

DORCHESTER COUNTY • P.O. BOX 299 • CAMBRIDGE, MARYLAND 21613 • (410) 228-8800

## AG PROFIT

Dear Friends,

When I think about how fast the year 2009 has passed, I think of the saying “Time passes quicker as you grow older”. We are now awaiting a new year, and it makes me ponder on the year we had.

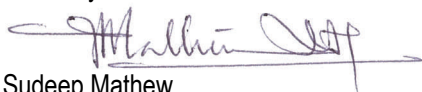
One major incident that touched me most in 2009 was the demise of Dr. Norman Borlaug, Professor, Agricultural Scientist and Nobel Prize winner. He was known as father of green revolution. Because of green revolution, world food production more than doubled between 1960 and 1990. Equal parts scientist and humanitarian, the Iowa born Borlaug realized improved crop varieties were just part of the answer and pressed governments for farmer friendly economic policies and improved infrastructure to make markets accessible. “He has probably done more and is known by fewer people than anybody that has done that much”, said Dr. Ed Runge, retired head of Texas A&M University’s Department of Soil and Crop Sciences and a close friend. He was a perfect example who has showed the transforming impact of agriculture to save many lives in 20<sup>th</sup> century.

As we move on to the next year, one thing that might influence the agriculture operations directly or indirectly is the new controversial climate change legislation. To the record, farmers have been participating in conservation and carbon sequestration programs for many years, working to reduce greenhouse gas emissions, increase energy efficiency, and support a growing renewable energy industry. Moreover, agriculture grows plants that help offset the carbon. The legislation should recognize those efforts and should exempt agriculture from greenhouse gas emissions requirements and caps.

The current budget problems are taking a toll on agriculture research and extension activities all across the nation. Extension programs are going to be increasingly threatened and will need every bit of support you can provide. I thank you for all the trust and support you have provided to this fine system that has empowered American agriculture over the years.

Although we face many challenges, something in my mind perceives a great deal of optimism for agriculture. Is it the recent UN’s report or the population projections and it’s response on world food and fiber demands? I don’t know. Just let’s keep the faith and march on to the new year. May this great season bring joy, love and peace to you and your loved ones. Wishing you a Merry Christmas and a Happy New Year!

Sincerely,



Sudeep Mathew  
 Extension Educator – Agricultural Sciences

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## Farming Resilient to Recession

The global agriculture sector has coped better with the recession than other sectors, but it could suffer if the downturn deepens, a new report says. Agriculture output and consumption will fall less if recovery starts within three years, say the Organization for Economic Cooperation and

Development (OECD) and the UN's Food and Agriculture Organization (FAO). They say average crop prices in the next decade will be 10-20% higher in real terms than between 1997 and 2006. They warn more hefty price hikes, as happened in 2008, cannot be ruled out. The report warned

that food insecurity and hunger were a growing problem for the world's poor. It suggests that governments should target spending on infrastructure, research and development and providing incentives for sustainable use of soil and water to improve access to food.

## Using ISNT to predict Nitrogen needs of Corn in Virginia

Fertilizer nitrogen (N) needs of corn can vary widely among and within fields. Current N needs for corn in Virginia are estimated based on expected yield, adjusted to account for estimated amounts of N mineralized from organic materials such as manure, biosolids, and legumes. This method cannot account for variations in corn yield response to fertilizer N produced by local factors, such as weather or soil spatial variability, because the dynamic nature of organic soil N creates significant uncertainty in estimates of N mineralization. In addition, recommendations do not generally account for the influence of management practices such as tillage and residue management on soil N status.

A number of chemical methods have been proposed for estimating soil N availability. Soil  $\text{NO}_3\text{-N}$  testing is the most widely used method for identifying soils where yield response to fertilizer N may be limited. The preplant soil  $\text{NO}_3\text{-N}$  test (PPNT) has long been recommended for the assessment of N availability in drier areas of the western United States where leaching losses are minimal. The pre-sidedress soil  $\text{NO}_3\text{-N}$  test (PSNT) has shown potential for modifying fertilizer N recommendations in the humid eastern United States for

corn grown on land receiving manure or where legumes have been grown in the rotation.

The PSNT is a method currently recommended for identifying soils where yield response to fertilizer N may be limited in Virginia. Use of the PSNT has been limited by the need to collect samples during the growing season and delay N fertilization until soil samples are analyzed. In addition to the logistical problems, the PSNT is also limited by the variability of soil  $\text{NO}_3\text{-N}$  due to its dependence on a number of factors such as temperature, moisture, and soil texture. Accurate prediction of soil N availability using a simple, pre-season soil test has the potential to significantly improve fertilizer N recommendations in Virginia. The Illinois soil nitrogen test (ISNT) might meet this need for corn grown in Virginia agroecosystems.

The ISNT has received much attention for its reported success and failure to predict fertilizer N response or measure labile soil N. The ISNT was developed through work that attempted to find a relationship between different fractions of hydrolyzable soil N and corn yield response to fertilizer N.

The ISNT uses direct diffusion to

measure alkali-hydrolyzable soil N, eliminating the acid hydrolysis procedures from earlier methods. The test is thought to recover amino sugar N, derived primarily from bacterial and fungal cell walls, plus extractable  $\text{NH}_4\text{-N}$ . Most amino sugars in soil are believed to originate from polymeric compounds such as chitin, however, which are insoluble in hot alkali but soluble in acid and some -amino acid N is also probably released by the ISNT.

Khan et al. (2001) used the ISNT to predict the response to fertilizer N in 25 trials and positively identify soils unresponsive to fertilizer N.

A variety of researchers have indicated that the ISNT showed promise as a tool to quantitatively determine fertilizer N rates in conjunction with expected yield goals. However, the assay has not proven useful in all regions or under all cropping systems. For example, researchers working in Iowa found no relationship between the ISNT and relative corn grain yield, corn response to fertilizer N. The soils



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used in that study had relatively high levels of hydrolyzable NH<sub>4</sub>-N relative to amino sugar N and they suggested that this may partially explain the poor performance of the ISNT. For a variety of reasons, it is not likely that the assay will be adopted as a universal soil N test. Rather, its use will be limited to regions and applications where the assay has proven useful.

The primary objective of this research was to determine if the ISNT predicts fertilizer-N response of corn grown in a diverse set of Virginia agroecosystems. The researchers also evaluated the usefulness of the PPNT and PSNT since soil NO<sub>3</sub>-N testing is currently the most widely adopted

method for identifying soils where corn yield response to fertilizer N may be limited.

Fertilizer N needs of corn vary widely among fields in Virginia. Accurate quantification of organic N mineralization during the corn growing season could improve the precision of fertilizer N recommendations, as has been recognized by much previous work. These researchers found that the PSNT was of limited value to identify locations that were unresponsive to fertilizer N for the 26 N trials investigated. This is troubling because the PSNT is currently recommended for identifying soils where yield response to fertilizer N may be limited in Virginia.

The ISNT was significantly related to estimated yield without fertilizer N, relative yield, and nitrogen fertilizer application factor. Their research did illustrate that there is a relationship between fertilizer N needs and soil organic N. These results suggest that there is a potential to improve fertilizer N recommendations if this relationship can be refined by development of an assay that truly measures mineralizable organic N.

Adapted from [Illinois Soil Nitrogen Test for Prediction of Fertilizer Nitrogen Needs of Corn in Virginia](#) by John T. Spargo, Marcus M. Alley, Wade E. Thomason, and Steven M. Nagle, published online February 2009 in *Soil Sci Soc Am J* 73:434-442 (2009)



## Switchgrass produces Biomass efficiently while compared with other four grasses

A USDOE and USDA study concluded that 50 million U.S. acres of cropland, idle cropland,

and cropland pasture could be converted from current uses to the production of perennial grasses, such as switchgrass, from which biomass could be harvested for use as a biofuel feedstock. Economically viable production of a perennial grass monoculture from which substantial quantities of biomass are removed annually is expected to require nitrogen fertilizer.

An agronomist at Oklahoma State University, Regents Professor Emeritus Charles Taliaferro, designed and conducted an experiment to determine biomass yield from alternative levels of nitrogen fertilizer for a single and double

harvest per year system for four perennial grass species (bermudagrass, flaccidgrass, lovegrass, and switchgrass). Agricultural economics graduate student, Mohua Haque, used the data produced in the field experiments to determine the most economical species, level of nitrogen, and harvest frequency for several sets of nitrogen fertilizer prices and hypothetical biomass prices. The study was funded by the USDA Cooperative State Research, Education, and Extension Service and by Oklahoma State University. Results from the study were published in the November-December issue of the *Agronomy Journal*.

Haque explains, "For the soil and weather conditions that prevailed at the experiment site for the duration of the study, switchgrass clearly produced more dry biomass per dollar cost than the other three species. If perennial grass for biofuel feedstock is the best alternative for a field, and if the biomass price exceeds the cost of production, the

optimal strategy would be to establish switchgrass, and in post-establishment years, to fertilize with 60 pounds of nitrogen per acre per year, and to harvest once per year after senescence."

If an economically viable system for conversion of biomass from perennial grasses to biofuels is developed, millions of acres may be bid from current uses and seeded to switchgrass.

Results from the study will be incorporated into a model at Oklahoma State University to evaluate the economic potential of alternative cellulosic biofuels production systems for Oklahoma. The goal of the research effort is to construct and solve models to determine the optimal number, size, and locations of cellulosic biorefineries, feedstock production counties, harvest months, fertilizer levels, number of harvest machines, storage strategy, and feedstock transportation flows. View the abstract at <http://agron.scijournals.org/cgi/content/abstract/101/6/1463>.

## Copper-Zinc relationship in soil affects toxic response in Soybean

Agricultural soils accumulate trace metals, particularly copper and zinc, as a result of their presence in wastes (sewage biosolids and manures) and fungicides that are applied over long periods of time. Regulations and guidelines for tolerable concentrations of these potentially plant-toxic elements in soils are based on the assumption that the toxic effects of the metals are substantially independent and not additive. However, additivity would imply that soil tolerance limits for each metal must be adjusted to compensate for the presence of another metal. There has been very little experimental work to date to provide a basis for determining the degree to which copper-zinc interaction in soils is additive as defined by the toxicity response in crops.

Researchers at Cornell University have investigated the copper-zinc interaction in two soils with different textures, using soybean growth and metal uptake into leaves to evaluate both toxicity and availability of these metals to the plants. Soybean crops were grown in pots in the field in two successive years after allowing copper and zinc sulfate-amended soils to age in the field for one year prior to the first

planting. Copper and zinc were added to individual soils to provide 0, 50, 100, 200, and 400 mg/kg of each metal as well as every possible combination of addition levels of the two metals. The results from the study are published in the November-December issue of



*Journal of Environmental Quality*. Interactive effects of copper and zinc were observed both in the soil as well as in the soybean toxic response. In the soil, high copper had a strong effect on inhibiting zinc adsorption on soil particles, thereby causing zinc to be more easily extractable and available. Conversely, there was only a moderate interactive effect of zinc on copper adsorption, probably explained by the higher affinity of copper for soil adsorption sites, particularly those associated with organic matter.

The toxic effects of copper and zinc on soybean growth was found to be additive to a large degree, as measures of both extractable copper and zinc in the soils were needed to adequately explain the inhibition of plant growth over all treatments. However, the toxic effect of copper was stronger than that of zinc, possibly explained by the observed severe impact of copper on soybean root development. Soil texture had a marked influence on the degree of copper and zinc toxicity and availability to soybeans, consistent with numerous studies that have shown coarse-textured soils to be more susceptible to the toxic effects of heavy metals on crops.

The results from the study indicate that guidelines for tolerable upper limits of copper and zinc concentrations in soils are likely to require allowance for the presence of a second toxic metal at elevated concentrations, which could lower the tolerable limit for either copper or zinc. Furthermore, tolerable limits for copper and zinc in soils are likely to be lower in coarse-textured soils. View the article abstract at <http://jeq.scijournals.org/cgi/content/abstract/38/6/2253>.

## Extension Unveils New Name and Logo to Better Reflect Mission, University Ties

COLLEGE PARK, Md. – What's in a name? Despite Shakespeare's assertion that "a rose by any other name would smell as sweet," an organization's name can mean a great deal in terms of its identity, marketing efforts, and ability to thrive.

There's no doubt that the University of Maryland (UM) is a well-recognized name, or "brand." And in an effort to strengthen public recognition of its university affiliation, the organization formerly known as Maryland Coopera-

UNIVERSITY OF  
MARYLAND  
EXTENSION  
*Solutions in your community*

tive Extension has been renamed the University of Maryland Extension (UME).

"Extension programs are based in the College of Agriculture and Natural Resources (AGNR) at the University of

Maryland, College Park, and at the University of Maryland Eastern Shore and are delivered to state residents in every county and Baltimore City," says Dr. Nick Place, associate dean and associate director of UME. "Our new name formally recognizes this connection and Extension's role as the outreach vehicle of university research and teaching throughout both campuses, the University of Maryland System's many institutions, and across the

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entire state.”

With the new name comes a new look, including the logo featured at the top of this page. But don't worry; we haven't changed our focus: you. If anything, says Dr. Place, we're working to keep UME even more responsive to the needs of the community, economy and environment by focusing on four impact areas:

- Local food and agricultural sys-

tems,

- Environment and natural resources,
- Healthy living and resilient communities.

Unbiased, research-based programs related to these impact areas are available through offices in the city of Baltimore and all 23 Maryland counties.

The traditional Extension programs of 4-H Youth Development, Family and

Consumer Sciences, Sea Grant Extension, Agriculture, Home Horticulture and Natural Resources will serve as keystones in this client-needs-focused effort.

For more information about University of Maryland Extension programs in Dorchester County call 410-228-8800 or visit us on the web

[www.dorchester.umd.edu](http://www.dorchester.umd.edu)

## Important - Poultry Update

MDE (Maryland Department of Environment) has issued new permitting guidelines regarding Animal Feeding Operations. Regardless of whether your poultry operation is a MAFO (Maryland Animal Feeding Operation) or a CAFO (Concentrated Animal Op-

erations) you need a current NMP (Nutrient Management Plan) and a current Conservation Plan. To update Nutrient Management Plans contact the University of Maryland Extension – Nutrient Management Advisor, Cathy Scott at 410-228-8800.

Dorchester Soil Conservation District can schedule a farm visit to assess your poultry operation for MDE/EPA requirements. For updated conservation plan and farm assessments contact Dorchester Soil Conservation District, 410-228-3733 ext. #3 and ask for a Conservation Planner.

## Top Ten Poultry Management “To Do List”

1. Keep all manure in manure shed, composter or chicken houses
2. Don't allow any stock piles around production area, total clean outs should be transported to be properly utilized or stockpiled immediately
3. Maintain driveways and work areas regularly, keep a stockpile of good compactable fill and stones or shells to grade regularly so ruts and holes don't hold water
4. Keep roof runoff from creating problems, make sure grass swales are well vegetated and mowed high, overseed swales as needed. Drip line of houses should be stabilized with stone to prevent erosion
5. Maintain and keep the manure shed, composter and poultry houses in good repair. Replace boards and metal sheets as needed. If a board is busted in a manure shed and manure rolls out of the building under the roof drip line, MDE & EPA could consider that a discharge
6. Make sure mortality is properly composted. Keeping sufficient cover and heat is key to the composting process and avoid scavengers
7. Ends of poultry houses and in front of manure shed need to be scrapped for manure and/or mud then dresses with clean fill or stone after times of heavy use or manure movement
8. Consider placement of water control structure and wetland/pond creation if you have the room and don't already have some type of storm water management
9. Consider placement and planting of shelter belt, which promotes both water and air quality.
10. Communicate with neighbors' and work to stay on good terms, they can be your best advocate or enemy.



Source: Dorchester County Soil Conservation District

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## Nutrient News from Extension Nutrient Management Advisor

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Hi everyone,

It's that time of the year again - "Nutrient Management Time"! It's time to take those soil and manure samples and let your advisor know what you plan to plant for the 2010 crop year. Just a reminder, your nutrient management plan needs to be in your hands before you start applying nutrients to your farmland. In order to accomplish this task, your advisor needs to get your information, as soon as possible.

I have available soil and manure sample bags and the forms, so please feel free to stop by to pick up any supplies you need or give me a call and I will be happy to get your soil and manure bags ready for you. See you soon!!

*Cathy Scott, Nutrient Management Advisor.*

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### Surviving the Risk: A look at crop budgets, communication, lease agreements and more: Meeting to be held on January 29th.

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With today's escalating input costs, and volatile commodity markets it is increasingly important to reduce risk on the farm. The topics that will be addressed are crop budgets, communicating with landowners, lease agreements, new types of agreements such as flex leases and crop insurance. We will also share innovative lease contracts being used in the Midwest. This topic will address the basic requirements of a lease contract from the owner and the operator's viewpoint. Cost: \$20 for the workshop and includes a binder of materials and a meal.

#### Dates:

**Tuesday, January 5<sup>th</sup> 7- 10am**  
Queen Anne's Grain Marketing Meeting,  
Tilghman Terrace, Centreville MD  
To register contact 410-758-0166

**Friday, January 29<sup>th</sup> 9am - 12pm**  
Dorchester County  
To register contact 410-228-8800




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### Become a Maryland Certified Pesticide Applicator

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If your private pesticide applicator license has expired or would like to become certified, we invite you to attend the upcoming private pesticide applicator training and certification sessions.

1. Private pesticide applicator training will be held at English Hall of Eastern Shore Hospital Center, Woods Rd, Cambridge from 6.00 – 8.00 pm on February 03, 2010
2. Private pesticide applicator exam will be held at English Hall of Eastern Shore Hospital Center, Woods Rd, Cambridge from 6.00 – 8.00 pm on February 10, 2010

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### Nutrient Management Voucher Training Set for February 11<sup>th</sup>

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University of Maryland Extension will offer a two hour course on nutrient management voucher, Thursday, February 11, 2010 from 6.00 pm to 8.00 pm at the English Hall of Eastern Shore Hospital Center, Woods Rd, Cambridge. This course is for those who already have nutrient management certification and are interested in learning new updates and intend to continue certification. To register call 410-228-8800

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### Stay Tuned for Agronomy and Vegetable Meetings!

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We will have our Annual Agronomy and Vegetable meeting this winter during February/Early March. Plan to attend and receive pesticide re-certification and certified crop advisor credits. Stay Tuned!

## Special Session of “Fundamentals of Nutrient Management” Pre-certification Training at MDA

The Maryland Department of Agriculture will host a special one-day session of the training course that provides an overview of knowledge areas covered by the Maryland Nutrient Management Certification Examination. Topics include state nutrient management regulations, nutrient management principles, basic soil science, and soil fertility

recommendations. Instructors are university and government experts.  
Wednesday, January 13, 2010  
9:00 a.m. – 4:00 p.m.  
(check-in starts at 8:30 a.m.)  
Maryland Board of Realtors Building  
200 Harry S. Truman Parkway  
(corner of Riva Rd. & Truman Pkwy.)  
Conference Room 107  
Annapolis, Maryland 21401

The registration fee of \$65, payable in advance by check or money order, is due in the NM office no later than January 7, 2010. The Certification Examination will be held on Monday, February 1, 2010 at location(s) to be announced. For more information, contact the MDA - Nutrient Management Program at 410-841-5959.

## Tractor, Farm Equipment Safety Class for Youth

A farm tractor and equipment safety certification class will take place from February through April in the mid shore. This class includes 25 hours of required instruction time and is for all youth ages 14-16 who want to work on a farm or operate a tractor of 20 or more horsepower. Minors employed by their parents or guardians are exempt from the class, however would benefit from completing this class. Requirements include completing the entire course.

Class dates are as follows:

- Wednesday, February 24** from 6-9 p.m.
- Saturday, February 27** from 10 a.m. to 4 p.m.
- Wednesday, March 3** from 6-9 p.m.
- Saturday, March 13** from 10 a.m. to 4 p.m.
- Wednesday, March 24** from 6-9 p.m. and
- Sunday, April 11** from 1-4 p.m.



The first class will take place at the Queen Anne's County Extension Office, 505 Railroad Ave., Centreville. Evening classes will take place at the Queen Anne's Extension office. Saturday class locations are as follows: February 27: Atlantic Tractor, Chestertown and the March 13<sup>th</sup> class will take place at Rathell Farm Equipment Co., Rt. 50, Cordova.

A preregistration fee of \$25 per participant is required by February 12. Please make checks payable to the Queen Anne's County EAC and send to Sally Rosenberry, Queen Anne's County Extension, 505 Railroad Ave., Centreville, MD 21617. The registration fee covers the cost of materials. Please call 410 758-0166 to pre-register and give name, address and phone contact as well as the date

## Other meetings in the region/state – Please plan to attend

Date/Time	Event
January 7, 9am-12pm	<b>Right Risk:</b> Hands on Farm Management Meeting, Talbot County Extension Office To register contact 410-822-1244
January 14, 9am – 12pm	<b>Right Risk</b> at Somerset County Extension To register contact 410-351-1350
February 2, 7-10am	<b>Right Risk</b> at Queen Anne's Grain Marketing Meeting, Tilghman Terrace, Centreville MD To register contact 410-758-0166
January 16, 9-12 pm	<b>BeeKeeping 101</b> Wye Research and Education Center, Queenstown, MD To register contact 410-827-8056 ext. 115

Date/Time	Event
January 20, 8.30am-3.45pm	<b>Southern Maryland Hay and Pasture Conference</b> Isaac Walton League Conference Facility in Waldorf, MD. To register contact 301-475-4482
January 29, 8am-3.30pm	<b>Central Maryland Vegetable Meeting</b> , Upperco To register contact 410 666-1024
February 5 and 6	<b>Terrapin Couples Retreat:</b> Couples farm management retreat, UMD, College Park To register contact 410-778-1661
February 10, 8am-4pm	<b>Southern Maryland Vegetable and Fruit Meeting</b> To register contact 410 222-6759

## Do you have glyphosate resistant marestail (Horseweed) in your field?

You might be able to help us manage this cumbersome weed. We are looking for natural populations of resistant marestail to conduct a research study in no-till, full season soybeans. If you are interested or know anyone who will make a good cooperator, contact the Dorchester County Extension Office at 410-228-8800.



### Did You Know?

Today, it takes Americans only 40 days to earn enough to pay for a full year's supply of food, but it takes us more than 100 days to pay for our taxes.