Dave’s Ramble

“Earth, Water, Fire and Us!” Should we be so bold as to elevate our worth above the essential elements? After all, aren’t we stewards of both life and the elements; All so neatly fitted together the farmer, the iron ore, the fire, the steel, the seed, the earth, the sun and the rain. Stewardship is to take and return in proper measure.

The Agronomists gathered in the lonely fields of the earth, something was amiss with the soil. The possessors of the land had taken and taken. The farmers came out with the village folk to hear the wisdom concerning the earth. An unbearable declaration from the knowledgeable, “Our soil is exhausted!” “How can this be? What can be done?” cried the farmers.

We must sacrifice and give back to the soil from our plentiful riches. A decree was made to release at once all of the earth’s carbon from its secret places into the atmosphere for sequestration. The body knowledgeable was set at work to genetically alter crop plants to fix carbon that root as the cedars of Lebanon. An outpouring of nutrients was made, waters flowed and brilliant sunshine prevailed.

Soon a magnificent garden encompassed the earth; and a wonderful fragrance of life sweet from its soils wafted heavenward. The garden teemed with life and produce. The people of the land gathered to proclaim, “Let us no longer till, nor languish by the sweat of the brow; but now, we will linger long in the coolness of our gardens. The bread of life feeds us as the dew; for we have perfected stewardship.”

Calendar of Events

Mark Your Calendars --- Plan To Participate
♦ November 16-18- Crop Mgmt. School - Ocean City
♦ December 1- Southern MD Crops Dinner - Waldorf
♦ December 13- Crops IPM Workshop NM/ PAT - DFRC
♦ January 19 - Southern MD Forage Conference - Waldorf
♦ January 10 - Pesticide Certification Training - DFRC
♦ January 24 - Pesticide Certification Exam - DFRC
♦ January 28 - Central MD Vegetable Meeting-Upperco
♦ February 9 - So. MD Vegetable & Fruit Mtg – St Mary’s Co.
♦ March 21 - Pasture & Field Crop Workshop NM/PAT- DFRC
♦ April 1 - On-Line Nutrient Voucher Recertification
♦ April 15 - On-Line Pesticide Applicator Recertification

Inside This Issue

• Fall and Winter Meetings
• Pesticide Education & Safety Program
• Vegetable & Crop Insect Update
• Vegetable & Agronomic IPM Update
• September Vegetable Observations
• Crop Rotation Planning and Revision
• Fall Diseases of Cole Crops
• Fall Nematode Sampling
• Plant Nematology Diagnostic Lab Closes
• Brown Marmored Stink Bug
• Bee News
• Orchard Grass Strategy Roundtable
• Agronomic Crop Disease Update
• Grain Market Highlights
• CMREC Research Highlights
• MDA Free Gain/Forage Testing Program
• USDA Loan Program for Natural Resource Conservation
• EPA Public Meetings on Chesapeake Bay
• Loss Reporting Tips for Crop Insurance
• Farmer School

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FALL & WINTER MEETINGS

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

Mid-Atlantic Crop Management School
November 16-18, 2010
The Mid-Atlantic Crop Management School will be held at the Princess Royale Hotel in Ocean City on November 16-18, 2010. 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

Southern Maryland Crops Dinner Conference
December 1, 2010
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 1, 2010, 4:00 to 8:30 p.m. at the Isaac Walton League Conference Center in Waldorf, MD.
Attendance at this conference will satisfy the requirement for the Private Pesticide Applicator Recertification & Nutrient Management Voucher.
Please call your local Extension office to register.

Crop Sustainability & IPM Workshop
Pesticide Recertification & Nutrient Management Voucher Training
December 13, 2010
Make plans to attend the Crop Sustainability & IPM Workshop, Monday, December 13, 2010 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 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.

Central Maryland Vegetable Growers Meeting
January 28, 2011
This well sponsored, large grower meeting always offers a great deal of vegetable industry information. The Central Maryland Vegetable Growers Meeting will be held on January 28, 2011 from 8:00 a.m. to 3:30 p.m. at the Friendly Farm Inn, located on Foreston Rd. in Upperco, MD. Pesticide recertification credits are awarded for attending this meeting. For full meeting details, and to register call the Baltimore County Extension Office at 410 666-1024 today.

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 19, 2011
Make plans to attend the Southern Maryland Hay & Forage Conference, January 19, 2011, 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.

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 10, 2011.
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 24, 2011.
Southern Maryland Vegetable & Fruit Production Meeting

February 9, 2011

Make plans to attend the **Southern Maryland Vegetable and Fruit Production Meeting** on **Wednesday, February 9, 2011**. This year the meeting will be held in St. Mary's County from 8:00 a.m. to 4:00 p.m.

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 301 475-4484. **Please register no later than February 7, 2011.**

Field Crops & Pasture IPM Workshop

March 21, 2011

Make plans to attend the **Field Crops & Pasture IPM Workshop**. **Monday, March 21, 2011** 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.

Live On-Line Session

Nutrient Management Voucher Recertification

April 1, 2011

If you would like the opportunity to learn from home, yet still be engaged, then be sure to enroll in the **On-Line Nutrient Management Voucher Recertification Training**, scheduled for **April 1, 2011 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 March 30th 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.

Live On-Line Session

Private Pesticide Applicator Recertification

April 15, 2011

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 **April 15, 2011 from 4:00 to 6:00 p.m.** The session will focus on pesticide use and related topics for all field crops, fruits and vegetables. This Adobe Connect recertification session will be live via the internet directly from the University of Maryland. Adobe Connect is a student interactive system that will document your attendance. **To participate in a live Adobe Connect session a high speed cable or satellite internet connection is required.**

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

**Registration by April 12th 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.
On-Line Farmer Course:  
Pesticide Applicator Pre-Exam Self Study

Course Syllabus

Course Description: This on-line self-study course will cover all thirteen chapters and appendices of the Maryland Pesticide Applicator Core Manual to fully prepare the student for successful completion of the Maryland Private Pesticide Applicators Examination. The following core manual chapters will be covered via on-line Adobe Connect modules and PowerPoint slide series:

- Chapter 1 - Fundamentals of Pest Management
- Chapter 2 - Federal Pesticide Laws
- Chapter 3 - Pesticide Labeling
- Chapter 4 - Pesticide Formulations
- Chapter 5 - Pesticide Hazards & First Aide
- Chapter 6 - Personal Protective Equipment (PPE)
- Chapter 7 - Pesticides in the Environment
- Chapter 8 - Transportation, Storage and Security
- Chapter 9 - Emergency and Incidence Response
- Chapter 10 - Planning the Pesticide Application
- Chapter 11 - Pesticide Application Procedures
- Chapter 12 - Professional Conduct
- Chapter 13 - Maryland Applicator Law & Regulations

Textbook: Maryland Pesticide Applicator Core Manual: This text is available at your local county Extension office. Be sure to acquire this text prior to beginning the self study course.

ELMS Blackboard & Adobe Connect Modules: This course will be administered by the ELMS Blackboard student interactive system via prerecorded Adobe Connect modules and other interactive documents.

ELMS Blackboard is an on-line software program which is used for resident instruction and distant learning at the University of Maryland. On-line interactive quizzes and examinations in ELMS Blackboard will gauge the student’s progress and readiness for the state examination.

The address for ELMS Blackboard is www.elms.umd.edu. To access ELMS Blackboard each student will need to have a login ID and a password assigned by the University of Maryland. Internet access to ELMS Blackboard is a course requirement.

Course Registration: Contact Dave Myers at 410 222-6759 or myersrd@umd.edu

Vegetable Crop Insect Update

Joanne Whalen. DE Extension IPM Specialist  
jwhalen@udel.edu

September 10, 2010

Cabbage
Continue to scout all fields for beet armyworm, fall armyworm, diamondback and cabbage looper larvae.

Lima Beans
Continue to scout all fields for lygus bugs, stinkbugs, corn earworm, soybean loopers and beet armyworm. Multiple sprays will be needed for worm control.

Peppers
Be sure to maintain a 5 to 7-day spray schedule for corn borer, corn earworm, beet armyworm and fall armyworm control. You should also watch for flares in aphid populations.

Snap Beans
All fresh market and processing snap beans will need to be sprayed from the bud stage through harvest for corn borer and corn earworm control. You should also watch for beet armyworm and soybean loopers. In addition, the highest labeled rates may be needed if population pressure is heavy in your area.

Spinach
Garden webworm, Hawaiian beet webworms and beet armyworms are active at this time and controls need to be applied when worms are small and before they have moved deep into the hearts of the plants. Controls need to be applied early when worms are small and before significant webbing occurs. Generally, at least 2 applications are needed to achieve control of webworms and beet armyworm.

September Vegetable Observations

Gordon Johnson  
DE Extension Vegetable & Fruit Specialist  
gcjohn@udel.edu

Lima Beans
Lima bean harvest is fully underway across the region and the following are some observations in this challenging year. Late May, June, and some early July plantings lost the first set almost completely (heat induced blossom and small pod abortions). The second set is extremely variable and in many fields, economic yields will depend on what happens with the third set. Growers have commented that they are letting fields advance well above the 10% white/dry seed level that is normal for harvest to allow the later set to fill. Some fields are being harvested at the 20-30% dry seed stage (coming from the earlier set). For harvest considerations, it is better to lose a set completely and harvest the later set than to have a bad split set.
There is still considerable dry land lima bean acreage and I am always amazed at how much drought that lima beans can stand without wilting or showing outward water stress. Plants may be smaller but they survive drought and heat very well. Unfortunately, even though lima beans can survive drought, pod set will be limited. Research has shown over and over again that irrigation is necessary to achieve high lima bean yields. In a year such as 2010 where excess heat is also an issue, pod set can be adversely affected, even under irrigation.

We should emphasize again that water is still the most important nutrient for high lima bean yields. In a research plot area where we were looking at residual effects of biofumigant crops and compost this year, we planted snap beans and lima beans in early June as test crops in a dry land situation. After several weeks of drought and heat the snap beans were wilting during the day and were stunted while the lima beans kept on going. To rescue the plots (so that we could get data), we installed drip irrigation between every 2 rows. The snap beans did recover somewhat but with permanently stunted plants, poor bean quality, and a severe split set. In contrast, the lima beans lost the first set but did put on a decent second set and had good plant health and plant size.

Snap Beans
Summer planted snap beans for September harvest are yielding much better than the summer harvested crops. We are seeing yields in the normal 4 ton/A or better range where there was adequate irrigation (compared to summer yields in the 1-2 ton range).

Pickle Cucumbers
Late crops of pickle cucumbers are variable, largely due to stand loss and inadequate water in fields planted during summer high heat periods. In addition, downy mildew has hit a number of later fields adversely, even where fungicides were applied in a timely manner. Pickle harvest should be completed in the next 7-10 days.

Watermelons
I am amazed at how long some watermelon fields have produced this year where attention has been paid to vine health, nutrition, and water. This certainly is the year where you are able to evaluate the yield potential and longevity of main season varieties and effectiveness of pollenizers. On another note, watermelon fields with good weed control (momingglory in particular), had much better later yields.

Tomatoes
Tomatoes had a difficult year in 2010 with most fields having much shorter harvest periods due to the extra heat stress. This is especially evident where beds were allowed to dry out at any time during these stressful periods. Somewhat surprising also is the presence of more disease than would be expected in a dry year.

Crop Rotation Planning and Revision
Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu

Fall is a good time for vegetable growers to plan or revise rotations. The following are some general thoughts on rotations.

Three years is the minimum rotation for crops in the same family or with similar disease profiles. Five or more years is recommended for vine crops. Field crops such as corn, small grains, and sorghum are good rotational crops. Soybeans may be a good rotation for some crops but not for legumes such as lima beans or snap beans.

Problems often arise where growers increase vegetable acreage without adequate ground for rotation. Base your acreage decisions on available fields that fit rotational schemes.

Where vegetables are the main income for a farm, consider using soil improving crops (green manures, biofumigant crops, soil improving cover crops) in lieu of standard field crop rotations. While some income will be lost on field crop revenues, there will be long term gains with improved vegetable yields.

Where rotations are tight, it is critical to consider some disease reducing crops in the rotation (mustard family and sorghums for example). Try to build up organic matter in these fields as this generally improves overall soil health.

Rotate vegetable families where possible. Do not rotate within a family (such as the bean family, vine crop family, or tomato family). Sweet corn is an example of a good vegetable rotational crop to break up disease cycles on many farms.

Fall Diseases of Cole Crops
Bob Mulrooney, DE Extension Plant Pathologist; bobmul@udel.edu

Downy mildew and Alternaria can be a problem in fall crops (cabbage, collards, broccoli, cauliflower, and kale). When the disease first appears, apply a fungicide every 7 to 10 days. Quadris, chlorothalonil, Cabrio, Endura (Alternaria only), Ridomil Gold Bravo, or Switch (Alternaria only) and Actigard (Downy mildew only) and Aliette (Downy mildew only) are labeled for control. For more information on control please see the 2010 Maryland Commercial Vegetable Production Recommendations.
Fall Nematode Sampling
Bob Mulrooney, DE Extension Plant Pathologist
bobmul@udel.edu

The fall is generally the best time to sample for nematode populations in vegetables and field crops. After harvest is complete but before any fall tillage is the best time for taking survey samples. **With the very dry conditions, however, I would delay taking fall nematode samples until we get some rain.** Samples taken from very dry soil may not be representative of what is present in the field.

One other observation is that nematode soil samples should not represent any more than 20 acres. Nematodes are not uniformly distributed in the soil and it would be easy to miss significant numbers if a single sample of 20 soil cores represented a large acreage. I am not trying to generate more work, just better information on which to make an informed recommendation.

Maryland Extension
Plant Nematology Diagnostic Laboratory
Closes in October 2010

**NOTICE**
The Maryland Extension Plant Nematology Diagnostic Laboratory will be closing in October 2010. Maryland Residents requiring sample analysis for plant-parasitic nematodes should submit samples to this laboratory no later than 8 October to ensure sample processing can be completed. Nematode sample contact and mailing address:

Sandra Sardanelli, Director
Plant Nematology Laboratory
Entomology Department
Plant Sciences Building, Rm. 4112
University of Maryland, College Park, MD 20742
email: ssardane@umd.edu, phone: 301-405-7877

The Maryland Extension Plant Diagnostic Laboratory will NOT be handling/routing nematode soil samples. Maryland residents will be directed by Maryland Extension Personnel and Web Resources to alternate avenues for submitting soil samples for plant-parasitic nematode diagnostics as they are identified. Home gardeners should work with the Home and Garden Information Center to solve landscape problems: telephone 1-800-342-2507 or visit their website at: http://www.hgic.umd.edu

The Delaware Plant Diagnostic Clinic has agreed to accept Maryland Extension nematode samples.

Plant Diagnostic Clinic
151 Townsend Hall
University of Delaware
Newark, DE 19716-2170
Phone: 302-831-1390 Fax: 302-831-0605
E-mail - bobmul@udel.edu
Web site: ag.udel.edu/Extension/pdc/index.htm (for sample submission instructions and forms)

The Virginia Tech Nematode Assay laboratory has agreed to accept Maryland Extension nematode samples.

Nematode Assay Laboratory
115 Price Hall
Virginia Tech
Blacksburg, VA 24061-0331
Phone: (540)231-4650 Fax: (540)231-7477
Email: jom@vt.edu
Web site: http://www.ppws.vt.edu/~clinic/nematode.php (for sample submission instructions and forms)

Various End-of-Year Items: Less Stress on Vegetables Now; Root Zone Temperature; and Tomato Fruit Ripening Problems
Jerry Brust, UME, Vegetable IPM Specialist
jbrust@umd.edu

**Figure 1** shows part of a tomato field that I wrote about a few weeks ago concerning how environmental stress (high temperatures and drought) on the plants greatly affected plant viability and fruit quality.

**Figure 2** is the same field today (Sept 22) with new green growth, lots of flowers and fruit some of which will make it to harvest. This field has not been irrigated for the past 3 weeks and it is still growing well. It is amazing how vigorous the plants are without the stress of the environment and a heavy fruit load. Too often I think growers do not give environmental stress on their plants enough “credit” for some of the problems they see later in the season regarding fruit set and fruit quality.

Fig. 1 Stressed tomato plants, August.

Fig. 2 Same plants recovered, September.
One of the difficulties I have been having about some fruit ripening problems we see each year in tomatoes is why the problem seems to occur at about the same time of the season regardless of the maturity of the tomato plants (although plants with a heavy fruit load tended to have more problems than those with lighter fruit loads). One thing I was looking at was potassium (K) levels in plant tissue, which were greatly reduced in plants that were having the fruit problems. But why was the K and sometimes phosphorous (P) levels dropping in these plants at about the same time? One possibility I found was that when root zone temperatures (RZT) reached 82o F or greater the plants slowed their uptake of many nutrients including K, P and at times calcium according to leaf tissue analysis. This phenomenon usually occurred earlier in the season and more severely in high tunnel tomato production systems. The problem is that sometimes as the levels of K decreased it was not always correlated with an increase in fruit problems. There appears to be other additional factors involved besides lack of some plant nutrients. Would cooling roots somehow help off-set the heating of the root zone and could irrigation water from a well help with this? From preliminary studies that I am still working on it appears the answer is no to both. Plots that were irrigated with well water vs. those irrigated from pond water seemed to have a slightly greater reduction in nutrient uptake, even though the RZT drop was greater temporarily.

Figure 3 reveals another study I worked on this year, which showed that I was able to reproduce “thrips” or “mite” feeding injury on tomato fruit with no (actually very low) thrips or mite populations being present. This was done by stressing plants that had a heavy fruit load. The more stressed the plants were (including RZT) the more the “thrips damage” showed up. Plants that were not stressed had little or no “thrips damage”; all plants had the same density of thrips and mites on them—very low. What then is causing this damage to tomato fruit? I still do not know. When I talk to hydroponic tomato growers they recognize this damage as nutrient imbalances and not as insect. This would make sense as the plants in the field become stressed the malady suddenly appears. I’ll talk more about this in winter meetings.

Figure 3: Damage to tomato fruit usually attributed to thrips or mites, but with no thrips or mites present.

**NEWS RELEASE**

**STINK BUGS BECOMING A HOMEOWNER NUISANCE AND AGRICULTURAL MENACE**

Homeowners and gardeners should contact UMD Home and Garden Information Center; Farmers are referred to UMD Extension

Annapolis, MD (Sept. 15, 2010) – The brown marmorated stink bug *(Halyomorpha halys)*, a native of Asia, is emerging as a major nuisance to homeowners and a devastating pest to orchardists and potentially to soybean growers in Maryland. Residents across Maryland are reporting large numbers of the insect in and around their homes and gardens and are seeking relief. The Maryland Department of Agriculture (MDA) recommends contacting the University of Maryland Extension Home and Garden Information Center (HGIC) to learn more about the stink bug and ways to exclude them from buildings before contacting a licensed pest control company. Farmers will want to work with their University of Maryland Extension agents and crop advisors to devise strategies to control the stink bug and limit impact on other beneficial insects. The stink bug does not bite or sting and can’t harm humans or homes.

“These particular stink bugs are fairly new to Maryland and are making themselves known to residents and farmers in large numbers and in unpleasant ways,” said Agriculture Secretary Buddy Hance. “While this is not a regulated pest for which MDA is able to run a control program, we do want to point people in the right direction for information and assistance. The University of Maryland Extension’s Home and Garden Information Center is the best source of information for non-farming residents and backyard gardeners. While the University of Maryland Extension along with other research institutions are working to find solutions for farmers, there is currently no quick answer to control this new pest in agricultural settings. It is very trying for many farmers who have seen significant crop losses this year.”

Native to Asia, the brown marmorated stink bug was first identified in Allentown, PA in 2001, though sightings may date back to 1996. Many sources of information maintain that it is just a nuisance pest and mostly to home owners, but not to commercial fruit or vegetable growers. That has all changed this year in Maryland with significant damage to commercial growers. It is a significant pest of fruit trees such as apples and peaches, and legumes such as soybeans, with extreme damage being reported in Western and Central Maryland orchards for the first time this year. Many backyard gardeners have noticed the stink bug on tomatoes, peppers, and raspberries for example. A number of tree species and ornamental plants also serve as hosts.
According to the UME HGIC, the brown marmorated stink bug adults emerge from overwintering sites during late May through the beginning of June. They mate and lay eggs from June through August and probably into September. The eggs hatch into small black and red nymphs that go through five molts throughout July and August. Adults begin to show in mid-August. Their flights for overwintering sites start in mid-September and continue through October. The insects will start heading indoors to over winter as the weather cools.

For homeowners, the HGIC recommends preventing the insect from coming in the home by sealing up cracks with caulk, use weather stripping around doors and windows, remove window air conditioners, close all possible entry points. Once the insect is indoors, residents can vacuum them up and place in an outdoor trash receptacle. It should be noted that if many of them are squashed or pulled into a vacuum cleaner, their odor can be quite strong.

There are no chemical recommendations currently available for home use to control brown marmorated stink bug populations. Because these pests are so difficult to control, there have been situations in which pesticides not intended for residential applications have been improperly used or applied at greater rates than the label allows. While controlling these insects is challenging, consumers should never use, or allow anyone else to use, a pesticide indoors that is intended for outdoor use, as indicated on the label. Using the wrong pesticide or using it incorrectly can cause illness in people and pets. It can also make homes unsafe to live in - and may not solve the pest problem. For heavy infestations outdoors, contact a pest control professional.

Additional information is available from the following sources:

**University of Maryland Home and Garden Information Center (residents and backyard gardeners)** - [www.hgic.umd.edu](http://www.hgic.umd.edu) or toll free from Maryland 800-342-2507

**University of Maryland College of Agriculture and Natural Resources, Extension** [www.extension.umd.edu](http://www.extension.umd.edu)

**Maryland Department of Agriculture Pesticide Regulation Section** [www.mda.state.md.us/plants-pests/pesticide_regulation/](http://www.mda.state.md.us/plants-pests/pesticide_regulation/)

**Rutgers University** - [http://njaes.rutgers.edu/stinkbug/](http://njaes.rutgers.edu/stinkbug/)

**Penn State University** - [http://ento.psu.edu/extension/factsheets/brown-marmorated-stink-bug](http://ento.psu.edu/extension/factsheets/brown-marmorated-stink-bug)

**Northeastern IPM Center** - [www.ncipmc.org/alerts/stinkbug_alert.pdf](http://www.ncipmc.org/alerts/stinkbug_alert.pdf)

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**Brown Marmorated Stink Bug Runs Amok**

Jerry Brust, UME IPM Vegetable Specialist  
[ibrust@umd.edu](mailto:ibrust@umd.edu)

By now everyone has heard about the brown marmorated stink bug (BMSB) *Halyomorpha halys* that was accidentally introduced into the United States in shipping containers arriving from Asia. The first confirmed specimen was collected in Allentown, PA in October 2001, although there is evidence that it was collected from black light traps in New Jersey as early as 2000. Since becoming established in Pennsylvania, the BMSB has spread throughout the mid-Atlantic as far south as Virginia. It also has been found in several southern and Midwestern states.

The BMSB more than likely has a single generation per year in Maryland. Adults emerge from overwintering sites during late May through the beginning of June. They mate and lay eggs from June through August and probably into September. The eggs hatch into small black and red nymphs that go through five molts throughout July and August. Adults begin to show in mid-August. Their flights for overwintering sites start in mid-September and continue through October.

If you look at web sites that discuss BMSBs many maintain that it is just a nuisance pest and mostly to home owners, but not to commercial fruit or vegetable growers. That has all changed this year. Fruits such as apple, peach, and raspberries have been attacked in western and to a lesser degree in north central Maryland. When BMSBs feed on apple they cause cat facing as well as deformation and internal brown spotting of peaches rendering all of the fruit unmarketable for fresh market. It also has been found feeding on sweet and field corn (where there is no kernel development), tomato (where there is fruit distortion and cloudy spot), pepper (fruit distortion and cloudy spot), and to a lesser degree on okra and sunflower in central and southern Maryland (Fig 1). The damage from BMSB feeding is especially bad on some vegetables where it can deform the fruit more severely than other stink bug species (Fig 1). Whether this is due to greater amounts or different types of enzymes in its saliva is not known. The BMSB also seems to more readily introduce yeast contaminants into its feeding sites that further degrade the fruit. I have found some populations of BMSB in almost every vegetable field I have looked at over the last few weeks. In most cases the pest is doing some damage, but not a great deal. The worst vegetables for damage appear to be tomato and pepper.

I do not know if BMSB populations will continue at these extraordinarily high levels in the next couple of years. We had a “perfect storm” develop this summer for the Brown marmorated population to explode. We had a severe drought early in the summer along with extreme heat. These two factors literally dried up the usual wild plant hosts of not only BMSB but other pests as well and drove them into our fruit and vegetable fields. The dry weather appeared to be conducive to BMSB survival as their population exploded in August. We probably will not have these same conditions next year and will most likely not see these high populations again - hopefully. However, we just don't know enough to predict.
Brown Marmorated Stink Bug (BMSB)  
Part 2 -  
Management in the Vineyard  
Joseph A. Fiola, Ph.D.,  
Professor & Specialist in Viticulture and Small Fruit  

The brown marmorated stink bug (BMSB) has been a localized problem in Maryland vineyards, but that is expected to change in the future. The full impact on vineyards and wine quality potential of this newly introduced pest is unclear. The previous Timely Viticulture was created to give growers some background on the pest and this TimelyVit will address some potential management options. Regrettfully, it must be stressed from the beginning that this is a new “introduced” pest and very little is currently known of its management, thresholds for management, nor the effects of the management on juice and wine.

**BMSB as a vineyard pest**
- Stink bugs can cause direct injury to grapes by piercing and feeding on the berries.
- Injury caused by piercing and feeding on the berries can lead to increased susceptibility to Botrytis and other late season rots.

**Tolerance or thresholds**
- The presence of BMSB in the clusters at harvest and transport in lugs to the winery.
- Crushing stink bugs with the fruit could result in a stink bug odor or taint and/or off-flavor, as was the case with the Multi-Colored Asian Lady Beetle (MALB).
- As this is a recently introduced pest, we are largely ignorant of the actual impact of the bugs on finished wine.
- Details such as the “thresholds” of how many stink bugs (e.g., per lug) are required to impart a detectable taint to wine are not known at this point. It is best to be very conservative and try your best to eliminate or greatly minimize them from the fruit before processing.

**Monitoring in the vineyard**
- All life stages (nymphs thru adult) have been found in the vineyard and ALL can damage fruit and taint the juice/wine.
- There are traps that can attract the BMSB although the lure is specifically for another stink bug.
- They can be used to monitor to determine if you have the pest in the vineyards although simple observation is usually adequate to determine presence.
- The attraction of the traps is not strong enough to use them for population management.
The insects have been found both in the foliage and the clusters, although those in the clusters are most important close to harvest.

**Management in the vineyard**

- Fruit should be sorted in the vineyard when harvesting to remove stink bugs prior to placing in the lug.
- Sometimes shaking the wire or the cluster itself may help to disturb the insect causing it to fly away.
- It is strongly recommended to sort fruit prior to crushing or de-stemming, removing additional stink bugs.

*If you only notice populations on the clusters (not in the foliage) very close to harvest, a directed fruit zone spray may be all that is necessary; in this setting, several 0 day PHI materials are options – see below.*

- Many agricultural chemicals do not appear to have much or any activity against BMSB and those that do appear to have only short term effects.
- As there has not been much research and development conducted on control of this new pest, the following are suggested control measures are the result of observations in commercial fruit orchards.
- The good news is that there are some pesticides that are effective and have a shortments to harvest interval.
  - The pyrethrins, pyrethroids, and neonicotinoids seem to have good activity and short preharvest intervals (PHI).
  - Pyrethrin is a natural product with a short residual life. Pyrethroids were originally based on pyrethrin chemistry, but have been engineered to have a longer residual life.
  - Both have a rapid knockdown of pests but neither is likely to keep high populations of SB from reinvading the vineyard. However, if sprayed just before harvest, they may suffice to eliminate bugs that are actually present.

**Warning**: The use of pyrethroids, while likely effective, also has the risk of flaring secondary pests, e.g. mealybugs and/or mites.

- The insecticides below should be used at the highest recommended rates.
- As usual, always have a copy of the label present when using and always follow label instructions and be aware of maximum application rates in a single season and using.
- The following is the suggested treatment in blocks that are ready to harvest. Spray one of the following insecticides as close as possible before harvest (FOLLOW REI and PHI) and then pick the fruit as soon as legally possible after the treatment.

<table>
<thead>
<tr>
<th>Product</th>
<th>Active Ingred.</th>
<th>IRAC</th>
<th>Restricted</th>
<th>REI</th>
<th>PHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danitol</td>
<td>fenpropathrin</td>
<td>3</td>
<td>Restricted</td>
<td>24 hours</td>
<td>21 days</td>
</tr>
<tr>
<td>Lannate</td>
<td>methomyl</td>
<td>1A</td>
<td>Restricted</td>
<td>7 days</td>
<td>14 days</td>
</tr>
<tr>
<td>Thionex</td>
<td>endosulfan</td>
<td>2A</td>
<td></td>
<td>24 hours</td>
<td>7 days</td>
</tr>
<tr>
<td>Baythroid</td>
<td>cyfluthrin</td>
<td>3</td>
<td>Restricted</td>
<td>12 hours</td>
<td>3 days</td>
</tr>
<tr>
<td>Assail</td>
<td>acetamiprid</td>
<td>4A</td>
<td></td>
<td>12 hours</td>
<td>7 days</td>
</tr>
<tr>
<td>Clutch</td>
<td>clothianidin</td>
<td>4A</td>
<td></td>
<td>12 hours</td>
<td>0 days</td>
</tr>
<tr>
<td>Bellay</td>
<td>clothianidin</td>
<td>4A</td>
<td></td>
<td>12 hours</td>
<td>0 days</td>
</tr>
<tr>
<td>Venom</td>
<td>dinoterfen</td>
<td>4A</td>
<td></td>
<td>12 hours</td>
<td>1 day</td>
</tr>
<tr>
<td>Provado</td>
<td>imidaclopid</td>
<td>4A</td>
<td></td>
<td>12 hours</td>
<td>0 days</td>
</tr>
<tr>
<td>Prey</td>
<td>imidaclopid</td>
<td>4A</td>
<td></td>
<td>12 hours</td>
<td>0 days</td>
</tr>
<tr>
<td>PyGanic</td>
<td>pyrethrin (1.4 or 5%)</td>
<td></td>
<td>12 hours</td>
<td>0 days</td>
<td></td>
</tr>
<tr>
<td>Pyola*</td>
<td>pyrethrin (0.5%)</td>
<td></td>
<td>12 hours</td>
<td>0 days</td>
<td></td>
</tr>
</tbody>
</table>

(*Note: Payola also relies on the Canola oil ingredient to smother pest and has much lower pyrethrin content so it may not be as effective on BMSB. Because of the oil, it should not be applied at temperatures above 90 degrees.)*

**Sources:**
- Dr. Doug Pfeiffer, Fruit Entomologist, Virginia Tech, Blacksburg, VA
- Dr. Chris Bergh, Associate Professor of Entomology, Virginia Tech, Winchester, VA
- Dr. Greg Krawczyk, Senior Research Associate, The Pennsylvania State University
- Dr. Tracy Leskey, USDA, Kearneysville, WV

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**BEE NEWS**

**Fall, 2010**

Mike Embrey, Extension Apiculturalist

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**Chalkbrood**

Another bee disease that appears quite often in our colonies is Chalkbrood. This disease, like the diseases European Foul Brood (EFB) and Sacbrood (SB), usually occur in the early spring, but sometimes with the right weather conditions, can appear later in the summer. Unfortunately, there is no control method (medicine) for Chalkbrood. There are some management options that will lessen the impact of this problem.

Chalkbrood is a fungus (Ascophera apis) and needs moisture. When bee larvae become infected with the spores of this fungus, they are rapidly consumed by the mycelia and swell to fill the cell. They look like small pieces of white chalk. Later, these mummies will turn dark or black. When this happens, they will release new spores to infect other larvae in your colonies. Adult bees spot these mummies and work hard at removing them from the hive. What to look for: You don’t have to do a frame by frame inspection to find out if you have this problem. You can find these mummies on the entrance landing area and on your bottom board inside the colony.

What to do if you find these mummies: Sometimes you do not have to do anything. If it is a hot or a dry spring, it is unusual for this ailment to appear since fungi need moisture. If we have a wet spring the first management technique you could try is getting your hives up off the ground. Keeping your colonies dry and well ventilated will reduce the impact of
these problems. If you keep your bees in the shade; get them out in the sun! Again, we see fewer incidences of the disease when bees are kept in sunny locations.

New Class
I would like to announce that I will be starting a new Beginners Bee Class here in January, 2011 on the third Saturday of that month. If you want to attend again as a refresher, you are more than welcome. I may even use you in presenting information to the new students. If you know someone that would like to start beekeeping, tell them to get in touch. They may contact me or Debby Dant, 410-827-8056 X115, dant@umd.edu, for information or to register.

Agronomic Crops
Joanne Whalen, Extension IPM Specialist; jwhalen@udel.edu

Small Grains
Be sure to sample fields at emergence for aphids, true armyworm and fall armyworm feeding. In past years, we have seen economic damage from all three insect pests.

With the heavy late summer worm pressure in soybeans and vegetable crops, it will be important to watch for “worm” damage to emerging plants. We have seen fields destroyed by armyworms in past years, especially in no-till situations. In many cases it has been true armyworm, although fall armyworm can also cause damage. Although there is no threshold available, you will need to watch for larvae feeding on small plants.

As you make plans for small grain planting, you should consider the following factors when making a treatment decision for aphids. In general, cooler summer temperatures with adequate rainfall followed by a warm, dry fall are conditions that favor aphid development in small grains, especially in early planted fields. Early fall infestations of the greenbug aphid (which cause direct damage to small grains as well as vector BYDV) are favored by cool, late summer conditions.

The main reason one would consider aphid control in the fall (except for greenbug aphid that causes direct damage) is the potential for Barley Yellow Dwarf Viral (BYDV) transmission. Plant pathologists in our area still do not feel that we are seeing a significant increase in the incidence of BYDV. However, in areas where you have seen BYDV in the past, where you are planting early, or you have seen direct damage by green bug aphids, a seed treatment that control aphids (i.e. Cruiser and Gaucho) would be a good control option. Information from Kentucky indicates that planting date is the most important factor determining the intensity of an aphid infestation. If you have a history of aphids transmitting viruses in the fall and you plan to scout for aphids, data from the south indicates that the most important time for controlling aphids to prevent BYDV is the first 30 days following emergence. The second most important time is the second 30 days following emergence. The following link to a fact sheet from Kentucky provides more information on aphids and BYDV in wheat (http://www.ca.uky.edu/entomology/entfacts/ef121.asp).

Orchardgrass Billbug Injury
Although billbugs have been a significant problem in Virginia and West Virginia fields for the last few years, this is the first season that we have documented significant damage from this insect in the Delaware/Maryland Eastern Shore region. Dr. Rod Youngman from Virginia Tech has taken the lead in developing sampling and treatment timings for this insect. He has just posted a presentation on his website that gives good information on the biology of this pest, sampling methods, treatment timing and control options. http://connect.ag.vt.edu/billbugipm2

Orchardgrass Strategy Round-Table
Davidsonville, MD
August 27, 2010

Area farmers met with faculty from the University of Maryland Extension and NRCS colleagues to participate in the Orchardgrass Strategy Round-Table on August 27th. They came together to develop hay and pasture strategies that address the continued orchardgrass decline in our region. Farmers shared their current hay and pasture seeding practices that have been successful or unsuccessful, with the goal of answering the following questions:
1) Do we need to develop a grass based forage rotation that relies less on orchardgrass to break the current disease and insect cycles in our fields?
2) Should we strive to incorporate other forage species that may be productive in our hay and pasture systems such as: bluegrass, smooth bromegrass, fescues, oats, timothy, millets, sorghums, lespedezas, clovers, alfalfa and others?
What strategy do we need to develop that especially focus on the following key pests?

Key Insect Pests: white grubs, wireworms, billbugs, curculio, mites, thrips, aphids and nematodes.

Key Diseases: anthracnose, septoria leaf spot, brown stripe and yellow barley dwarf.
Summary of Shared Observations:

- Older established stands of orchardgrass are still surviving well, while newer establishments are failing at establishment or within a year or two.
- Everyone agreed that they were still planting the same old orchardgrass varieties: Hallmark, Benchmark and Potomac.
- Newly seeded orchardgrass fields seem to be growing better and surviving along the fence edges and field borders that are not cut or trampled.
- The group of farmers preferred fall seeding, however, often overseeded in the spring. All agreed that the severe heat in April of this year was especially damaging too young stands.
- It was often observed that low organic matter soils and compaction led to poor root system development of newly established orchardgrass. One grower stated that manure application seemed to stimulate plant vigor.

Orchardgrass Strategy:

- Persist a new variety from King’s AgriSeed of orchardgrass may be a viable option. Also be sure to buy certified tagged germination tested seed like Benchmark®.
- Seed orchardgrass mixtures that include novel endophyte tall fescues such as Max Q and BarOptima Plus E34 a new leafy type from Barenbrug Seed, with Kentucky bluegrass, Timothy and a legume.
- Treat the seed with Captan®, Thiram® or Allegiance® for control of the seedling damping-off diseases: Phytophthora, Pythium and Rhizoctonia.
- Choose your best fields with deep well drained soils that have organic matter and are friable for the expensive seeding packages. Make manure applications to increase organic matter, combined with sub-soiling, chiseling or no-till ripping may be advantageous. Green manuring, the practice of turning down a lush cover crop for soil building may also be valuable.
- Watch the root development of the newly seeded orchardgrass stand, not just the top growth. Allow the roots to establish deep into the plow layer before heavy cutting or grazing pressure is applied.
- Monitor for the key insects and diseases of orchardgrass, have them laboratory identified, and rotate out of orchardgrass for at least a year before re-establishing using rotational crops like oats, rye, millets and sudax.
- Consider applying labeled fungicides and insecticides to orchardgrass stands that economically producing such as Kumulus®, Foshyte®, Malathion®, Sevin® etc. A recent Section 18 emergency label has been approved for Quadris® in some states applied at 10 oz/A for disease management in orchardgrass clover stands.
- Always keep the cutter bar height high, mange harvests to reduce compaction and provide 45-day rest and regrowth interval between hay harvests; Adjust grazing intervals to allow visible plant recovery.

Mid-Atlantic Orchardgrass Survey
Orchardgrass Growers Needed

Complete the On-line survey at:
https://survey.vt.edu/survey/entry.jsp?id=1257537284074

2010 Drought Handbook

In response to this year's drought conditions, University of Maryland Extension has compiled a 79-page Drought Handbook to help producers deal with the 2010 drought. The handbook is for animal and forage producers.

The 2010 Drought Handbook was adapted from a publication originally developed in 2007 by Craig Yohn from West Virginia University. A 2010 Drought Handbook for Grain Producers has also been developed and is available from Maryland county extension offices.

You can download the 2010 Drought Handbook for Animal/Forage Producers at:

Agronomic Crop Disease Updates
Bob Mulrooney, Extension Plant Pathologist;

September 2010

Corn

- Corn harvest is underway so be sure to check corn fields for lodging potential by squeezing the lower nodes or pushing on the stalks. A simple way to do this is to walk through the field and, keeping your hands at chest height, push stalks 8-10 inches from vertical. If 10-15% of the stalks lodge, schedule the field for early harvest before a strong wind results in severe lodging. Drought conditions during grain fill put substantial stress on corn plants. In many fields, it is likely that the corn crop responded by cannibalizing stalk reserves to fill the grain. This results in a weakened stalk and greater susceptibility to stalk rot.

Small Grain

- Be sure that you plant wheat varieties with high levels of disease resistance. Select varieties with high levels of resistance to powdery mildew, leaf rust and stripe rust. Seed should be treated with Baytan, Raxil, Dividend or other labeled product to protect plants from loose smut and common bunt. Varieties that are susceptible to powdery mildew should be treated with Baytan, Dividend or other seed treatment that will protect them from early infection.

Soybeans

- Do not ignore soybean cyst nematode. Soil sampling after harvest before any fall tillage is recommended for fields to be planted next season to soybeans following this year’s crop. Do not plant SCN susceptible varieties without soil testing first. Soil sample bags are available from the county Extension offices for $10/ sample bag.
Soybean Rust Update
Nothing new has developed north of the North Carolina find on August 30. Florida had its first soybean rust detection on soybeans on September 14. Needless to say, soybean rust is not going to be an issue in most of the US this season.

Grain Marketing Highlights
Carl German, Extension Crops Marketing Specialist; 
clgerman@udel.edu

Grain Marketing Discussion Group
The Grain Marketing Discussion Group is an electronic grain marketing club that provides grain and oilseed producers, merchandisers, traders, analysts, industry representatives, educators, and other interested parties a timely forum for addressing grain-marketing issues. Participants in the discussion group can enter or receive information on any and all aspects of grain marketing, marketing alternatives, and marketing strategies. Participants receive a weekly grain market analysis/update. To subscribe to the grain marketing discussion group send a message to clgerman@udel.edu with the only message in the text that reads: subscribe grn-mktdg@udel.edu. This discussion group operates as a closed group, meaning the integrity of the site is maintained by listings to the group having to be approved by the list owner.

Introducing the 21st Century Grain Marketing Primer
The primer is an online interactive self-help guide designed for farmers to use to learn more about grain marketing and crop insurance alternatives. The interactive Units cover the following topics: Market Planning; Basis; Cash Market Alternatives; Hedging in Futures; Options on Agricultural Futures; the new Crop Insurance Alternatives; Profitability - How to Market Better Using Crop Insurance, Options, and Making Grain Sales; plus Online Resources.

You are invited to use The Farmer's Grain Marketing Primer at www.GrainMarketingPrimer.com

The primer was made possible by funding provided by USDA-RMA, the Delaware Department of Agriculture, and the University of Delaware. Contact person: Carl German

For technical assistance on making grain marketing decisions contact:
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Research Highlights Presented at the CMREC Upper Marlboro Crops Twilight Held on August 5, 2010

Sunn Hemp: A Super Hero Cover Crop!
Jermaine Hinds, Graduate Student Intern
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bluezero03@gmail.com
Cerruti Hooks, Assistant Professor & IPM Extension Specialist, University of Maryland
crrhooks@umd.edu

Background Information
Sunn hemp (Crotalaria juncea) is a warm-season crop and a member of the Fabaceae or legume family. It is a rapidly growing plant often used for cover cropping and green manure purposes in tropical climates. Sunn hemp has many traits that make it a desirable cover crop.

Description
Sunn hemp seeds are small and rounded ranging from black tan. Seeds are usually planted at a rate of 40lbs/acre. In favorable conditions, tender seedlings will emerge as soon as three days after planting. Plants grow rapidly and can reach 4-6 feet in height in about 60 days. Mature sunn hemp plants stand well over 9 feet tall and produce bright yellow showy flowers.

Rapid Growth/ Nitrogen Fixer
Sunn hemp is a drought tolerant leguminous plant that can grow well in sandy soils common in Maryland. Sunn hemp is known for its rapid growth and ability to produce huge amounts of biomass and out-compete weeds. When tilled into the soil, sunn hemp has the potential to increase soil organic matter content. Alternatively, sunn hemp can be trimmed and its clipped foliage can act as a slow release fertilizer for the cash crop. As a part of the legume family, Sunn hemp is a nitrogen fixer. This means it can convert inorganic nitrogen into nitrogen useable by other plants. When incorporated into the soil, the nutrients become available for other plants.
Nematode Management

Plant-parasitic nematodes are important crop pests. These tiny round worms have the potential to cause 1-15% yield loss in vegetable crops and can become progressively worse with successive rotations of host plants. In previous experiments, Sunn hemp has been shown to suppress plant-parasitic nematodes efficiently in different crops. The nematicidal or nematode-killing compounds in sunn hemp are suppressive to a wide range of important plant-parasitic nematodes. Sunn hemp has also been shown to enhance nematode-antagonistic fungi (fungi that feed on nematodes), and beneficial free-living nematodes that are involved in soil nutrient cycling.

Insect Pest Management

When interplanted with cash crops, sunn hemp has the potential to reduce the colonization of insect pests. Since many insect pests locate their host plants visually, sunn hemp barriers can interrupt this process and reduce colonization. Sunn hemp stands can also serve as a sink for insect transmitted plant viruses. Sunn hemp plantings can serve also as a habitat for beneficial insects such as ladybugs or praying mantises that feed on insect pests.

Experimental Objectives

The primary objective of this experiment is to evaluate the use of sunn hemp as a cover crop in a sunn hemp-squash intercropped system to suppress insect pests, enhance soil quality and health and improve crop growth and marketable yields. A secondary objective is to determine sunn hemp biomass and nitrogen accumulation prior to its use as a green manure and determine how this relates to changes in soil nutrient status and crop growth after incorporation. The overall goal is to introduce a production strategy that results in greater ecological and economical sustainability. Our specific research objectives are to:

a. evaluate the effects of sunn hemp intercropping on insect pests
b. evaluate the effects of sunn hemp on beneficial insect population;
c. determine the impact of sunn hemp cover cropping on vegetable crop growth and marketable yields;
d. document sunn hemp biomass and N accumulation and determine its impact on soil quality and health.
e. evaluate the effects of sunn hemp intercropping on nematode communities.

More Than an Ornamental?

Marigolds as a Natural Pest Solution

Project conducted by:
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tua29298@temple.edu
Cerruti Hooks, Assistant Professor & IPM Extension Specialist, University of Maryland
crrhooks@umd.edu

Marigolds (Tagetes sp.) have been long known as an ideal companion plant for small gardens. Gardeners have used them to help the growth of plants such as eggplant, chili peppers and potatoes. When planted in these small scale home plots, it is believed to release above ground chemicals that deter certain pests. Some home gardeners also use marigold sprays as an organic insect repellent. As an ornamental plant it also provides visual appeal to the home garden. This is typically how marigold is used. As a result its potential use as part of a pest management plan in cropping systems is often overlooked. Although several studies have evaluated its effects on nematode pests, little is known about marigold’s impact on populations of beneficial insects and pests.

A field experiment is being carried out at the University of Maryland Central Maryland Research and Education Center to examine the effects of marigold on broccoli growth and productivity and the abundance of insect pests and beneficial arthropods. In previous studies, marigold was grown prior to peas, carrots and potatoes as part of a crop rotation scheme to suppress nematode pests. In experiments similar to the one being conducted in Upper Marlboro, it was intercropped with soybean and water spinach. In those studies it was shown to reduce root damage to the crop plants caused by plant-parasitic nematodes. Although marigold flowers may attract both pest and beneficial insects to the target crop, we hope marigold can be used to provide an economically viable option for the suppression of multiple crop pests impacting cropping systems. The specific aims of this project include:

- Determine the effect of marigold on organisms below the soil.
- Determine the impact of Marigold on beneficial insects.
- Determine how Marigold intercropping affects broccoli marketable yield.
- Deliver a sustainable solution for pest reduction in broccoli and other cropping systems.
Added Weaponry for Integration into the Arsenal against Eggplant Pests
Cerruti Hooks, Assistant Professor & IPM Extension Specialist, University of Maryland
crrhooks@umd.edu

The Colorado potato beetle is the major insect defoliator of potato in North America but is also known for its ability to defoliate eggplant. The CPB life history is well adapted to agricultural environments which make controlling it an arduous task. There has been much published research devoted to developing management tactics for CPB in potato fields; and although CPB is a prominent eggplant defoliator, limited work has been aimed at creating management tactics for CPB in eggplant. Similarly, published research on management tactics for flea beetles and other insect pests of eggplant is lacking and those studies devoted to developing strategies for flea beetle control focused on insecticide use. However, flea beetles are important eggplant pests. Eggplant, potato and tobacco flea beetles are prominent eggplant pests. Their feeding may cause extensive shot-hole damage and despite eggplant’s high growth rate, large populations can retard growth, reduce yield, and kill young plants. The yield potential of eggplant is greatly influenced during its early growth cycle. Thus, insect populations early on are often a primary determinant of final yield.

The use of cultural control methods for managing insects in eggplant has lacked research awareness. However, there are certain behavioral aspects of the CPB that opens it to cultural control methods. For example, CPB use visual and olfactory cues in locating host plants. Adults are attracted to volatiles produced from potato plants and in particular plants that have been fed upon by beetles or artificially damaged. Colorado potato beetle is capable of moving by flight and walking. However, adult dispersal starts at the moment of beetle eclosion and newly emerged beetles walk after emerging from the soil. Further, summer generation adult beetles need to feed 5-10 d before their flight muscles are completely developed and they are capable of taking flight; Thus, after completing soil pupation, CPB must walk over the ground surface to reach adequate feeding sites. As such, this behavior is the weak link in the CPB seasonal life cycle. Therefore, an overall successful management strategy for CPB may be partially hinged upon our ability to form a “walking barrier” between their habitats of emergent to an eggplant crop or disrupt the cues needed for them to locate eggplant. This could be achieved by surrounding the eggplant by or planting it into an established non-host plant.

Cover crops have shown great potential for use as barriers to CPB colonization and if properly managed can be used to increase early season plant vigor and thus minimize losses from flea beetle injury. As such, cover cropping can be an important addition to the current IPM arsenal for managing eggplant pests. Increased knowledge of the positive impacts of cover crops in agricultural systems may lead to novel insights required for their successful integration into current IPM programs. Field experiments are being carried out to examine the ability of crimson clover to reduce populations of CPB and plant injury from flea beetles. Cover crop plots of crimson clover are established and grown during the fall and winter months. In early spring, eggplant is transplanted into the senescing crimson clover (dying mulch).

Specific aims of this project are to:
1) Determine if crimson clover can impact numbers of predatory and pest arthropods in eggplant.
2) Quantify the effect of crimson clover on CPB egg predation.
3) Quantify the impact of crimson clover on eggplant productivity and marketable yields.
4) Deliver an economically viable management option to growers and educators for the suppression of eggplant pests.

NEWS RELEASE www.mda.state.md.us

Maryland Department of Agriculture Offering Free Grain/Forage Testing Program

The Maryland Department of Agriculture (MDA) is offering a free testing program to drought impacted Maryland farmers for nitrate and prussic acid in forage and for aflatoxin in corn grain. Prussic acid poisoning is mostly associated with sorghum and related species. The program is a cooperative effort between MDA and the University of Maryland Extension. Testing is done by the MDA State Chemist’s Section.

Farmers can bring their samples to their nearest UME office so that UME can assist them with paperwork and make sure the samples and paperwork are properly prepared. MDA will pick up the samples daily (Monday through Friday) and fax results to farmers usually within 24 hours.

Instructions for preparing and packing samples for testing are below. Use one Sample Identification and Information Sheet for each sample submitted. Place samples in a plastic bag and refrigerate or freeze as soon as possible, especially if held overnight, and keep on ice during transport. Each separate field should have its own paperwork and sample.

Taking corn samples for aflatoxin analysis: • Collect 12 ears of corn from different areas of the field to get a representative sample. • Keep cold as described above.
(Note: Shelled corn already harvested can also be tested. Collect a 1 quart representative sample and bring to the Extension office)

Taking silage samples for nitrate and prussic acid analysis: • Collect at least 10 stalks from different areas of the field to get a representative sample. • Chop silage up into 6” pieces and thoroughly mix samples together. • Prussic acid samples must be kept frozen at all times to prevent volatilization of prussic acid (hydrocyanic acid).

United States Department of Agriculture • Office of Communications • 1400 Independence Avenue, SW Washington, DC 20250-1305 • Phone: (202) 720-4629 • Email: oc.news@usda.gov • Web: http://www.usda.gov

USDA NEWS RELEASE

USDA Announces Loan Program for Natural Resource Conservation

WASHINGTON, Sept. 2, 2010 -- Agriculture Secretary Tom Vilsack today announced the launch of a Conservation Loan (CL) program that will provide farm owners and farm-related business operators access to credit to implement conservation techniques that will conserve natural resources.

"This will give farmers who want to implement conservation measures on their lands a chance to do so by providing assistance with their up-front costs," said Vilsack. "In return, these producers will help to reduce soil erosion, improve water quality and promote sustainable and organic agricultural practices."

CL funds can be used to implement conservation practices approved by the Natural Resources Conservation Service (NRCS), such as the installation of conservation structures; establishment of forest cover; installation of water conservation measures; establishment or improvement of permanent pastures; implementation of manure management; and the adaptation of other emerging or existing conservation practices.

Direct CLs can be obtained through local Farm Service Agency (FSA) offices with loan limits up to $300,000. Guaranteed CLs up to $1,112,000 are available from lenders working with FSA.

For more information on the Conservation Loan program, contact a local FSA office or visit the FSA website at www.fsa.usda.gov. For more information about this announcement please see the notice which will appear in the September 3 edition of the Federal Register: http://www.fsa.usda.gov/FSA/federalNotices?area=home&subject=lare&topic=frd-ii

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION III-OFFICE OF PUBLIC AFFAIRS

EPA Environmental News

EPA Announces Public Meetings on Chesapeake Bay ‘Pollution Diet’ - Meetings in Six States; D.C.

(PHILADELPHIA - September 8, 2010) The U.S. Environmental Protection Agency is scheduled to hold 18 public meetings this fall to discuss the draft Chesapeake Bay Total Maximum Daily Load (TMDL) – a strict “pollution diet” to restore local waters and the Chesapeake Bay.

“We encourage the public to continue to provide input as EPA moves forward in finalizing and implementing this blueprint for restoration,” said EPA Regional Administrator Shawn M. Garvin. “Restoring the Chesapeake Bay and the waterways that connect to it will not be easy, and every citizen in the Bay watershed has a stake and a role in this process.”

The Bay TMDL will set binding limits on nitrogen, phosphorus and sediment pollution throughout the 64,000-square-mile watershed to meet clean water standards for the Bay and its tidal tributaries and help restore local rivers and streams.

At the public meetings, EPA officials will outline the draft Bay TMDL and highlight key provisions designed to ensure that by 2025 all practices that are necessary to fully restore the bay are in place, with 60 percent of the actions taken by 2017.

EPA will also receive comments and answer questions from the public at the meetings, which are part of an official 45-day public comment period on the draft TMDL ending November 8. In addition, officials from the respective states and D.C. are expected to participate in the meetings to discuss their draft implementation plans to achieve and maintain the necessary pollution reductions. The implementation plans were submitted to EPA last week and are being used to help the agency shape details of the TMDL.

The draft Bay TMDL will be issued on Sept. 24. Instructions for submitting formal written comments to EPA will be included on the Bay TMDL web site - http://www.epa.gov/chesapeakebaytmdl - and contained in an upcoming Federal Register Notice. A final Bay TMDL will be established by Dec. 31, 2010.

The public meetings will be held across the six watershed states, Virginia, Maryland, Pennsylvania, Delaware, West Virginia and New York, and the District of Columbia from late September to early November. One meeting in each state will be accessible online via webinar.

The public meetings are scheduled for:
• Washington, D.C., September 29, 1 p.m. - 3 p.m.*
• Harrisonburg, Virginia, October 4, 6 p.m. - 8 p.m.
• Annandale, Virginia, October 5, 6 p.m. - 8 p.m.

*Subject to Change
Loss Reporting Tips for Crop Insurance

With reduced yields due to drought and other growing conditions, reporting losses on your crop insurance is very important. This article presents loss reporting tips to help you with these reports.

Forms with titles of “Summary of Protection” or “Schedule of Insurance” have arrived within a few weeks after you file your acreage report with your crop insurance agent. These forms reflect the information on which your 2010 protection is based. Compare it to your acreage report to make sure that it is correct, there are no discrepancies. Contact your insurance agent immediately to get it corrected, otherwise they could adversely affect your premium bill and/or claim payment. This correction should have been done before now so this is just a reminder to make for sure no errors are on these forms.

Reporting Crop Damage: The crop insurance policy requires that damage be reported within 72 hours of discovery to your crop insurance agent. Ask agent for instructions on how to proceed. Don’t destroy evidence of damage until a loss adjuster evaluates it.

Also, promptly report crop damage to the Farm Service Agency (FSA/USDA). This report may be important if you become eligible for a crop disaster payment under the SURE program. The deadline for submitting applications for 2008 crop year SURE payments to the county FSA/USDA office is September 30, 2010.

For spring crops, check the yield/revenue potential of your crops. You’ll soon be thinking about Fall Harvesting. Remember the crop damage reporting requirements (if a loss is anticipated): The insurance policies require that written notice be given to your crop insurance agent (by crop by unit (FSA farm #)):

- Within 72 hours of discovery of damage or loss,
- 15 days before harvest begins **, and
- Within 15 days after harvesting is completed but not later than 10/20 corn insured as silage; 12/10 for grain corn and soybeans.
- Don’t destroy evidence of damage until a loss adjuster evaluates it!

Prior Authorization is Required to Leave Sample Rows for Yield Determination: If loss adjusting workload does not permit appraising damaged crop acreage before you are ready to start cutting silage, prior authorization must be obtained from your insurance company, through your crop insurance agent, before sample row areas can be left for later yield determination. For this reason, it’s important that notice of damage be filed with your crop insurance agent as early as you determine that damage occurred so that harvesting is not delayed.

Contact your crop insurance agent for more details, and see the RMA/USDA Web at: WWW.RMA.usda.gov

White Paper
Pesticides and the Maryland Chesapeake Bay Watershed

Lawn Fertilizer Research Paper

CREB summer intern, Isabel Junkin, a graduate student at the Nicholas School of the Environment at Duke University, has authored a research paper on the significance of lawn fertilizer on the waterways of Maryland, and the remedial steps that need to be taken. Click the title to access the paper.
Reduce Lawn Fertilizer and Save our Rivers!

Isabel Lawn Fertilizer Paper-Final 2003.doc

Lawn Fertilizer Contributions in the State of Maryland to Nutrient Loading in the Chesapeake Bay

Isabel Junkin, August, 2010

Table Excerpt: Fertilizer Sales Data

The Maryland Department of Agriculture’s Annual Fertilizer Tonnage Report: July 2008 – June 2009 shows that 429,565,160 lbs of fertilizer were sold for farm use and 309,601,140 lbs of fertilizer were sold for non-farm use. Reviewing these data from fiscal year 1991 to 2009 shows a decrease in fertilizer sold for farm use and an increase in fertilizer sold for non-farm use (Figure 3).

Figure 3: Pounds of fertilizer sold in Maryland from fiscal year 1991 to 2009; trendlines are shown for farm use fertilizer sales and non-farm use fertilizer sales. *No data available

Scout Your Black Walnuts for a New Disease - Thousand Cankers Disease

David Clement
UME Extension Specialist Plant Pathology
clement@umd.edu

September 10, 2010

Emerald ash borer, sudden oak death... just when you think it can’t get any worse; another disease appears on the horizon, this time threatening our black walnut trees!

Originally found only in western states, a recent report from Knoxville Tennessee confirmed that Thousand Cankers Disease of walnut has become established in that area. This new finding suggests that the walnut twig beetle was introduced and established in Tennessee a very long time ago. How it got there is still a mystery, but hopes of keeping this disease confined to western states is now not possible. Infested wood may have been transported out of Tennessee to other eastern states for years. Alerts are being sent out and several states are now considering initiating surveys for initial symptoms. The walnut twig beetle is reddish-brown and 1.5 to 1.9 millimeters long.

The disease is spread by this beetle when it makes galleries under the bark. The fungus causes the tissue to die disrupting the trees’ ability to take up water. The beetles’ entrance holes into the black walnut aren’t much bigger than a pin hole. While it’s unlikely you will see the insect, its damage is more obvious.

To scout for symptoms look first in black walnut trees with existing crown dieback. Then look for individual branches that show flagging with either yellowing leaves remaining attached or leaves that have collapsed and wilted. The latter is a somewhat stronger possible symptom. Then try to collect a dead or dying limb and look for the minute exit holes.

When branches are peeled carefully, the exit holes will have associated larval galleries. This can be considered confirmation of this disease since the damage caused by the walnut twig beetle, Pityophthorus juglandis will be closely associated with the fungus Geosmithia morbida which causes Thousand Cankers Disease. The best size for looking for evidence of colonization is walnut branches 1-2 inches in diameter.

If you find black walnut trees with suspicious symptoms please call HGIC (1-800-342-2507) or e-mail the location, description and photos to HGIC so we can alert the Maryland Department of Agriculture about this disease in Maryland.
Looking for Adventure!
Early Career or Second Career!

Volunteer for the US Peace Corps

Learn About Volunteering
Thousands of new Volunteer jobs available 2011
Peace Corps service is a life-defining leadership experience. Since 1961, the Peace Corps has shared with the world America's most precious resource - its people. Volunteers serve in 77 countries in Africa, Asia, the Caribbean, Central and South America, Europe, and the Middle East. Peace Corps Volunteers live, learn, and work with a community overseas for 27 months, providing technical assistance in six program areas: education, youth and community development, health, business and information and communications technology, agriculture, and environment.

What Are the Benefits?
You give and you get. The chance to make a real difference in other people's lives is the reason most Volunteers serve in the Peace Corps.

But that is not the only benefit of Peace Corps service. Volunteers also have the chance to learn a new language, live in another culture, and develop career and leadership skills. The Peace Corps experience can enhance long-term career prospects whether you want to work for a corporation, a nonprofit organization, or a government agency. The Peace Corps can even open doors to graduate school.

From practical benefits such as student loan deferment, career benefits like fluency in a foreign language, and the intangible benefits that come with making a difference in people's lives, there are a variety of rewards for the dedicated service of Volunteers. Rewards that last a lifetime!

And the benefits of Peace Corps service don't end with overseas service. It's an experience to draw on for the rest of your life. As is often said, the Peace Corps isn't simply something great. It's the beginning of something great. Use the links below for more information about the benefits of serving in the Peace Corps.

Educational Benefits
Peace Corps or graduate school? Two unique programs offer the best of both worlds. Peace Corps has established partnerships with colleges and universities across the U.S. that offer academic credit and financial incentives to Volunteers during or after Peace Corps service. Master's International allows you to incorporate Peace Corps service into a master's degree program at more than 50 colleges and universities. And our Fellows/USA program offers returned Volunteers scholarships or reduced tuition at more than 40 participating schools.

Professional and Career Benefits
Peace Corps Volunteers gain valuable skills and experience that will help in any career path. Use the skills and experiences you gain overseas to help build a career in virtually any sector of our society.

Develop Skills for the Global Marketplace
Fluency in foreign languages, international experience, and cross-cultural understanding are highly sought-after assets in today's global economy. Whether you are just out of college, mid-career, or retired, the Peace Corps provides you with up to three months of intensive training before service begins and offers continued training throughout your service. The new skills you learn can help you achieve long-term career goals by enhancing your marketability to employers. Volunteers returning from abroad have used their Peace Corps experience as the foundation for successful careers in a variety of areas, from government to business to education.

Get Job Placement Support
Returned Volunteers have served as members of Congress, cabinet secretaries, university presidents, and corporate leaders. The Peace Corps provides transition assistance related to jobs and education through its 9 regional recruitment offices. In addition, the Peace Corps maintains a directory of returned Volunteers and others who are willing to offer career advice, providing a ready-made job network in a wide variety of fields; publishes a biweekly online newsletter with job announcements, graduate school information, and industry overviews; and sponsors career workshops throughout the year.

Receive Advantages in Federal Employment
Volunteers who complete two years of service receive one year of noncompetitive eligibility for employment in the federal government. This means that if you meet the minimum qualifications for a position, you can be hired without going through the standard competitive process, at the employing agency's discretion.

Those who are employed by the federal government can receive credit toward retirement for years of Peace Corps service, similar to military service.

Recent Volunteer Mark Gormley
On Assignment in Panama 2006-2008
Peace Corps Response Volunteer Panama 2008-2009

Mark writes:
As a Community Conservation Volunteer serving in Peace Corps Panama, my primary job was to promote environmental conservation and natural resource management. However, because small farmers have the greatest impact in tropical environments, I worked closely with farmers and approximately 75% of the work I did as a volunteer was in sustainable and organic agriculture.

For my first project, I worked closely with an existing agricultural cooperative to help them obtain and execute a Panamanian – Cuban yucca (cassava) and fráme (a potato like root crop) project. I helped train over 20 farmers on how to create various types of organic fertilizers, pesticides, herbicides, and new techniques for producing healthier and more viable products. As well, I trained farmers on how to
identify renewable natural resources and identify, store, and cultivate seeds.

For my second project, I helped to create a farming cooperative made up of approximately 25 farmers in my community (The Small Farmers of Nazareno in Piedras Gordas, Coclé). I helped them organize a committee and trained them on how to do a participatory community analysis (PACA) so they could identify their greatest needs and find way to address them as a group. As well, I worked closely with MIDA, the Panamanian Agricultural Agency, to obtain La Personaría Jurídica or NGO status so the group could apply and obtain government and international assistance and aid. I helped to train the group in the following:

- Hillside farming using an A-Frame and natural barriers to reduce the effects of water and wind erosion
- Crop rotation to maximize soil production and recuperation
- Composting to improve soil quality, reduce the use of chemical fertilizers, and increase the soil’s ability to retain water
- Seed collection, storage, and germination of vegetables and trees (fruit and hardwood)
- Identifying useful renewable natural resources in order to promote sustainability
- Farm planning to improve land usage and efficiency
- Agro-forestry to help prevent erosion, and generate income
- Integrated Crop Farming to act as a natural barrier against insects
- Minimal Till to prevent soil erosion and loss of nutrients
- How to create and use organic fertilizers, pesticides, and herbicides
- Proper pruning for hard woods, citrus trees, coffee, and cacao

Some of the projects that I worked on with the cooperative:

- Agro-forestry project using local species of hard woods to generate income for the future
- Reforestation project around the three aqueducts that delivered water to the community
- Home and School gardens
- Created a tree nursery and medicinal plant garden (money generating project)
- Visited three surrounding communities and held sustainable agriculture seminars (I helped to organize and facilitate but the vast majority of the training was done by members of the cooperative that I had trained)

For the final year of my service, I was a Peace Corps Response volunteer. I lived and worked on the island Isla Cañas, a barrier island off the southern coast of the Azuero Peninsula in Panamá. The focus of my project was to help train a group of farmers on organic and sustainable agriculture to mitigate the use of chemical fertilizers, herbicide, and pesticides. I helped them identify renewable natural resources that existed on the island that they could use to create organic fertilizers, herbicide, and pesticides. As well, I worked closely with four individual farmers to create demonstration plots to promote new sustainable agricultural techniques.

I grew up in Baltimore and am a graduate of the University of Delaware. After graduating with a degree in biology, I served as an AmeriCorps Volunteer teaching at-risk youth in downtown Baltimore from 2000 to 2002.

I now live in Washington, DC and have been a regional recruiter at the Rosslyn office since July, 2009.

**Connect With a Recruiter**

Our staff of recruiters—all of whom served in the Peace Corps themselves—can tell you what it’s really like to Volunteer, whether or not you qualify, and how to work through the application process. Peace Corps recruiters are your partners in the journey to becoming a Volunteer.

**Your Local US Peace Corps Recruiter:**

Jessica Lampron
US Peace Corps Regional Recruiter,
Mid-Atlantic Regional Office
1525 Wilson Blvd, Suite 100
Arlington, VA 22209
Phone: 202.692.1043
Fax: 202.692.1065
RPCV South Africa 2005-2008

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**Commercial Vegetable Production Recommendations**

**Maryland 2010**


Also available in a new very interactive format at the Delaware Extension site at:

[http://ag.udel.edu/extension/vegprogram/publications.htm#vegrcs](http://ag.udel.edu/extension/vegprogram/publications.htm#vegrcs)
FIRST AND FOREMOST, BE A GOOD STEWARD

Many factors affect the impact of pesticides on man and the environment. Although the government, industry, and extension provide regulations, labels, and educational outreach to promote judicious use and good stewardship, success is ultimately contingent on the personal knowledge and diligence of everyone who handles a pesticide.

There are excellent resources available through your Extension Service and the Pesticide Safety Education Program in your state.

In addition, a new web-based resource is available to assist you with general pesticide stewardship. The Center for Integrated Pest Management’s (CIPM) Pesticide Environmental Stewardship website (PES) covers a wide variety of pesticide stewardship topics for everyone who applies, sells, stores, or disposes of pesticides, provides advice or training concerning pesticide use, or regulates, stewards, or has questions about pesticides. Upcoming additions to PES include educational modules to test your stewardship knowledge and self-assessment tools to evaluate your personal stewardship efforts.

Don’t leave stewardship to your neighbors. Your actions do make a difference, and you can (and should) model the way for others, including your children as they reach adulthood and begin handling pesticides.

Sooner or later, many of us will choose to use pesticides. Please use them wisely.

National Association of County Agricultural Agents:
www.nacaa.com

Syngenta Environmental Stewardship:
www.syngentacropprotection.com/Env_Stewardship

Pesticide Environmental Stewardship (PES):
http://pesticidestewardship.org/Pages/default.aspx

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

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

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

Ag Web Modules
Website features Anne Arundel County Agricultural Program Teaching Modules:
http://annearundel.umd.edu/Agriculture.cfm

Coming Soon!
Farmer School

On-Line Farming Education Series
“Tomorrow’s Farmers” Web Modules

Module 1: Introduction to Farming & Course Orientation: “Tomorrow’s Farmers”

Future Module Topics:
The Science and Stewardship of Soils
Fundamentals of Farm Machinery
Plants that Farmers Grow
Integrated Pest Management
Farm Business and Enterprise Development
Modern Vegetable Farmer
Modern Fruit Farmer
Grain Farming
Pasture and Hay Management
Livestock that Farmers Raise

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

After viewing the series in its entirety take the Final Exam. All participants receiving a final Exam Grade of 70% or above will receive a “Certificate of Farming Competency,” compliments of the Anne Arundel County Extension Office.
Family & Consumer Sciences
For more information, contact Naemah Raqib at nraqib@umd.edu or call 410-222-6756

Master Gardener Program
For more information, contact Mike Ensor at mensor@umd.edu or call 410-222-6757

4-H Youth Development
For more information, contact Amanda Wahle at awahle@umd.edu or call 410-222-6755

Nutrient Management
For more information, contact Krista Mitchell at kristaw@umd.edu or call 410-222-6759

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

Are you between 8 and 18 or know someone who is? If so have you considered joining 4-H? The Anne Arundel County 4-H program is growing and is always looking for new members and volunteers. The program has community clubs located throughout Anne Arundel County but is also looking for volunteers and members to lead new groups. There are a variety of projects members can participate in including animal science, environmental sciences and human sciences. We are also looking for adults to do seminars or presentations to help 4-Hers learn how they can further their projects. To receive more information, please contact Amanda Wahle in the Anne Arundel Extension Office at 410-222-6759 or at: awahle@umd.edu

Thanks for Partnering
Thanks for partnering with the University of Maryland Extension, and supporting our programs. I also hope you enjoy this newsletter. If you are no longer interested in receiving this newsletter, please call or write the office for the removal of your name from the mailer.

R. David Myers, Extension Educator
Agriculture and Natural Resources
Anne Arundel & Prince George’s Counties

NACAA Communication Award
Individual Newsletter
2002 National Winner

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