WEEKLY CROP UPDATE
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Vegetable Crops

Vegetable Crop Insect Management – *Joanne Whalen, Extension IPM Specialist*; jwhalen@udel.edu

Asparagus
Continue to watch for asparagus beetle adults laying egg masses and feeding on spears. Feeding by beetles can disfigure spears and the presence of eggs on the spears can make them unmarketable. As a general guideline, a treatment is recommended if 2% of the spears are infested with eggs or if 5% of the plants are infested with adults. Once ferns are present, larvae can also defoliate plants. As a general guideline, a treatment may be needed if 50 % of the plants have larvae or you can find 10% defoliation.

Melons
Continue to scout all melons for aphids, cucumber beetles, and spider mites. The treatment threshold for aphids is 20% infested plants with at least 5 aphids per leaf. Be sure to also watch for beneficials. The threshold for mites is 20-30% infested crowns with 1-2 mites per leaf. We continue to see an increase in cucumber beetle activity. As soon as we get a few consecutive days of warm, sunny weather, populations can explode so be sure to scout carefully since damage occurs quickly. Since beetles can continue to re-infest fields as well as hide under the plastic, multiple applications are often needed to achieve control.

Potatoes
Fields should be scouted for Colorado potato beetle (CPB) and leafhoppers. Adult CPB as well as small larvae can now be found in fields not treated at planting. A treatment should be considered for adults when you find 25 beetles per 50 plants and defoliation has reached the 10% level. Once larvae are detected, the threshold is 4 small larvae per plant or 1.5 large larvae per plant. As a general guideline, controls should be applied for leafhoppers if you find ½ to one adult per sweep and/or one nymph per every 10 leaves.

Snap Beans
Continue to sample all seedling stage fields for leafhopper and thrips activity. The thrips threshold is 5-6 per leaflet and the leafhopper threshold is 5 per sweep. If both insects are present, the threshold for each should be reduced by on third. You will also need to look for bean leaf beetle damage in early planted fields. Damage appears as circular holes in leaves and significant defoliation can quickly occur. As a general guideline, a treatment should be considered if defoliation exceeds 20% prebloom.

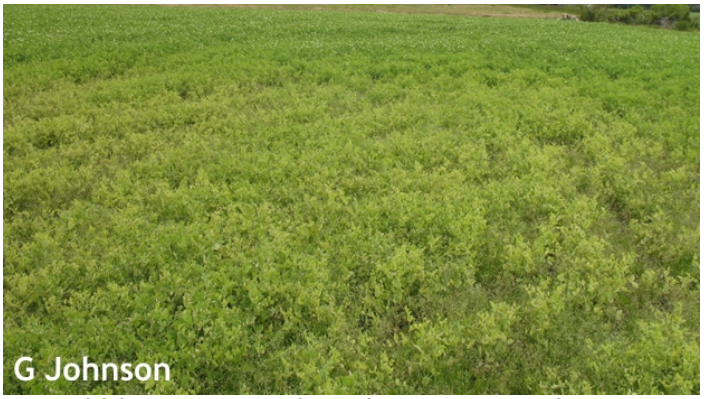
Sweet Corn
Continue to sample for cutworms and flea beetles. As a general guideline, treatments should be applied if you find 3% cut plants or 10% leaf feeding. In order to get an accurate estimate of flea beetle populations, fields should be scouted mid-day when beetles are active.

Yellowing Peas – *Gordon Johnson, Extension Vegetable & Fruit Specialist;* gcjohn@udel.edu

Peas do not perform well in soils that are worked when they are too wet or when they receive heavy rainfall after planting. Compaction and crusting over will lead to poor emergence and reduced growth. This is evident in many Delmarva pea fields in 2016.

Recently, several weeks of rainy weather have caused some pea fields or parts of fields to turn yellow, particularly were there was compacted soil. Peas are effective at fixing nitrogen; however, we normally apply 40-80 lbs/a of fertilizer nitrogen (N) prior to planting thus reducing N fixation contributions from Rhizobium nodules on the roots. With the frequent rainfall, some fields have remained saturated and denitrification has occurred, reducing available N from the initial fertilizer application. In addition, root function and Rhizobium nodulation is further impaired in saturated soils, thus limiting any potential N fixation contributions.

In pea fields that have had a past history of root rot, we are also seeing problems in 2016. According to the Crop Profile for Peas in Delaware: "Aphanomyces root rot, or common root rot, is one of the most destructive diseases of peas. It occurs in most pea producing regions of the U.S., including the Mid-Atlantic. In the Northeast, average annual yield loss to this disease is about 10%, though losses in individual fields may be up to 100%. Wet soil conditions and poor drainage are associated with higher rates of infection. The disease is most damaging in years when a cool, wet spring is followed by an early, warm summer with low rainfall."



Annual bluegrass growing where pea stand was reduced in wet area.

Good pea growth and development

Poor growth in wet and compacted areas are all too common this year in pea fields.

Poor pea performance due to compaction in field. Note yellowing in wheel tracks.

Stunted areas due to root rot problems in peas.

Late Blight Confirmed in Western Maryland

– *Kate Everts, Vegetable Pathologist, University of Delaware and University of Maryland*; keverts@umd.edu

Late blight has been confirmed in a greenhouse in Garrett County, the far western county in Maryland. Delaware potatoes and tomatoes are not at imminent risk at this time, but growers should use good management practices for late blight.

During the field season plants should be inspected weekly. A preventative fungicide program should begin when plants are 6" tall. Chlorothalonil, Dithane or Polyram are good fungicides to use to protect the crop if late blight is not known to be present in the area. When the threat of disease is high, or if the disease is present in an area, fungicides that target oomycetes diseases (late blight is an oomycete disease) should be used. There are good fungicides available for late blight including Curzate, Ranman, Gavel, and Revus. A more comprehensive list is available in the Mid-Atlantic Commercial Vegetable Production Recommendations. Additional products, Orondis Opti and Orondis Ultra, were registered after the Vegetable Production Recommendations were printed.

The strain that is present in Maryland is US23. US23 has also been the most common strain in the Mid-Atlantic for the past several years. The characteristics of US23 are that is causes disease on both potato and tomato and it is sensitive to mefenoxam (although resistant strains could develop in the future). An excellent source of information about this pathogen is found at the website dedicated to late blight (http://www.usablight.org/).

An alternative to applying your sprays on a calendar schedule is to follow the late blight forecasts from Extension, or to enter your potato crop information into the Cornell DSS at http://www.usablight.org/. The Cornell DSS is being used to generate late blight forecasts for eight locations across Maryland based on the programs Blightcast and Simcast. Interested potato growers in Maryland and Delaware can receive regular Potato Late Forecasts, which are provided by both states. To receive these reports in Delaware contact Nathan M. Kleczewski Ph.D., UD Extension Specialist-Plant Pathology at 302-831-6674, and in Maryland contact Kate Everts at 410-742-8788 or keverts@umd.edu.

Late blight management in organic production is more difficult than in conventional production. An excellent resource for organic growers is an article is from the extension web site eOrganic, http://www.extension.org/pages/18351/organic management-of-late-blight-of-potato-and-tomato-with-copper-products. The article is very comprehensive, but a few of the highlights are:

• In field trials of organically managed crops, copper products have provided the best control of late blight, although preliminary lab studies indicate some other products may also be effective.

• Be Proactive. Preventive treatments are necessary to manage late blight on an organic farm. It is always better to apply the products before late blight onset than to wait to treat after late blight is present.

• If late blight gets out of hand, the potato or tomato crop should be destroyed to limit risk for other fields on your farm as well as fields on adjacent farms. This is a community disease and management by all growers is necessary to reduce damage within a region.

• When deciding if it is worthwhile to try to manage the disease (vs. destroying the crop), consider how close the crop is to harvest. One

study estimated that applications of copper treatments for late blight will prolong potato plant productivity for two to four weeks. Remember also that the length of time a crop will survive is dependent on the weather; cool temperatures and lots of rain will make the disease progress very rapidly.

Photos of symptoms of late blight on potato tuber and leaves are courtesy of Dr. Amanda Gevens, Univ. of Wisconsin

Note brown-rust colored firm discolored tuber tissue.

A late blight lesion on potato leaf. Lesions appear brown and papery when weather turns dry or after fungicide use.

Underside of leaf showing late blight pathogen producing spores.

Sandea Label Changes for Cucumbers/ Pickles – *Mark VanGessel, Extension Weed Specialist*; mjv@udel.edu

There is a new Supplemental Label (24c) for Sandea on cucumbers allowing a 14 day pre-harvest interval (PHI), reduced from the current 21 day PHI. This label will eventually be on the full label, but growers wanting to use the 14 day PHI will have to have a copy of the supplemental label in their files. Copies of the 24c label are available on CDMS (http://www.cdms.fnet/Label-Database).

While the PHI has been shortened, the label still requires an early POST application window from after the 3 to 5 true leaves stage but before the first female flower appears. In addition, Sandea is labeled for preemergence application.

Potato Late Blight Update #4: May 18, 2016 - *Nathan Kleczewski, Extension Specialist – Plant Pathology*; nkleczew@udel.edu

Green row: April 29th, 2016

Note- Late Blight was discovered in a commercial greenhouse in Western MD on 5/17/16. Race is US-23.

	Townsend		Camden		Leipsic		Kenton	
Date	**DSV**	**Total DSV**	**DSV**	**Total DSV**	**DSV**	**Total DSV**	**DSV**	**Total DSV**
4/29-5/5	3	3	11	11	10	10	13	13
5/9-5/12	3	9	6	17	2	14	4	17
5/12-5/18	2	11	0	17	3	17	0	17

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.

Fruit Crops

May Temperatures Favorable for Strawberry Flowering and Fruiting – Expect a Long Harvest Season – *Gordon Johnson, Extension Vegetable & Fruit Specialist;* gcjohn@udel.edu

Temperatures have been very favorable in May for strawberry flowering. Research has shown that peak flowering occurs in strawberries between 60° and 65°F. Flowering is inhibited once temperatures are in the 80s. In Dover, average temperatures have ranged from 50° to 64°F with the highs ranging from 53° to 75°F. The first day in the forecast for temperatures above 80° F is May 28. What this means for strawberry growers is that there will be an extended harvest this year with short day strawberries potentially producing up to the end of June. Nitrogen fertilizer programs will need to be extended this year to match this potential productivity and fungicide programs will need to be maintained.

Agronomic Crops

Agronomic Crop Insect Management – *Joanne Whalen, Extension IPM Specialist*; jwhalen@udel.edu

Alfalfa
The first potato leafhopper adults are now being found, so be sure to sample all fields on a weekly basis. Although adults and nymphs both damage alfalfa; it is the nymphs that can quickly cause damage. Once plants are yellow, yield loss has already occurred. The treatment thresholds are 20 per 100 sweeps on alfalfa 3 inches or less in height, 50 per 100 sweeps in 4-6 inch tall alfalfa and 100 per 100 sweeps in 7-11 inch tall alfalfa.

Field Corn
Slugs and cutworms continue to be found in economic levels in fields throughout the state. In later planted fields, be sure to look for both as soon as corn is spiking out of the ground. As a general guideline, a treatment is recommended for cutworms if you find 10% leaf feeding or 3% cut plants. For fields next to barley fields that were not treated, be sure to watch for armyworm movement from barley into corn.

Small Grains
As soon as the earliest planted barley begins to dry down, be sure to watch for head clipping from armyworm. In fields that did not receive an insecticide treatment we continue to find armyworm larvae. On barley, significant head clipping from armyworms can quickly occur. As a general guideline, the threshold for armyworms in barley is one per foot of row. Before making an application of an insecticide, be sure to check all labels for the number of days between last application and harvest.

Soybeans
Be sure to sample fields starting at early emergence for slugs, bean leaf beetles and grasshoppers. Unfortunately, control of slugs in soybeans is very difficult to time, especially when slugs have already hatched, because the plant's growing point is within the emerging cotyledons. If germination occurs when slugs are actively feeding, the slug can feed on the cotyledons and growing point, which can result in the death of the plant. For bean leaf beetles and grasshoppers, if stand reductions are occurring from plant emergence to the second trifoliate, a treatment should be applied. Although no precise thresholds are available, a treatment may be needed if you find one grasshopper per sweep and 30% defoliation from plant emergence through the pre-bloom stage. As a general guideline, a treatment may be needed for bean leaf beetle if you observe a 20 – 25% stand reduction and/or 2 beetles per plant from cotyledon to the second trifoliate stages.

Restrictions on Corn Height for Postemergence Applications – *Mark VanGessel, Extension Weed Specialist*; mjv@udel.edu

A lot of the early planted corn needs to be scouted to determine if you are having weed emergence. The corn throughout the state is growing slowly and is nowhere near the stage it typically is in late May. So there will be a number of considerations for postemergence herbicide applications. In general, early emerging weeds are a bigger issue than late emerging weeds because they cause more yield loss, tend to get taller and larger, which causes more problems at harvest, and they produce more seeds. The following table was developed to help making these decisions. If tankmixing herbicides, follow the most restrictive label. The addition of atrazine will improve performance of many of the following herbicides (in particular Callisto, Halex GT, Laudis, Capreno, Impact, or Armezon).

This table is only for comparison of selected herbicides, be sure to read and follow all labels.

Herbicide	***Constituent Products***	***Broadcast Application/ Drop nozzles***	***Comments***
2,4-D		<8 inches tall / Drop nozzles up to 36"	Some 2,4-D formulations allow application up to tasseling. Limited to no residual control
Accent Q		20 inches tall (free-standing) or <6 collars (V6 stage) / Drop nozzles up to 36" or V10 stage	Limited to no residual control
Aim		Up to 8-leaf collar stage (V8) / Drop nozzles up to V14 stage	Excellent for velvetleaf, but other species must be small for effective control. No residual control
Atrazine		12 inches tall	Residual control depends on rate - generally fair to good residual control
Banvel or Clarity	dicamba	1 pt: 8 inches tall or 5 leaves 0.5 pt: 8–36 inches tall or 15 days before tassel emergence	Do not apply Banvel or Clarity near soybeans if corn is >24 inches tall, or if soybeans are >10 inches tall or have begun to bloom. Limited to no residual control
Cadet		Up to 48 inches tall / Drop nozzles are permitted before tasseling	Excellent for velvetleaf, but other species must be small for effective control. No residual control
Callisto, Callisto GT	Callisto + glyphosate	Up to 30 inches tall (or 8-corn leaf stage)	Improved control with the addition of atrazine. Residual control depends on rate - generally fair to good residual control
Capreno	Laudis + thiencarbazone	Up to V6 (6 collars) Drop nozzles up to V7 stage	Improved control with the addition of atrazine. Limited residual control
DiFlexx	dicamba + safener	Up to 36 inches tall (V6 stage) / Drop nozzles up to V10 stage	Limited to no residual control
Glyphosate products		Up to 30 inches tall (V8 stage)	Apply to Roundup Ready hybrids only No residual control
Halex GT	Dual + Callisto + glyphosate	Emergence to 30 inches tall (8-leaf stage)	Improved control with the addition of atrazine. Residual control depends on rate - generally good residual control
Impact or Armezon		Up to 45 days prior to corn harvest / Drop nozzles are permitted	Improved control with the addition of atrazine. Limited residual control
Laudis		Emergence up to V8 stage	Improved control with the addition of atrazine. Limited residual control

Herbicide	*Constituent Products*	*Broadcast Application/ Drop nozzles*	*Comments*
Liberty 280		Emergence to V5 (5 developed collars) Up to 36" tall	Apply to Liberty Link or GR corn hybrids only. No residual control
Realm Q	Resolve + Callisto	Up to 20 inches tall but with no more than 6 collars	Residual control depends on rate - generally fair to good residual control
Roundup products		Up to 30 inches tall (V8 stage)	Apply to Roundup Ready hybrids only No residual control
Status	dicamba + difluenzapyr + safener	4–36 inches tall (V2–V10)	Do not apply within 15 days before tassel emergence Limited to no residual control
Steadfast Q	Accent + Resolve	Up to 20 inches tall (6 collars)	Best if applied when corn is <12 inches tall Generally fair to good residual control
Touchdown		Emergence through V8 stage	Apply to Roundup Ready hybrids only. No residual control
Yukon	Permit + dicamba	Spike to 36 inches tall / Drop nozzles are permitted	Residual control is fair to good on limited species

Has Field Corn Planting Been Delayed – What Management Decisions Need Adjustment?

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The prolonged period of cold and wet weather this spring has delayed planting for many growers. Late planting dates (roughly after May 26) offer challenges that must be successfully met to ensure the minimum impact on yield potential. In this article, the UD Agronomy Team will outline adjustments and decisions needed to grow a successful corn crop when planting is delayed. We'll cover some of the management decisions and options available to help late planted corn by practice category.

Soil Fertility: An important potential problem with delayed planting occurs when a portion of the required nitrogen (N) fertilizer has been applied in the weeks prior to when the corn is actually placed in the soil. During the delay, nitrate-N added can be lost via denitrification or leaching and nitrification of ammonium or urea can begin again resulting in the loss of N if the rainfall pattern continues. To give the process more time, ammonium or urea sources can be treated with urease and/or nitrification inhibitors such as Super U or Agrotain Plus and this can delay a significant loss of N through leaching or denitrification by three or more weeks. Losses that do occur will require the grower to apply additional N fertilizer at an additional cost and require changes to the nutrient management plan (NMP).

Also along these lines, the application of manure well before planting can also permit loss of any inorganic N present in the manure. Although the cold weather has delayed the process of mineralization there was a short period earlier

this spring when air and soil temperatures rose enough to encourage mineralization and nitrification of organic N from the manure. With additional rainfall and a return to cold temperatures, any nitrate N formed will likely be lost before the crop can grow enough to reach the stage when N uptake accelerates. If N is lost, additional N fertilizer can be applied to the crop, but the NMP will need to be modified.

Although many of Delaware's growers currently use a banded starter fertilizer and include at least some ammonium sulfate in the starter band, growers may be tempted to speed up the planting process by eliminating banded starter fertilizer. It is true that as we move into June and if soil temperatures finally warm up, phosphorus (P) and potassium (K) will become more available to the crop and may not be needed as part of the starter fertilizer. However, slightly higher than usual rates of starter featuring the soil mobile nutrients, N and sulfur (S), or planning on an earlier sidedress N application should help corn get off to a faster start and keep it growing rapidly during the critical V5 to V9 growth stages when kernel number and row number are being set.

Soil Considerations: Although soil temperature should be increasing rapidly at this time of year, the cooler, wetter conditions we face in 2016 are preventing that increase. The higher the soil temperature, the faster and more uniform seed germination and emergence. Rapid germination and emergence will translate into improved yield potential.

Some options for growers include the use of a turbo-till or similar tillage implement to help dry and warm the surface soil. Although more extensive tillage could be used as well, further delaying planting to complete preparing a fine-firm seedbed is counterproductive. In addition, extensive tillage especially on soil that is at the upper limit or past it for water content can lead to severe compaction issues. Even with a turbo-till, the key to using it successfully will be to avoid any tillage if the soil is too wet since compaction can translate to yield losses that will continue for years. Turbo-till and similar light tillage that warms and dries the soil surface without causing compaction issues will shorten the time until a field can be planted. Keep in mind that this type of tillage will incorporate some of the crop residue or disturb a killed cover crop and may not be acceptable in some situations.

Another option is the use of aggressive row sweeps or row cleaners to clear the top of the seed row and allow the soil to warm faster. This will allow the soil immediately over the seed to quickly warm up and dry if we receive some periods of sunny weather. Again, warmer soil translates to more rapid and uniform emergence and higher yield potential.

Hybrid Selection: Growers often start thinking of changing to shorter season hybrids as planting is delayed into early June. Dr. Peter Thomison from Ohio State University found that a hybrid planted in late May/early June will mature at a faster thermal rate (require fewer total heat units) than the same hybrid planted in late April or early May. He found that the required heat units from planting to kernel black layer decreased on average about 6.8 GDDs (growing degree days) per day of delayed planting so that a hybrid rated at 2800 GDDs planted at the normal time would require 204 fewer GDDs or about 2600 GDDs if planted 30 days late in late May or early June. Dr. Thomison does point out that other factors should be considered when deciding on whether to change from a full season to a short season hybrid. One of these considerations is that a full season hybrid, although yielding more could, have a significantly higher grain moisture at maturity than earlier maturing hybrids if fall weather conditions are not conducive to rapid drydown.

Another factor that relates to insect control is that European corn borer (ECB) damage and yield reductions are often greater even under low ECB pressure when corn hybrids are planted late. This warrants the selection of ECB Bt hybrids whenever possible for late planted corn situations.

Since late planting is most likely to occur on soils that are either warmer than the temperature seen at normal planting time or will warm up much quicker as we move into June, germination and emergence will be better than that seen at the optimum planting date. For early planting dates and optimum plant dates, we often plant 5

to 10 percent higher seeding rates than the target or desired harvest population since we expect greater seedling mortality. For late planting, seeding rates can be decreased to about 3 percent higher than the desired harvest population and this will reduce the production cost at least a little.

Weed Control: If the field has not received a burndown, you may need to adjust your standard burndown program to account for larger weeds. If residual herbicides were used ahead of the anticipated planting, you need to think about when the products were applied and at what rate. Most of the residual herbicides will not provide more than 3 to 4 weeks of activity. What do the labels allow regarding an additional application? Are weeds present at time of planting and do they need to be killed?

Disease Issues: Most issues with stand are caused by wet conditions. No seed treatment will save you from plants submerged in water or growing in standing water for prolonged periods of time. The presence of Pythium or Fusarium on roots of plants growing in wet cool soils does not mean stand loss was caused by these organisms. Rather, stand issues were likely a complex of issues related to poor plant growth and excess water.

Planting into cool soils can result in more issues with pre- or post-emergent damping off due to the seeds remaining in the soil for longer periods of time or delayed seedling growth. If you replant and stick with a 100-120 day hybrid you can end up with stalk rot or stalk strength issues later on, especially if growing unirrigated corn, because the corn may be exposed to more stressful growing conditions (hoy dry) during critical periods of plant growth.

Two other diseases that should be targeted for finding resistant hybrids are gray leaf spot and northern corn leaf blight. Whether you are choosing a corn hybrid to replant or choosing a hybrid for the normal planting time, hybrids with resistance to these two diseases should be high on your list.

Irrigation Practices: On late planted corn, any early moisture stress around V4 to V6 would be more critical and possibly contribute to a yield reduction. Late planted corn is growing faster than is normally seen since there are so many heat units (GDDs) accumulating in June and early July and the soil is probably already warm. Therefore, a grower might fail to recognize how rapidly corn roots are growing and how fast soil moisture is being depleted. This could lead to underestimating the need for additional irrigation. This is one aspect where moisture stress could have a larger impact on the yield of late planted corn.

If wet soil conditions continue into the rapid growth phase, it might become difficult to apply N via fertigation in a timely fashion. In case this is a concern, growers could set their irrigation system to run as fast through the field as possible so the water volume is kept as low as possible while applying N fertilizer to keep the grow growing and developing without causing excessive denitrification, leaching, or root suffocation from water ponding. This applies N almost as a foliar feed application but in a dilute enough solution that foliar burn is not likely to happen.

Insects and Slugs: One of the most common insect problems in later plated corn is the black cutworm. Conditions favoring cutworm out-breaks include a combination of late planted corn, poorly drained soil, heavy broadleaf weed growth, planting into soybean stubble, and reduced tillage. Even if an at-planting protection method is used, including at-planting insecticides, seed treatments or Bt corn, scouting after plant emergence will still be important. If conditions remain cool and wet, wireworms and white grubs can continue to be a problem. Although problems from annual grubs tend to decrease with the warming of the soil and development of grubs from the damaging larval stage to pupation, it will still be important to sample fields for grubs before planting to determine what level and species is present and if larvae have started to pupate. Wireworms can remain in the larval stage for up to six years, depending on the species, so you can expect them to be present in fields with a history of wireworm problems. Since slugs have already hatched, the potential for slug damage will be determined by weather conditions after planting. In wet years, we have seen economic levels of damage from slugs continue through

June, so scouting as soon as corn is spiking is important to time a rescue treatment.

Replant Decisions for Field Corn - *Richard Taylor, Extension Agronomy Specialist;* rtaylor@udel.edu; *Joanne Whalen, Extension IPM Specialist*; jwhalen@udel.edu; *Mark VanGessel, Extension Weed Specialist*; mjv@udel.edu; *Nathan Kleczewski, Extension Specialist – Plant Pathology*; nkleczew@udel.edu; *Amy Shober, Extension Nutrient Management and Environmental Quality Specialist;* ashober@udel.edu; *Phillip Sylvester, Kent Co., Ag Agent*; phillip@udel.edu; *Cory Whaley, Sussex Co. Extension Ag Agent*; whaley@udel.edu; *Dan Severson, New Castle Co. Ag Agent*; severson@udel.edu

The prolonged period of cold and wet weather this spring plus the usual culprits, such as slugs, have led to questions about the adequacy of corn stands this year. In addition, many growers have only recently or have not yet gotten their corn acreage planted. In this article, the UD Agronomy Team will outline considerations involved in making replant decisions as well as whether to plant another crop, assuming herbicides have not eliminated some choices.

The most important consideration when thinking about replanting is timing. How quickly you can make the final decision to replant and actually replant the crop? Waiting too long to assess a stand increases the potential yield loss if a decision is made to replant the field.

Potential yield loss percentages for delayed corn plantings were developed many years ago: advances in corn genetics and irrigation management have significantly improved hybrid performance. It is important to note that the loss per day of delay estimates may overestimate the impact of delaying planting. Yet, these estimates are useful as guidelines for both irrigated and dryland corn production systems.

In mid-May for irrigated corn, every day you delay making a replant decision and actually replanting the crop reduces the hybrid's yield potential by 0.4 to 0.7 percent for short-season and full-season hybrids, respectively. Delaying planting into early June increases that per day yield loss to 1.3 to 1.7 percent of the hybrid's yield potential for short-season and full-season hybrids, respectively.

In a dryland cropping situation in mid-May, daily delay in replanting can result in a loss of 0.4 to 0.9 percent of the hybrid's yield potential for short-season and full-season hybrids, respectively; whereas by early June, a delaying replanting by one day results in a 2 to 1.3 percent loss of the hybrid's yield potential for short-season and full-season hybrids, respectively. Dryland corn yields can be impacted even more by delayed planting than estimated by these average losses because pollination is also delayed to the hotter and drier portions of summer.

The first step is to determine the plant population to estimate the chances of obtaining the hybrid's maximum yield potential. Estimate current corn stand by counting the number of plants in a 17 ft 5 inch row length. (For 30-inch rows, a row length of 17 feet and 5 inches is equal to 1/1000 of an acre.) Repeat this count in 6 to 8 random locations for each 20 acre block of a field. Average the number of plants in the 6 to 8 row lengths to determine an estimated population. During past field trials, we saw a 1 percent decrease in yield for each 1,000 plant per acre decline in harvest population. However, with many hybrids now planted at 32,000 to 36,000 or more plants per acre, our former trials determining yield losses with lower populations are questionable for reliability. We suggest that you start calculating the yield loss per loss of 1,000 plants once the population falls below 32,000 since the yield increase as you go above that target is small.

While counting the number of plants, also observe the unevenness of the stand. If the stand has a number of small gaps (1.5 to 3 feet in length), deduct 2 to 10 percent from the hybrid's expected yield potential with a perfect stand. If there are numerous gaps between plants that measure 4- to 6-feet in length, deduct 10 to 20 percent from the field's yield potential.

The next step in the process is to estimate the yield potential of the stand actually in the field. Use the stand reduction loss percentages (above) and the realistic yield goal to estimate the yield potential of the reduced stand. This is the expected yield without replanting. You then want to estimate expected yield if you replant. Deduct from that the expected percentage yield loss based on the date that you expect to be able to replant the field. If the initial stand was not planted around the ideal planting date, you may also need to adjust the realistic yield goal for the actual planting date. Make your best guess as to when you can prepare the field for replanting (killing the existing stand), obtain new corn seed, and get back into the field to replant. Keep in mind that the current weather pattern could easily force you to delay planting again, just like it did for the initial planting but it is best not to underestimate how long it will take to replant!

Next, you should calculate the replanting cost including extra tillage (equipment, fuel, and labor) if you plan on doing any tillage either to kill the remaining corn and/or to prepare the seedbed. Add in the planting cost; seed costs; any needed pesticide costs; and, if the corn will be planted late, add in a cost for drying the corn.

Compare the expected yield without replanting with the expected net yield (after you deduct those additional costs involved in reseeding the stand) with replanting and decide if it is worth the effort to replant.

One final consideration is that you should factor in the risks involved in replanting. Replanting corn does not guarantee that you will achieve any better a stand the second time around. If the weather stays bad, if slugs or insects attack the crop, if poor growing conditions continue for much of the remaining season, or a hurricane, hail, or other storm damages the crop later, you may expend a great deal of money for minimal to no benefit.

Other considerations when deciding to replant include:

Sometimes, seeding alongside the rows already in the field is suggested in lieu of a full replant. However, the plants often end up having more than a 2-leaf difference in their stage of growth and the younger plants will be at a competitive disadvantage. Yield will likely be a lot less than expected.

There have been a few places where replanting is necessary and existing plants need to be killed. The difficulty is that the corn is Roundup Ready (in additional many hybrids are also Liberty Link), so control will be difficult. If by chance the corn is not Roundup Ready, glyphosate is the best option. The herbicide options include Gramoxone plus atrazine, Select (clethodim), or Liberty (if not a Liberty Link hybrid). Check the clethodim label and follow the required time between application and replanting because clethodim can cause corn injury if planted too soon. A multi-state project conducted in this region found Gramoxone provided the most consistent control and it performed better on 5 inch corn and then corn that was 2 to 3 inches tall. No treatment consistently controlled all the corn plants. If complete control is necessary, tillage will be required.

If residual herbicides were used, you need to think about when the products were applied and at what rate. Most of the residual herbicides will not provide more than 3 to 4 weeks of activity. What do the labels allow regarding an additional application? Are weeds present at time of the replanting and do they need to be killed? Would delaying a herbicide application until the corn is up and then using an early postemergence application that includes a product that provides residual control be the best option for the replanted field?

If replanting occurs during May and early June, damage from cutworms, seed corn maggot, wireworms, and white grubs can continue to affect stand establishment. The most common insect problem in later planted corn is the black cutworm. If slugs were a problem on the first planting, weather conditions after planting will determine if they will continue to be a problem. Rescue treatments are only available for cutworms and slugs. The cool, wet conditions that resulted in reduced stands and poor plant growth have also slowed the development of white grubs and wireworms. In addition,

wireworms can remain in the larval stage for up to six years, depending on the species. So you can expect them to be present when you re-plant, especially in fields with a history of wireworm problems.

Announcements

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

5/25: Why Value-Added Products Fail - Value-Added products can increase your enterprise profit picture, but only if it's a marketable product that fits your resources and farm mission. This presentation explores what works and what doesn't when developing and marketing value-added farm products. And, helps you answer the question, 'Just because I can produce a value-added product; should I?

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.

Sussex Co. Beginning Farmer Series
Fruit Production Workshop

Monday, May 23, 2016 6:00-8:00 p.m.
Ernest Fruit Farm
15092 S. Union Church Road
Ellendale, DE 19941

This workshop will hosted at the Ernest Fruit Farm by Jeremy and Emmalea Ernest. UD Fruit/Vegetable Specialist Dr. Gordon Johnson and Sussex County Agent Tracy Wootten will be on hand to lead the workshop. Learn about tree fruits and small fruits (berries, grapes) and how they grow. Other topics covered will include opportunities for producing fruits on small farms, fruit establishment, fruit management, fruit pests (diseases, insects), fruit harvesting and handling, and local marketing of fruits.

To register contact Tracy Wootten at 302-856-7303 or wootten@udel.edu. It is the policy of the Delaware Cooperative Extension System that no person shall be subjected to discrimination on the grounds of race, color, sex, disability, age or national origin.

UD Small Grains Field Day

Thursday, May 26, 2016 3:00 - 5:00 p.m.
University of Delaware
Warrington Irrigation Research Farm
Harbeson, DE

Join University of Delaware Cooperative Extension Specialists and Agents at the Warrington Irrigation Research Farm for a Small Grains Field Day.

Tour plots that include: Various wheat irrigation strategies, foliar fungicide programs in wheat, irrigated and non-irrigated high input wheat that includes multiple fungicide application timings and Palisade® plant growth regulator, and wheat planted in 7.5 in. and 15 in. rows.

Other topics covered include: Extension IPM Project Update: Fall aphid management in small grains related to barley yellow dwarf management, resistant weeds and some herbicide options, and integrated management of Fusarium head blight; spring insect management update in small grains (aphids, cereal leaf beetle, grass sawflies and armyworms), small grain weed control, fall soil nitrate testing, and update on variety trial disease ratings.

Directions: Harbeson Rd (Rt. 5) 4 miles south of Rt. 9 in Harbeson, DE at the intersection of Hurdle Ditch Rd and Payline Dr. Signs will be posted.

Credits: (1) DE Nutrient Management, (1) DE Pesticide, CCA offered

2016 Horticulture Short Courses

For the complete list of 2016 courses go to:
http://extension.udel.edu/lawngarden/commercial-horticulture/2016-horticulture-short-courses/

Pest and Beneficial Insect Walks
June 8 4:00 -6:00 p.m.
Sussex County Extension Office
16483 County Seat Highway, Georgetown, DE

Register with Tracy Wootten (302) 856-7303 or wootten@udel.edu

OR

June 22 4:00 -6:00 p.m.
University of Delaware Botanic Gardens
531 S College Avenue, Newark, DE
(Meet at the entrance to Fischer Greenhouse.)

Register with Carrie Murphy (302) 831-2506 or cjmurphy@udel.edu.

Cost: $15
Credits: 2 Pest., 2 ISA,1 CNP
Learn to identify insect and disease pests, as well as beneficial insects in the landscape at either the Sussex County Extension Office or the University of Delaware Botanic Gardens. Instructors: Nancy Gregory, Brian Kunkel, Carrie Murphy, Tracy Wootten, and Megan Pleasanton

2016 UD Weed Science Field Day

Wednesday, June 29 8:30 a.m.
University of Delaware
Carvel Research and Education Center
Route 9 (16483 County Seat Highway), Georgetown, DE

The 2016 Weed Science Field Day will be held **Wednesday**, **June 29** at the University of Delaware Research and Education Center, Route 9 (16483 County Seat Highway), Georgetown, DE.

The day will begin with **registration beginning at 8:30** at the Grove near the farm buildings and new office building on the north side of the road. We will start to view the plots at 8:45 am. Coffee, juices, and donuts will be provided. We will also provide sandwiches for lunch.

Pesticide credits and Certified Crop Advisor continuation credits will also be available.

Dr. Charlie Cahoon, VA Tech, will hold a field day on Tuesday, June 28th at the Painter Research Facility

Dr. Burkhard Schulz, Univ of MD, will hold a field day on Thursday, June 30th.

Maryland Grape Growers Association and University of Maryland Summer Field Day

Saturday, July 16, 2016 8:30 a.m. - 5:00 p.m.
The Vineyards at Dodon
391 Dodon Road
Davidsonville, MD 21035

AGENDA

8:30 - 9:00: **Registration**
Coffee, juice, and doughnuts provided.

9:00 - 9:30: **Welcome and Introductions**
Announcements from MGGA and Overview of The Vineyards at Dodon
Tom Croghan

9:30 – 11:00 **Grape IV**
Integrated vineyard management includes assessing the vineyard for current conditions, including canopy management, nutrition, crop level, diseases, and other pests. This session will be in the vineyard, so please bring your hat, sunscreen and sunglasses.
Dr. Joe Fiola, UME and Dr. Cassandra Swett, UMD

11:00 – 11:15 **Break**

11:15 – 12:00 **Ground Cover Management for Sustainable Grape Production**
Dr. Michela Centinari, Assistant Professor of Viticulture, Penn State University*

12:00 - 1:00: **LUNCH**
Bring your own lunch, favorite beverage, and your own lawn chair for seating.

1:00 – 1:45: **Frost and Frost Control in the Vineyard**
Dr. Centinari, PSU*

1:45 – 2:45 **Tasting of Regional R&D Wines**
Dr. Joe Fiola, UME

2:45 – 3:00: **Break**

3:00 – 4:00: **Sustainable Viticulture Workbook**
Dr. Joe Fiola, UME

4:00 – 5:00 **Winery Tour**

*Dr. Michela Centinari, is an Assistant Professor of Viticulture for Penn State University. Dr. Centinari's research and extension program integrates both basic and applied aspects of grapevine physiology to improve production and quality. She specializes in vineyard floor management and understanding and managing winter and frost/freeze damage.

Private & Commercial Pesticide Applicator Recertification Credits for this event are pending

Register online at: www.marylandgrapes.org. Discounted registration until May 30.

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of May 12 to May 18, 2016

Readings Taken from Midnight to Midnight

Rainfall:

0.15 inch: May 13
0.16 inch: May 14
0.24 inch: May 17

Air Temperature:

Highs ranged from 77°F on May 14 to 60°F on May 15.

Lows ranged from 56°F on May 12 to 37°F on May 16.

Soil Temperature:

64.1°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