Dave’s Ramble

She began to jeer and then laugh as the farmer approached the cattle gate and his hair stood on end like a whiskered basketball. The laughing ceased when she felt her own hair stream straight into the air as if the hand of God was grabbing. The farmer yelled, “Run from the fence!” It was one of those electrically intense mornings—warm, muggy, with rumblings of thunder and a pressing cold front. Even the cattle were edgy, huddled away from the fence under a tree with their heads low; normally the heifers would have rushed the feed truck by now. “Crouch down low!” cautioned the farmer, “Lightening is about to strike!” Pay attention! Farmers understand lightening.

Hoping for a photo finish, the farmers are scrambling as hay wagons hustle from the baler to the barn and the sky darkens in the northwest; the barometer has been falling all day. The farmer baling on the open tractor is beginning to feel a little uneasy as lightening begins to streak earthward. He gazes up at the umbrella over his head and it kind of reminds him of a waffle iron with an inviting metal spike pointed skyward. Normally, this farmer would be under the bed safe at home by now; he is not particularly fond of lightening. Ah! But the cool breeze is sure beginning to feel nice. “Just a few more windrows of perfect alfalfa hay!” he exclaimed, as another farmer just jockeyed the last full wagon load of hay from the field and another was beginning to spread fertilizer. As all of the farmers past each other they exchanged grins. Who was going to get the wettest this time?

Now pressing the machinery to its limits, raindrops start falling as the farmer turns to take up the final windrow of hay. He is heading south on this final run as a streak of lightening sizzles to earth ahead of him, so close you can smell the ozone and witness the fiery vapor trail. The fertilizer buggy makes its final pass turns and throttles towards the farm shop. Now feeling abandoned the farmer gobbles up the last of the windrow, kicks the baler out of gear, straightens the baler tongue and begins the mile stretch toward the tractor shed.

Fall 2008

Well my friends, you have never experienced rain until you head north into a squaw on an exposed farm tractor coupled to a baler trailing the last wagon load of alfalfa, throttled all the way.

The farmer pulled the rig out of the weather and made haste to the machine shop. Where was everyone? “Home under the bed!” he muttered to himself.

Calendar of Events

Mark Your Calendars --- Plan To Participate

- September 18 - Appalachia Strawberry Field Day - Gorman
- September 18 - Anne Arundel Pasture Walk - Lothian
- September 23 & 25 - Pumpkins & Sweet Corn Twilight REC
- September 23 - Manure Application Field Day- Carroll Co.
- September 25 - Sustainable Nursery Production- Frederick
- October 14 - National Tractor Safety Program- College Pk
- November 8 - MD/ DE Annual Horse Conference -
- November 18-20 - Crop Mgmt. School - Ocean City
- December 4 - Southern MD Crop Conference - Waldorf
- December 22 - Crops IPM Workshop NM/ PAT- DFRC
- January 6 - Southern MD Forage Conference - Waldorf
- January 12 - Pesticide Certification Training - DFRC
- January 26 - Pesticide Certification Exam - DFRC
- February 11 - So. MD Vegetable & Fruit Meeting - Loveville
- March 16 - Pasture & Field Crop Workshop NM/PAT- DFRC
- March 27 - On-Line Pesticide Applicator Recertification
- March 30 - Advanced Herbicide Workshop - Glen Burnie
- April 3 - On-Line Nutrient Voucher Recertification

Inside This Issue

- Fall & Winter Meetings
- CMREC Research Highlights
- Vegetable & Agronomic IPM Updates
- Pest Net
- Fungicide Use in Corn & Soybean
- Preharvest Disease Management
- Grape Harvest Ripeness
- MD Soybean Rust Risk Assessment
- National Crop Insurance
- Grain Market Highlights
- SARE Farmer Grants
- Environmental Horticulture
- Equine Studies Update
- Phoenix Services AGS1ag
- Nutrient Management Update
- New Website Features

It is the policy of the University of Maryland, Agricultural Experiment Station and Maryland Cooperative Extension, that no person shall be subjected to discrimination on the grounds of race, color, gender, religion, national origin, sexual orientation, age, marital or parental status, or disability.
FALL & WINTER MEETINGS

Mark your calendars now and plan to be a part of the fall and winter meetings.

Appalachia Strawberry Field Day
September 18, 2008, 5 pm

Join us for an evening field day that will feature research being conducted for a three year Northeast SARE Research and Education Grant entitled “An Integrated Approach to Developing a Day-Neutral Strawberry Production Industry”. Research conducted through the grant has focused on propagation and production of day neutral strawberries in an annual system. The system is designed to produce fruit during the summer months when local fruit is typically not available. The production system is a great fit for the Appalachian Mountains as strawberries require cool summer temperatures. The goal of the project is to develop a system of propagating, growing and marketing high quality fruit throughout the summer months.

Topics:
- Variety Trial – Participants will be able to a variety trial with 13 different day neutral varieties.
- Plastic Mulch Colors for Day Neutral Strawberries
- Post Planting Flower Removal
- Spring versus Fall Planting of Day Neutral Strawberries
- Production on 2nd Year Plantings
- Fertilization of Day Neutral Strawberries
- High Tunnel Production with June Bearing Plants

Speakers:
Dr. Harry Swartz, Associate Professor – Horticulture, University of Maryland
Kathy Demchak, Sr Extension Associate – Horticulture, Penn State University
Dr. Lewis Jett, Extension Specialist – Horticulture, West Virginia University
Willie Lantz, Extension Educator, Maryland Cooperative Extension
Sherry Frick, Extension Program Assistant, Maryland Cooperative Extension

Location:
The field day will be held at the newly established farm of Dr. Harry Swartz. The farm is located south of Oakland along Rt. 560 and the address is 4771 Gorman Road, Oakland, MD 21550.

Registration:
The cost of the field day is free and includes a barbeque meal afterwards. **If you are planning on attending please call the extension office to register at 301-334-6960.**

Anne Arundel Pasture Walk
Burrages End Stables
5635 Old Ridge Path Lane
Lothian, Maryland 20711
September 18, 2008, 1 – 4 pm

**Are Your Pastures Hot, Erosive, Colicky, with Nutrients moving to the Waters’ of The Bay? Or Cool, Nutrient Retentive and Covered in Safer Grasses for horses?**

Come see the beginning of a new way to manage summer pastures and loafing lots that is horse and Bay friendly. The pasture walk will be at Burrages End Stables managed by Carol Jahnigen. Working with various agencies, Carol has implemented several practices to improve water quality and the management of her horse farm. These practices will be highlighted in addition to where you can get technical and financial assistance to implement them on your farm.

This summer an improved Bermuda grass seed, Mohawk, was planted in Carol Jahnigen's sacrifice area. In the summer the grass will provide good protective cover and will actively utilize nutrients present from manure and urine in the feeding area. Bermuda grass, once completely established, is a long lived perennial that should need little reseeding once it reaches maturity. Properly managed Bermuda grass, a C-4 warm season grass, will provide high quality forage that is good for horses and grows in the summer when few other things do. Manure nutrients can easily move off site during summer months. With a perennial grass present, nutrient capture will occur and a much needed forage will be produced. Landowners can over seed with rye or ryegrass in the fall to create a year round grazing pasture.

Assistance is provided by Anne Arundel Soil Conservation District, Maryland Department of Agricultural, Maryland Cooperative Extension and the USDA Natural Resources Conservation Service.

Come see a well managed horse farm and a new way to manage a sacrifice or summer pasture. **To sign-up or for more details contact Suzi Whilden at the Anne Arundel SCD at 410-571-6757.**
1st Pumpkin & Sweet Corn Twilight
WMREC, Keedysville, MD
September 23, 2008

WMREC Pumpkin & Sweet Corn Twilight Meeting
Join us September 23, 2008 for an exciting twilight meeting! University of Maryland experts will present results of the pumpkin research project at Keedysville to current growers, as well as those interested in starting their own pumpkin patch. You'll see 30 varieties of pumpkins; no-till on vetch; and information will also be presented for the Bt sweet corn research project.

Time: 4:30 PM - 7:00 PM
Location: Western MD Research & Education Center, 18330 Keedysville Rd., Keedysville, MD 21756
Contact: Bryan Butler 410-386-2760

2nd Pumpkin & Sweet Corn Twilight
WYEREC, Queenstown, MD
September 25, 2008

WYEREC Pumpkin Twilight Meeting
Join us September 25, 2008 for an exciting twilight meeting! University of Maryland experts will present results of the pumpkin research project at the Wye Research and Education Center to current growers, as well as those interested in starting their own pumpkin patch. You’ll see 30 varieties of pumpkins; no-till on vetch; and information will also be presented for the Bt sweet corn research project. A light fare will be available.

Time: 4:30 p.m. - 7:00 p.m.
Location: Wye Research & Education Center, 124 Wye Narrows Rd., Queenstown, MD 21658
Contact: Bryan Butler 410-386-2760 or Mike Newell 410-827-7388.

Manure Land Application Field Day at the Sellers Farm in Carroll County, MD
September 23, 2008, 10:00 AM - 2:00 PM

Manure land application strategies for improving nitrogen use and uptake.

“Learn how to fight record-high fertilizer prices through effective management of manure nitrogen”

See the latest in minimum disturbance manure injection equipment

✓ Dietrich No-till injectors
✓ Dragline with AerWay
✓ Turbo-till
✓ Yetter

Watch cover crop grain seeded with a no-till drill directly behind the manure application

✓ Perform in-field ammonia loss measurements
✓ Manure spreader calibration using portable truck scales
✓ Demonstration of the PSNT process
✓ Rye cover crops for dairy farms
✓ Alternative nutrient sources

Expected benefits of effectively managing manure nitrogen
If you apply manure you can’t afford to miss this educational opportunity.

✓ Free Lunch for program attendees

The field day will provide four (4) continuing education credits from the Maryland Nutrient Management Program

For reservations or more information call 301-694-9290 ext. 130 by Sept. 18.

Sponsored by: Maryland Cooperative Extension, USDA Agricultural Research Service, and the Maryland Department of Agriculture, with grant funding from the Chesapeake Bay Trust

Come and Learn:

✓ What information a sensor network can give you for irrigation and growth management?
✓ New techniques for controlling potato leafhopper.
✓ Some tricks for single-pass weed control?
✓ How to use cover crops for pest management and improving soil quality?
✓ About a 2-year study at Waverly Farm Nursery on nitrogen fertilization of nursery trees?

The program for the day will include:
10:00 - 10:15 AM - Welcome by Dean Cheng-i Wei.
10:15 - 11:30 AM - Tour of Raemelton Farm by Steve Black, owner of Raemelton Farm
11:30 - 12:00 PM - Wireless Sensor Networks for Improved Irrigation Monitoring in the Nursery - Some Interesting Revelations! By John Lea-Cox, Andrew Ristvey and Steve Black
12:00 - 1:00 PM Lunch & Refreshments
1:00 - 1:20 PM - Nitrogen Fertilization of Field-Grown Evergreen Nursery Stock Jerry Faulring (Owner, Waverly Farm), Stanton Gill and Chuck Schuster
1:20 - 1:30 PM - Future Field Research with Input from Growers Chuck Schuster - survey of industry practices.
Walk to Field Stations
The training both for CLI's and certified youth.

Identification card and number is issued upon completion of others have received their CLI certification. David S. Ross is Maryland's Master Trainer and several Extension educators, 4-H community volunteers and others.

Certification programs. CLI's are high school teachers, adults in safe operation of tractors and machinery in non-program, the CLI will be able to educate other youths and individuals to access and use the curriculum to train youth.

Community Lead Instructor (CLI) which qualifies the An adult taking this training will be certified as a HOSTA, thus the two names. A minimum of 24 hours of minimum requirements to receive a certificate of training; this time can be scheduled in several ways.

An adult taking this training will be certified as a Community Lead Instructor (CLI) which qualifies the individual to access and use the curriculum to train youth. In an extension of this federally mandated certification program, the CLI will be able to educate other youths and adults in safe operation of tractors and machinery in non-certification programs. CLI's are high school teachers, Extension educators, 4-H community volunteers and others.

David S. Ross is Maryland's Master Trainer and several others have received their CLI certification. An identification card and number is issued upon completion of the training both for CLI's and certified youth.

The registration fee of $60 includes a copy of the Instructor Manual with the guidelines and procedures for conducting the youth training. This manual will be covered during the day of instruction. Also, a copy of the Student Manual is included; it contains the Task Sheets and Driving Skills Guidelines/Exam used in the youth training program. There may be select other handouts. Lunch will be included. Be prepared for the weather as we do the Driving Exam outdoors in the afternoon.

Deadline to register is September 29. Contact David S. Ross, dsross@umd.edu, Phone 301-405-1188, FAX 301-314-9023

Federal law dating back to 1938 identified hazardous occupations where workers had to be age 18 or older to be employed. In 1968 the laws were amended to include the Hazardous Order for Agriculture which established age 16 or 14 years with special training for employment in Agriculture. Further details can be found on the website http://nstmop.psu.edu. Youths age 14 and 15 are required to be trained and certified to work on a non-parent farm. In 2001, a new training development program was funded which has resulted in the current curriculum.

David S. Ross, Professor & Extension Specialist, Agricultural Engineering, 1431 AnSc/ AgrEng Bldg., College Park, MD 20742 Phone 301-405-1188, FAX 301-314-9023
structures, streams, your vehicle location, as well as for fun activities such as geocaching. Professional natural resource managers can save valuable field time by using GPS with a computer to locate inventory plots, access roads, timber sale and property boundaries, directing customers to sale locations, and much more.

The one day training and will cover:
* GPS receiver basics
* Waypoints and Routes
* Calculating area
* Finding locations
* Basic Mapping
* Software and hardware

TRAINING LOCATIONS:
Western MD Research & Education Center, Keedysville, MD (near Hagerstown, MD): **October 21 or October 22**
Wye Research & Education Center, Queenstown, MD (near Easton, MD): **November 4**
University of MD Eastern Shore, Princess Anne, MD: **November 18**

**2) USING TERRAIN NAVIGATOR SOFTWARE WITH GPS:** Terrain Navigator (TN) software provides USGS topographic maps on CD-ROM and allows you to create GPS waypoints, routes and tracks and transfer them to a GPS unit or to download GPS information taken in the field and then create a individualized computer map of the area you are working. This is very useful for natural resource professionals and landowners as well.

The one day training and will cover:
* Use of Terrain Navigator software
* Waypoints and routes (in office)
* GPS receiver review
* Case studies
* Custom mapping
* Internet Resources

A brochure with registration form and additional information about the trainings is available on our website: [www.naturalresources.umd.edu/GPS.cfm](http://www.naturalresources.umd.edu/GPS.cfm).

**TRAINING LOCATIONS:**
Western MD Research & Education Center, Keedysville, MD: **October 23**
Wye Research & Education Center, Queenstown, MD: **November 6**

**REGISTRATION INFORMATION:**
* Registration for all trainings begins at 9:00 am and trainings are from 9:30 am to 3:30 pm
* Cost for each training is $55-includes lunch & materials
* A Garmin GPSMAP 76Cx unit is provided for use at the workshop. If you have the same model please bring it.
* For information on trainings held at the Western MD Research & Education Center contact Pam Thomas at 301-432-2767 x315, Email pthomas@umd.edu.
* For trainings at other locations contact Carol Taylor at 410-827-8056, Email carolt@umd.edu

If you have any questions regarding the trainings, please visit our website [www.naturalresources.umd.edu/GPS.cfm](http://www.naturalresources.umd.edu/GPS.cfm).

**Mid-Atlantic Crop Management School**
**November 18-20, 2008**

The **Mid-Atlantic Crop Management School** will be held at the Princess Royale Hotel in Ocean City on **November 18-20, 2008**. 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. You may also register on line at: [http://www.psla.umd.edu/extension/crops/home.cfm](http://www.psla.umd.edu/extension/crops/home.cfm)

**Southern Maryland Crops Conference**
**December 4, 2008**

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 4, 2008**, 4:00 to 8:30 p.m. at the Isaac Walton League Conference Center in Waldorf, MD.

<table>
<thead>
<tr>
<th>Speaker</th>
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<td>Ron Ritter</td>
<td>Weed Control Update for Field Crops</td>
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<td>Cerutti Hooks</td>
<td>Field Crops IPM - Early Insect Scouting</td>
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<td>Bob Kratochvil</td>
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<td>Ron Mulford</td>
<td>Poultry Litter Utilization on Field Crops</td>
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<tr>
<td>Ben Beale</td>
<td>Deer Control</td>
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Attendance at this conference will satisfy the requirement for the **Private Pesticide Applicator Recertification & Nutrient Management Voucher**.

Please call the Charles County Extension Office at 301-934-5403 to register. Make plans now to attend.

**Global Crop Sustainability & IPM Workshop**
**Pesticide Recertification & Nutrient Management Voucher Training**
**December 22, 2008**

Make plans to attend the **Global Crop Sustainability & IPM Workshop**, **Monday, December 22, 2008** at the Davidsonville Family Recreation Center (DFRC) from **6:00 p.m. to 9:00 p.m.** This workshop will explore advanced crop production practices used around the world 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 Management Voucher Recertification will be awarded for full class participation.

To register for this event contact the Anne Arundel County Extension Office at 410 222-6759.

Maryland/Delaware Forage Council
Southern MD Hay & Pasture Conference
January 6, 2009
Make plans to attend the Southern Maryland Hay & Forage Conference, tentatively set for January 6, 2009, at the Isaac Walton League Conference Facility in Waldorf, 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.mdforages.umd.edu or through local county Extension and NRCS/Soil Conservation District offices in Maryland. Register early to receive a discounted ticket. Registration at the door will cost you more.

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 Davidsonville Family Recreation Center (DFRC) from 6:00 to 8:00 p.m. on January 12, 2009.
Step 2: A Private Pesticide Applicator Exam will be given at the Davidsonville Family and Recreation Center (DFRC) from 6:00 to 8:00 p.m. on January 26, 2009.

Southern Maryland Vegetable & Fruit Production Meeting
February 11, 2009
Make plans to attend the Southern Maryland Vegetable and Fruit Production Meeting on Wednesday, February 11, 2009. This year the meeting will be held in St. Mary’s County. This meeting will provide Private Applicator Recertification & Nutrient Management 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. For full conference details, contact Ben Beale, Extension Agent, St. Mary’s County Extension Office at 410 222-6759.

Field Crops & Pasture IPM Workshop
March 16, 2009
Make plans to attend the Field Crops & Pasture IPM Workshop, Monday, March 16, 2009 at the Davidsonville Family Recreation Center (DFRC) 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 Management Voucher Recertification will be awarded for full class participation.

To register for this event contact the Anne Arundel County Extension Office at 410 222-6759.

New Live On-Line Session
Private Pesticide Applicator Recertification
March 27, 2009
If you would like the opportunity to learn from home, yet still be engaged, then be sure to enroll in this New On-Line Private Pesticide Recertification Training, scheduled for March 27, 2009 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 March 25th 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 410 222-6759.

New Live On-Line Session
Nutrient Management Voucher Recertification
April 3, 2009

If you would like the opportunity to learn from home, yet still be engaged, then be sure to enroll in the New On-Line Nutrient Management Voucher Recertification Training, scheduled for April 3, 2009 from 4:00 to 6:00 p.m. This session will focus on fertility and production 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.

Nutrient Management Voucher Recertification credit will be awarded for full 2-hour session participation. Registration by April 1st 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 410 222-6759.

Advanced Agronomics Workshops:
I. Herbicide Technology
March 30, 2009

Every year offers a different challenge to the effectiveness of herbicides for controlling weeds in our field crops, vegetables and fruits. In order to better understand herbicide successes and failures we need to have a working knowledge of herbicide chemistry, environmental interaction and mode of action.

Make plans to attend the first of a series of Advanced Agronomic Workshops: I. Herbicide Technology scheduled for March 30, 2009 from 6:00-9:00 p.m. at the Anne Arundel County Extension office in Glen Burnie, MD.

This workshop is intended for farmers and crop professionals, taught at the college level, therefore, a familiarity with herbicides and their application is a prerequisite. Participants in this workshop will discover the importance of knowing herbicide chemical families; persistence of herbicides and interaction in the soil environment; and herbicide mechanism of weed control. We will use crop, soil and weather scenarios to understand and predict the effectiveness of herbicide applications. During our discussions we will reveal important herbicide soil and plant behaviors such as: mobility; water solubility; translocation; plant metabolism; mechanism of action; symptomology; soil half-life; environmental degradation; and vapor potential.

To register for this workshop or for more information contact Dave Myers at the Anne Arundel County Extension Office, 410 222-6759.

Research Highlights Presented at the CMREC Upper Marlboro Crops Twilight
Held on August 7, 2008
High Tunnel Chili-Mix
R. David Myers, Brian Clark, Mark Spicknall, Alfred Hawkins

A market garden may be substantially augmented by utilizing season technologies. Plasticulture systems that utilize early spring and late fall in-field high tunnels can significantly expand the market window and produce premium quality products. Growers in Southern Maryland have adopted these techniques readily and should be encouraged to always consider adding new vegetable, herb and floral varieties.
Using a Special Cover Crop to Support the Production Needs of Maryland’s Sustainable Agriculture and Organic Vegetable Industry

Cerruti Hooks, Crops IPM Specialist
University of MD

Sunn hemp (Crotolaria juncea) is a tropical legume that has often been investigated as a green manure. Sunn hemp is well known for its ability to produce high amounts of biomass and symbiotic N in a short period of time, and add C to the soil. Thus, sunn hemp is used primarily to increase soil organic matter and nutrients. Additionally, when incorporated into the soil, it releases compounds that are toxic to several plant parasitic nematodes. The sunn hemp cultivar ‘Tropic Sunn’ was jointly released by USDA-NRCS and the University of Hawaii at Manoa Institute of Tropical Agriculture and Human Resources in 1983. This sunn hemp cultivar has received great interest since its release because of its green manure ‘super powers’ and nematicidal properties. It has also been suggested that sunn hemp ‘Tropic Sunn’ may serve as a forage crop for cattle in southern temperate regions. Researchers have further shown that sunn hemp hay may be used to help check weed growth. Despite the many benefits of sunn hemp, this super hero without a cape has been only lightly investigated for its potential to help manage insect pests.

Thus, field experiments are currently being conducted at the Central Maryland Research and Education Center-UMF in Upper Marlboro, to examine the use of sunn hemp as a cover crop to suppress insect pests and enhance beneficial arthropods in a double-cropping vegetable system. During both crop cycles, insect pest populations and their associated natural enemies will be censused. This experiment will be expanded next year to concurrently look at other potential benefits of using sunn hemp within the same field such as improving soil health, soil and plant nutrient status, and plant growth under conventional and organic fertility practices.

For sunn hemp (SH) treatment plots, SH will be grown for ~ 2 months. Afterwards, SH plots will be mowed and alternate SH rows will be strip-tilled (green manure) to create rows for the vegetable crop. The remaining mowed sunn hemp will be left on the soil surface as organic mulch. One week later, the first vegetable crop will be planted into the tilled-strips. Neighboring SH rows will be allowed to re-grow as intercropped living mulch. Summer squash will be used as the first crop, and after that cropping cycle is complete, broccoli will be planted in the same field to mimic a double cropping practice. For the SH treatment, SH rows that remained during the initial cycle will be mowed and strip-tilled, and the second crop (broccoli) will be planted into the newly tilled strips. For the BG treatment, the second crop will be planted into the same rows as the previous crop to duplicate a double cropping practice. Attached is an illustration of the double cropping protocol.

**Upper Marlboro CMREC**

**Fruit Research Plantings**

**2008 Disease and Pest Summary**

Anne DeMarsay,
Regional Specialist in Fruit Pathology
Maryland Cooperative Extension
CMREC, Upper Marlboro Research Farm
August 7, 2008

**Apples**

In young, non-bearing orchards, the main diseases to manage are those that could defoliate the trees: apple scab, cedar-apple rust, and apple powdery mildew. Young trees need healthy leaves to support their growing root systems and canopies. In our planting, the only disease we observed in 2008 was powdery mildew, for which we applied several sprays.

**Blueberries**

Blueberries are native plants that have relatively few diseases and pests compared to imports like peaches, apples, and wine grapes. Our planting, now in its fourth year, has had no observable fruit rot or insect damage. We lost a few canes to winter injury and herbicide injury. Netting kept out a vertebrate pest: the robins who stole most of last year’s crop.

**Peaches/ Nectarines and Beach Plums**

These fruit trees and shrubs are all species of “stone fruit.” They belong to the same genus, Prunus, and have similar diseases and pests. Our nine-year-old peach and nectarine planting has typically had a lot of peach scab on the leaves and fruit. This year, we sprayed for scab early, so that there was less on the early peaches, but gaps in the spray schedule allowed many scab lesions to develop on the late peaches and nectarines. Hailstorms in June and early July also damaged some fruit, allowing fungal rots to enter and attracting birds and insects.

Brown rot is an annual problem on all stone fruits, including beach plums. The fruit rot phase of the disease...
causes a brown, soft rot on ripening fruit. Rotted fruit become covered with grayish powdery spores, and dry down to “mummies” that look like a peach or plum pit. The brown rot fungus survives the winter in these fruit mummies, and if they are left in the orchard, they will infect next year’s crop of blossoms and fruit.

**Table and Wine Grapes**

Our eight-year-old vineyard also suffered from the hailstorms this summer. In addition to battered leaves, many fruit split open. Fruit that are damaged when they are small will often heal over or drop off. More mature fruit may not fully heal and become susceptible to fungal fruit rots and insect damage.

Beginning in early June, warm, humid nights and frequent daytime rainfall created the conditions for an explosive outbreak of grape downy mildew, a destructive fungal disease that can defoliate vines and prevent very young fruit from developing normally. We brought the disease under control with little defoliation in the wine grapes, though the table grapes fared worse. By the time the disease struck, most of the fruit were old enough to be largely immune, though some have purplish spots indicating downy mildew damage to the skin.

Despite favorable weather from budbreak onward, we haven’t seen a lot of grape powdery mildew, which was a serious problem in the vineyard in 2006 and late 2007. We sprayed lime sulfur while the vines were dormant to reduce the overwintering population of several fungal pathogens, including powdery mildew, with apparent success. We continued to apply protectant sprays as the shoots and fruit developed.

Other common grape diseases include (1) Phomopsis cane and leaf spot, caused by a cool-weather fungus that becomes inactive in the summer, and (2) black rot, another spring fungal disease that is the first fruit rot to appear. Cool, wet weather early in the season favored Phomopsis infections of shoots and leaves. Phomopsis fruit rot is just now appearing, so it is too soon to tell how well we did in protecting fruit. We have seen a few black rot lesions on leaves but very few berries with black rot. Our worst insect pest is Japanese beetle, which skeletonizes leaves and may feed on fruit. Beetle damage so far this year has been minor.

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**Disorders in Cole Crops**

Gordon Johnson,
Extension Ag Agent, Kent County
gcjohn@udel.edu

Most cole crops will be planted by mid-August in Delaware although late plantings of broccoli and collards will be going in up to the end of the month. Cabbage, cauliflower, broccoli, broccoflower, Brussels sprouts, and collards are important crops for fall income on many vegetable farms throughout Delaware. There are a number of challenges to growing cole crops including producing quality transplants, scheduling plantings for harvest, and pest management (especially insect control). Cole crops are also susceptible to a number of disorders that growers need to be aware of because they can cause issues with marketability.

**Tipburn of Cauliflower, Cabbage, and Brussels Sprouts**

This problem can cause severe economic losses. Tipburn is a breakdown of plant tissue inside the head of cabbage, individual sprouts in Brussels sprouts, and on the inner wrapper leaves of cauliflower. It is a physiological disorder which is associated with an inadequate supply of calcium in the affected leaves, causing a collapse of the tissue and death of the cells. Calcium deficiency may occur where the soil calcium is low or where there is an imbalance of nutrients in the soil along with certain weather conditions. (High humidity, low soil moisture, high potash and high nitrogen aggravate calcium availability). Secondary rot caused by bacteria can follow August 22, 2008 Weekly Crop Update Volume 16, Issue 22 3 tipburn and heads of cauliflower can be severely affected. Some cabbage and cauliflower cultivars are relatively free of tipburn problems.
**Boron Deficiencies**

Cole crops have a high boron requirement. Symptoms of boron deficiency vary with the cole crop. Cabbage heads may simply be small and yellow. Most cole crops develop cracked and corky stems, petioles and midribs. The stems of broccoli, cabbage and cauliflower can be hollow and are sometimes discolored. Cauliflower curds become brown and leaves may roll and curl.

**Hollow Stem in Broccoli and Cauliflower Not Caused by Boron Deficiency**

This condition starts with gaps that develop in the tissues. These gradually enlarge to create a hollow stem. Ordinarily, there is no discoloration of the surface of these openings at harvest but both discoloration and tissue breakdown may develop soon after harvest. Some cultivars of hybrid cauliflower and broccoli may have openings from the stem into the head. Both plant spacing and the rate of nitrogen affect the incidence of hollow stem. Hollow stem increases with wider spacings and as the rate of nitrogen increases. The incidence of hollow stem can be greatly reduced by increasing the plant population.

**Cabbage Splitting**

Cabbage splitting is mainly a problem with early cabbage. A problem can develop when moisture stress is followed by heavy rain. The rapid growth rate associated with rain, high temperatures and high fertility cause the splitting. Proper irrigation may help prevent splitting and there are significant differences between cultivars in their susceptibility to this problem. Splitting may also be partially avoided by deep cultivation to break some of the plant roots.

**Cauliflower and Broccoli Buttoning**

Buttoning is the premature formation of a head and because the head forms early in the plant's life, the leaves are not large enough to nourish the curd to a marketable size. Buttoning may occur shortly after planting in the field, when normal plants of the same age should be growing vegetatively. Losses are usually most severe when transplants have gone past the juvenile stage before setting in the field. Stress factors such as low soil nitrogen, low soil moisture, disease, insects, or micronutrient deficiencies can also cause this problem. Some cultivars, particularly early ones, are more susceptible to buttoning than others.

**Lack of Heads in Broccoli and Cauliflower**

During periods of extremely warm weather (days over 86°F and nights 77°F) broccoli and cauliflower can remain vegetative (does not head) since they do not receive enough cold for head formation. This can cause a problem in scheduling the marketing of even volumes of crop.

**Cauliflower Blanching and Off Colors**

The market demands cauliflower which is pure white or pale cream in color. Heads exposed to sunlight develop a yellow and/or red to purple pigment. Certain varieties such as Snow Crown are more susceptible to purple off-colors, especially in hot weather. Self-blanching varieties have been developed to reduce problems with curd yellowing. For open headed varieties, the usual method to exclude light is to tie the outer leaves when the curd is 8 cm in diameter. Leaves may also be broken over the curd to prevent yellowing. In hot weather blanching may take 3 to 4 days, but in cool weather, 8 to 12 days or more may be required.

Cauliflower fields scheduled to mature in cool weather (September and October) that are well supplied with water and planted with "self-blanching" cultivars will not need tying. Newer orange cauliflower and green broccoli varieties are being planted. They are less susceptible to off-colors but still can develop purpling under warm conditions.

**Cauliflower Ricing**

“Riciness” and “fuzziness” in heads is caused by high temperatures, exposure to direct sun, too rapid growth after the head is formed, high humidity, or high nitrogen. “Ricing” is where the flower buds develop, elongate and separate, making the curd unmarketable.

**Development of Curd Bracts in Cauliflower**

Curd bracts or small green leaves between the segments of the curd in cauliflower is caused by August 22, 2008 Weekly Crop Update Volume 16, Issue 22 too high of temperature or drought. High temperatures cause a reversion to vegetative growth with production of bracts on the head. In a marketable cauliflower head, the individual flower buds are undeveloped and undifferentiated.

**Loose Heads in Cauliflower and Premature Flowering in Broccoli**

Loosely formed curds in cauliflower can be due to any stress that slows growth making them small or open. Fluctuating temperatures and moisture will also cause less compact growth. In contrast, excess vegetative growth caused by excessive nitrogen can also cause loose heads in cauliflower and broccoli. Premature flowering and open heads in broccoli can be brought on by high temperatures.

**Edema on Cole Crop Leaves**

Edema is water blistering on cole crop leaves. The most common cause of edema is the presence of abundant, warm soil water and a cool, moist atmosphere. Under these conditions the roots absorb water at a rate faster than is lost through transpiration. Excess water accumulates in the leaf, some parenchyma cells enlarge and block the stomatal openings through which water vapor is normally released from the plant; thereby contributing to further water retention in the leaf. If this condition persists, the enlarged cells divide, differentiate a cork cambium, and develop elongate cork cells externally to form a periderm. The rupture of the epidermis by the enlarged inner cells and the periderm account for the raised, crusty appearance of older edema spots.

**Black Petiole**

Black petiole or black midrib is an internal disorder of cabbage that has been occasionally noted in recent years. As heads approach maturity, the back side of the internal leaf petioles or midribs turn dark gray or black at or near the point where the midrib attaches to the core. The affected area may be quite limited or may extend for 2 or 3 inches along the midrib. It is believed that this disorder
is associated with a potassium (K)-phosphorus (P) imbalance and results when the K level in the soil is low and the P concentration high. High rates of nitrogen may contribute to the problem. Probably, as in the case with tipburn, black petiole is a complex physiological disorder in which environmental conditions play an important role in symptom expression. Variety evaluation trials have shown that there are differences in degree of susceptibility between varieties.

**Florret (Bead) Yellowing in Broccoli**

The florrets are the most perishable part of the broccoli head; yellowing may be due to overmaturity at harvest, high storage temperatures after harvest, and/or exposure to ethylene. Any development of yellow beads ends commercial marketability. Bead yellowing due to senescence should not be confused with the yellow to light-green color of areas of florrets not exposed to light during growth, sometimes called "marginal yellowing".

**Brown Florret (Bead) in Broccoli**

This is a disorder in which areas of florrets do not develop correctly, die and lead to brown discolored areas. This is thought to be caused by plant nutritional imbalances but also may be due to feeding damage on florrets from insects such as harlequin bugs.

Information adapted and reprinted in part from "Nonpathogenic Disorders of Cabbage" from Cornell University; "Cole Crops Crop Management" from Prince Edward Island Canada, and factsheets from North Carolina State University on broccoli and cauliflower production.

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**Agronomic Crop Insects**

Joanne Whalen, Extension IPM Specialist
jwhalen@udel.edu

**Grass Hay Crops**

We have received reports from consultants in Maryland and Delaware regarding insect damage to grass hay crops that are close to cutting. In both cases, the insect causing the damage was fall armyworm. Although there are no thresholds for this insect in grass hay crops, fields should be watched closely after cutting for damage to the regrowth. Baythroid XL, Mustang MAX, and Warrior are all labeled for armyworm control on August 22, 2008 Weekly Crop Update Volume 16, Issue 22 5 grass hay crops. Insects must be small at the time of treatment to achieve control.

**Soybeans**

As the potential for late season insect control increases, be sure to check all labels for the days from last application to harvest as well as other restrictions. In areas of the state with high bean leaf beetle counts, be sure to watch for both defoliation and pod feeding. Be sure to check the following link from the Midwest for the most recent decision making information for this insect pest.


Continue to scout for soybean aphids. Since this is more of a cool season aphid, we could see an increase with the recent temperatures. As a general guideline, treatment is needed through the R-5 stage (seed is 1/8 inch long in the pod of one of the four uppermost nodes on the main stem) of soybean development if economic levels are present. It may also be beneficial to spray through R-6 stage (pods containing a green seed that fills the pod cavity at one of the four uppermost nodes on the main stem) – reports vary as to the benefit of spraying once plants reach the R-6 stage but in some years and some situations there has been an economic return. Spraying after R-6 stage has not been documented to increase yield in the Midwest.

The suggested treatment threshold from the Midwest is still 250 aphids per plant with 80% of the plants infested with aphids. You can also consider using speed scouting to make a treatment decision. Information on how to use speed scouting can be found at:


We continue to find sporadic and low levels of corn earworms in fields in Kent and Sussex counties. As corn dries down, moths emerging from larvae found in corn fields will lay eggs in soybeans. Remember, corn earworms will feed on the foliage and the pods. The only way to know if you have an economic level will be to scout. Therefore, be sure to scout all fields for podworms. Although states to our south reported control failures with pyrethroids in soybeans in 2007, we did not see this in Delaware in 2007. In many cases, poor control in our area was the result of treating too late, treating large worms or using too low of a rate. If using a pyrethroid, you should be using the mid to high range rate. In addition to the pyrethroids, Steward or Lorsban should also be considered, especially if armyworms are in the mix. The pyrethroids will not provide effective beet armyworm control. In the past, we have used the treatment threshold of 3 corn earworms per 25 sweeps in narrow fields and 5 corn earworms per 25 sweeps in wide row fields (20 inches or greater). However, these are static thresholds that were calculated for a 10-year average soybean bushel value of $6.28. With higher soybean prices, the best approach to determining a threshold is to access the Corn Earworm Calculator.

http://www.ipm.vt.edu/cew/ which estimates a threshold based on the actual treatment cost and bushel value you enter.
Pesticide Notes

This portion of the Pesticide Education and Assessment Program is partially sponsored by:

This newsletter addresses topical issues surrounding pesticides (insecticides, fungicides, herbicides, rodenticides, etc.). The newsletter concentrates on new regulations and policies; safety, health, and environmental issues; and other new pesticide developments. Pesticide Notes is edited by Dr. Amy Brown, Coordinator of Pesticide Education and Assessment Programs (PEAP) at the University of Maryland. The current issue and back issues to 1996 are posted below. You can access an entire issue by clicking on the heading. Requires Adobe Acrobat Reader.

If you would like to be notified by electronic mail when the latest issue of Pesticide Notes is published on the website please subscribe to the mailing list by sending email to listserv@listserv.umd.edu. The body of the email should contain the line: subscribe pesticide-notes 'your name'.

Volume 26, Number 8 (August 2007)

Proximity to Roundup-ready alfalfa
Aerial application of pesticides on organic crops
Organic farming builds soil organic matter
Endangered species website updated
Expanded labels for two insecticides
Phenoxy herbicide will not undergo Special Review
Opportunities for comment to public agencies

The results of the state wheat trials will be out shortly. Many of your clients should be in the process of making decisions about seed purchases for winter wheat planting this fall. I have compiled a chart of disease reactions for wheat varieties that we commonly see on the market here in Maryland to help in this process. Disease resistance is always the cheapest and most effective management tool we have. All the scores in the chart are re-scaled so that the most susceptible thing we tend to see is a 9 on the scale of 0 to 9. The data that you will see in the state wheat trial report that Dr. Costa puts out will have raw data for powdery mildew. So the most susceptible variety there (Becker) had a score this season of 6.4. My effort to re-scale things is not to confuse you but to try to take the seasonal difference out. You are welcome to use this chart in any way you like. And if you have any comments or criticisms of the approach feel free to let me know.

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Fungicide Use in Corn and Soybean: To Apply or Not to Apply; That is the Question

By Don Hershman and Paul Vincelli

This year there is great interest in applying fungicides to both corn and soybean in Kentucky, and elsewhere. Interest is being fueled by high crop prices, aggressive marketing of fungicides by manufacturers, and the perception by producers that applying fungicides will result in a net economic benefit (increased yield and perhaps quality). We anticipate that 30-50% of Kentucky’s corn and soybean acres (800,000 to 1 million acres) will be sprayed with a fungicide during 2008. Nationally, the number of acres treated could approach 50 million (for reference, there are about 160 million acres of corn and soybean in the U.S.). These numbers represent a radical departure from business-as-usual corn and soybean production!

What claims are being made about fungicides?

Fungicides (primarily strobilurin-based products - Table 1) are being marketed for control of certain fungal diseases. However, maintaining optimal health of treated crops has been the main marketing strategy of fungicide manufacturers. In addition to disease control benefits, fungicide manufacturers have promoted fungicides for optimizing physiological and biochemical processes in crops. As a result, treated crops are reportedly better able to withstand crop stresses, and yield more, compared with non-treated crops.

Table 1. Fungicides commonly being used in corn and soybean production throughout the U.S.

<table>
<thead>
<tr>
<th>Fungicide</th>
<th>Active ingredient(s)</th>
<th>Chemical class(es)</th>
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<tr>
<td>Headline</td>
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<td>Azoxystrobin</td>
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<td>Stratego</td>
<td>Trifloxystrobin + propiconazole</td>
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</table>

“Greening” effect

We have seen some of these data on how strobilurin fungicides, in particular, are reported to impact plant physiology/biochemistry of crops. Some of it looks very convincing, and there is no denying that treated crops often (but not always) show what has been called a “greening effect”. Most producers consider this greening effect to be a good thing that necessarily translates into higher yields compared to non-treated crops. However, this is definitely not the case and we have seen numerous situations in research plots and grower fields where yields of corn or soybean were not improved by fungicide treatment, even when the greening effect was evident.

As a side note, the greening effect can be a negative thing as well. It can slow or even delay harvest, and grain (mainly corn) may require drying if harvested at a higher moisture content compared to non-treated crops.

Wheat reactions to diseases relative to pathogen strains experienced in Maryland. Ratings range from 0 = highly resistant to 9= highly susceptible.

Revised 10 July 2008.

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Response to fungicides for crops under severe stress or low stress/low disease conditions

We are plant pathologists and not crop physiologists. Consequently, we focus primarily on the disease control aspects of fungicide treatments. However, we have noted that applying fungicides to corn or soybean, in replicated trials, frequently does not produce statistically higher yields when tests are grown under serious stress conditions, such as drought, or under low stress/low disease situations. For example, we have conducted 28 replicated soybean fungicide tests in Kentucky since 2003. Disease pressure and crop stress were minimal in most of these tests; a few experienced severe drought stress. In these tests, statistically significant yield increases (in at least one fungicide treatment) were seen in seven of 28 tests (25%). These findings are consistent with those of researchers at other land grant universities who have conducted several hundred soybean fungicide tests since 2002, most of which had very little disease development. A. Grybauskas (Univ. of Maryland) summarized the results of 74 replicated tests, conducted across 15 northern states in 2006. Yields in fungicide-treated plots ranged from -6 bu/A to 18 bu/A (mean 2.8 bu/A). Some of the yield differences in individual studies were statistically significant; others were not. The main point is that soybean yields, on average, are somewhat higher when treated with a fungicide (mostly a single application of a strobilurin fungicide at early pod formation), but the yield results from individual treatments and tests vary wildly. To be fair, we note that results summarized by industry suggest a more favorable outcome.

How often do fungicides improve corn yield?

Since applying fungicides to field corn is a relatively new production practice (only since 2006), most of the research on corn is very recent. However, research thus far should temper enthusiasm for the routine use of fungicides in corn. For example, last year Chad Lee and Paul Vincelli conducted three corn fungicide tests under low disease, good growing conditions. In these tests, fungicide application did not produce a significant yield difference. The same is true for four UK trials in with strobilurin fungicides conducted in western Kentucky several years ago. Similarly, in replicated tests conducted throughout the Midwest and beyond during 2007, research shows that it is far from guaranteed that a fungicide application will provide an economic yield boost (Table 2). Although the average yield response across all treatments (Headline, Quilt, or Stratego at tasseling) tested was 3.5 bu/A, 46 of 168 data points (27%) showed yield loss when a fungicide was applied. The range of response of individual crops to a fungicide ranged from a 27 bu/A yield increase to a 29 bu/A yield loss. That’s right, a 29 bu/A yield loss, with fungicides applied according to label directions. Some of these cases of yield loss are due to damage to the developing ear. This damage has been called “arrested ear development”, whereby the ears are moderately or highly stunted, with reduced numbers of kernels per row. (It should be noted that arrested ear development can be caused by factors other than fungicide, though pre-tassel application of strobilurin fungicides is known to be one cause.) In many cases, the yield loss from fungicide application has been clearly documented but the exact cause of the yield loss is unknown. As with soybean, industry data for corn, mostly from unreplicated side-by-side comparisons in grower fields, indicate a substantially higher average yield response to fungicides than university research, but the wide range of yield results is still apparent even in industry data.

Table 2. Yield response of corn following fungicide application in replicated trials conducted in IL, IN, IA, KS, KY, MN, MO, OH, WI, and Ontario, Canada during 2007 (data summary by C. Bradley, Univ. of IL).

<table>
<thead>
<tr>
<th>Range of response of corn crop to fungicide (compared to untreated corn)</th>
<th>Number of data points in category (out of 168)</th>
<th>Percent</th>
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<td>-1 to -29 bu/A</td>
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<td>0 bu/A</td>
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</tr>
<tr>
<td>6 to 27 bu/A</td>
<td>63</td>
<td>37.5</td>
</tr>
</tbody>
</table>

Research consistently shows that the yield response associated with spraying either corn or soybean with a fungicide is very unpredictable. While an economic yield increase is possible, it is not assured, and yield loss can also occur. In our opinion, marketing literature by most fungicide manufacturers is unrealistically “bullish”.

So where do fungicides fit?

The best chance that a fungicide treatment will result in a net economic gain for corn or soybean occurs when disease conditions exist which justify making a fungicide application. In other words, fungicides often result in higher yields when there is enough disease to cause significant yield reductions. But keep in mind that no fungicide is perfect. For example, fungicides do a good to excellent job against some diseases, an average to poor job against some, and have absolutely no impact on others (for example, all nematode, viral, and bacterial diseases, and many soil-borne fungal diseases).

When diseases develop that ARE effectively controlled by one or more fungicides, higher yields are likely to be harvested from treated crops. On the other hand, no amount of fungicide will protect crops from serious outbreaks of some diseases. Thus, the response of crops to fungicide treatment can, at least partially, be predicted based on the probability that certain diseases might occur. For example, depending on weather conditions, grey leaf spot (GLS) of corn is highly likely to be a yield-limiting factor in a hybrid susceptible to GLS that is late-planted, no-till, into a field where corn was grown the previous year. Other production and environmental factors are also
important, but the point is that some disease situations (ergo, need to apply a fungicide) can be anticipated.

However, there are many other situations where the response to a fungicide treatment cannot be predicted with any certainty. Throw into the mix different types and degrees of crop stresses and it is not hard to see that making the most appropriate fungicide use decision for your corn or soybean crop is not as clear cut as you may have thought. The odds are in your favor that treated corn or soybean will yield more than untreated crops. However, the economics of treating, even in this high price environment, are much less certain.

Our suggestion is to reserve fungicide treatment for fields that are at risk for significant disease development. The disease history of fields, production practices, recent and near-term weather conditions, etc, can help with this. For fields that are at low risk for disease, many producers will still feel compelled to apply fungicides for one reason or another. If you fall into this category, we strongly suggest that you keep a portion of each field unsprayed for comparison purposes. And, don’t compare just by looks or even yield. Rather, compare by determining how much (or how little) money the fungicide treatment put back into your farm enterprise.

**What About Treating After Hail?**

Fungicides are being marketed as a rescue treatment for corn following a hailstorm. We have not seen any research showing that this is an economical practice. In fact, the limited data available on this practice indicate that the application doesn't reverse any of the yield loss that hail damage can cause.

**Spray coverage**

One final point: Achieving good results when spraying any crop with fungicides requires excellent spray coverage. Both aerial and ground applications have produced good results in corn and soybean. However, the recent trend toward greatly reduced spray volumes for aerial application, in particular, is troubling. Some fungicide labels now indicate that it is acceptable to apply as few as 2 gal/A by air. If fungicide manufacturer are comfortable enough to put this recommendation on product labels, we suspect that this low volume can produce good results. However, this low volume is certainly “on the edge” and the chances of poor treatment performance could be high if application is attempted during less than ideal conditions, or the application is made by a marginally competent aerial applicator. Just because someone is a good pilot does not necessarily mean that they are a good aerial applicator. The "word on the street" is that aerial applicators from all over the country will be making their way to Kentucky to apply fungicides to corn and soybean this year. You should take whatever steps are required to make sure that whomever you hire to spray your crops (aerial or ground) is good at what they do.

“**Timely Viticulture**” is designed to give those in the Maryland grape industry a timely reminder of things they should be considering in the vineyard or when establishing a planting.

**It is getting close to harvest and you want to:**

- stop spraying as soon as possible...
- but still want to keep the fruit and leaves clean...
- while watching preharvest intervals...
- and not applying anything to potentially affect fermentation.

Please see timely info below from Dr. Anne DeMarsay (and Dr. Tony Wolf) on Preharvest disease management. Additional information is always available on my web site [http://www.grapesandfruit.umd.edu/](http://www.grapesandfruit.umd.edu/) and the listed links.

Joseph A. Fiola, Ph.D., Specialist in Viticulture and Small Fruit University of Maryland, Western MD Research & Education Center 18330 Keedysville Road Keedysville, MD 21756-1104 301-432-2767 ext. 344; Fax 301-432-4089 jfiola@umd.edu [http://www.westernmaryland.umd.edu/viticulturesmallfruit.htm](http://www.westernmaryland.umd.edu/viticulturesmallfruit.htm)

**Preharvest Disease Management**

Anne DeMarsay, Ph.D., Fruit Pathology Specialist, University of Maryland Cooperative Extension Many Maryland vineyards are approaching or already within 30 days of the anticipated harvest date for early wine grape varieties. During this window, growers face the challenge of managing several fungal diseases, including powdery mildew (PM), downy mildew (DM), Botrytis bunch rot, and other late-season bunch rots, without using fungicides that could impair wine quality. Maryland growers may refer to Extension Fact Sheet 848, Guidelines for Developing an Effective Fungicide Spray Program for Wine Grapes in Maryland, 2008, for specific management recommendations.

For more information of the potential interaction between late disease management and fermentation, a helpful presentation by Dr. Tony Wolf from Virginia Tech, entitled "Late-season disease control options to manage diseases, but minimize fermentation problems and wine defects,” is available at: [http://www.vaes.org.vt.edu/AHSMITHJAREC/WolfWeb/Pre-harvest%20disease%20management.pdf](http://www.vaes.org.vt.edu/AHSMITHJAREC/WolfWeb/Pre-harvest%20disease%20management.pdf)

**General Guidelines**

- Avoid applying fungicides containing sulfur, copper, and captan within 30–45 days of your anticipated harvest date. Sulfur and copper residues impart off-tastes to wine, and captan residues may delay fermentation.
- In managing PM and DM, your objective should be to maintain a functional canopy for long enough to fully ripen your grapes.
Grape Harvest Ripeness
Joseph A. Fiola, Ph.D.
Specialist in Viticulture and Small Fruit

Evaluating Grape Samples for Ripeness. It is critical to properly monitor and assess the fruit characteristics and maturity to make the appropriate management, harvesting, and winemaking decisions to produce the best quality grapes and wine possible. The last “Timely Viticulture” described how to take a proper sample that best represents the actual ripeness stage of the variety in that vineyard. The next step is set the priorities that will optimize fruit quality and give you the opportunity to make the best possible wine and then evaluate your sample based on that criterion.

- The critical principals here are that high quality wine is the confluence of fruit derived flavor and aroma components and for red grapes also the reduction of immature tannins.
- These do not necessarily correspond to “desired” sugar and acid ranges.
  - The highest priority needs to be the quality and quantity of varietal aroma/flavor in the fruit.
  - Simply stated, to obtain a desired characteristic aroma or flavor in the wine, it must be present in the grapes at the time of harvest!
  - By regular, continuous sampling you will learn through experience the succession of aromas, flavors and textures that each variety goes through.
  - Depending on the degree of ripeness red grape characteristics can range from green and herbaceous to fruity and “jammy.”
  - Therefore the individual sampling must be diligent to monitor for that aroma and/or flavor in the sample.
- The next highest priority, especially for red wines, is the texture of the grape tannins in skin and the seed.
  - These quality and quantity of the tannins determine the structure, body, astringency, bitterness, dryness, and color intensity of the wine. Mature tannins are critical to the production of quality red wines.
  - The degree of ripeness and polymerization of the tannins will determine the astringency and mouth feel of your wine.
    - This can range from the undesirable, hard and course tannins of immature grapes, through to the desirable, “supple and silky” profile of mature grapes.

Procedure
- Select a few random grapes and place them in you mouth. DO NOT look at the cluster when you are choosing the grapes because you will tend to pick more ripened berries.

On white varieties, you may be able to stop spraying for PM and DM before harvest and tolerate some foliar mildew without harming fruit.
- On red varieties that need to hang on the vine to mature, you may need to apply fungicides until quite late in the season to preserve the canopy.
- Be vigilant in scouting for late-season bunch rots, which often appear suddenly and close to fruit maturity, weeks after black rot and Phomopsis fruit rot.

Powdery Mildew
- Protect fruit until they reach 8 Brix, when they become immune to PM infection. Thereafter, protect the canopy as long as needed for ripening fruit.
- Late PM fungicides that will not affect wine quality include Quintec, Endura or Pristine (bosalcid component), stylet oil, and the potassium salts (Armicarb, Kaligreen, Nutrol). The sterol-inhibiting (SI) fungicides (Nova/Rally, Elite, Procure) may still be useful where PM has not lost sensitivity to SIs.
- If you have active PM, use only stylet oil or a potassium salt product. Use stylet oil once, and only on severe infections. Do not apply oil within 14 days of either sulfur or captan.

Downy Mildew
- For late DM, use a phosphorous acid product (phosphite) such as Phostrol, ProPhyt, Topaz, etc. Because of strobilurin-resistant DM strains, Pristine alone may no longer be effective on DM in Maryland vineyards.
- Effective fungicides include Vanguard/Scala, Elevate, Pristine (at the 18.5–23 oz/ac rate) and Endura (at the 8 oz/ac rate).

Botrytis Bunch Rot
- Preharvest can be a critical time for Botrytis control on bunch rot-prone varieties, especially in wet seasons. Latent infections that occurred at bloom become active again, and berries become increasingly susceptible to infection after veraison. (See Joe Fiola’s Timely Viticulture on Botrytis).
- Effective fungicides include Vanguard/Scala, Elevate, Pristine (at the 18.5–23 oz/ac rate) and Endura (at the 8 oz/ac rate).

Late-Season Bunch Rots:
- Watch for late-season rots as fruit ripen, especially if there has been hail, bird damage, insect feeding, or PM on fruit. The fungi that cause ripe rot, bitter rot, and Macrophoma rot, can enter intact berries, however; be careful not to injure ripening fruit while spraying or mowing. Control insects that feed on fruit as part of an IPM program.
- If ripe rot, bitter rot, or Macrophoma rot appear during the preharvest window, protect healthy fruit with a strobilurin fungicide (Pristine or Abound).
- Sour rot is caused by a complex of fungi, bacteria, and insects that can gain entry only to wounded fruit. Because of the bacterial component, fungicides are not effective against sour rot.

For more information, contact Dr. Anne DeMarsay at fruitdr@umd.edu
Without macerating the skins, gently press the juice out of the berries and assess the juice for sweetness (front of tongue) and acid (back sides of your tongue). With experience (and comparison against numbers from lab samples) you will be able to reasonably guesstimate the Brix and TA level of the grapes.

Next gently separate the seeds for the skins and “spit” into your hand. The color of the seeds gives you a clue to the level of ripeness. Green seeds are immature, green to tan and tan to brown seeds is maturing, and brown seeds are mature. Ripe seed tannins are desirable as they are less easily extracted and more supple on the palette.

Finally macerate the remaining skins and press them in your cheeks to assess the ripeness of the skin tannins. You will be able to "feel" the astringency (pucker) of the skins. The less intense the astringency the more ripe the grapes.

A good way to practice is to first sample an early grape variety such as Merlot and then immediately go to a later variety such as Cab Sauvignon, and you will feel the difference in the acidity, astringency and ripeness. Of course, other factors must still be considered, such as the total acidity and pH. Generally you would like to harvest white grapes in the 3.2-3.4 pH range and reds in the 3.4-3.5 range, as long as the varietal character is appropriate as described above. Remember the enologist can do a good job adjusting acidity but it almost impossible to increase variety character in the wine. Brix or sugar level is good to follow on a “relative” scale but levels can greatly vary from vintage to vintage. In some years the grapes will be ripe and have great varietal character at 20 Brix and another year they may still not have ripe varietal character at 23 Brix. Disease/Rot.

Monitor to see if the grapes are deteriorating do to fruit rots or berry softening. Look at the short and long range forecast. If it looks good and the grapes have the ability to ripen further, then there may be a benefit to letting them hang a bit longer. If the tropical storm is on the way; when grapes are close to optimal ripeness, it is more desirable to harvest before a significant rainfall than to wait until after the rain and allow them to build up the sugar again afterwards.

**The original print friendly version fact sheet of this “Timely Viticulture” on is also available on my web site at:** [http://www.grapesandfruit.umd.edu/Pages/TimelyVit_100506_2.pdf](http://www.grapesandfruit.umd.edu/Pages/TimelyVit_100506_2.pdf)

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**Maryland Soybean Rust Risk Assessment**

Arvydas (Arv) Grybauskas, Ph.D.
Associate Professor and Extension Plant Pathologist
University of Maryland

Today is the first day the 2008 growing season that the National soybean rust monitoring and forecasting program (IPMpipe – Soybean Rust) predicts that we could have live soybean rust spores transported into our region. The remnants of hurricane/tropical depression Fay is finally bringing rain to our area but could be bringing with it a low level of spores. This by itself is not cause for major concern. There are three general requirements for disease to take hold and develop.

The first requirement is that the crop is at a susceptible stage. At this time all of our soybean acreage, full-season and double-crop, should be in reproductive stages and therefore is at peak susceptibility.

The second requirement is for the pathogen to be, in this case, transported to the susceptible crop and that the spores be alive and in sufficient quantity to actually land on a susceptible host. Although we may be experiencing the transport event, the number of spores that could be moved does not appear to be that significant. There is only one known case of soybean rust in a commercial soybean field and that is in Texas. All the other hotspots indicated on the [www.sbrusa.net](http://www.sbrusa.net) website as red counties are either on kudzu or in a soybean sentinel plots. These all appear to be small, scattered mostly along or near the gulf coast, and only recently increasing in number and intensity. We would be more likely to see significant spore transport to our area over such a long distance (Gulf to MD) if there were at least a few large commercial production fields infected. Furthermore, Fay sat over the southeast for nearly a week because the high-pressure system that produced mild temperatures and sunny conditions here blocked its movement northward. While Fay sat over Florida and Georgia it’s counterclockwise spin should have transported spores predominantly in the Southeast and mostly westward. I suspect in the next week or so we will hear more soybean rust finds in the southeast because of Fay. When that occurs and is confirmed then we could have large enough numbers of spores to produce a significant threat to our region.

The last requirement for disease development is continued disease-favorable weather. The current weather forecasts indicate only moderately disease-favorable conditions. The temperatures will be mostly favorable but moisture will not be widely available. In my opinion it is not optimal but it could be just enough to allow infection to take place. We would need another storm system or two to keep things wet for infections to increase locally.

There is no need for fungicide applications for soybean rust management at this time. The early planted full-season crop should be too far along to be damaged significantly even if rust did appear. Irrigated late-planted or double-crop soybeans need to be watched as they may yet be threatened especially if Fay produces some significant hotspots in the southeast and the next couple of hurricanes or tropical depressions come through at the right time. Late planted non-irrigated soybeans may be too badly damaged by the drought to warrant additional inputs. These will need to be assessed on an individual basis. The season is not yet over but the risk of a widespread damaging soybean rust epidemic for Maryland in 2008 is rapidly running out of time.
NATIONAL CROP INSURANCE

Fall Crop Insurance Required for Disaster Eligibility in 2008

Any producer who wants to be eligible for disaster assistance on 2009 summer crops must have crop insurance coverage on all insurable fall planted crops before the sales closing deadline (September 30, 2008 for winter wheat, barley, and forage production.)

The new Farm Bill requires crop insurance, on all acres of any insurable crop, or Noninsured Assistance Program (NAP) coverage on all acres of uninsurable crops, in order to be eligible for the Supplemental Revenue Assistance Program (SURE). If you fail to sign up for crop insurance on your fall planted crops you will not be protected under SURE for your corn and soybeans next summer, even if you buy crop insurance for those crops. The more crop insurance coverage you have, the more your SURE guarantee will be.

Authorized in the Farm Bill, SURE is effective for the 2008 crop year and runs through the 2011 crop year. SURE will be based on whole farm revenue. It will be triggered by a USDA Secretarial disaster declaration for a county. Contiguous counties are automatically eligible. It will also be available to any farm where, during the calendar year, the total loss of production on the farm, because of weather, is greater than 50 percent of the normal production on the farm.

For insured crops, the SURE guarantee is 115 percent times the crop insurance price election times the crop insurance coverage level times the adjusted crop insurance yield. Crop insurance coverage levels will determine the size of the guarantee.

Some of the more common fall planted crops with the September 30 deadline include: winter wheat, oats, barley, rye, and forage production

Assure Your Eligibility

If you want to maintain your eligibility for disaster aid in 2009 you must sign up for crop insurance coverage on every acre of every insurable fall planted crop before the September 30, 2008 deadline.

If you have any questions, contact a crop insurance agent well before the deadline. For more information contact Jan Eliassen at (410) 778-0120 or Laurie Langstraat at (913) 685-2767.

Grain Marketing Highlights

Private Forecaster Pegs U.S. Corn Crop at 12.159 Billion Bushels

FC Stone has estimated the ’08/’09 U.S. corn crop at 12.159 billion bushels. Their soybean crop estimate was placed at 3.003 billion bushels. In August, USDA estimated the U.S. corn crop at 12.288 billion bushels and the soybean crop at 2.973 billion bushels. In 2007, U.S. corn production was 13.074 billion bushels and soybean production was 2.585 billion bushels. This private estimate indicates that ending stocks for U.S. corn would decline and U.S. soybean ending stocks would increase from USDA’s August estimate. The next scheduled USDA supply and demand report will be issued on September 12th.

As the line-up of pre-report production estimates make their way onto the trading scene, there are a few market factors that are worth mentioning. First, the dynamics of the commodity markets are changing. The price of crude has declined by nearly $36.00 per barrel (now trading at $108.85) and the U.S. dollar index has increased by nearly seven points since July 15th (now trading 78.56). The dollar index last traded at this level in December ’07. At that time Dec ’08 corn futures were trading in the $4.40 to $4.75 range. Evidence of demand destruction, loss of demand due to high commodity prices, now has commodity prices seeking a new equilibrium at lower levels in order to begin the process of rebuilding demand.

Market Strategy

The vagaries of the weather and its impact upon projected U.S. production for the ’08 corn and soybean harvest have not been totally accounted for at this point in time. The oil industry was spared significant damage along the Gulf Coast from hurricane Gustav. Resulting rains for the soybean crop have been beneficial in the Corn Belt albeit somewhat late. General consensus is that no big changes/surprises are expected to be released in USDA's September estimates.

The possibility of an early frost and possible crop damage from looming hurricanes will be watched this next week by commodity traders. Those possibilities are enough reason to hold up on grain sales at this point in time. Currently, Dec ’08 corn futures are trading at $5.64; Nov ’08 soybean futures at $12.43; and Dec ’08 SRW wheat at $7.76 per bushel.

For technical assistance on grain marketing decisions contact: Carl L. German, Extension Crops Marketing Specialist
Department of Food & Resource Economics
208 Townsend Hall
University of Delaware, Newark, DE 19716-2130
Phone: 302-831-1317 Fax: 302-831-6243
List owner<grn-mktgd@udel.edu> "E-Grain Marketing Club"; and <www.agri-culturehealth.com> "Farm Retail/Wholesale Marketing Web Site".
Grants Offered for Projects in Agricultural Sustainability
Northeast SARE nesare@uvm.edu

The Northeast Sustainable Agriculture Research and Education (SARE) program offers three different competitive grant programs, all with application deadlines in the late fall and early winter. These grants are capped at $10,000 and should offer innovative approaches to sustainable agriculture.

**Farmer grants** are for commercial farmers who would like to explore a new practice or idea, often by conducting an experiment, trial, or on-farm demonstration. Projects can explore a wide range of topics such as pest management, soil health, adding value, marketing, or new production techniques, and funds can be used to pay for the farmer’s time and for materials specific to the project.

**Partnership Grants** are for Cooperative Extension, NRCS, and other agricultural professionals who work directly with farmers. Partnership Grants support on-farm research and demonstration projects in sustainable agriculture, and funds can be used to pay for personnel, materials, sampling, supplies, testing, and to compensate cooperating farmers for their time.

**Sustainable Community grants** are for projects that connect farming and rural economic development. Projects can address issues like finance, marketing, land and water use, enterprise development, adding value to farm products, or farm labor. Applicants must be affiliated with an organization such as a community nonprofit, Cooperative Extension, local government, an educational institution, a planning board, a farming cooperative, or an incorporated citizens’ group. This grant is offered in partnership with the Northeast Center for Rural Development.

Applications and deadlines are posted on the Northeast SARE web site at [www.uvm.edu/~nesare](http://www.uvm.edu/~nesare), or call 802/656-0471 to request a printed copy.

The Northeast SARE region is made up of Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia, and Washington, D.C.

Helen Husher, Publications and Public Information Northeast Sustainable Agriculture Research and Education Tuesday and Thursday: Hills Building, 105 Carrigan Drive University of Vermont, Burlington VT 05405, 802/ 656-0554 Monday and Wednesday: 35 Loomis St., Montpelier, VT 05602, 802/ 223-7923

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**Environmental Horticulture**

Environmental Horticulture refers to the use of greenhouse and nursery plants to improve aesthetics in the human environment.

Over the past several years, we have performed a series of research trials studying fertilizer requirements for a wide variety of herbs and ornamental plants. In addition, we provide a large amount of information in the form of fact sheets designed to be useful for both industry professionals and the general public. Included below is a summary of our research results as well as an index of the fact sheets we have available, including a series covering general production information and a series highlighting production and consumer care factors for a variety of selected plant species:

[http://environmentalhorticulture.umd.edu/](http://environmentalhorticulture.umd.edu/)

Tom Blessington
12005 Homewood Road
Ellicott City, MD 21042
(410) 531-6947

Research Data
**Summary of Previous Results**
**Current Results**

General Information Fact Sheets
Greenhouse Management and Operations
General Production Information
Selected Plant Species - Production and Consumer Care Fact Sheets
Herbs
Perennials (A-G)
Perennials (H-Z)
Ferns
Ornamental Grasses

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**Equine Studies Update**
College of Agriculture & Natural Resources

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**When is My Horse Too Fat?**
Amy Burk Extension Equine Specialist
University of Maryland

An overweight horse may be a happy horse, but it's certainly not a healthy horse. Research from the University of Maryland and other University’s in Virginia, Tennessee, and Kentucky all point towards a certain level of fatness associated with a higher risk of horses and ponies developing insulin resistance and/or laminitis. That level of fatness is a score of equal to or greater than 7 on the Henneke 1-9 body condition score (BCS) system. A horse with a BCS of 7 will have a modest amount of fat deposited along the neck, withers, and behind the shoulder. Individual ribs can be felt but they have noticeable filling of fat in between ribs. Fat around the tailhead will feel soft and they have fat on either side of their spine causing a crease to form down their back. See the photo below to see an example of a horse with a BCS of 7.
Figure 1. A horse with a BCS 8. Fat has accumulated over the neck, withers, ribs, and back, behind the shoulder, and on the side of the tailhead.

The ideal level of fatness in a horse varies with their use, but tends to be between a 5 and 6 for most horses. Consult a veterinarian or nutritionist for weight loss strategies for an overweight horse and be sure to read our fact sheet titled "Trimming the Fat: Weight Loss Strategies for the Overweight Horse" which also outlines how to body condition score horses.

Looking for Hay?

The Garret County hay list is available on-line at: http://garrettfarms.org/index_files/hayandstraw.htm.

Alas, the index page of the Horse Pasture Stewardship is available for viewing and comments! http://ansc.umd.edu/new/horsepasture/index5.cfm

Please skim over this site and let me know what you think about the design and navigation. Make sure to scroll over the menu to see what the site will contain and how it's organized. It's a little different than the normal organization, but I think it's ok to be a little different.

Once I hear back from everyone as to whether they like or dislike the site, I will begin a plan to populate it with articles and text. My goal is the have this site be one of the top if not the premier horse pasture management and BMP website to go to.

Please send comments back to me by Aug 14th. I'm on vacation from Aug. 4th until then, so I'll read your comments, but I won't start working on them until then.

Amy Burk, PhD
Extension Horse Specialist
1117 Animal Science Center
University of Maryland
Ph: 301-405-8337; Fx: 301-314-9059
www.equinestudies.umd.edu

Equine Rotational Grazing Showcase Nearly Complete

Amy Burk Extension Equine Specialist
University of Maryland

The equine rotational grazing and pasture management showcase at the University's research and education farm in Howard County is nearly complete. The showcase comprises 5.5 acres of land for year round rotation of four horses. It is configured with four 1.2 acre pastures, a bluestone sacrifice lot with hay feeder, waterer, and run-in shed, and two vegetative sacrifice paddocks planted in novel hardy turfgrass species.
The site is quickly becoming a major educational site and land and pasture stewardship with research to begin at the site in the spring. Once the fence is installed in September, we intend to include the equine rotational grazing and pasture management showcase as a tour stop at the October 4, 2008 AGNR Open House at the research and education center.

Click here for more information on the upcoming Open House or visit www.equinestudies.umd.edu for more information on our equine rotational grazing and pasture management showcase.

Hobby or Business?
Defining Your Equine Venture
Kristen Wilson Equine Specialist
University of Maryland

Many people involved within the horse industry often do not view their small horse operation as a business. They are surprised to learn that you do not have to own a large facility or have several years of experience to be considered an equine business. According to the Internal Revenue Service (IRS), if your main objective is to make a profit, then you are considered a legitimate business. Since most hobbyists usually hold down another job, in which their significant income comes from, and often try to offset the costs of their own horse expenses, the IRS will not consider them a real business.

Hobbyist can deduct their expenses up to the amount of income that was earned. However, when a profit motive exists, equine operations are able to deduct expenses greater than the income of the business. Since the IRS will be looking to see if you are a real business, there are several things that you must consider. Below are some important tips to keep in mind when running an equine business:

- Have a business plan that you follow and keep accurate up-to-date records for finances, time, and equine activities.
- As the business owner, it is important that you invest a significant amount of your time into the business and have a good understanding of the equine industry.
- It is generally unfavorable if a substantial amount of income is coming from other sources other than the equine business.
- The IRS understands that things happen and your business may not make a profit each year. The general rule with the IRS is that you should show a profit 2 out of every 7 years with an equine business.
- It is very important that you continually show that you are trying to make your business more successful. This can be done by cutting costs, updating and following your business plan, and by having good business management skills.
- The business owner should continually improve their skills by keeping current with the horse industry and always looking for avenues to improve and expand their business mentality.

- The IRS often looks at the owners own tax records and previous business ventures and track record. Therefore, it is important that your own record is clean.
- Showing a profit whenever possible will help strengthen the fact that it is a profit motive driven business.
- Having personal horses as pleasure at the facility is fine; as long as you still show that your business has a profit motive and is not just trying to offset the costs of your hobby.
- Keeping the items listed above in mind is important when considering whether or not you are a real equine business. As long as you can show that you do intend to make a profit, keep accurate and up-to-date records, and show that you do have a vested interest within your equine business then you should have no problem showing the IRS that you are truly a business and not just a hobby.

1st Western Maryland Performance-Tested Buck and Invitational Doe Sale and Field Day

The 1st Western Maryland Performance-Tested Buck and Invitational Doe Sale and Field Day will be held on Saturday, October 4, 2008, at the Washington County Agricultural Center near Boonsboro, Maryland.

The 20 top-performing bucks from the Western Maryland Pasture-Based Meat Goat Performance Test will be auctioned off, along with doelings that are half-sibs to the bucks on test. Sale animals will include full-blood and percentage Kikos and Boers, along with some Kiko x Boer crossbreds.

The 20 top-performing bucks will be chosen on the basis on growth performance, parasite resistance and resilience, carcass merit, and minimum standards for structural correctness and reproductive soundness. The goats on test consume a pasture-only diet, with no supplemental feed.

The Field Day will start at 10 a.m. It will feature Dr. Dan Waldron, Professor of Animal Science from Texas A&M University. Dr. Waldron is an expert on the performance testing of small ruminants. Lunch (goat burgers) will be available for purchase. The sale will begin at 2 p.m.

For more information about the sale and field day, contact Susan Schoenian at (301) 432-2767 x343 or sschoen@umd.edu.

Superior Semen Works will be on hand on Friday and Saturday, October 3 and 4 to collect semen from the bucks on test or bucks brought to the facility. For more information, contact Jeanne Dietz-Band at (301) 432-7296 or jdietzba@umd.edu.

Visit the meat goat test blot at: http://mdgoattest.blogspot.com.
Steel slag, a by-product of steel making, is produced during the separation of the molten steel from impurities in steel-making furnaces. The slag occurs as a molten liquid melt and is a complex solution of silicates and oxides that solidifies upon cooling.

In the basic oxygen process, hot liquid blast furnace metal, scrap, and fluxes, which consist of lime (CaO) and dolomitic lime (CaO MgO or “dolime”), are charged to a converter (furnace). A lance is lowered into the converter and high-pressure oxygen is injected. The oxygen combines with and removes the impurities in the charge. These impurities consist of carbon as gaseous carbon monoxide, and silicon, manganese, phosphorus and some iron as liquid oxides, which combine with lime and dolime to form the steel slag. At the end of the refining operation, the liquid steel is tapped (poured) into a ladle while the steel slag is retained in the vessel and subsequently tapped into a separate slag pot.

There are many grades of steel that can be produced, and the properties of the steel slag can change significantly with each grade. Grades of steel can be classified as high, medium, and low, depending on the carbon content of the steel. High-grade steels have high carbon content. To reduce the amount of carbon in the steel, greater oxygen levels are required in the steel-making process. This also requires the addition of increased levels of lime and dolime (flux) for the removal of impurities from the steel and increased slag formation.

**Chemical Properties**

The chemical composition of slag is usually expressed in terms of simple oxides calculated from elemental analysis determined by x-ray fluorescence. Table 18-2 lists the range of compounds present in steel slag from a typical base oxygen furnace. Virtually all steel slags fall within these chemical ranges but not all steel slags are suitable as aggregates. Of more importance is the mineralogical form of the slag, which is highly dependent on the rate of slag cooling in the steel-making process.

**Typical Steel Slag Chemical Composition.**

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Composition (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CaO</td>
<td>40 - 52</td>
</tr>
<tr>
<td>SiO₂</td>
<td>10 - 19</td>
</tr>
<tr>
<td>FeO</td>
<td>10 - 40</td>
</tr>
<tr>
<td>MnO</td>
<td>5 - 8</td>
</tr>
<tr>
<td>MgO</td>
<td>5 - 10</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>1 - 3</td>
</tr>
<tr>
<td>P₂O₅</td>
<td>0.5 - 1</td>
</tr>
<tr>
<td>S</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>Metallic Fe</td>
<td>0.5 - 10</td>
</tr>
</tbody>
</table>

The cooling rate of steel slag is sufficiently low so that crystalline compounds are generally formed. The predominant compounds are dicalcium silicate, tricalcium silicate, dicalcium ferrite, merwinite, calcium aluminate, calcium-magnesium iron oxide, and some free lime and free magnesia (periclase). The relative proportions of these compounds depend on the steel-making practice and the steel slag cooling rate.

The fertilizer analysis of the AgSlag product from Phoenix Services in the following tables offers about 60% of the liming value (CCE) as a typical Genstar Ag lime product; however, it also provides manganese an often required micronutrient in soybean and alfalfa production in Southern Maryland. The aluminum in surface applied AgSlag may also help to bind available phosphorus reducing phosphorus runoff in high Phosphorus soils.

**Fertilizer Analysis**

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Composition (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available Phosphate</td>
<td>0.08%</td>
</tr>
<tr>
<td>Calcium</td>
<td>19.15</td>
</tr>
<tr>
<td>Calcium Oxide</td>
<td>26.81</td>
</tr>
<tr>
<td>Magnesium</td>
<td>7.10 (Calculated)</td>
</tr>
<tr>
<td>Magnesium Oxide (Calculated)</td>
<td>4.28</td>
</tr>
<tr>
<td>Aluminum</td>
<td>5.51</td>
</tr>
<tr>
<td>Copper</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.20</td>
</tr>
<tr>
<td>Calcium Carbonate Equiv. (CCE)</td>
<td>55.32</td>
</tr>
<tr>
<td>Passing #20 Sieve</td>
<td>66.58</td>
</tr>
<tr>
<td>Passing #60 Sieve</td>
<td>29.80</td>
</tr>
<tr>
<td>Passing #100 Sieve</td>
<td>22.77</td>
</tr>
<tr>
<td>Effective Neutralizing Value</td>
<td>24</td>
</tr>
</tbody>
</table>

For more information about purchasing AgSlag (approximately $7.00/ton) and using this local agricultural lime/fertilizer product contact Matt Kerins, Aggregate sales for Phoenix Services at mattk@phxslag.com or 610-334-8929.
FARMER TRAINING & CERTIFICATION
Write Your Own Nutrient Management Plan

The Farmer Training and Certification course provides an opportunity for farmers to learn how to write nutrient management plans for their own operations. As a producer, you have first hand knowledge of your own crops, animals, and equipment. Who better to write your nutrient management plan than you? This course will teach you how to do it!

You will receive:

- **A comprehensive training binder** – that will be used during the class, serve as a reference during the exam, and as a valuable resource when you write future plans for your operation.
- **Certification** – producers who pass the exam will be certified by MDA to write their own nutrient management plans.
- **Voucher training credits** – this class will fulfill the nutrient applicator voucher training requirements.
- **A discount** – on the purchase price NuManPro, Maryland’s nutrient management planning software.

You will have the opportunity to:

- **Complete a nutrient management plan** for your operation that meets MDA regulations.
- In order to work on your own plan, you need to begin gathering information now. You will need a map or sketch of your operation, soil tests that are less than two years old and a recent manure analysis (if manure is applied to your land). Contact your county Extension office if you need assistance with this.

Registration Information

- Space is limited and applications are accepted on a first-come basis; therefore, register early. Registrations must be received 10 days before the first class. For more information, please call (410) 841-5959. Classes will be cancelled if there is lack of interest.

### Evening Classes 7-9 pm $20 for certification exam

<table>
<thead>
<tr>
<th>#</th>
<th>Diverse Operations (pastured animals, vegetables &amp; flowers)</th>
<th>Frederick County Extension Office</th>
<th>October 21, 23, 28 and 30, November 5 (exam), 10 &amp; 12 (plan writing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td><strong>Diverse Operations</strong></td>
<td><strong>Frederick County Extension Office</strong></td>
<td><strong>October 21, 23, 28 and 30, November 5 (exam), 10 &amp; 12 (plan writing)</strong></td>
</tr>
</tbody>
</table>

| #2  | Crop Operations using Manure and Fertilizer | Montgomery County Extension Office | January 27 |

### Day Classes 9:00 am - 4:30 pm ($35 total, $15 for lunch on first day & $20 for certification exam)

<table>
<thead>
<tr>
<th>#3</th>
<th>Crop Operations using Litter and Fertilizer</th>
<th>UM Wye Research and Education Center</th>
<th>January 13 and 21 (exam) (snow dates January 16 and 28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4</td>
<td>Crop Operations using Manure and Fertilizer</td>
<td>Washington County Extension Office</td>
<td>February 3 and 11 (exam) (snow dates February 6 and 18)</td>
</tr>
</tbody>
</table>

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**Emerald Ash Borer Survey and Eradication Updates - MDA**

[Link](http://www.mda.state.md.us/plants-pests/eab/current.php/)

**August 26, 2008 UPDATE**

On Friday, August 15, 2008, suspect EAB infested ash trees were discovered a little over two miles south of the eradication zone in Charles County. The identification was confirmed as EAB by the USDA on Monday, August 25. This infestation was discovered while MDA crews were surveying in a ½ mile radius of the previously reported June 25 prism trap catch. Other traps in Prince George’s (outside of the active project area) and Charles Counties are negative to date, including several 1-2 miles away from this site.

The Secretary of Agriculture issued a revised quarantine order on August 26, 2008 to encompass Charles Co., and extend the nested quarantine into the northern part of Charles County. This action has been taken to prevent the movement of EAB infested material from Charles County and according to federal protocols. The Infested Area has further restrictions to prevent the movement of at risk material from the known core area of the EAB infestation.
We are currently continuing to assess the situation, including sending samples to the USDA to determine the age of the infestation, conducting delimiting survey in the area to get a better idea of how widespread it is, and assembling a MD team to work with the USDA Science Panel and Management Team to determine the next steps for the Maryland project.

**JULY 23, 2008 UPDATE**

One of the purple prism traps placed in the 1-mile grid survey in Prince George's County has caught one adult EAB. The trap was serviced June 25, 2008. It is 3.4 miles from any previously known infested tree in the EZ (see map) and about .4 mi. from the Charles County line. We are currently conducting surveys and working with the national EAB Science Panel and Management Team to determine the best course of action. To date, no other sign of EAB has been found in the area and, of 954 traps statewide, this is the only positive outside of the EZ. We will post new information on this site as it becomes available.

We have had several inquiries about the status of our program in Maryland in light of the recent Virginia EAB detections. We are currently continuing with ongoing surveys as planned. We are in contact with the Virginia Department of Ag. and Consumer Services (VDACS) and national EAB Program and will re-assess the situation as it is warranted based on survey results both in VA and MD. A combined VA MD map is posted for reference.

**MACS Manual Now Online**

The [Maryland Agricultural Water Quality Cost-Share (MACS) Program](http://www.marylandsbest.net) provides farmers with grants for up to 87.5 percent of the cost to install conservation measures known as best management practices (BMPs) on their farms to prevent soil erosion, manage nutrients and safeguard water quality in streams, rivers and the Chesapeake Bay. There are more than 30 BMPs currently eligible for funding under this program, including cover crops, waste storage structures, and streamside buffers.

Throughout its history, MACS has been a leader in helping farmers protect soil and water resources by providing conservation grants to install tried and true conservation measures as well as innovative, state-of-the-art practices. Click [here](http://www.marylandsbest.net) to learn more.

**Jane Lawton Farm to School Program**

**Maryland Homegrown School Lunch Week**

**September 22 – 26, 2008**

A new initiative being implemented by the Maryland Department of Agriculture, the Maryland State Board of Education and other organizations and individuals will bring more Maryland-grown products to school lunch rooms and help educate students about where their food comes, how it is produced, and the benefits of a healthy diet. The Jane Lawton Farm to School Program, so named in honor of the late Maryland House of Delegates member Jane Lawton of District 18, Montgomery County, was created during the 2008 Session of the Maryland General Assembly and SB 158 Farm-to-School Program – Activities and Promotional Events, sponsored by Senator Jamie Raskin, was signed into law by the Governor in May. In addition to facilitating the procurement of local Maryland produce for school menus, the bill also creates a Maryland Homegrown School Lunch Week to promote Maryland agriculture through school meal and classroom programs and interaction between students and local farmers.

In 2008, Maryland Homegrown School Lunch Week will be held September 22nd through September 26th with a kickoff event tentatively scheduled for Tuesday, September 23rd at Takoma Park Middle School in Montgomery County. The program will also provide educational materials for teachers to integrate into their lessons to help students make the connection between their lunch menus and the agricultural process. Thus far, Montgomery, Cecil, Carroll, and Anne Arundel Counties are planning to feature local products in their menus during Homegrown School Lunch Week, and other school systems have expressed interest in participating.

**Supply local products to schools**

If you are a farmer, complete and return the “Producer Survey” to let us know what products you can provide in September, or contact your school or county food service office directly. If you are a wholesale distributor, let your clients know what Maryland products you can provide during Maryland Homegrown School Lunch Week. If you are a distributor or a school buyer, contact us to find more local farmers to meet your needs.

For more information on the Jane Lawton Farm to School Program, or to complete the producer survey visit [www.marylandsbest.net/farm2school](http://www.marylandsbest.net/farm2school) or call 410-841-5770.
The Fall 2008 issue of the “Mastering Marketing” quarterly newsletter has been posted to the web at http://www.agmarketing.umd.edu/Newsletters/AgMktgNewsFall2008.pdf

Topics in this issue include:
- On-Farm Processing Educational Opportunity
- The Farmer’s Share
- The Inside Quote
- Send in Your Tips
- FYI
- Web Resources

Mastering Marketing is published quarterly by the University of Maryland Cooperative Extension. It is written and edited by Ginger S. Myers, Regional Marketing Specialist, at the Western Maryland Research and Education Center (WMREC), 18330 Keedysville Road, Keedysville, MD 21756, tel. 301.432.2767 x338; e-mail gsmyers@umd.edu or sbarnes6@umd.edu.

Visit http://AgMarketing.umd.edu for more information on the agricultural marketing program. For more information on WMREC, visit http://wmrec.umd.edu.

Please enjoy the following “Mastering Marketing” excerpts:

Maryland’s Online Farmer’s Market-Foodtrader.org
The Environmental Finance Center located at the University of Maryland announces the launch of Foodtrader.org, a virtual farmer’s market that will connect both buyers and sellers with local food as soon as it is harvested. In concert with its sister site Agtrader.org, Foodtrader.org will give consumers access to the rich diversity of agricultural resources within the state of Maryland.

With Foodtrader.org, farmers can create an instantaneous listing that will identify the description, quantity, price, and location of their items. Consumers can search listings within specific categories and communicate directly with the farmer to buy the food at the farm, at a farmers market or at another prearranged location. This site also allows for producers and consumers to post listing for events and wanted items. It is a free website for Maryland that complements the Maryland Department of Agriculture’s “Maryland’s Best” program.

For any questions regarding Foodtrader.org, please contact Joanne Throwe at 301/405-5036.

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**Farmer’s Share of Retail Food Dollar**

*April 2008*

<table>
<thead>
<tr>
<th>Product (unit)</th>
<th>Retail Price</th>
<th>Farmer’s Share</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multipurpose Flour (5 pounds)</td>
<td>2.89</td>
<td>1.05</td>
<td>-</td>
</tr>
<tr>
<td>Bread (Wonder, 1 pound loaf)</td>
<td>2.79</td>
<td>0.21</td>
<td>-</td>
</tr>
<tr>
<td>Wheaties cereal (General Mills, 15 oz box)</td>
<td>4.33</td>
<td>0.18</td>
<td>-</td>
</tr>
<tr>
<td>Milk (1 gallon, fat free)</td>
<td>4.48</td>
<td>1.44</td>
<td>-</td>
</tr>
<tr>
<td>Potatoes (Russet, 10 lbs.)</td>
<td>3.29</td>
<td>0.83</td>
<td>+</td>
</tr>
<tr>
<td>Potato Chips (Lays Classic 1.5 oz)</td>
<td>3.29</td>
<td>0.08</td>
<td>-</td>
</tr>
<tr>
<td>Cheddar Cheese (1 pound)</td>
<td>3.44</td>
<td>1.75</td>
<td>-</td>
</tr>
<tr>
<td>Boneless Ham (per pound)</td>
<td>4.29</td>
<td>0.41</td>
<td>-</td>
</tr>
<tr>
<td>Bacon (1 Pound)</td>
<td>3.29</td>
<td>0.41</td>
<td>-</td>
</tr>
<tr>
<td>Top Sirloin Steak (1 pound)</td>
<td>7.99</td>
<td>0.85</td>
<td>+</td>
</tr>
<tr>
<td>Eggs (1 dozen AA/L)</td>
<td>3.99</td>
<td>1.03</td>
<td>-</td>
</tr>
<tr>
<td>Carrots (Fresh, 2 pounds)</td>
<td>1.29</td>
<td>0.82</td>
<td>-</td>
</tr>
<tr>
<td>Lettuce (head, 2 pounds)</td>
<td>1.79</td>
<td>0.42</td>
<td>+</td>
</tr>
<tr>
<td>Beer (can, 6-pack Miller Lite)</td>
<td>5.05</td>
<td>0.11</td>
<td>-</td>
</tr>
<tr>
<td>Soda (2 liter bottle)</td>
<td>1.49</td>
<td>0.09</td>
<td>+</td>
</tr>
</tbody>
</table>

*Retail prices are based on store brand except where noted from Safeway, Washington, D.C., April 30, 2008. Change is in relation to the farmer’s share from the previous month.

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**Nutrient Management Update**

Krista Mitchell
Nutrient Management Advisor,
Anne Arundel & Howard Counties

During my 8-years with MCE, Maryland’s Nutrient Management Regulations and the nutrient management plans that fall under these regulations have changed only slightly; however, the premise that most producers need a plan update every year has not changed. With that being said, not every client needs to come to me on January 1st to have his or her plan written. In order to accommodate all of my clients, I have decided to space out my plan-writing as follows:

- For producers who do not apply manure, please come and see me now or within the next couple of months for plan writing.
- For producers who use commercial fertilizer, you need to have an updated nutrient management plan in your hands when you order your fertilizer; therefore, please see me before the first of the year (or sooner, if possible).
- For all of my clients, please do not wait until April or May to call me for a plan because plans cannot legally be written after nutrients have been applied. If you wait until these months to call me, unfortunately you will be out of compliance and subject to Maryland Department of Agriculture enforcement actions.

After January 1st, I will be focusing on larger farms that are more complex and need field assessments, such as the Phosphorus Site Index, conducted. I will also need to focus on those farms that are listed in order on the Maryland Department of Agriculture’s “Planning Priorities” list. This list, which mandates the order of my clients’ plan-writing needs, is as follows for 2009:

1. Any farm that has pollution problems or any client who is deemed non-compliant by MDA enforcement procedures is automatically moved to the top of my list;
2. Farmers who participate in the Manure Transport Project and/or those who have a MACS application pending for an animal waste storage structure or poultry mortality composter;

3. Existing clientele with animal operations who had their expired plan written by me; and

4. First come, first serve for any other farmer who must comply with the Water Quality Improvement Act.

I’d like to remind everyone that I am shared with Howard County, so that only gives me roughly 10 days a month in the Anne Arundel County office. Also, please keep in mind that I need at least 2 weeks to write your plan, get it reviewed, and schedule an appointment to go over it with you. If every client comes to me at the first of January, there is simply not enough time for me to write plans for all of my clients in two counties by February. So, again, please look at my proposed plan-writing timeline above and come in at the appropriate time. By following this schedule, you are not only ensuring that you will have an updated nutrient management plan when you need it, but you are helping ensure that your neighbors will have a timely nutrient management plan as well. And that’s good for all of us!

Check Out Our Updated County Website
Visit us in Cyberspace!!!

Christie Germuth is our website designer. Christie has recently updated our website, and we hope that you find the additions helpful.

Anne Arundel County Extension website:
http://annearundel.umd.edu/

The current and past agricultural newsletter additions are available for viewing or copy at:
http://annearundel.umd.edu/AGNR/agnews.cfm

An agricultural bulletin page is also available for viewing or copy under our hot topics section at:
http://annearundel.umd.edu/AGNR/agbulletins.cfm

New on the website 2008: Anne Arundel County Agricultural Program Teaching Modules - Streaming Video: http://annearundel.umd.edu/Agriculture.cfm

Also relive the history of Extension and University of Maryland College of Agriculture Land Grant Mission by viewing the 150 Years Anniversary PowerPoint:
http://annearundel.umd.edu/files/University%20of%20Maryland%20150%20Year%20Anniversary.pps

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