Dave’s Ramble

The wisdom of mankind according to the 2nd Edition of Oxford’s Dictionary abides in 171,476 English words in current use and numerous other words of sundry languages; ancient and romantic. Words constructed from a mere 26 letter alphabet reside at the Library of Congress, the largest library in the world, to form a treasure of more than 158 million books and documents, on approximately 838 miles of bookshelves. Our words have not become exhausted; we keep writing.

The elemental substance of mankind is incubated in the solar atomic interior by intense heat and gravity to be released at the star’s demise; thus creating the 118 elements of the known periodic table. These elements, according to the American Chemical Society Registry of Chemicals, the most authoritative collection of disclosed chemical substance information, contain more than 89 million organic and inorganic chemical substances and 65 million chemical sequences.

The Environmental Protection Agency lists 84,000 chemicals of both natural and synthetic origin on the Toxic Substance Control Act list of regulated chemical compounds. EPA also reports, that apportioned to this TSCA list are 925 pesticide active ingredients. Of the 925 pesticide active ingredients: 259 are herbicides; 231 are insecticides; 185 are fungicides/nematicides; 37 are rodenticides; and 213 are biocides (antimicrobials and disinfectants) and miscellaneous; all comprising 11,947 labeled pesticide products. Without doubt, stewardship demands that we use pesticides and all toxic chemicals with great care and scrutiny; A chemical substance inherently is neither good or evil, but we can be.

The amazing thing about chemistry is that we are still in a relatively new science compared to the timeline of literature. Our chemicals have not become exhausted; we have only just begun. Words and substance make us human; our responsibility relies on adhering to wise words in an chemically active world: Be Sure to Read the Label!

Calendar of Events

Mark Your Calendars --- Plan To Participate

- November 18-20 - Crop Mgmt. School - Ocean City
- December 3 - Southern MD Crops Dinner - Waldorf
- December 15 - Crops IPM Workshop NM/PAT - Ext Office
- Jan.13, 2015 - Pesticide Certification Training - Ext Office
- Jan.14, 2015 - Southern MD Forage Conference - Waldorf
- Jan. 27, 2015 - Pesticide Certification Exam - Ext Office
- January TBA - Central MD Vegetable Meeting - Upperco
- Feb.4, 2015 - So. MD Vegetable & Fruit Mtg- St.Mary’s Co.
- Mar. 10, 2015 - Pasture & Crop Workshop NM/PAT-Ext Office
- Jan.13, 2015 - Pesticide Certification Exam  - Ext Office
- Jan.14, 2015 - Southern MD Forage Conference - Waldorf
- January TBA - Central MD Vegetable Meeting - Upperco
- Feb.4, 2015 - So. MD Vegetable & Fruit Mtg- St.Mary’s Co.
- Mar. 10, 2015 - Pasture & Crop Workshop NM/PAT-Ext Office
- April 3, 2015 - On-Line Nutrient Voucher Recertification
- April 10, 2015 - On-Line Pesticide Applicator Recertification

Inside This Issue

- Fall and Winter Meetings
- Vegetable & Crop Insect Update
- Agronomic Crop Disease Update
- Soybean Sudden Death Syndrome and Vein Necrosis Virus
- Renovating/Planting a New Pasture or Hay Field
- Establishing Small Grains with Vertical Tillage
- Moderately Resistant Wheat Varieties for Suppression of Deoxynivalenol (DON)
- Farm Bill
- AG Marketing News Update
- Ignite Your Sales with Sensory Branding
- MD Niche Meat & Poultry Producers Directory
- MDA News
- USDA News
- EPA Pesticide Program Updates
FALL & WINTER MEETINGS
Mark your calendars now and plan to be a part of the fall and winter meetings.

Mid-Atlantic Crop Management School
November 18-20, 2014
The Mid-Atlantic Crop Management School will be held at the Princess Royale Hotel in Ocean City on November 18-20, 2014. Individuals seeking advanced training in soil and water, soil fertility, crop production and pest management will have an opportunity at hands on, intensive sessions that also provide continuing education units (CEU's) for the Certified Crop Advisor (CCA) Program.
To register contact Josh McGrath at 301-405-1351 or by email: mcgrathj@umd.edu.

Southern Maryland Crops Dinner Conference
December 3, 2014
The Southern Maryland Agents would like to invite everyone to join with our University specialists to have your questions answered about crop production and pest control at the Southern MD Crops Conference on December 3, 2014, 4:00 to 8:30 p.m. at the Baden Firehouse Hall in Brandywine, MD.
Attendance at this conference will satisfy the requirement for the Private Pesticide Applicator Recertification & Nutrient Applicator Voucher.
Please call your local Extension office to register.

Crop Sustainability & IPM Workshop
Pesticide Recertification & Nutrient Applicator Voucher Training
December 15, 2014
Make plans to attend the Crop Sustainability & IPM Workshop, at the Anne Arundel Extension Office from 6:00 p.m. to 9:00 p.m. This workshop will explore advanced crop production practices focusing on sustainability, food security and integrated pest management tactics. Topics will include: Crop selection; integrated crop management; soil fertility; weed control; insect control; and disease control for field crops, fruits and vegetables.

Private Pesticide Applicator Recertification & Nutrient Applicator Voucher Recertification will be awarded for full class participation.
To register for this event contact the Anne Arundel County Extension Office at 410-222-3906.

Become a MD Certified Private Pesticide Applicator
If you have allowed your Private Pesticide Applicator Certification to expire or are a new applicant, then you are invited to attend the Private Pesticide Applicator Certification Training and Examination. It’s a two-step process:
Step 1: A Private Applicator Certification Training will be conducted at the Anne Arundel Extension Office from 6:00 to 8:00 p.m. January 13, 2015.
Step 2: A Private Pesticide Applicator Exam will be given at the Anne Arundel Extension Office from 6:00 to 8:00 p.m. January 27, 2015.

Maryland/Delaware Forage Council
Southern MD Hay & Pasture Conference
January 14, 2015
Make plans to attend the Southern Maryland Hay & Forage Conference on January 14, at the Baden Firehouse Hall in Brandywine, MD.
Topics will be presented covering all aspects of hay and pasture production. The programs will address key issues and concerns facing hay and pasture producers.
The conferences also features displays and exhibits by numerous agribusinesses. Attendees will be able to obtain information on seed, fertilizer, equipment, fencing, etc. needed for hay and pasture production and management.
More detailed program information on the Southern Maryland Conference will soon be available on the Web at: http://www.psla.umd.edu/extension/maryland-forages-program or through local county Extension and NRCS/Soil Conservation District offices in MD.

Central Maryland Vegetable Growers Meeting
Date to be Announced
This well sponsored, large grower meeting always offers a great deal of vegetable industry information. Pesticide recertification credits are awarded for attending this meeting. For full meeting details, and to register call the Baltimore County Extension Office at 410-771-1761.
Southern Maryland Vegetable & Fruit Production Meeting  
February 4, 2015

Make plans to attend the **Southern Maryland Vegetable and Fruit Production Meeting** on February 4, 2015, in St. Mary’s County. This meeting will provide **Private Applicator Recertification & Nutrient Applicator Voucher Recertification**. Speakers will provide IPM updates and present on a broad range of production topics.

Also meeting sponsors will showcase their products and services, and state vegetable organization leaders will be present to recruit and answer your questions. Please attend and make this meeting the best ever. **Call your local Extension office to register.**

Field Crops & Pasture IPM Workshop  
March 10, 2015

Make plans to attend the **Field Crops & Pasture IPM Workshop** on March 10, 2015 at the **Anne Arundel Extension Office** from 6:00 p.m. to 9:00 p.m. This workshop will explore advanced concepts of pasture and field crop production in the Southern Maryland region from establishment to harvest, including animal utilization. Topics will include: Crop selection; integrated crop management; soil fertility; weed control; insect control; and disease control for soybeans, corn, wheat, barley and hay crops.

**Private Pesticide Applicator Recertification & Nutrient Applicator Voucher Recertification** will be awarded for full class participation.

**To register for this event contact the Anne Arundel County Extension Office at 410 222-3906.**

Live On-Line Session  
**Private Pesticide Applicator Recertification**  
April 10, 2015

If you would like the opportunity to learn from home, yet still be engaged, then be sure to enroll in this **Live On-Line Private Pesticide Applicator Recertification Training**, scheduled for from 4:00 to 6:00 p.m.

The session will focus on pesticide use and related topics for all field crops, fruits and vegetables. This Adobe Connect recertification session will be live via the internet directly from the University of Maryland. Adobe Connect is a student interactive system that will document your attendance. **To participate in a live Adobe Connect session a high speed cable or satellite internet connection is required.**

**Private Pesticide Applicator Recertification credit** will be awarded for full 2-hour session participation.

**Registration by April 8th is required** in order to receive Adobe Connect login instructions.

**To register for this on-line event contact the Anne Arundel County Extension Office at 410-222-3906.**
IPM Alert for the Nursery and Landscape Industry
Stanton Gill, Extension Specialist in IPM and Entomology for Nurseries and Greenhouses
University of Maryland Extension
Sgill@umd.edu
www.Extension.umd.edu/ipm - IPM Alerts

Rain and more Rain
What a great year to grow weeds, trees and shrubs in the nursery. The frequent rains have resulted in some of the best growth on nursery trees I have seen in the last 11 years. There will be lots of pruning and shaping work in the nurseries this September. American hollies have had 3-4 flushes of new growth this summer. I visited some nurseries were the new growth on crabapples exceeds 4-5 ft. This should result in good caliper size this fall for shade tree nursery plants.

Great Tree Planting Project-
Over the Labor Day weekend I had a chance to visit Stoytown, PA (not it is not Storytown as would think but Stoytown). This is the site of the new national Park Service memorial to the Flight 93 airplane crash that was involved with the Sept 11 terrorist attack. The memorial is still under construction and will not be finished for another 2 years but it is very well done. What is great about the memorial is that they are planting 40 groves of shade trees, one grove each in memory of the passengers. Evidently Davey tree has the contract to water all of these trees to get them started. It is a great tribute and nice that they are honoring these people with tree plants. If you get a chance try to visit.

Cryptomeria Scale -
Cryptomeria scale is now in crawler stage this week in central Maryland. (Suzanne – please put in the picture of the scale) This is a good time to apply either Distance or Talus. We should be in crawler stage for another 7-10 days.

Vegetable Crop Insect Update
Joanne Whalen, DE Extension IPM Specialist
jwhalen@udel.edu

Lima Beans
Continue to scout for stink bugs, lygus bugs, soybean looper and corn earworm. If present in the mix, be sure to select a material labeled for soybean loopers.

Soybeans
Corn earworm populations still remain low; however, with the recent increase in trap catches you will need to watch fields closely over the next few weeks. Most full season fields should be in the “bug-safe” late R6-R7 stage; however, double crop soybeans will still be susceptible to attack. Since population levels will vary from field to field, the only way to know if you have an economic level will be to scout all fields. Once pods are present, the best approach to making a decision on what threshold to use for corn earworm is to access the Corn Earworm Calculator developed at Virginia Tech, which estimates a threshold based on the actual treatment cost and bushel value you enter: http://www.ipm.vt.edu/cew/

There are still reports of soybean aphids in an occasional field. The economic threshold for soybean aphid established in the Midwest is 250 aphids per plant. Populations should be increasing and most of the plants should be infested (>80 percent) in order to justify an application.
threshold is appropriate until plants reach mid-seed set (R5.5). Spraying at full seed set (R6) has not produced a consistent yield response in the Midwest.

Weekly Crop Update – 8-21-14
Nathan Kleczewski
DE Extension Specialist, Field Crops Plant Pathology
nkclezew@udel.edu

Corn
We are about 2-3 weeks away from finishing most of our corn. Currently grain is filling and the majority of photosynthetic is being mobilized to the ears to support grain fill. This also is a time where stress can cause issues towards harvest. In particular, the effects of drought and disease on plant foliage can result in proportionally more carbohydrate reserves being moved to the ear, which results in less available to support the physiological functions within the stalk. A reduction in carbohydrates in the stalk may result in weaker stalks or stalks more prone to stalk rots and lodging. With recent heavy rains and more wet weather approaching, we may see some root/stalk rotting organisms picking up in activity during this crucial time in plant growth. This would be a good time to scout your fields, particularly dryland fields, to see where they stand in terms of foliar health, particularly the ear leaf, which contributes the majority of carbohydrates to drain fill. If your fields look like they are under a fair amount of stress then check back in another week or two to test for stalk strength. For more information on scouting and stalk rots on corn please see my factsheet posted on the University of Delaware Website: http://extension.udel.edu/factsheet/stalk-rots-on-corn/

We also have had some rust move into our corn. For more information see my article on my Field Crops Disease Management Blog: http://extension.udel.edu/fieldcropdisease/

Soybeans
This year looks like it will be a good one for our soybean crop. The vast majority of fields are clean with few, if any, major issues. I have seen a few fields where Frogeye leaf spot has taken off a bit (Figure 1). In terms of management, the fields I have looked at are at R5 or later which is past the point where chemical intervention is recommended. In addition, the severity of the disease has been low and unlikely to have an impact on yield. If you have noticeable amounts of Frogeye leaf spot and you already applied a fungicide, please contact me at nkclezew@udel.edu or send a sample to the UD diagnostic clinic. We are in the process of collecting samples to determine if our populations are developing fungicide resistance as has been observed in Midwestern states and North Carolina. For more information on Frogeye leaf spot, see my factsheet: http://extension.udel.edu/factsheet/frogeye-leaf-spot-on-soybean-2/

We also have had a few reports of sclerotinia stem blight (white mold) on soybeans (Figure 2). This is a cool season disease that we see almost every year, but only to a very small degree. Often you will see it in high yield environments and in shaded areas of the field, such as along wood edges. If you notice sclerotinia stem blight (white mold) in your field it is likely there to stay. The best management practice at this point in full season beans is to schedule infested fields to be harvested last to minimize spread of the pathogen from field to field on farm equipment. In double crop beans planted into fields with a known history of sclerotinia stem blight, applications targeting the R1-R2 stage are most efficacious. Example fungicides for SSB suppression include labeled group 1’s (Topsin), labeled group 3’s (Proline), Fluazinam (Omega); labeled group 7’s (Endura) and labeled group 11’s (Aproach). Often fungicide applications are not justified in Delaware but they can be beneficial under some circumstances. As usual, preventative applications are most efficacious. For more information on fungicide ratings, please see the NCERA 212/218 fungicide efficacy tables: http://extension.udel.edu/factsheet/fungicide-efficacy-for-control-of-foliar-soybean-diseases/

For more information on Sclerotinia stem blight (white mold) on soybean, see my factsheet: http://extension.udel.edu/factsheet/sclerotinia-stem-blight-white-mold-on-soybean/

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Figure 1. Full season beans with frogeye leaf spot on the upper canopy. In this particular example we are looking at roughly 1-3% leaf severity, which isn’t likely to impact yield to a noticeable degree. Photo by N. Kleczewski
Weekly Crop Update - 8/29/14

Nathan Kleczewski
DE Extension Specialist
Field Crops Plant Pathology
nkeczew@udel.edu

Soybeans
Two issues that are increasing in prevalence in soybeans are Sudden Death Syndrome (SDS) and Soybean Necrotic Vein Virus (SVNV). Both of these diseases are fairly new to the area and have been becoming increasingly prevalent in soybean growing regions in the United States. It is important to properly diagnose these diseases as they are very different and have different implications on future planting and disease management practices.

SDS
SDS is caused by a Fungus (*Fusarium vurguliforme*- yes another *Fusarium* causing problems in our crops). The fungus is fairly unique as it is blue in color, making it fairly easy to diagnose if it is present on symptomatic plants. This disease starts in the soil, where the fungus overwinters either in residue, thick walled resting spores, or even in cysts of the Soybean Cyst Nematode.

SDS infects soybeans early in the growing season, often within the first 1-2 weeks of emergence. Cool, wet weather favors infection by the fungus. After infecting the plant root system, the SDS pathogen remains inactive. Symptom expression typically occurs after flowering (R1).

Wet and warm conditions during the reproductive phases of soybean growth cause the fungus within infected plants to produce toxins which move up the plant and enter the leaves. The toxins build up in foliage, causing necrosis between the leaf veins and defoliation. Petioles tend to remain intact. The internal tissue of the lower stem and roots will be light brown when compared to healthy plants and if you are lucky, blue fungal growth may be observed at the soil line or on the roots. The blue fungus is diagnostic for the disease.

As far as management- avoiding early planting dates, selecting a variety with good tolerance to SDS, and avoiding compaction are key factors to consider when planting soybeans into fields with a history of SDS. SDS is not likely to be an issue in double crop soybeans.

See my factsheet on SDS for more information on identification and management:
http://extension.udel.edu/factsheet/sudden-death-of-soybeans-sds/
**Soybean Vein Necrosis Virus (SVNV)**

SVNV is a newly characterized virus that we really know very little about. What do we know? It is the most prevalent virus in soybeans. It is vectored by thrips. It seems to have a broad host range that includes some of our common weeds such as Ivyleaf Morning Glory. We don’t have a handle on yield impacts, but we do know that it can cause defoliation of the upper canopy in susceptible varieties and losses of 2-4 bushels/A are not unheard of. This year we have been conducting field surveys funded by the Delaware Soybean Board to determine the prevalence of SVNV, to gather information on factors that may influence its incidence, and potentially obtain some yield loss data. Without going too far into the current data, we have made over 100 site visits on dozens of fields across Delaware, and SVNV is present in nearly every field surveyed to some degree. Therefore it’s likely that you are seeing it in your fields. For more information on SVNV check out a blog article I wrote on the subject last year: [http://extension.udel.edu/fieldcropdisease/tag/svnv/](http://extension.udel.edu/fieldcropdisease/tag/svnv/).

Due to the symptomology it is easy to attribute SVNV to other common diseases such as Septoria brown spot, Bacterial blight or pustule, Downy mildew, and even SDS. Symptoms of SVNV may occur anywhere in the canopy but typically you will see it on select leaves in the canopy. Symptoms start out as a light discoloration in parts of the leaf followed by a chlorosis that may or may not follow leaf veins and contains “pock holes” from Thrips activity. Lesions eventually turn brown/red with the pock holes turning black. We currently do not have any management recommendations for SVNV nor do we quite understand the pathogen and how it works. Just know that if you have SVNV fungicides will not impact symptoms.

**UD Nematode Assay Services**

**Change September 1**

The University of Delaware understands the importance of assaying soil samples for the presence of numerous plant-parasitic nematodes. While some nematode problems can be diagnosed in the field, laboratory assay of soil and roots is typically necessary to confirm field observations and is critical in determining crop rotations. Reading nematode samples requires highly specialized expertise, is time-consuming, and can be costly. The University of Delaware is proud to be able to continue to provide this important and unique service to the mid-Atlantic region. Please know that in order to continue the service, the University of Delaware will need to impose minimal fees to off-set increased costs as of September 1, 2014. These fees will allow us to cover escalating costs associated with labor and supplies.

To contain further costs, **the assay service is currently only accepting commercial vegetable and field crop samples.**

*The Virginia Tech Nematode Assay laboratory has agreed to accept Delaware and Maryland Fruit and Ornamental nematode samples at the following address:*

Nematode Assay Laboratory
115 Price Hall, Virginia Tech
Blacksburg, VA 24061-0331
Phone: (540)231-4650  Fax: (540)231-7477  Email: jon@vt.edu  Web site: [https://www.ppws.vt.edu/extension/nematode-laboratory/index.html](https://www.ppws.vt.edu/extension/nematode-laboratory/index.html)  (for sample submission fees, instructions, and forms)
The 2014-2016 UD Vegetable and Field Crop Nematode Assay Service price structure is as follows:

<table>
<thead>
<tr>
<th>Assay</th>
<th>Price as of September 1, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable and Agronomic crops juvenile assay</td>
<td>$50 per sample</td>
</tr>
<tr>
<td>Soybean cyst nematode egg assay</td>
<td>$30 per sample</td>
</tr>
<tr>
<td>3 day rush analysis</td>
<td>Additional $20 per sample</td>
</tr>
</tbody>
</table>

A 10-14 day turnaround time will be required for most samples. A 3-day-rush analysis can be conducted for an additional $20 per sample.

For more information and sample submission sheets please visit the following site: http://extension.udel.edu/ag/plant-diseases/nematology/

Is It Time to Think about Renovating or Planting a New Pasture or Hay Field?

Part III: Planting the Crop

Richard Taylor, Extension Agronomist rtaylor@udel.edu

In Part I and Part II of this article, I discussed some of the decisions and planning that need to be taken ahead of planting hay and pasture fields. For this article, we have entered the ideal planting time for forage grasses and legumes. However although we are in the ideal window for planting, there will be areas that have received enough rainfall to recharge the topsoil with moisture as well as areas that have not received enough rainfall for a successful seeding. For those areas that remain dry until mid- to late-October, the best decision is likely to postpone planting until next year.

Some species have specific requirements that limit how late in the fall you can plant. For example, reed canarygrass requires at least six weeks between planting and the average date of the first frost; otherwise, the crop could be winterkilled or severely weakened over the winter leaving it unable to compete with the usual spring flush of weeds. Other species, such as Kentucky bluegrass, just take a very long time (21 to 28 days) to germinate and should not be planted late in the fall. Before deciding to plant a species or mixture, be sure to study the species in question to avoid missing the ideal planting window.

In areas that have received enough rainfall to replace soil moisture reserves, planting can begin. Early planting can lead to well established forage seedlings that are able to survive winter temperature extremes and get off to an early vigorous start next spring. Early planted stands are better at competing against weeds next spring and often produce higher yields as well. Work by Dr. Marvin Hall at the Pennsylvania State University showed significant yield decreases for all forage species tested as the date of fall planting was delayed with higher losses occurring the further north the site was located.

If planting into a prepared or tilled seedbed, be sure that all weeds have been killed during soil preparation and that a smooth (clod-free), firm (your shoe should not sink deeper than the sole level) seedbed is prepared for planting. Seed is then broadcast on the seedbed and firmed or pressed into the soil with any number of devices. Seed of small-seeded forages should not be buried more than 1/8 to ¼ inch deep. Covering the seed is ideal since seed in contact with moist soil readily absorbs water but is not quickly dried again by the heat from the sun. Seed can also be planted using a Brillion seeder followed by a cultipacker or roller or seed can be placed in the soil using a drill with packing wheels that firm soil over the seed.

Since drills (no-till and conventional drills) place the seed in rows from 4 to 8 inches apart, depending on the drill, I generally recommend that you drill at half the recommended seeding rate and run the drill twice over the field at about a 45 degree angle. This will help new seedlings to cover the soil surface more quickly and reduce the chances for weed seed to germinate and compete with the new forage crop.

Another method of seeding is to use a no-till drill following an herbicide burn-down program. This is especially useful when perennial weeds with underground rhizome systems are present. Examples of these weeds are hemp dogbane, Canada thistle, and horesenettles. Often several herbicide applications will be needed to get these weeds under control so plan a weed control program well ahead of seeding. One of the best times to apply a translocated herbicide is in fall when weeds are sending carbohydrates (sugars) down to underground storage organs (rhizomes). If a systemic herbicide that can move inside the plant is used, it will be taken with the sugars down to the rhizomes and help kill the meristem buds that are next year’s growing sites for the weed. Read the herbicide label for the exact interval between treatment and seeding. Generally for Roundup® or glyphosate you should wait several weeks after herbicide application before planting. Since the herbicides used for control of these perennial broadleaf weeds will kill legumes that often are included as a component of pasture mixtures, it is best to work on controlling these weeds a year or two before spending the money to establish a new seeding or to renovate an existing stand.

In all cases I’ve talked about, be certain to calibrate your seeding equipment and make sure the drills and other equipment are clean and functional before entering the field. These days forage seed is quite expensive so make the most of the money you spend by accurately calibrating your equipment. This involves the following procedure: weigh out
some seed to add to the planting equipment, determine the width of area covered with seed by the equipment (in feet), run it for a certain number of feet (the length—say 50 or 100 feet); multiplying the two numbers together to get the number of square feet covered by the seed; divide that number by 43,560 (number of square feet in one acre); and finally weigh the amount of seed remaining in the equipment. Subtract the final weight from initial weight and divide that number by the number of acres you covered (usually this will be a number such as 0.15 or even 0.015 or other very small number). If your seed weights were in pounds of seed then the number you calculate at the end will be in pounds per acre or if you had access to an egg scale or something that measures in grams then divide the number of grams of seed used by 454 (grams per pound) to obtain pounds of seed and then divide that number by the number of acres planted in the calibration test. If all else fails, email me or give me a call and I’ll help you do the calculations.

In summary, I’ll list some of the key points to keep in mind:

• Make adjustments to soil fertility well in advance of seeding or renovating.
• Have all perennial weeds under control before establishing a new seeding or conducting a major renovation in a field.
• Monitor soil moisture levels to be sure an adequate reserve of soil water is available to establish the crop.
• Understand the requirements for the forage specie or species chosen especially as it relates to fall planting date.
• Start with a weed-free seedbed whether for conventional tillage or no-till.
• Unless the site is known to be very low in available soil nitrogen (N), allow the new seedlings to develop 2 to 3 leaves before applying N in the fall.
• Don’t delay planting; try to hit the optimum planting window.
• Ideally, cover the seed with just a little soil but at the very least press the seed into the soil to ensure good soil to seed contact.
• Most seeding rates really refer to the numbers of pure live seed (viable potential seedlings) that should be planted per acre so do the proper calculations to plant the correct amount especially when using coated seed.
• If using preinoculated, lime-coated legume seed as a component of the pasture/hay mix, you should check to be certain the seed has been stored away from heat and high humidity and is not more than a year old, otherwise fresh legume inoculant should be applied to the seed just prior to planting.

• Many small seeded species now come with a range of coatings (lime, moisture control compounds, etc.) that can halve the weight of pure live seed in the container so you should be sure to account for this when calculating the correct seeding rate.

In the last article of this series, I’ll discuss how to manage new pasture and hay fields for long-term healthy stands.

In the last article of this series, I’ll discuss how to manage new pasture and hay fields for long-term healthy stands.

Establishing Small Grains with Vertical Tillage

Dr. Bob Kratochvil, University of Maryland
Email: rkratoch@udel.edu

Small grains (wheat and barley) for commodity grain production are annually planted on ~250,000 acres in Maryland. These crops have traditionally been planted using a grain drill that with appropriate adjustments can place the seed into the soil at a depth of 1-2 inches, the depth considered optimum for good stand establishment. During the past couple years, an increasing number of Maryland farmers have opted to broadcast the seed for their commodity small grain crops followed by soil incorporation of the seed using vertical tillage. Farmers who use this technique cite faster and less expense compared to using a grain drill. Since vertical tillage does not disturb the soil as aggressively as a chisel plow or disk, it avoids placement of some of the seed so deeply into the soil that it cannot emerge. However, use of vertical tillage may either leave some of the seed on the soil surface or place some of the seed too shallow to support good seedling emergence and growth, particularly if heavy amounts of previous crop residue are present.

The objective of this 2 year project was to compare the performance of wheat and barley that was broadcast followed by soil incorporation using vertical tillage with performance when a grain drill was used.

Project Summary

• Acceptable barley and wheat stands can be established using either a grain drill or broadcasting the seed followed by incorporation with a turbo-till.
• In all cases, grain yield for barley and wheat was best when the seed was planted with a grain drill.
Barley yield average was 10.5% greater (range = 6 – 21%) with a grain drill.  
Wheat yield average was 10.2% greater (range = 7.6 – 14%) with a grain drill.  
This occurred because uniformity of stand was better when seed was planted with a grain drill.

- The results for 2011-2012 and 2012-2013 indicated that the use of one vertical tillage pass for stand establishment is adequate.
- There is no need to increase the amount of seed planted above the recommended volume rates for barley and wheat.  The results attained in 2012-2013 showed that using a seeds/ft² approach for determining seeding rate will establish good stands and result in yield comparable to the recommended volume rates.  This can result in cost-savings via the planting of less seed.

**Procedures in 2011-2012**

Three study sites were established during the fall of 2011.  Two of the sites (Wye Research and Education (R&E) Center and Central Maryland R&E Center-Beltsville) had the study following corn and a second site at Beltsville followed soybean.  All sites were planted on 24 October, 2011.  Seed was either planted using a Great Plains grain drill at a rate of 120 lb/acre or it was broadcast onto each plot and then incorporated into the soil using a Turbo-Till® vertical tillage implement.  Additionally, either one or two passes were made over the broadcast planted plots with the Turbo-Till.  All plots received split applications of 40 lb N/acre with each application during spring 2012.  Plant date for Beltsville was 13 October and at Wye 17 October.  Both barley and wheat plots were harvested at Beltsville on 25 June.

Biomass production at early spring was measured at Beltsville for the 2011-2012 study.  Biomass produced by spring is one measure of cover crop performance.  Interest in the performance of broadcast seed followed by incorporation with vertical tillage is widespread among farmers who plant cover crops.  During early April of 2012, each plot had three one ft² areas of plant vegetative growth clipped from areas that would not be harvested for grain.  The biomass collected was dried at 60º C for 72 hours to ensure all water was evaporated.  Dry weight was measured and converted to lb/acre biomass produced.  Data for biomass harvest are shown in Table 5.

**Procedures in 2012-2013**

Three study sites (Wye after corn and Beltsville after corn and soybean) were established during the fall of 2012.  Plant date for Beltsville was 13 October and at Wye 17 October.  Corn stalks at Beltsville were left untouched prior to planting while at Wye the corn stalks were chopped.  The barley variety used was Thoroughbred (90% germination) and the wheat variety was Jamestown (90% germination).  Seed was either planted using a Great Plains grain drill or it was broadcast onto each plot and then incorporated using a Turbo-Till® vertical tillage implement.  The broadcast treatments included 1 or 2 vertical tillage passes.

Per the results of 2011-2012 that determined the 125% of volume seeding rate (150 lb/acre) for both barley and wheat provided no yield benefit, the seed rate treatments were changed for 2012-2013.  Two seeding rates for barley and wheat were used for the drilled and broadcast treatments.  The first was the MDA mandated 120 lb/acre for both barley and wheat.  The second rate was based on seeds/ft².  For barley, the amount of seed used was based on 30 seeds/ft².  The seed size for barley was 12,250/lb which when adjusted was 107 lb/acre.  For wheat, the amount of seed used was based on 25 seeds/ft².  Seed size for the wheat was 11,500/lb and equated to a seed rate of 95 lb/acre.  All plots received split applications of 40 lb N/acre with each application during spring 2013.

Barley plots at Beltsville were not harvested in 2013.  This was because the plot combine was located on the Eastern Shore when the barley reached maturity at Beltsville.  The plan was to harvest both the Beltsville wheat and barley plots at the same time which would avoid moving the combine across the Bay Bridge twice.  Unfortunately, rainy harvest weather delayed small grain harvest on the Eastern Shore.  This resulted in excessive lodging and weed emergence through the barley plots canopy at Beltsville.  Wheat was harvested 24 June at Wye and not until 9 July at Beltsville.

**Results**

**Stand Establishment - Fall 2011**

Seedling emergence counts were made 16 days post-planting at Beltsville and 25 days post-planting at the Wye (Table 1).  Stand establishment was considered good for all plots at all locations.

For barley, all three sites have a greater number of seedlings established for the vertical till (VT) treatments than for the drilled treatment (Table 1).  Stand establishment for barley in the VT treatments was as good with 120 lb/acre and one pass with the Turbo-Till as occurred with the 150 lb/acre rate and two passes with the Turbo-Till.

For wheat, all three sites had the greatest number of seedlings established for the VT treatments.  Stand establishment for the VT treatments at Beltsville following both corn and soybean was comparable to the grain drill stand (Table 1).  The 120 lb/acre broadcast seeding rate with a single pass with the Turbo-Till established a comparable number of seedlings to the drilled treatment.
Only at Wye was there a greater number of seedlings established using the VT technique (Table 1). Also at Wye, significantly more seedlings were established when the seeding rate was 125% of the volume rate (150 lb/acre). The seedling counts for the broadcast/Turbo-Till plots at Wye are believed to be somewhat inflated due to the difficulty in counting individual seedlings once they attain 2-3 leaf stage of growth (Table 1).

**Table 1. Fall 2011 seedling emergence counts for wheat and barley that was either planted with a Great Plains grain drill or broadcast on the soil surface followed by incorporation with Turbo-Till.**

<table>
<thead>
<tr>
<th>Species</th>
<th>Planting technique</th>
<th>Seed amount Lbs/acre</th>
<th>Location and previous crop</th>
<th>Seedlings/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Beltsville corn</td>
<td>Beltsville soybean</td>
</tr>
<tr>
<td>Barley</td>
<td>Drilled</td>
<td>120</td>
<td>1,093,453 c²</td>
<td>1,127,526 b</td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>120</td>
<td>1,412,506 b</td>
<td>1,352,102 a</td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>120</td>
<td>1,561,190 ab</td>
<td>1,350,554 a</td>
</tr>
<tr>
<td>Wheat</td>
<td>Drilled</td>
<td>120</td>
<td>1,116,795 b</td>
<td>1,143,014 b</td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>120</td>
<td>1,279,309 ab</td>
<td>1,036,147 b</td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>120</td>
<td>1,249,882 ab</td>
<td>1,110,490 b</td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>150</td>
<td>1,268,467 ab</td>
<td>1,189,478 b</td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>150</td>
<td>1,367,883 a</td>
<td>1,390,822 a</td>
</tr>
<tr>
<td>LSD_0.10</td>
<td></td>
<td>207,526</td>
<td>157,339</td>
<td>342,856</td>
</tr>
</tbody>
</table>

1One pass was made across the treatment plots with the Turbo-Till.
2Two passes were made across the treatment plots with the Turbo-Till.
3Seedling number means within a column and for a species that have the same lower case letter are not significantly different at P≤0.10.

**Stand Establishment - Fall 2012**

Seedling emergence counts during fall 2012 were made 20 days post-planting at Beltsville and Wye (Table 2). Stand establishment was considered good for all plots at all locations.

Seedling emergence for barley was best within the drilled treatments at the three sites (Table 2). There were no emergence differences between the two seeding rates for the drilled treatments. For the VT1 treatments, comparable seedling emergence to the drilled treatments occurred for both seeding rates with the exception of the seeds/ft² (107 lb/acre) rate at Wye where it had the lowest number of emerged seedlings. The use of two VT passes consistently produced the lowest number of emerged barley seedlings.

As with barley, the two drilled treatments consistently had the best wheat seedling emergence numbers (Table 2). The seeds/ft² treatment was not different from the volume rate treatment indicating that a cost-savings can be attained by reducing the seeding rate while not impacting stand establishment. For the VT treatments, one pass with a Turbo-Till produced similar wheat seedling emergence to the drilled treatments in nearly all cases. There was no benefit in seedling emergence for wheat attained by using two passes of the Turbo-Till.

**Table 2. Fall 2012 seedling emergence counts for wheat and barley that was either planted with a Great Plains grain drill or broadcast on the soil surface followed by incorporation with a Turbo-Till.**

<table>
<thead>
<tr>
<th>Species</th>
<th>Planting technique</th>
<th>Seed amount Lbs/acre</th>
<th>Location and previous crop</th>
<th>Seedlings/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Beltsville corn</td>
<td>Beltsville soybean</td>
</tr>
<tr>
<td>Barley</td>
<td>Drilled</td>
<td>120</td>
<td>2,028,928 a³</td>
<td>1,719,768 ab</td>
</tr>
<tr>
<td></td>
<td>Drilled</td>
<td>107³</td>
<td>1,657,216 b</td>
<td>1,943,744 a</td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>120</td>
<td>1,263,240 ab</td>
<td>1,301,960 a</td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>107</td>
<td>1,689,160 ab</td>
<td>1,558,480 ab</td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>120</td>
<td>963,160 b</td>
<td>958,320 b</td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>107</td>
<td>1,118,040 b</td>
<td>1,147,080 ab</td>
</tr>
<tr>
<td>LSD_0.05</td>
<td></td>
<td>903,541</td>
<td>847,494</td>
<td>638,258</td>
</tr>
<tr>
<td>Wheat</td>
<td>Drilled</td>
<td>120</td>
<td>1,810,260 a</td>
<td>1,866,344 a</td>
</tr>
<tr>
<td></td>
<td>Drilled</td>
<td>95³</td>
<td>1,347,456 a</td>
<td>1,572,032 a</td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>120</td>
<td>1,810,160 a</td>
<td>1,413,280 a</td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>95</td>
<td>1,563,320 a</td>
<td>1,427,800 a</td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>120</td>
<td>1,490,720 a</td>
<td>1,965,040 a</td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>95</td>
<td>1,631,080 a</td>
<td>1,824,680 a</td>
</tr>
<tr>
<td>LSD_0.05</td>
<td></td>
<td>903,541</td>
<td>847,494</td>
<td>345,304</td>
</tr>
</tbody>
</table>

1One pass was made across the treatment plots with the Turbo-Till.
2Two passes were made across the treatment plots with the Turbo-Till.
3Seedling number means within a column and for a species that have the same lower case letter are not significantly different at P≤0.05.
Grain Yield 2011-2012

Barley

Barley yield was best at each of the three testing sites when it was planted with a grain drill (Table 3). At 2-3 testing sites (after corn at Beltsville and Wye), comparable yield was achieved by broadcasting a volume rate of seed followed by incorporation using 1 pass of a Turbo-Till (Table 2). Though it generally did not cause a yield reduction, there was no barley yield benefit attained with two Turbo-Till passes indicating that one pass would be more cost-effective.

Wheat

Wheat yield also was consistently best at each of the three testing sites when it was planted with a grain drill (Table 3). At 2-3 testing sites (after corn and soybean at Beltsville), comparable yield was achieved with a volume rate of wheat seed that was incorporated twice with the Turbo-Till (Table 3).

Table 3. The 2011-2012 crop grain yield for wheat and barley that was either planted with a Great Plains grain drill or broadcast on the soil surface followed by incorporation with a Turbo-Till.

<table>
<thead>
<tr>
<th>Species</th>
<th>Planting technique</th>
<th>Seed amount Lbs/acre</th>
<th>Location and previous crop</th>
<th>Location and previous crop</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Beltsville corn</td>
<td>Beltsville soybean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wye</td>
<td>Wye</td>
</tr>
<tr>
<td>Barley</td>
<td>Drilled</td>
<td>120</td>
<td>66.1 a</td>
<td>80.5 a</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>121.4 a</td>
<td></td>
</tr>
<tr>
<td>VT 1</td>
<td></td>
<td>120</td>
<td>67.2 a</td>
<td>64.7 b</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>107.8 b</td>
<td></td>
</tr>
<tr>
<td>VT 2</td>
<td></td>
<td>150</td>
<td>70.3 a</td>
<td>56.3 b</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>118.2 a</td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>Drilled</td>
<td>120</td>
<td>62.6 a</td>
<td>69.4 a</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>73.6 a</td>
<td></td>
</tr>
<tr>
<td>VT 1</td>
<td></td>
<td>120</td>
<td>57.3 ab</td>
<td>56.9 b</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>64.9 b</td>
<td></td>
</tr>
<tr>
<td>VT 2</td>
<td></td>
<td>150</td>
<td>57.7 ab</td>
<td>62.3 ab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>67.6 b</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1One pass was made across the treatment plots with the Turbo-Till.
2Two passes were made across the treatment plots with the Turbo-Till.
3Means within a column specific for a small grain crop at the same location and previous crop that have the same letter are not significantly different at p≤0.05.

Grain Yield 2012-2013

Barley

Grain yield for barley was best (approximately 17% greater) when planted with the grain drill compared to the VT treatments. There was no yield difference between the volume rate and the seeds/ft² rate indicating that a cost savings can occur when using the seeds/ft² technique. Barley plots were not harvested at Beltsville.

Wheat

Grain yield for wheat at the Wye was best for the drilled treatments with both the volume rate and the seeds/ft² rate equivalent (Table 4). The seeds/ft² rate had approximately 20% less seed planted which would indicate that a cost-savings can occur by using this approach. At Beltsville, wheat yield was similar following corn and soybean crops for all the seeding technique treatments so the yield data is shown as the average for those two situations. No yield differences were observed among any of the seeding techniques. This indicates that use of a vertical till incorporation technique along with broadcast of the wheat seed can be an effective method for establishing a wheat crop. However, there was more variability in the uniformity of the stands that were established with vertical tillage compared to planting with a grain drill (data not shown).

Table 4. The 2012-2013 crop grain yield for wheat and barley that was either planted with a Great Plains grain drill or broadcast on the soil surface followed by incorporation with a Turbo-Till.

<table>
<thead>
<tr>
<th>Species</th>
<th>Planting technique</th>
<th>Seed amount Lbs/acre</th>
<th>Location and previous crop</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Beltsville corn or soybean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wye</td>
</tr>
<tr>
<td>Barley</td>
<td>Drilled</td>
<td>120</td>
<td>Not harvested</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>107</td>
<td>Not harvested</td>
</tr>
<tr>
<td>VT 1</td>
<td></td>
<td>120</td>
<td>Not harvested</td>
</tr>
<tr>
<td>VT 2</td>
<td></td>
<td>120</td>
<td>Not harvested</td>
</tr>
<tr>
<td>VT 2</td>
<td></td>
<td>120</td>
<td>Not harvested</td>
</tr>
<tr>
<td>Wheat</td>
<td>Drilled</td>
<td>120</td>
<td>72.6 a</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>120</td>
<td>73 a</td>
</tr>
<tr>
<td>VT 1</td>
<td></td>
<td>120</td>
<td>74.4 a</td>
</tr>
<tr>
<td>VT 2</td>
<td></td>
<td>120</td>
<td>72.5 a</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Biomass Production

Though treatment influence on biomass production varied for barley and wheat behind corn and soybean (Table 5), the general outcome was that broadcasting the seed and using vertical tillage to incorporate it can be an effective method for establishing cereal cover crops. Since no improvement in biomass production occurred with the use of a 125% of volume seeding rate for broadcasting seed, it is not necessary to do so when using this technique. This outcome coincides with other cover crop planting research that I have conducted. This approach to establishing cover crops likely has a cost-saving benefit associated with it.
Table 5. Biomass production (measure of cover crop performance) for wheat and barley in 2012 that was planted during fall 2011 either with a Great Plains grain drill or broadcast on the soil surface followed by incorporation with a Turbo-Till.

<table>
<thead>
<tr>
<th>Species</th>
<th>Planting technique</th>
<th>Seed amount Lbs/acre</th>
<th>Location and previous crop</th>
<th>Beltville corn LSD0.05</th>
<th>Beltville soybean LSD0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley</td>
<td>Drilled</td>
<td>120</td>
<td>3390 ab</td>
<td>4781 a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VT 1†</td>
<td>120</td>
<td>3326 ab</td>
<td>2766 b</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VT 2†</td>
<td>120</td>
<td>2862 ab</td>
<td>2798 b</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>150</td>
<td>2782 b</td>
<td>3342 b</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>150</td>
<td>4205 a</td>
<td>3806 ab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LSD0.05 = 1406 lb/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>Drilled</td>
<td>120</td>
<td>4589</td>
<td>3822</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>120</td>
<td>2990</td>
<td>3822</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>120</td>
<td>4557</td>
<td>3374</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VT 1</td>
<td>150</td>
<td>3358</td>
<td>2806</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VT 2</td>
<td>150</td>
<td>3742</td>
<td>4237</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LSD0.05 = 1595 lb/A</td>
<td></td>
<td></td>
<td>(no differences among treatments)</td>
<td></td>
</tr>
</tbody>
</table>

†One pass was made across the treatment plots with the Turbo-Till.
‡Two passes were made across the treatment plots with the Turbo-Till.
¶Means within a column specific for a small grain crop at the same location and previous crop that have the same letter are not significantly different at p≤0.05.

UMD School of Public Health Study to Inform MD Decision-Fracking Public Comment until October 3

Our School of Public Health just released a study lead by Dr. Don Milton. You can read the full report “Potential Public Health Impacts of Natural Gas Development and Production in the Marcellus Shale in Western Maryland” at: [http://www.marcellushealth.org/](http://www.marcellushealth.org/).

The study will be used to set Maryland public policy.


The Maryland Department of Health and Mental Hygiene welcomes public comments until October 3. The public voice needs to be heard as public policy is made.

FARM BILL PAGE

A webpage has been developed to house information that is related to the implementation of the 2014 farm bill. Currently it just has the presentations from the farm bill meetings posted but new resources will be added as they become available. Producers and anyone else interested can view it at:


Updated Estate Planning for Farm Families

The *Estate Planning for Farm Families* publication has been revised to reflect some changes the MD General Assembly made on estate tax exemptions last session. The publication is available at: [http://drum.lib.umd.edu/bitstream/1903/15582/1/FS%2072%20Estate%20Planning%20Updated%202014.pdf](http://drum.lib.umd.edu/bitstream/1903/15582/1/FS%2072%20Estate%20Planning%20Updated%202014.pdf)

Moderately Resistant Wheat Varieties for Suppression of Deoxynivalenol (DON)

See the attached factsheet on DON ratings and variety selection.

GRAPE GROWER VIDEO

Bruce Perrygo, Coordinator
Maryland Grape Growers Association

For some harvest has started for others the rush will soon be on. Good luck and good grape weather! Check out another grape grower/winemaker video from ShoreVines, a group promoting the Eastern shore grape/wine industry at:

A new “Ag Marketing News Update – August 2014: “Ignite Your Sales with Sensory Branding” has been posted to the web:  
http://extension.umd.edu/learn/ignite-your-sales-sensory-branding

New Maryland Niche Meats & Poultry Producers Directory Connects Farmers and Shoppers

Looking for locally raised meats and poultry? The Maryland Niche Meats & Poultry Producers Directory is designed to help you find locally produced, high quality meats and poultry at a farm conveniently located near you.

This online directory has been organized by product for easy aggregation of suppliers and ease of online searching. Just click on the large icon of the type of meat or poultry you’re looking for and a list of Maryland Niche Meat producers for that product will pop open.

To access the directory you can go to http://extension.umd.edu/agmarketing/ — scroll down and click on directory icon. It will take you to directory home page.

No matter your buying preference, the Maryland Niche Meat & Poultry Producers Directory aims to help you connect with local farmers.

Why buy meat from local farmers?

• Because it is an opportunity to eat flavorful, high quality meat;

• Learn how the animal was raised by meeting the person who raised it;

• Have the meat processed to your specifications when buying in quantity;

• Buy meat for prices that are often comparable to the average retail price;

• Support your local economy by keeping your dollars in your community;

• Make informed food purchasing decisions.

This directory does not replace other listings or directories, but supplements them as a varietal sourcing list. The mention of, visual representation, or referred reference to a product, service, or organization in this publication does not imply endorsement by the author or any of the partners. Exclusion does not imply a negative evaluation. Descriptions are provided by the supplier, and not verified or monitored by the University of Maryland Extension.

Commercial 2014 Vegetable Production Recommendations Maryland EB 236 On-Line at:  

The public Issue 3 of Headwaters reminds us that non-point sources of pollution entering the Chesapeake Bay are complex; the sources are urban, suburban, and rural, evolving with climate, and have a variety of potential solutions.

In this issue, enjoy a dispatch from UMD’s Turfgrass Research Facility, integrating urban agriculture and stormwater, rain gardens of the future, National Marine Educators, and new & exciting green roof substrate developments! Find us everyday at:  
www.extension.umd.edu/watershed
Maryland Farmers to Receive Additional Funds in Federal Crop Insurance Assistance

Annapolis (August 20, 2014)–Maryland farmers who signed up for an eligible crop insurance policy in 2014 will receive an additional automatic premium assistance (federal) credit of up to $225 per policy. The U.S. Department of Agriculture’s Risk Management Agency will reduce premiums by up to $225 per buy-up, crop policy for eligible Maryland producers, thanks to an estimated $5.1 million that was made available to 16 targeted states (including Maryland) through a crop insurance assistance package.

All Catastrophic Risk Protection policies, and any policies or endorsements insured under the Livestock Risk Protection and Livestock Gross Margin (dairy) plans of insurance are not eligible for this financial assistance. “Crop insurance is an essential risk-management tool that can help producers balance the financial risk of rising input costs and volatile crop prices,” said Maryland Agriculture Secretary Hance. “The additional financial assistance will encourage farmers to buy up higher levels of protection.”

Maryland farmers purchased 6,464 crop insurance policies in 2014. Over seventy three per cent of these policies were purchased with buy-up coverage and are eligible for this financial assistance. Statewide Maryland farmers will receive $1,118,122 in financial assistance.

The premium reduction will be applied automatically to all eligible 2014 policies with reporting deadlines before September 30. The financial assistance will show up as a credit in farmer’s August premium notice for eligible policies. If the total producer-paid premium is less than $225, the amount of premium reduction will be capped at 100-percent of the producer premium due. Producers will receive assistance for each eligible policy, not to exceed $50,000. Administrative policy fees will not be covered. Maryland producers received nearly $13.9 million in indemnities for the 2013 crop year.

For more information on Maryland’s crop insurance program, call Steve Connelly, 410-841-5824.
Top counties ranked by most cover crop acres enrolled:

- Queen Anne's – 65,716
- Kent – 64,851
- Talbot – 60,150
- Caroline – 55,094
- Dorchester – 49,149

“Not only is Maryland’s cover crop program a very attractive and flexible program, it has the potential to do more for the Bay than ever before,” said Agriculture Secretary Hance. “We commend and thank all farmers who, together, have applied to plant more than half a million acres of small grain crops that protect our soil and water by taking up any remaining nutrients and preventing soil erosion over the winter.”

Agriculture Day, which highlights the state’s strong agricultural traditions, is traditionally held on the Thursday in the middle of the 11-day run of the State Fair while the Governor’s Volunteer Appreciation Day is held on the first Sunday of the Fair and recognizes those who contribute to their communities. The combined Governor’s Agriculture and Volunteer Day luncheon with about 200 attendees celebrates farming and volunteerism as the foundations of our state and the keys to a sustainable and civil future for all Marylanders.

“The State Fair is a chance to remind ourselves of our roots and to see the work that Maryland farmers are doing to create jobs, strengthen our economy, and feed our families,” said Governor O’Malley. “Our goals for a strong and sustainable future will only be realized if these two sectors – agriculture and volunteerism – continue to thrive and grow. I am pleased to be here today to recognize the valuable contributions of both.”

In his remarks, Secretary Hance announced that season two of the hit 13-part series Maryland Farm and Harvest co-produced by Maryland Public Television and MDA will premier on November 11. The series, funded by a variety of agricultural commodity and trade organizations, highlights the diversity of Maryland farms and farmers and help increase the public’s understanding of farmers and farm life, as well as agriculture’s contributions to the state and national economy. New episodes will air Tuesdays at 7:00 p.m. and episodes will repeat Thursdays at 11:30 p.m., Sundays at 6:00 a.m., and Fridays at 6:00 p.m. For more information and to watch episodes from season one, visit www.mpt.org/farm.

During today’s luncheon, Governor O’Malley and Secretary Hance also welcomed 16-year-old Michele Mister of Huntingtown (Calvert County) who was named Miss Maryland Agriculture 2014 during opening-night festivities at the Maryland State Fair in Timonium. Miss Mister lives on her family farm where she actively helps to raise livestock and grow crops. A rising junior at Huntingtown High School, Miss Mister is a well-rounded athlete, volunteer, 4-H member and honorees scholar focusing on biomedical studies and sciences. She is the daughter of Mark and Dawn Mister.

Following the luncheon, Secretary Hance, State Fair leadership and other dignitaries toured the fairgrounds.

For a chart showing cover crop acres and applications, 2007 to 2014: www.mda.maryland.gov/documents/ccposter.pdf

Greenhouse Gas Report to Assist Producers Facing Climate Challenges

For the First Time, USDA Climate Hubs Get New Tools to Gauge Progress in Building Drought-Resistant Healthy Soil

WASHINGTON, July 31, 2014 – The U.S. Department of Agriculture (USDA) today released a report that, for the first time, provides uniform scientific methods for quantifying the changes in greenhouse gas emissions (GHG) and carbon storage from various land management and conservation activities. The report, titled Quantifying Greenhouse Gas Fluxes in Agriculture and Forestry: Methods for Entity-Scale Inventory, will help USDA evaluate current and future greenhouse gas conservation programs, as well as develop new tools and update existing ones to help farmers, ranchers and forest landowners participate in emerging carbon markets.

"America’s farm, ranch and forest managers are stewards of the land, and have long recognized the significance of managing soil health, plant productivity and animal nutrition. Conservation practices and other management changes can reduce GHG emissions and increase carbon storage while improving soil health, productivity, and resilience to drought and other extreme weather," said Undersecretary for Natural Resources and Environment Robert Bonnie. "In partnership with USDA and the Obama Administration, State and regional GHG offset programs and voluntary GHG markets can help make these practices less costly to implement and increase the producer’s bottom line."

Today’s report outlines science-based methods for quantifying changes in GHG emissions and carbon storage at the local farm, ranch or forest operation. Reducing GHG emissions and increasing carbon storage builds healthy, carbon-rich soils and more resilient production of food, fiber and fuel. USDA recently established Regional Climate Change Hubs to assist landowners with management challenges that arise from weather variability and climate change.
change. The methods report and the tools provided in it will aid the Hubs in giving landowners information on management options to improve agriculture production, soil health, and resource conservation.

The report is the work of 38 experts in GHG estimation in the cropland, grazing land, livestock and forest management sectors across academia, USDA and the federal government. The report was reviewed by an additional 29 scientists, other Federal experts, and the public. While developing the report, reviewers considered scientific rigor, transparency, completeness, accuracy, and cost effectiveness, as well as consistency and comparability with other Federal GHG inventory efforts. The report can be downloaded at www.usda.gov/oce/climate_change/estimation.htm.

Current USDA carbon tools, such as USDA's COMET-Farm, are being updated to incorporate the new methods. Using COMET-Farm, a land manager who is considering a shift to no-till production system, for example, can evaluate the soil carbon benefits of that system and consider revenue opportunities provided by entering into a voluntary agreement with a carbon market. The methods in the report are comprehensive, addressing a wide variety of cropland, grazing land, livestock and forest management practices.

For more information on USDA's Climate Change activities, please visit www.usda.gov and click on “Climate Solutions.”

**USDA ENHANCES FARM STORAGE FACILITY LOAN PROGRAM**

The U.S. Department of Agriculture (USDA) today announced the expansion of the Farm Storage and Facility Loan program, which provides low-interest financing to producers. The enhanced program includes 22 new categories of eligible equipment for fruit and vegetable producers.

Producers with small and mid-sized operations, and specialty crop fruit and vegetable growers, now have access to needed capital for a variety of supplies including sorting bins, wash stations and other food safety-related equipment. A new more flexible alternative is also provided for determining storage needs for fruit and vegetable producers, and waivers are available on a case-by-case basis for disaster assistance or insurance coverage if available products are not relevant or feasible for a particular producer.

Additionally, Farm Storage Facility Loan security requirements have been eased for loans up to $100,000. Previously, all loans in excess of $50,000 and any loan with little resale value required a promissory note/security agreement and additional security, such as a lien on real estate. Now loans up to $50,000 can be secured by only a promissory note/security agreement and some loans between $50,000 and $100,000 will no longer require additional security.

The low-interest funds can be used to build or upgrade permanent facilities to store commodities. Eligible commodities include grains, oilseeds, peanuts, pulse crops, hay, honey, renewable biomass commodities, fruits and vegetables. Qualified facilities include grain bins, hay barns and cold storage facilities for fruits and vegetables.

Contact your local FSA office or visit www.fsa.usda.gov for more about FSA programs and loans, including the Farm Storage Facility Loan Program.

**USDA ANNOUNCES NEW SUPPORT FOR BEGINNING FARMERS AND RANCHERS**

**Department Implementing New Farm Bill Programs, Unveiling New Centralized Online Resource to Support Next Generation of Farmers**

USDA has announced the implementation of new Farm Bill measures and other policy changes to improve the financial security of new and beginning farmers and ranchers. USDA also unveiled www.USDA.gov/newfarmers, a new website that will provide a centralized, one-stop resource where beginning farmers and ranchers can explore the variety of USDA initiatives designed to help them succeed.

USDA's www.usda.gov/newfarmers has in depth information for new farmers and ranchers, including: how to increase access to land and capital; build new market opportunities; participate in conservation opportunities; select and use the right risk management tools; and access USDA education, and technical support programs. These issues have been identified as top priorities by new farmers. The website will also feature instructive case studies about beginning farmers who have successfully utilized USDA resources to start or expand their business operations.

Today’s policy announcements in support of beginning farmers and ranchers include:

- Waiving service fees for new and beginning farmers or ranchers to enroll in the Non-Insured Crop Disaster Assistance Program (NAP) for the 2014 crop year. NAP provides risk management tools to farmers who grow crops for which there is no crop insurance product. Under this waiver, announced via an official notice to Farm Service Agency offices, farmers and ranchers whom already enrolled in NAP for the 2014 crop year and certified to being a beginning farmer or social disadvantaged farmer are eligible for a service fee refund.
- Eliminating payment reductions under the Conservation Reserve Program (CRP) for new and beginning farmers which will allow routine, prescribed, and emergency grazing outside the primary nesting season on enrolled land consistent with approved conservation plans. Previously,
Farmers and ranchers grazing on CRP land were subject to a reduction in CRP payments of up to 25 percent. Waiving these reductions for new and beginning farmers will provide extra financial support during times of emergency like drought and other natural disasters.

- Increasing payment rates to beginning farmers and ranchers under Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP). Under this provision, beginning farmers can claim up 90 percent of losses for lost livestock, such as bees, under ELAP. This is a fifty percent increase over previously available payment amounts to new and beginning farmers.

In the near future, USDA will also announce additional crop insurance program changes for beginning farmers and ranchers - including discounted premiums, waiver of administrative fees, and other benefits.

Additional information about USDA actions in support of beginning farmers and ranchers is available here.

USDA FARM SERVICE AGENCY (FSA) ANNOUNCES ONLINE HAY AND GRAZING ACRES LOCATOR TOOL

For many years, FSA’s Hay Net website www.fsa.usda.gov/haynet has been the "go to" online resource for agricultural producers to list information concerning the need for hay or the availability of hay.

Now, in response to requests from livestock producers and landowners, FSA has expanded the site to include the option to list a need for grazing acres or to list acres available for grazing.

If, due to extenuating circumstances, producers are in need of hay and/or grazing acres to support livestock, please use Hay Net to post an advertisement seeking these resources. Likewise, landowners who have hay and/or grazing acres available for livestock producers should post a Hay Net advertisement as well.

A few things to remember when using the Hay Net website:

- There is a one-time registration process that should be completed by all users who want to post an ad online.
- Users who just want to browse ads DO NOT NEED to have an eAuthentication user id.
- Hay and grazing acre ads will be automatically removed after a period of 13 months.
- Please help your fellow farmer and rancher by keeping ads current and up to date and remove ads you no longer need or want advertised on Hay Net. Please, no corporate advertisements on this site.

Hay Net is brought to you by FSA as a public service. The sole purpose of this online resource is to provide a site for the exchange of information. FSA does not endorse, guarantee, or otherwise make representations of any kind regarding any user of this site and FSA is not responsible for defining the terms of grazing agreements or lease contracts.

For more information about Hay Net and other FSA services and programs, please contact your local FSA office. For local FSA Service Center contact information, please visit: http://offices.sc.egov.usda.gov/locator/app.

Maryland Achieved 2012-2013 Pollution Reduction Targets for Bay Restoration

Sets 2014 –2015 targets; on target to reach 2017 goals

BALTIMORE, MD (June 26, 2014) – The Chesapeake Bay Program announced today that Maryland achieved its 2013 pollution reduction milestones for nitrogen, phosphorus and sediment. Maryland met its targets, in large part due to conservation practices such as record cover crops planted, wastewater treatment plant upgrades completed on schedule and implementation of the Fertilizer Use Act of 2011. In 2008, Governor Martin O’Malley led the Chesapeake Executive Council to adopt two-year milestones to focus Chesapeake Bay Watershed states on short-term achievable restoration goals, bringing an unprecedented level of focus, transparency and accountability to the Bay Program model.

“We’ve made significant progress in restoring the Chesapeake Bay. Here in Maryland, we have set goals and gotten results reducing pollution from all sources. And by establishing BayStat, we’re holding ourselves accountable and making our progress more visible for Maryland residents,” said Governor Martin O’Malley. “With our signing of the new Chesapeake Bay Watershed Agreement, which includes emerging issues like toxic contamination, climate change and environmental literacy and stewardship, we are working together, as a region, to achieve our two-year milestones and ultimately reach our 2025 Chesapeake Bay restoration goals.”

The milestones are part of the landmark Chesapeake Bay Total Maximum Daily Load (TMDL), established by the Environmental Protection Agency (EPA) in 2010. The Chesapeake Bay TMDL is a federal “pollution diet” that sets limits on the amount of nutrient pollution and sediments that can enter the Bay and its tidal rivers to meet water quality goals.

In response, the seven Bay jurisdictions created individual Watershed Implementation Plans (WIP), or restoration
blueprints, that detailed specific steps each would take to meet the pollution reduction goals by 2025. The blueprints guide local and state Bay restoration efforts through the next decade and beyond. The Bay jurisdictions use their two-year pollution reduction milestones to track and assess progress toward completing their WIP restoration actions; EPA regularly reviews each jurisdiction’s milestones.

“According to our Maryland progress data, we achieved our 2013 milestone reduction targets for nitrogen, phosphorus and sediment pollution,” said Maryland Department of the Environment Secretary Robert M. Summers. “In fact, Maryland finished this 2012-2013 period more than 3.5 million pounds reduced ahead of schedule for nitrogen, nearly 147,000 pounds reduced ahead of schedule for phosphorus and nearly 90 million pounds reduced ahead of schedule for sediment which places us on the right trajectory to reach our 2017 and 2025 goals.”

EPA requires that the six states and the District of Columbia each reach 60 percent of their 2025 WIP restoration targets for nitrogen, phosphorus and sediment pollution reduction by the year 2017. This progress is measured from the baseline established in the TMDL (2009) and compared to full WIP implementation, which is required by the year 2025. Our 2013 progress data indicates that Maryland is nearly 41 percent toward its 2025 nitrogen target and 61 percent toward its 2025 phosphorus target.

**EPA Evaluation of 2012-2013 Milestones**

**2012-2013 Milestone Achievements Agriculture**

- Revised nutrient management regulations became effective October 15, 2012.
- Finalized regulations to implement Maryland’s Fertilizer Act; homeowner publications were produced to reflect the new requirements and a training manual made available and certification training classes held since spring 2013.
- Continued to exceed Cover crop Program WIP goals achieving 114 percent of 2013 milestone.
- Transported excess manure to farms and alternatives where it could be safely utilized and process, achieving 142 percent of the 2013 milestone.
- Continued to exceed the implementation milestones for streamside forest buffers achieving 148 percent of the 2013 milestone and streamside grass buffers achieving 296 percent of the 2013 milestone.
- Working with stakeholders to modify regulations updating the Phosphorus Management Tool, which assesses risk of phosphorus movement in fields high in soil phosphorus. Regulations are expected to be final in the winter of 2014 with phased-in implementation beginning in 2016.

“Maryland agriculture has exceeded its nutrient and sediment reduction goals for 2013. Our farmers have a long, proud tradition of environmental stewardship,” said Maryland Department of Agriculture Secretary Buddy Hance. “The agricultural sector looks forward to the Bay Model being updated to reflect current USDA census data and to recognize and begin receiving credit for many innovative practices that farmers are already implementing.”
2012-2013 Milestone Achievements
Urban/Suburban Stormwater

- Submitted all draft Phase I MS4 permits to EPA by July 12, 2012.
- Made tentative determinations to issue Baltimore City an MS4 permit by November 1, 2012 and Baltimore, Anne Arundel, and Prince George's counties by April 2013.
- Made final determinations to issue Baltimore County an MS4 permit on December 23, 2013, Baltimore City on December 27, 2013, Prince George's County on January 2, 2014, and Anne Arundel County on February 12, 2014.
- Issued the final General Permit for Stormwater Discharges Associated with Industrial Activity, which became effective January 1, 2014.
- Secured a Chesapeake Bay Trust grant to help establish a training program and develop a database to track urban progress under the Fertilizer Use Act.

2012-2013 Milestone Achievements - Natural Filters and Non-Point Source Pollution Funding

- Achieved the Natural Filters on Public Lands milestone through implementation of wetlands, tree buffers and tree plantings on more than 282 acres of state and public lands; installing cover crops on 100 percent of state-owned agriculturally leased lands and through citizen planting of 111,000 trees.
- DNR completed a GIS analysis to determine opportunity for a rural reforestation program (Lawn to Woodland); worked with existing local government programs on opportunities for transferring their concepts to other jurisdictions; choose a pilot area and cluster potential planting areas in high priority watersheds and began implementation.
- Provided more than $84 million, via the Chesapeake and Atlantic Coastal Bays Trust Fund, to State and local partners and leveraged more than $53 million for more than 240 nonpoint sources pollution projects that reduce harmful nutrient and sediment pollution runoff into the Bay.
- Leveraged more than $2.1 million in federal and private funds via The Watershed Assistance Collaborative to assist 41 communities in the identification, design and engineering of shovel-ready Bay restoration projects.
- Invested $2.9 million into 17 technologies developed by 16 Maryland-based companies via Maryland's Innovative Technology Fund; projects focused on developing technologies that reduce nutrient and sediment pollution into the Chesapeake Bay.

“Through these two-year milestones, we continue to be accountable to the citizens of today and tomorrow for Chesapeake Bay restoration,” said Department of Natural Resources Secretary Joe Gill. “The Chesapeake and Atlantic Coastal Bays Trust Fund and our other unique funding initiatives are providing essential support for State and local partners to undertake innovative, cost-effective approaches to meet our Bay restoration goals.”

2012-2013 Milestone Achievements Wastewater Treatment Plants & Septic Systems

- Doubled the Bay Restoration Fund (BRF) fund starting July 1, 2012. With the increased fee, sufficient grant funds are available to complete Enhanced Nutrient Removal (ENR) upgrades at the 67 major Wastewater Treatment Plants (WWTPs) and 5 to 10 minor WWTPs by 2017.
- Prioritized minor plants for ENR upgrades.
- Completed a draft survey of the nature and quantity of the nutrient loads from all individually permitted industrial facilities. The survey led to a strategy to refine the results, including identification of new or expanding loads needing to be offset and increased monitoring in the next permit cycle.
- Adopted COMAR effective January 1, 2013 requiring all septic systems installed on new construction in the Chesapeake Bay and Coastal Bay watersheds to include Best Available Technology.
- Required BAT for all repair or replacement of septic systems in either the Chesapeake Bay critical area or the Atlantic Coastal Bays critical area.
- Required BAT inspection for necessary operation and maintenance performed by a certified service provider at a minimum of once per year for the life of the system.
- Expanded the uses of the Septics Account of the BRF to include (1) providing grants or loans for connecting a property served by a septic system to an existing biological nutrient removal (BNR) facility; (2) covering the cost of the principal on debt issued by a local government for specified sewer connection projects; and (3) providing assistance for specified sewer connection projects located outside of a priority funding area (PFA). The Bill, HB 11, was approved by the General Assembly and signed into law by Governor O’Malley.
2012-2013 Milestone Achievements Offsets & Trading

- Completed research and developed more detailed approaches for offsets in fall 2012.
- Completed stakeholder review of draft growth offset policy and implementation strategy in fall 2013.
- Secured a grant in 2012 to develop a tracking and accounting system for growth and offsets.
- Received recognition for the Maryland Agricultural Nutrient Trading Program as a 2013 finalist by the National Growing Blue Award committee for program innovation.
- Committed to reevaluate sector growth periodically and submitted an initial sector growth demonstration in February 2013 and August 2013 in response to EPA’s trading and offset 2012 program assessment findings.

2014-2015 Milestones

EPA also approved Maryland’s anticipated pollution reductions targets for nitrogen, phosphorus and sediment for the 2014-2015 milestone period. These targets should keep Maryland on track to meet its 2017 goals.

“In the years since the signing of the Clean Water Act and the first Chesapeake Bay Agreement, Maryland has made tremendous progress in restoring our local waterways and the Bay; however, there is still important work to be done. Under the leadership of the O’Malley-Brown Administration, we have set and achieved all of our aggressive and measurable pollution reduction milestones and we are on track to meet our 2017 and 2025 goals,” said Maryland Department of the Environment Secretary Robert M. Summers.

“These 2014-2015 milestones improve the quality of our local streams, lakes, rivers, drinking water reservoirs and the Chesapeake Bay. In addition to our efforts at the local and State levels, there are also actions that every Marylander can take to improve our water quality and protect our aquatic life.”

Meeting the 2025 goal in a cost-effective manner will likely require the continued adoption of innovative practices including nutrient trading and stormwater management. Maryland also continues to focus on practical conservation solutions, such as wastewater treatment plant upgrades and the planting of cover crops. In addition, the O’Malley-Brown Administration’s advancement of smart growth efforts further reduces pollutants from multiple sectors. Pollution generators from all sectors must contribute to the solution in order for Maryland to meet the 2025 pollution reduction goals.

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Frequently Asked Questions
Answers to questions from the public.

Fact Sheets
Search general interest and technical fact sheets, health and safety, regulatory actions, specific chemicals

Information Sources
Additional information of general interest, General information, hotlines, information centers, databases

Pesticide Program Reports
Reports produced by the Office of Pesticide Programs Annual Reports, Performance Management & Accountability, Pesticide Industry Sales and Usage, Progress Reports, Restricted Use Products Reports

Pesticide News Stories
Pesticide related articles appearing in news media

Publications | Glossary | A-Z Index |
County Website Features:

Anne Arundel County Extension website:
http://extension.umd.edu/anne-arundel-county

Ag Newsletter Production Pointers
The current and past agricultural newsletter additions are available for viewing or copy at:
https://extension.umd.edu/anne-arundel-county/agriculture/agnr-newsletter#

Ag Bulletins
An agricultural bulletin page is also available for viewing or copy under our hot topics section at:
https://extension.umd.edu/anne-arundel-county/agriculture/agriculture-bulletins

Ag Web Modules
New website features in Anne Arundel County - Agricultural Program Teaching Modules:
http://extension.umd.edu/anne-arundel-county/agriculture/farm-production-web-modules

1. Pasture Management
2. Pasture Herbicides
3. Handling Tall Fescue Toxicity Events
4. Modern Vegetable Production Technology for Early Market
5. Vegetable Herbicides for Controlling the Top 10 Weeds of Southern Maryland
6. Sustainable Low Input Strip-Till & No-Till Vegetable Planting Tactics
7. Fruit Establishment Tactics to Maximize Our Coastal Plain Advantage
8. Vineyard and Orchard Weed Control
9. Vineyard Establishment Supplies & Equipment

Gardening questions? Pest Problems? The Home and Garden Information Center can help!
Consultants are available by phone Monday - Friday, 8 AM to 1 PM.
Call 1-800-342-2507 or 410-531-1757 or visit the HGIC website at:
http://extension.umd.edu/hgic

Farmer School
On-Line Farming Education Series
“Tomorrow’s Farmers” Web Modules”
https://extension.umd.edu/anne-arundel-county/agriculture/tomorrows-farmer-web-modules

Module 1: Introduction to Farming & Course Orientation: “Tomorrow’s Farmers”
Module 2: The Science and Stewardship of Soils
Module 3: Fundamentals of Farm Machinery
Module 4: Plants that Farmers Grow
Module 5: Integrated Pest Management

Future Module Topics:
- Farm Business and Enterprise
- Development Modern Vegetable Farmer
- Modern Fruit Farmer
- Grain Farming
- Pasture and Hay Management
- Livestock that Farmers Raise

Whether you grew up on a farm or not, the web modules will open your eyes to the world of farming. A course designed for the young and old alike. It just may make a farmer out of a “city kid” or a “hayseed.”

After viewing the series in its entirety take the Final Exam. All participants receiving a final Exam Grade of 70% or above will receive a “Certificate of Farming Competency,” compliments of the Anne Arundel County Extension Office.

4-H News
Amanda Wahle, 4-H FEA
University of Maryland

Are you between 8 and 18 or know someone who is? If so have you considered joining 4-H?

The Anne Arundel County 4-H program is growing and is always looking for new members and volunteers. The program has community clubs located throughout Anne Arundel County but is also looking for volunteers and members to lead new groups. There are a variety of projects members can participate in including animal science, environmental sciences and human sciences. We are also looking for adults to do seminars or presentations to help 4-Hers learn how they can further their projects.

To receive more information, please contact Amanda Wahle in the Anne Arundel Extension Office at 410-222-3900 or at: awahle@umd.edu
Thanks for Partnering
Thanks for partnering with the University of Maryland Extension, and supporting our programs. I also hope you enjoy this newsletter. If you are no longer interested in receiving this newsletter, please call or write the office for the removal of your name from the mailer.

R. David Myers, Principal Agent
Agriculture and Natural Resources
University of Maryland Extension
Anne Arundel & Prince George's Counties

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Moderately Resistant Wheat Varieties for Suppression of Deoxynivalenol (DON)

Nathan Kleczewski Ph.D.
Extension Plant Pathology Specialist
University of Delaware Department of Plant and Soil Sciences
6/20/2014

The fungus *Fusarium graminearum* causes Fusarium head blight (FHB) in barley and wheat. Infection of wheat heads by *F. graminearum* can result in reduced grain fill, bleaching, and the production of a mycotoxin known as deoxynivalenol (DON). Consumption of DON infested grain can result in nausea, vomiting, feed refusal, and reduced weight gain in many animals. As a result, DON levels are regulated by the FDA and many grain elevators test for elevated levels of the toxin (Table 1). If levels exceed a given level, for example 2 ppm for grain destined for human consumption, the load can be docked. In severe cases the load can be rejected.

<table>
<thead>
<tr>
<th>Maximum Allowable DON Level</th>
<th>Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1ppm</td>
<td>Humans</td>
</tr>
<tr>
<td>5ppm</td>
<td>Swine and all animal species (except cattle and poultry). Not to exceed 20% diet for swine and 40% for other animals</td>
</tr>
<tr>
<td>10ppm</td>
<td>Ruminating beef and feedlot cattle older than 4 months and poultry. Not to exceed 50% of diet.</td>
</tr>
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</table>

Table 1. Deoxynivalenol (DON) Advisory Levels established by the FDA.

FHB outbreaks are becoming more frequent in the region due to increased acreages of conservation tillage and corn. The fungus survives on corn and small grain residue and releases spores that can be disseminated locally and over long distances. Thus, it is important that this disease is not forgotten when it comes time to select varieties for the upcoming season. **The first step in FHB management starts with the selection of a good, moderately resistant variety.** The most important aspect of a moderately resistant variety is its ability to slow the production or accumulation of DON in grain. The difference in DON accumulation between susceptible and moderately resistant varieties can be striking (Table 2). DON accumulation does not correlate well with bleaching of heads, so fields may have elevated levels of DON without showing significant levels of bleaching. This is why selection of a moderately resistant variety should be based off of DON data and not severity or incidence data.

When the environment is favorable for FHB, combining a moderately resistant variety with a recommended fungicide application within 5-6 days of the start of flowering can result in roughly 75% reduction in DON relative to untreated susceptible varieties. Fungicide use alone on average suppresses DON by roughly 45%. The tables below provide the most recent DON data for FHB wheat nurseries managed by the University of Maryland and Virginia Tech. DON levels are not absolute, and due to the nature of the resistance there is some variability in the amount of DON suppression from year to year or field to field (Table 2). However, research indicates that moderately resistant varieties provide consistent reductions in FHB and DON. In addition, newer varieties yield well in the absence of disease and varieties continue to be released.
Table 2. Recent results of FHB nursery trials conducted at Virginia Tech and The University of Maryland. These trials use a misting system that reduces disease escapes due to timing of flowering. Varieties are color coded to indicate their DON reduction potential relative to the average DON in a given trial. Dark green = >75% control; light green = >50% control; yellow = >25% control; orange = >10% control; red = no control or DON greater than the average. Data courtesy of Carl Griffey, Virginia Tech and Jose Costa, USDA-ARS (Formerly U. Maryland).

<table>
<thead>
<tr>
<th>Line</th>
<th>DON</th>
<th>Line</th>
<th>DON</th>
<th>Line</th>
<th>DON</th>
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<td>AgriMAXX 413</td>
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<td>Dyna-Gro 9223</td>
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<td>AgriMAXX 415</td>
<td>1.88</td>
<td>B030154</td>
<td>20</td>
<td>FS 888</td>
<td>8.3</td>
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<td>AgriMAXX 427</td>
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<td>10</td>
<td>FSX 815</td>
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<td>Chesapeake</td>
<td>8</td>
<td>FSX 820</td>
<td>8.2</td>
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<td>Dyna-Gro 9012</td>
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<td>8</td>
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<tr>
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<td>16</td>
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Virginia Tech 2013
University of MD 2012
University of MD 2013