WEEKLY CROP UPDATE
UNIVERSITY OF DELAWARE COOPERATIVE EXTENSION

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Vegetable Crops

Focus on Soil Health – Getting the Most from Overwintered Rapeseed Cover Crop

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Rapeseed (*Brassica napus*) has been planted on many acres in Delmarva as on overwintered cover crop, particularly for vegetable rotations. It has a deep root system, is good at reducing surface compaction, scavenges significant soil nitrogen, and suppresses weeds.

In addition, rapeseed is in the mustard family and produce chemicals called glucosinolates in plant tissue (roots and foliage). These glucosinolates are released from plant tissue when it is cut or chopped and then are further broken down by enzymes to form chemicals that behave like fumigants. The most common of these breakdown products are isothiocyanates. These are the same chemicals that are released from metam-sodium and metam-potassium, commonly used as chemical fumigants.

While rapeseed has shown some promise as a biofumigant, results in Delaware have been inconsistent, often with minimal benefits. It is important to note that success with biofumigant crops depends on a number of factors. The following are some suggestions to achieve the best results:

• Produce as much biomass of the biofumigant rapeseed crop as possible. This requires that you have a good stand, fertility, and sufficient growing time. The more biomass that is produced and that is incorporated, the more chemical is released. However, as plants mature, the will reach a point where levels of these active chemicals will decline and you should not let the plants go past full flower.

• Plant material must be thoroughly damaged so that enzymes can convert glucosinolates into isothiocynates. This means that you need to chop the material as much as possible and work it into the soil as quickly as possible so as to not lose the active compounds to the air. A delay of several hours can cause significant reductions in biofumigant activity. The finer the chop, the more biofumigant is released. A flail mower is the best tool for achieving this.

• The chopped material should be incorporated immediately after chopping. Tillage operations should be performed immediately behind the flail mower.

• The chopped material should be incorporated as thoroughly as practical to release the biofumigant chemical throughout the root zone of the area that is to be later planted to vegetables. Poor distribution of the biofumigant crop pieces in the soil will lead to reduced effectiveness. A tractor mounted rotary tiller or power spader is the best tool for this.

• Sealing with water (irrigating) after incorporation will improve the efficacy by reducing gas loss from the decomposing rapeseed (the active fumigant released). Soil conditions should not be overly dry or

excessively wet. Packing the soil will also help this sealing process.

A major limitation to the use of rapeseed as a biofumigant crop use is the fact that you cannot deliver high enough levels of the active chemicals to do a complete fumigation job and the biofumigation effectiveness is also limited by the depth of incorporation. However, you are adding organic matter and do get the benefits associated with that addition.

The bottom line: the use of rapeseed as a biofumigant crop can suppress soil borne pests but should not be considered replacement for chemical fumigants, nor is it a substitute for adequate rotations. However, using rapeseed in combination with disease tolerant vegetable varieties can allow for a greater chance of success in tight rotation situations.

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

Radishes (*Raphanus sativus* L.) are a diverse crop grown for their edible storage taproots and sometimes for their edible leaves which are used as cooked greens, the shoots, when grown as a microgreen, and in the case of the rat-tail radish, the edible fruit. Some types are also are grown as forage crops for livestock and as cover crops for soil improvement. Other types are grown for the oil contained in the seed which is used for industrial purposes (radish oil is not an edible oil). They are true root crops and the harvested portion is the swollen upper part of the tap root. They are grown as annual plants but most are biennial in nature and will flower and produce a seed stalk after exposure to low temperature conditions. Radishes are a quick crop that fit well in rotations for market growers.

Radishes can be divided into groups based on their origin; size, shape, and color of the root; utilization; as well as season of adaptation. Three main groups are the small salad radishes of European origin, larger Asian radishes (often referred to as Daikon radishes), and black or Spanish hot radishes.

European salad radishes can be further divided into groups according to their size, shape, and skin color. White root interiors predominate but there are also types with pink, purple, green, and yellow flesh. Skin color is most commonly red, white, or a mixture (there are yellow and green skin forms). There are three main root shapes: globe or flattened globe, cylindrical elongated, and tapered.

Salad radishes mature very quickly (21-28 days commonly) and are easy to grow. Salad radishes are commonly grown in the spring (they are often called spring radishes) but can be grown throughout the year in frost free periods. Best quality roots are produced when temperatures are between 50°F and 70°F under shorter daylengths. Higher temperatures, dry soil conditions, and longer daylengths (summer months) can cause radishes to bolt and can cause roots to be tough, pithy, and of greater pungency. Salad radishes are harvested, washed, and then either bunched with the tops on or topped and bagged. Shelf life for bunched radishes is 10-14 days when stored at a temperature of 0-2° C and at a relative humidity of 95-100%. Radish greens are edible and can be used as cooked greens.

Asian, Daikon, Japanese or Chinese radishes are most commonly found as long white cylindrical radishes with an extremely strong tap root. They are adapted to a wide range of soil conditions and can penetrate compacted soils and are often used as winter-killed cover crops in this region. Some types can grow to over 2 feet in length, 4 inches in diameter, and weight over 40 lbs. While the most common form is long and cylindrical leading to a tapered root tip, there are also stubby, barrel shaped forms, globe (turnip) shapes, and tapered (carrot) shapes. Skin color is most commonly white but there are also green, pink, and purple forms. Flesh is commonly white but with cream, green, pink, red, and purple colors also found. Most forms are mildly pungent, but there are also more strongly pungent types.

Asian radishes mature in 45-60 days and are becoming more popular in the West as cooks become familiar with their use. They are also very easy to grow. Of course, they are an important ingredient in Asian cuisine and found in Asian markets throughout the country. Asian radishes are best adapted to cooler temperatures and shorter daylengths and are

commonly grown in the late summer or fall. However, they can be grown in the spring and summer using adapted varieties that are slow bolting. Asian radishes have a longer storage potential than salad radishes and larger roots can be kept for several months stored near freezing under high humidity if the roots are intact. Asian radishes are also used for producing sprouts and microgreens where the shoot is eaten.

Black, Spanish or winter radishes are group of high pungency, hot radishes. They commonly have black skins and white flesh and may be shaped as globes, flattened globes, elongated cylinders, or tapered roots. They vary in size but some types can be larger than one foot in length. Other than black, skin color can be white, pink, red, brown, and purple. Growing conditions are similar to Asian radishes and they have long storage potential.

All root radishes are grown in seasons where they will not bolt (produce a flower stalk). The storage reserves in the root will be used up in the flowering process.

Another radish variant is the rat-tail or Madras radish (*Raphanus sativus* var. mougri or *Raphanus sativus* var. caudatus) which is grown for its edible fruit, which botanically is a silique but is commonly called a "pod". While all radish pods can be eaten, these types have been selected specifically for their edible pods. They are allowed to flower and pods are harvested in the immature stage and eaten raw or cooked. These radish pod crops are most commonly found Indian and Southeast Asian cuisine. This is an interesting crop for growers looking for specialty products to offer consumers.

Seed salad radishes as early in the spring as soil can be worked, then at 8 to 10 day intervals through September (or through November in high tunnels). Fall adapted Asian radishes are planted from mid-July through September. Space rows 8 to 15 inches apart and 1 inch between plants in the row for salad radishes or 2-3 inches apart in the row for larger Asian radishes. Radishes are often planted in 4' wide raised beds, 6 rows per bed. Nitrogen requirements are modest with 50 lbs/a N recommended for smaller radish types and 60-75 lbs/a N for more robust Asian types.

Recommended varieties for our region are as follows:

Red globe; white interior radishes: Saxa, Rover*, Cherriette*, Perfecto, Rudolf (Crack tolerant), Cherry Belle, Pink Beauty (organic), Champion, Crimson Giant (large globe)

Specialty Radishes, Spanish Radishes, and Asian Radishes: Watermelon (white flesh, red interior, globe), Shumkyo Semi Long (Red flesh, white interior, elongated), White icicle (white flesh, white interior, elongated). Minowase (daikon), Mihashige (daikon), China Rose (red flesh, white interior, elongated), Chinese Winter (daikon), Discovery* (daikon), Round Black Spanish (heirloom, dark flesh, white interior, large globe), April Cross* (daikon), Sakurajima Mammoth (white flesh, white interior, large globe)

**F_1 hybrid variety*

Label Changes for Command Herbicide

– *Mark VanGessel, Extension Weed Specialist*; mjv@udel.edu

Recently the label for Command herbicide was changed, limiting use in some vegetable crops important to Delaware and the region. Under the category of succulent beans, only snap beans now are listed. Residue tolerances for lima beans have not been established, so usage for lima beans were removed from the label. This impacts the use of Command as a soil-applied herbicide for lima beans, as well as use in preceding crops. Since lima beans do not have a tolerance, there is a 16 month rotation between application and planting lima beans.

You and Your High Tunnel!

– *Rose Ogutu, Horticulture Specialist, Delaware State University* rogutu@desu.edu

Are High Tunnels a "Den of Overwintering Pests"?

You have just concluded the fall and winter season of production of a variety of greens. Insects, mites and other pests continued to feed in high tunnels. Do high tunnels give the insect problem a head start? How would you manage to

prevent imminent pest explosions early in the spring and summer growing seasons?

Do 'Biocontrols' fit into your program?
Growers can successfully manage pests with sustainable techniques such as bio pesticides, beneficial insects and variety resistance. The success of these techniques depends on timing and other management skills. Is this an option you need to consider?

What have you identified as some sources and solutions for pest problems?
Over fertilization, resulting in excess nitrogen being given to plants and overwatering are common practices in high tunnels.

Environmental conditions inside your high tunnel in the summer will be determined by days of cloud cover, daily highs, and nightly lows, orientation of the tunnel, and the degree to which your side walls, end walls, and roof vents ventilate your high tunnels. Your crop selection, spacing and trellising techniques are also a factor.

A variety of insect netting or shade cloths (depending on target pest and population pressure) can be used on the side walls to block entry of large pests. The smaller pests can be managed using other sustainable IPM practices for overall improvement. A little sanitation goes a long way in keeping insect population down. What strategies have you put in place to manage insect and disease pests in your high tunnel?

Are you considering having small fruits in your high tunnel?
Register for the upcoming workshop at Delaware State University, Smyrna Outreach Research Center! There is more information about this workshop in the Announcements section.

Fruit Crops

Plasticulture Strawberry Cleanup, Flowering, and Fertilization

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

If growers have not done so already, plasticulture strawberries should be cleaned to remove dead leaves and other dead plant material prior to flowering. Winter injury has left many dead leaves that will serve as a major source of Botrytis spores during bloom (the critical stage for infection). Dead material can also lead to crown rots in strawberry plants.

North Carolina has shown that strawberries achieve 5% bloom when they have accumulated 90 Degree Days (base 50, the same we use for corn). This refers to the Camarosa variety and may be slightly different for other varieties such as Sweet Charlie and Chandler. On Delmarva, growers can look at degree days and once it gets over 80, start looking for bloom in their crops.

In Delaware, degree day calculations can be found on the DEOS weather site in the Ag/Irrigation summaries section http://www.deos.udel.edu/agirrigation_retrieval.html. Choose the closest site to your farm and look for the GDD column. Start in February and add up the GDD units. So far, for most of the state, we have had less than 50 GDD. We need some more warm days to get to the 80 GDD you need to see flowering.

Plasticulture strawberries should have nitrogen applications prior to bloom. Base recommendations are 25 lbs/a of N at greenup and another 25 lbs/a of N 2-3 weeks later. If fertigating weekly, addition of 3-5 lbs of nitrogen per acre per week may be warranted. Nitrogen is critical prior to and during early bloom. Including potassium at a 1:1 ratio with nitrogen will often improve fruit quality (sugars).

You can monitor petiole sap N and K concentration in the field. This is based on sampling leaf petioles from the most recently expanded leaves, extracting the sap, and using portable nitrate and potassium meters. The procedure can be found at this website http://edis.ifas.ufl.edu/cv004, along with recommended levels for different growth stages. Targets initially are 600-800 ppm petiole sap nitrate and 3000-3500 ppm petiole sap potassium.

While this is a quick way to monitor nutrient levels, growers are also encouraged to take petiole and leaf tissue samples for laboratory analysis. To collect and submit strawberry tissue samples, follow these guidelines: Select the most recently mature, healthy, trifoliate leaves

from uniform field areas and the same variety; detach the petioles from the leaves as you collect them and save each separately; include leaves and petioles from 20 to 25 plants; and then submit leaves and petioles together as one sample.

We have a lab on Delmarva that can run these tissue samples. Leaf tissue nutrient levels should be maintained as follows: N (%) 3-4, P (%) 0.2-0.4, K (%) 1.1-2.5, Ca (%) 0.5-1.5, Mg (%) 0.25-0.45. When in full bloom, petiole tissue nitrate content should be between 4000-6000 ppm and then will decrease thereafter. The recommended levels for petiole tissue nitrate from laboratory analyses can be found at this publication from North Carolina: http://www.ncagr.gov/agronomi/pdffiles/sberrypta.pdf (our week one would be beginning bloom). Day neutral varieties that fruit into July should maintain higher levels of petiole tissue nitrate later in the season than June bearing types.

Section 18 for Brown Marmorated Stink Bug (BMSB) Management on Apples, Peaches and Nectarines Approved - *Joanne Whalen, Extension IPM Specialist*; jwhalen@udel.edu

Our Section 18 request for the use of three bifenthrin products (Brigade WSB – FMC Corporation; Bifenture EC and Bifenture 10DF – both from United Phosphorus) to control BMSB on apples, peaches and nectarines has been approved by EPA. This use expires on Oct 15, 2015. You must have a copy of the label in your possession before making an application. Please contact either Chris Wade at the Delaware Department of Agriculture (Christopher.Wade@state.de.us) or Joanne Whalen (jwhalen@udel.edu) for more information.

Agronomic Crops

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

Alfalfa
Be sure to begin sampling for pea aphid and alfalfa weevil. When sampling for aphids and weevils, collect a minimum of 30 random stems throughout a field and place them top first in a white bucket. For aphids, you want to count the number present per plant as well as any that have dislodged from the stem into the bucket. As a general guideline, you should consider a treatment in alfalfa less than 10 inches tall if you find 40-50 aphids per stem. The treatment threshold for alfalfa 10 inches or taller in height is 75-100 per stem. Although beneficial insects can help to crash aphid populations, the recent cool temperatures have slowed their activity. As a general rule, you need one beneficial insect per every 50-100 aphids to help crash populations. For alfalfa weevil, you will want to record the number of weevil larvae per stem. The following thresholds, based on the height of the alfalfa, should be used as a guideline when making a treatment decision: up to 11 inches tall – 0.7 per stem; 12 inches tall – 1.0 per stem; 13 – 15 inches tall – 1.5 per stem; 16 inches tall – 2.0 per stem and 17 – 18 inches tall – 2.5 per stem

Field Corn
During our sampling for slugs this past week, we have observed low levels of adult marsh and grey garden slugs. We have not yet seen any signs of grey garden slug egg hatch. In general, the grey garden slug causes the majority of damage in our corn fields. Therefore, scouting for eggs and watching for egg hatch will help identify potential problem fields. For more information on scouting for slugs eggs, please watch the following video from Ohio State University: http://oardc.osu.edu/ag/pageview3.asp?id=2087

To help you keep track of Bt corn traits, efficacy, and refuge requirements for the 2015 season, Chris DiFonzo, Field Crops Entomologist from Michigan State University, has updated the Handy BT Corn Trait Table: http://msuent.com/assets/pdf/28BtTraitTable2015.pdf

Soil Borne Small Grain Viruses - *Nathan Kleczewski, Extension Specialist - Plant Pathology*; nkleczew@udel.edu

Small grains are behind and the recent cool, wet weather means that you might come across early

season viral diseases in some fields, specifically Wheat Soilborne Mosaic Virus and Wheat Spindle Streak Virus. These diseases are transmitted by soil borne microbes that thrive in cool, wet conditions. Infected plants typically are chlorotic and may be stunted. Often affected plants occur in low lying areas of the field or areas suffering from compaction. However, on some occasions entire fields are symptomatic. Symptoms of spindle streak include necrotic dashes that run along the venation, giving the appearance of a spindle (Figure 1). Additional symptoms of soilborne mosaic virus are less conspicuous, but include mottling of lower foliage (Figure 2). Symptoms cease once temperatures are above 65°F and may be reduced after fertilization. Confirmation can only be made through specialized testing methods such as ELISA and PCR.

What should you keep in mind? 1) Keep track of fields with these viruses. Once the viruses are established they will be present in those fields from here on out. 2) Try to harvest or work in these fields last to prevent spread to other fields. 3) Avoid compaction. 4) Plant tolerant varieties in fields with a history of these viruses. Unfortunately many varieties are screened for these viruses as a complex, so it may be difficult to determine if you are planting a spindle streak or soilborne mosaic tolerant variety in these cases.

Figure 1. Characteristic lesions caused by wheat spindle streak virus.

Figure 2. A nursery screening wheat varieties for tolerance to soilborne mosaic virus.

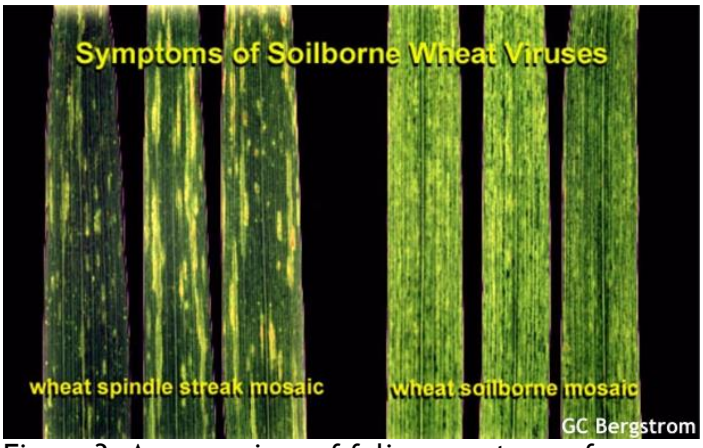

Figure 3. A comparison of foliar symptoms of spindle streak (left) and soilborne mosaic (right) virus. Wheat spindle streak mosaic symptoms are typically more elongate and spindle shaped, and often contain a dark green island in the middle of chlorotic lesions.

General

EPA Announces It Is Unlikely to Approve New Outdoor Neonicotinoid Pesticide Uses

– *Joanne Whalen, Extension IPM Specialist*; jwhalen@udel.edu

The following is information from EPA's Office of Pesticide Programs written in their April 2, 2015 EPA Pesticide Program Update

"As part of EPA's ongoing effort to protect pollinators, the Agency has sent letters to registrants of neonicotinoid pesticides with outdoor uses informing them that EPA will likely not be in a position to approve most applications for new uses of these chemicals until new bee data have been submitted and pollinator risk assessments are complete. The letters reiterate that the EPA has required new bee safety studies for its ongoing registration review process for the neonicotinoid pesticides, and that the Agency must complete its new pollinator risk assessments, which are based, in part, on the new data, before it will likely be able to make regulatory decisions on imidacloprid, clothianidin, thiamethoxam, and dinotefuran that would expand the current uses of these pesticides. Affected neonicotinoid actions include:

- New Uses (including crop group expansion requests)
- Addition of New Use Patterns, such as aerial application
- Experimental Use Permits
- New Special Local Needs Registrations

"This is an interim position. However, if a significant new pest issue should arise that may be uniquely addressed by one of these chemicals, EPA is prepared to consider whether an emergency use under FIFRA section 18 might be appropriate. Due to the localized nature of many emergency pest management programs, it may be possible to develop mitigation or adjust the use pattern in a manner that would minimize exposure to bees. In the event that an emergency use is requested, the Agency plans to assess such requests by relying on available information and risk mitigation strategies.

"More information on EPA's efforts to protect pollinators: http://www2.epa.gov/pollinator-protection."

Beware of "Alternatives" when Purchasing Agricultural Lime

– *Amy Shober, Nutrient Management and Environmental Quality Extension Specialist*; ashober@udel.edu, *Richard Taylor, Extension Agronomist*; rtaylor@udel.edu, *Josh McGrath, Extension Soil Specialist University of Kentucky and Edwin Ritchey, Extension Soil Specialist University of Kentucky*

Maintaining soil pH in the proper range is one of the most important parts of soil fertility management. Soil pH is considered the "master variable" because it influences many of the chemical and biological functions of the soil. Recall that pH is a measure of the activity or concentration of hydrogen ions (H^+), which is represented mathematically as $pH = -\log[H^+]$. The more hydrogen ions present in the soil solution the lower the pH value. Values below 7.0 are considered acidic and values above 7.0 are considered alkaline. The target soil pH for crops grown in Delaware is crop specific but, in general, is as follows:

- Grain crops (corn, soybean, small grains): 6.0
- Forages (alfalfa, corn silage, grass/legume mixtures): 6.0 to 6.8.
- Vegetable crops (beans, peas, peppers, etc.): 6.0 to 7.0

In this soil pH range, the essential mineral macro- and micro-nutrients are in a chemical form that is most available for uptake by growing plants. At pH below 5.0, soluble aluminum (Al), iron (Fe), and manganese (Mn) may be toxic to the growth of some plants and phosphorus (P) availability is decreased.

Delaware soils are naturally acidic. In addition, nitrogen (N) fertilizers that contain urea or ammonium (NH_4^+) also contribute to soil acidity when NH_4^+ is converted to nitrate (NO_3^-), releasing many H^+ ions into the soil solution. Therefore, periodic liming may be required to maintain Delaware soils in the optimum pH for grain and vegetable crops. Remember to have

your soil tested before applying any lime to the soil. The lime requirement test is offered as part of the routine soil analysis by the University of Delaware soil testing lab and many private labs in the region. You need both the water pH and the lime requirement (buffer pH) test run to obtain an accurate estimate of the quantity of lime needed to raise the pH back to the target pH.

Recently, colleagues at the University of Kentucky alerted us that Kentucky growers were being marketed an "alternative" liquid lime product. After a little investigation, they identified that the material being marketed as a liquid lime was actually calcium chloride ($CaCl_2$). Unfortunately, $CaCl_2$ provides ***NO liming value*** and is in fact not "liquid lime." Calcium chloride is used for many purposes including road salt or tractor tire ballast, but it cannot be used to neutralize soil acidity. Therefore, we thought it would be useful to provide some information on liming materials, how liming materials increase soil pH, and explain why $CaCl_2$ is not a viable alternative to agricultural lime.

What is Lime?

Liming materials are typically oxides (O^{2-}), hydroxides (OH^-), carbonates (CO_3^{2-}) or silicates (SiO_4^{4-}) of calcium (Ca) or magnesium (Mg). Some examples include calcitic lime or calcium carbonate ($CaCO_3$), dolomitic lime ($CaMg(CO_3)_2$), quick lime (CaO), and hydrated lime ($Ca(OH)_2$). The reason these materials work or "lime" a soil (i.e. neutralize acidity) is NOT due to the Ca or Mg in the material. The oxide, hydroxide, carbonate, or silicate anions in these materials are the active liming agents. When these liming materials dissolve in water, the acidity (H^+) reacts with the negatively charged anions (O^{2-}, OH^-, CO_3^{2-}, or SiO_4^{4-}), thereby reducing the concentration of acid (H^+) in the soil solution. The Ca or Mg cation does nothing to reduce soil acidity. Land application of Ca and/or Mg liming agents does, however, serve as a source of these macronutrients to growing plants.

Available Liming Materials

Many common liming materials are available in solid form. It is important to know the liming ability of any material, which is expressed as calcium carbonate equivalents (CCE), because some materials are more effective at neutralizing acidity. High quality solid limes have a small particle size allowing them to dissolve in water more readily.

Liquid lime products are also available. Liquid lime is simply a very finely ground solid liming product that is dissolved in water. Liquid lime usually has a high relative neutralizing ability allowing it to modify soil pH quickly. However, since lime is dissolved in water, it typically consists of approximately 50% lime and 50% water by weight. Therefore, one ton of liquid lime would be equivalent to applying ½ ton of solid lime. If you need 2 tons per acre of 100% CCE lime (based on request of a lime requirement soil test), you would likely need to apply over 4 tons per acre of the liquid lime, which is well in excess of 700 gallons per acre. This large volume of water would require multiple applications of liquid lime throughout the year to get the amount of effective lime on the field as recommended by the soil test. However, because liquid lime is very fast acting (you don't have to wait for the rain to dissolve the lime), in some cases it may be a good option for growers when only a small amount of lime is required.

Buyer Beware

If purchasing "liquid lime", read the label to be sure that the material is actually an oxide (O^{2-}), hydroxide (OH^-), carbonate (CO_3^{2-}), or silicate (SiO_4^{4-}) form of calcium (Ca) or magnesium (Mg). The $CaCl_2$ being marketed to growers in Kentucky is not liquid lime and has no liming ability. Remember, the Ca (and or Mg in some liming materials) is not responsible for neutralizing soil acidity. And while $CaCl_2$ can provide plant available Ca to the soil, Ca deficiencies are not common in grain or vegetable crops grown in Delaware when proper pH management practices are followed. If you do need Ca or Mg, a calcitic or dolomitic limestone source is a great way to meet those needs. Be a savvy customer when purchasing liming materials and don't forget to get your soil tested before applying lime.

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

It is important to be sure cover crops are dead prior to planting, since those plants still alive at planting are injured and/or larger after planting and can much more challenging to control. Furthermore, 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 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.

Free Herbicide Site of Action Chart – *Mark VanGessel, Extension Weed Specialist*; mjv@udel.edu

Using herbicides with different sites of action is important to deal with herbicide resistant weeds, but knowing sites of action can be challenging. A colorful reference chart on herbicide site of action is available free of charge at the Delaware Cooperative Extension offices. This chart is specific for common herbicides used in the Mid-Atlantic states for agronomic and vegetable crops.

The Mid-Atlantic chart was customized from one developed for the Midwest and designed in collaboration with the Delaware Soybean Board and the US Soybean Board. It is part of the US Soybean Board's "Take Action: herbicide-resistance management" campaign.

Announcements

Job Posting: Agronomy Program Manager

University of Maryland, Wye Research and Education Center, Queenstown, MD. Duties: Working with scientists, coordinate and implement research, demonstration and educational projects for agronomic crops.

Min. Qual.: BS in Agronomy or related field, 5 years of farm-related experience including research plot design and staff supervision. Salary commensurate w/experience, with base salary $55,200.

Details/Apply: https://ejobs.umd.edu/ Position #103087. Best consideration /closing date: May 8, 2015. Contact: Barbara South (410) 827-6202. EEO/AA.

Nematode Management and Nimitz Training Day

Monday, April 20, 2015 8:30 a.m. – 12:00 p.m
University of Delaware
Carvel Research and Education Center
16483 County Seat Highway, Georgetown, DE 19947

Vydate will be in short supply for at least 2015, and growers have few options for root knot nematode management in vegetables. This technical session will cover fumigant options for nematode management and training in the use of **Nimitz**, a new contact nematicide offered by Adama®. Speakers will include Dr. David Langston from Virginia Tech, and Pablo Navia Gine, Innovation Technical Leader at Adama®.

Food will be provided.

Participation will be limited to the first 90 registrants. *Please call Karen Adams at (302) 856-2585 ext. 540 to register*

Season Extension Workshop & Field-Day: Extend your Season with High Tunnels

Friday, May, 15, 2015 10:00 a.m.-3:30 p.m.
Delaware State University
Smyrna Outreach & Research Center (SORC)
884 Smyrna-Leipsic Road, Smyrna, DE

Topics Include:

- High Tunnel Options
- IPM in high tunnels
- Small fruits in high tunnels
- EQIP program and High Tunnels
- Farmer Perspectives
- Do not miss an opportunity to experience the building of a high tunnel!

Speakers:

Judson Reid of Cornell University Extension will share his experiences on IPM in high tunnels

Michael Newell of University of Maryland will share his experiences with small fruits production in high tunnels.

To register for the free workshop or for more information, call Rose Ogutu at 302-387- 6397 or by emailing rogutu@desu.edu. RSVP by Monday May 11, 2015.

Presented by DSU Cooperative Extension, Small Farms Program

Weather Summary

Carvel Research and Education Center Georgetown, DE

Week of April 2 to April 8, 2015

Readings Taken from Midnight to Midnight

Rainfall:

0.17 inch: April 3
0.19 inch: April 7
0.02 inch: April 8

Air Temperature:

Highs ranged from 73°F on April 3 to 46˚F on April 8.

Lows ranged from 59˚F on April 3 to 30˚F on April 2.

Soil Temperature:

51.6˚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