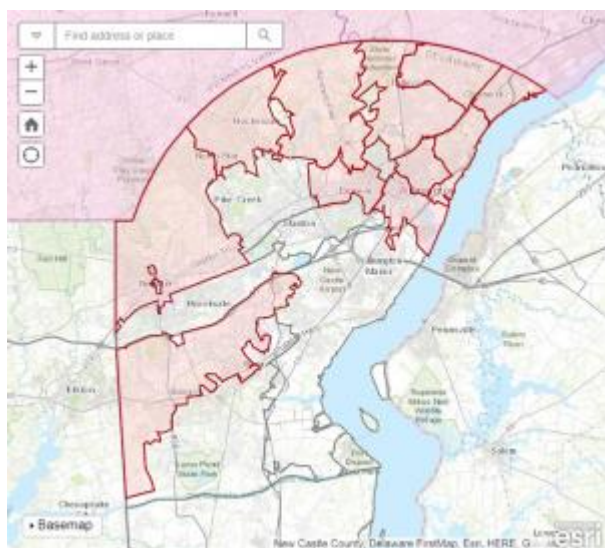
For more information, please contact the Lyme Disease Association of Delmarva, Inc. (<https://www.facebook.com/easternshoremdu>) and the CDC's website: <https://www.cdc.gov/ticks/index.html>

And the Canadian Lyme Disease Foundation: <https://canlyme.com/just-diagnosed/testing/common-misdiagnoses/>.

Guess the Pest! Week 3 - David Owens,
Extension Entomologist, owensd@udel.edu

Test your pest management knowledge by clicking on the GUESS THE PEST logo and submitting your best guess. For the 2019 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. A lucky winner will also receive a heavy duty sweep net.

[What do the following zip codes have in common? 19702, 19703, 19707, 19711, 19801, 19802, 19803, 19805, 19807, 19809, 19810](#)



To submit your guess, click the Guess the Pest logo or go to:

https://docs.google.com/forms/d/e/1FAIpQLSfUPYLZnTRsol46hXmgqj8fv5f8-JI0eEUHb3QJaNDLG_4kg/viewform?c=0&w=1



Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of April 11 to April 17, 2019

Readings Taken from Midnight to Midnight

Rainfall:

0.38 inch: April 13

1.04 inch: April 15

Air Temperature:

Highs ranged from 77°F on April 14 to 55°F on April 11.

Lows ranged from 63°F on April 14 to 43°F on April 16

Soil Temperature:

60.7°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
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