Mid-Atlantic Crop Management School

November 13-15, 2012

Princess Royale Hotel and Conference Center, Ocean City, MD

About the School

The school offers a 2 ½-day format with a variety of breakout sessions. Individuals needing training in soil and water, nutrient, crop, and pest management can create their own schedule by choosing from 5 session options . Emphasis is placed on new and advanced information with group discussion and interaction encouraged.

Who Should Attend

This school is designed for anyone interested in crop management issues, including:

- agronomists
- crop consultants
- extension educators
- farmers and farm managers
- pesticide dealers, distributors, and applicators
- seed and agrichemical company representatives
- soil conservationists
- state department of agriculture personnel

Enrollment is on a first-come, first-served basis. Breakout sessions will be limited to 50 participants in each session.

Continuing Education Credits

The 2012 Mid-Atlantic Crop Management School has been approved by the Mid-Atlantic Crop Adviser Program and has been assigned CCA continuing education units (CEU's) in the following categories:

Crop Management – 16
Nutrient Management – 11.5
Pest Management – 8.5
Soil and Water Management – 9

Total CEU's earned will depend on course selection. This school also provides Pesticide Recertification Credits for DE, MD, NJ, PA, WV, and VA and continuing education for Nutrient Management Consultants in DE, MD, VA and WV.

Registration Information

The early-bird registration fee (recommended for a place in the sessions of your choice) is **$230** if payment is received by **October 19.** After that date the fee will be **$255** and must be received by **November 9**. Payment of registration fee entitles you to participation in 2.5 days of sessions, handout materials, name badge, 3 continental breakfasts, 2 lunches, Tuesday's hospitality evening get together, and refreshment breaks.

Remember: Enrollment is limited to 250 people and is on a first-come, first-served basis. You are encouraged to register online and pay by credit card or check. To do so, please visit https://crayola.hcs.udel.edu/conf/registration/crop_management

Alternatively, you can either download or use the registration form and sessions schedule in the brochure and fax to: **302-831-2998** or mail along with payment to:

Conference Services Attn: Gail Knapp
104 John M. Clayton Hall
Newark, DE 19716

You may pay by check (payable to University of Delaware) or by credit card. If paying by check, it must accompany your registration form and proposed class schedule. Purchase orders will not be accepted. You will be notified of receipt of your registration form, fee and session schedule.

Cancellation Policy – If you register but cannot attend, you may send a substitute. Please notify **University of Delaware Conference & Visitor Services** about changes in your registration prior to the school. A refund less a $25 processing fee will be issued **only** if your request is received in writing or via email. Send the refund request by mail to the address above or by e-mail to glanius@udel.edu (Gail Knapp) no later than **November 9, 2012.**

Hotel Reservation Information

The Princess Royale Oceanfront Hotel and Conference Center is located at 91st Street in Ocean City, MD. Room rate per night is $70 for Oceanview/Poolview or $90 for Oceanfront. You are responsible for making hotel reservations no later than **October 12**. Call **410 524-7777**, ask for reservations and indicate you are with the Crop Management School.

I. Registration

General registration will begin 8:30 a.m. on November 13. Registration packets and information regarding CEU's and re-certification credits will be available at the registration desk. A continental breakfast will be available. There will be no general session and all breakout sessions begin at 10:00 a.m. on November 13 ending at noon on November 15.

II. Crop Management Sessions

Each Session is Worth 1 CEU in Crop Management.

Probability of Return on Investment With Using Soybean Seed Treatments—With soybean commodity prices at record high prices, the number of questions regarding key management considerations also remains high. One of the questions that we often receive regards the use of seed treatments, in particular the use of seed treatment fungicides and/or insecticides. Since 2008, we have conducted trials throughout Wisconsin to examine if seed treatments are economically viable for soybean production. In particular, we are most interested in trying to answer the following question: "what is the probability that if I use a seed treatment, the cost of the application is covered?" ***Instructor: Dr. Shawn Conley, University of Wisconsin, Madison***

Trends in Pennsylvania Soybean Production Practices— This session will detail the agronomic cultural, pest and tillage trends utilized by growers in Pennsylvania in the production of high yields in excess of 90 bu/acre. A summary of trends over time since the inception of the Soybean contest will be detailed from 1992 to present. Case studies of three of the top growers and there practices will be reviewed to see how growers take science into practice. ***Instructor: Del Voight, Penn State University***

Corn Response to Drought: It's All About the Timing!— Corn response to severe drought depends on a lot of factors, the most significant of which is probably the timing of the drought. This session will aim to reinforce your knowledge about corn growth and development, especially as it relates to the effects of severe drought. We will also discuss the roles that other yield-limiting factors play in determining the severity of drought stress in corn plus offer suggestions for "drought proofing" your corn crop. ***Instructor: Dr. Bob Nielsen, Purdue University***

Increasing Double-Crop Soybean Yields—Double-crop soybean represents over half of soybean production in the Mid-Atlantic region. Although soybean yield continues to increase over time, many have questioned if soybean grown after small grain is keeping pace with full-season soybean. Double-crop soybean production needs to be managed differently than a full-season system. The most current recommendations and new research will be discussed. ***Instructor: Dr. David Holshouser, Va Tech***

An Update on Precision Agriculture Equipment—An update on precision agriculture equipment will be covered in this session. Whether it's a light bar or wireless data transfer, this sector has experienced rapid growth and adoption in recent years. The past, present, and future of precision agriculture equipment will be discussed. This is an interactive session so be prepared to ask questions, provide comments, and join in on the discussion. ***Instructor: Mr. Dave Wharry, Precision Ag Specialist, Hoober, Inc.***

Thoughts on Seeding Rates for Corn—Choosing a seeding rate for planting corn seems like such a simple decision in this day and age of high tech agriculture. Yet, folks still debate the topic in coffee shops and Internet chat rooms. Seed companies frequently encourage us to plant more seed to increase yields (fox in the hen house?). Even university agronomists cannot seem to agree amongst themselves. I will offer my two cents' worth to this discussion. ***Instructor: Dr. Bob Nielsen, Purdue University***

Corn Response to Early Season Defoliation—Early season slug feeding on corn seedlings and small plants is a concern in many fields in the Mid-Atlantic each year. While understanding the biology and ecology of these pests is important, so is understanding impact of this damage on the crop. We have imposed defoliation of various timing and intensity to assess the impact on corn crop productivity and will discuss these and other results. ***Instructor: Dr. Wade Thomason, Va Tech***

Overview of Precision Farming Technologies—Precision farming is a comprehensive approach to farm management and has the following goals and outcomes: increased profitability and sustainability, improved product quality, effective and efficient pest management, energy, water and soil conservation, and surface and ground water protection. This presentation introduces the principles and terminology used in PF. Crop producers can use this information to gain a working knowledge of PF and develop the ability to implement PF technologies in traditional crop production. PF relies on three main elements: information, technology, and decision support (management). ***Instructor: Dr. Robert Grisso, Va Tech***

The Status of Dicamba Tolerant Soybean Development and Commercialization—The first generation of dicamba tolerant soybean varieties is anticipated to be commercially available in 2014 and will be marketed under the trade name Roundup Ready® 2 Xtend. New formulations of glyphosate plus a low volatile form of dicamba are being developed for preplant or in-crop use and will be marketed as Roundup® Xtend. The use of dicamba in soybeans will provide an additional mode-of-action for managing the selection and control of herbicide resistance weeds. ***Instructor: Dr. David J. Mayonado, Monsanto Company***

III. Nutrient Management Sessions

Each Session is Worth 1 CEU in Nutrient Management

Managing the Nitrogen Cycle—The Nitrogen cycle is incredibly complex and dynamic. However with a good understanding of the N cycle, it is possible to efficiently manage N by controlling some process, and taking advantage of, or avoiding other processes. By choosing appropriate sources of N, using available N additives such as urease inhibitors and nitrification inhibitors, using the appropriate

application technology, and optimum timing of N applications, high N use efficiency is possible. Using an understanding of the N cycle to make management decisions that will improve N use efficiency will be covered in this session. ***Instructor: Dr. Douglas Beegle, The Pennsylvania State University***

N-STaR: A New Approach to Nitrogen Fertilizer Management—The University of Arkansas has cooperated with scientists from across the Mid-south rice producing region to develop the first soil-based N test for rice that allows site-specific N fertilizer management. The Nitrogen Soil Test for Rice or N-STaR, has been released and is currently being used in Arkansas, Louisiana and Mississippi. Further research has led to the development of this technology for winter wheat production and work is underway to develop the technology for irrigated corn production. Several components that led to the successful development of N-STaR include; quantifying potentially mineralizable-N, proper soil sampling depth and consistent N uptake efficiency. ***Instructor: Dr. Trenton Roberts, University of Arkansas***

The Fundamentals of Nitrogen Requirement—A discussion on Nitrogen 101. From the step by step procedure used to determine nitrogen need and nitrogen rates to the processes that impact nitrogen once it is applied. **Instructor: Dr. Brian Arnall, Oklahoma State University**

Using Plant N Status/Analysis during Corn Vegetative Growth: Information or Disinformation?—The promise and the challenges associated with corn plant N assessment during vegetative growth will be discussed. Plant tissue analysis, chlorophyll meter and proximal sensor approaches will be considered with an eye towards two questions. First, how early can N stress be detected? Second, with some early N nutrition, how is the next N application rate found and timed? **Instructor: Dr. John Grove, University of Kentucky**

Use of Manure and Industrial Byproducts to Improve Soil Fertility—This presentation will show the benefits of use manure and industrial by-products as alternative nutrient sources to improve soil fertility. ***Instructor: Dr. Dexter Watts, USDA-ARS National Soil Dynamics Laboratory***

Utilizing Precision Ag Tools to Enhance Nutrient Management—Precision ag technologies afford the opportunity for producers to reduce nutrient use while enhancing nutrient stewardship. Technologies such as guidance, variable-rate, and automatic section control provide capabilities to reduce overlap but at the same time accurately place nutrients in accordance to soil or crop needs. The unique aspect of these technologies is they each provide tangible benefits at the farm level but when used concurrently, the agronomic, environmental and economic benefits expand well beyond the individual advantages. This presentation will cover these various precision ag tools and their function in today's nutrient management. ***Instructor: Dr. John Fulton, Auburn University***

Using Veris Technologies for Texture Mapping—EC correlates with soil properties that affect crop productivity, including soil texture, cation exchange capacity (CEC), drainage conditions, organic matter level, salinity and subsoil characteristics. EC can be used to measure what's going on below the surface up to 20 to 24 inches. The Veris machine transmits a low level current which bounces back to the receiver providing a lot of information about the soil. A GPS system is what brings it all together, enabling farmers to produce a map of a field that can not only predict crop yield but also provide prescriptive information about what the operator can do to improve productivity. EC reconfirms and sharpens boundaries of soil maps. Subsurface mapping helps producers to understand flooding and flooded areas because it can be used to interpret salinity levels. This information can be used to guide planning of drainage projects. Perhaps the biggest benefit of this kind of study is delineation of the soil on the farm. ***Instructor: Dr. Bobby Grisso, Virginia Tech***

Seasonal Corn Nutrient Concentration and Uptake in the Mid-Atlantic USA—The classic nutrient uptake curves for corn generally indicate a maximum at anthesis and a gradual decline afterwards. This was definitely true for corn hybrids from 20-30 years ago, but what about today? Modern hybrids have greater drought tolerance, longer "stay-green" and vastly improved insect resistance. What are the impacts of these on amount and timing of uptake of macro- and micro-nutrients? What are the implications for nutrient management? This session will highlight corn nutrient uptake mechanisms and recent data measured from fields throughout Virginia. ***Instructor: Dr. Wade Thomason, Virginia Tech***

Cation Exchange Capacity and Base Cation Fertility—Cation exchange capacity (CEC) is an important topic to understand regarding soil fertility. We will explore CEC and the relationship of soils with basic cations needed for crop production in the Mid-Atlantic. ***Instructor: Dr. Rory Maguire, Virginia Tech***

Homeowner Nutrient Management Efforts—The landscape management practices of homeowners can have a significant impact of water quality. This session will highlight efforts to implement nutrient management BMPs with the homeowner audience. We will also discuss various regulatory and non-regulatory approaches to nutrient management in the home landscape. Examples of homeowner nutrient management efforts from the Mid-Atlantic, the Mid-west, and the South-eastern US will be highlighted. ***Instructor: Dr. Amy Shober, University of Delaware***

Managing Nitrogen and Phosphorus in Conservation Tillage Systems—Cover crops and tillage can affect nutrient availability differently depending on nutrient source (conventional fertilizer or animal byproducts). Factors influencing N cycling and potential problems that may arise when using poultry litter and other animal wastes will be discussed. Potential for using legumes to supplement N inputs will also be presented. ***Instructor: Dr. Harry Schomberg, USDA-ARS***

IV. Pest Management Sessions

Each Session is Worth 1 CEU in Pest Management.

Restoring Trophic Balance to Residential Landscapes -- Because our yards and gardens are part of the terrestrial ecosystems that sustain humans and the life around us, it is essential that we keep them in working order. Tallamy will discuss the important ecological roles of the plants in our landscapes, emphasize the benefits of designing gardens with these roles in mind, and explore the consequences of failing to do so. Gardening in this crowded world carries both moral and ecological responsibilities that we can no longer ignore. ***Instructor: Dr. Douglas W. Tallamy, University of Delaware***

Vegetable Disease Update--In addition to the three components of the disease triangle: a susceptible host, a virulent pathogen, and favorable weather, the actions of humans greatly influence vegetable disease epidemics. For example, downy mildew in 2012, watermelon fruit blotch in 2011, and tomato late blight in 2009 were influenced by human actions. Measures that can be taken to minimize disease epidemics on a regional scale, as well as within a field will be discussed. ***Instructor: Dr. Kate Everts, University of Maryland***

Nematode Protectant Seed Treatments for Corn and Soybean Production: Insurance We Want? Protection We Need??--U.S. soybean farmers have battled the soybean cyst nematode (SCN) for >30 years. And nematodes were identified as serious pests of corn in the 1980s. Field experiments were conducted throughout the Midwest in 2011 and 2012 to assess the effects of new nematode protectant seed treatments on nematode population densities and corn and soybean yields. Results indicate the seed treatments may increase crop yields, but only in fields where damaging nematode population densities are present. ***Instructor: Dr. Gregory L. Tylka, Iowa State University***

Is It Time to Rethink No-till Weed Control?--In the presence of glyphosate resistant weeds, and the shifts towards different weed species, is it time to reconsider how we approach weed control for no-till systems? Should a field with a cover crop have a different program than a field with no cover crop? Experiences from 2012 season will be discussed, as well as ongoing UD research on different approaches for no -till corn and soybean weed control. ***Instructor: Dr. Mark VanGessel, University of Delaware***

Slugs in North America: Status, Impact and Options for Biological Control--Slugs have significant ecological and economic impacts worldwide and in agricultural systems can reduce crop yield. Slugs also decrease the quality of produce by soiling with mucus and fecal matter. Furthermore, damage to plants tends to promote bacterial and fungal growth which can result in further damage to fruit, vegetables and ornamentals. This paper will discuss the status of slugs in North America and identify options for biological control in agricultural production systems. ***Instructor: Dr. James D. Harwood, University of Kentucky***

What's Buggin' Your Field Crops?—Two Hour Session— Each year problems resulting from agronomic, pest and/or weather related issues will develop in most fields. Accurate diagnose of the cause of a problem is needed to take proper in season corrective action and/or prevent future problems. The first step in successfully diagnosing and managing insect pests is proper identification. The first half of this session will focus on insect identification. Participants will get hands-on experience with the identification of key pest and beneficial species and damage symptoms. In the second half of the session, participants will use their recently learned skills to work through scenarios aimed at developing trouble shooting skills as it relates to insect damage in field crops. ***Instructors: Joanne Whalen & Bill Cissel, University of Delaware***

V. Soil and Water Sessions

Each Session is Worth 1 CEU in Soil/Water Management

The Science and Soil Aspects of Biochar--Agricultural production in the Coastal Plain region of the USA is hampered by sandy soils that have low soil organic carbon contents and poor water and nutrient retention. Biochar additions improved soil quality when mixed into sandy soil. Soil quality improvements using biochars was dependent on feedstock selection and pyrolysis conditions. Biochars can increase the soil's ability to retain more carbon, nutrients, and water for enhanced crop production. ***Instructor: Dr. Jeff Novak, USDA-ARS-CPRC, Florence, SC***

Stream and River Dynamics-- Stream and river behavior will be described non-mathematically from the perspective of the physical principals that control these channels. This information then will be used to explain how land management can influence channel dynamics and to examine some of the consequences that can result. ***Instructor: Dr. Pamela Edwards, USDA Forest Service, Parsons, WV***

NIFA (National Institute of Food and Agriculture) – CEAP (Conservation Effects Assessment Project) Results -- The Conservation Effects Assessment Project (CEAP) is an USDA initiative that involves the Agricultural Research Service, the National Institute for Food and Agriculture (NIFA), and the Natural Resources Conservation Service. The overall goal of CEAP is to provide scientifically credible estimates of the environmental benefits obtained from USDA conservation programs. CEAP project types vary depending on the strengths and interests of the three different agencies. Information from the 13 USDA-NIFA funded CEAP watershed projects are being summarized by a NC State University led team in order to synthesize the lessons learned about managing agricultural landscapes to meet physical, biological, and chemical water quality goals. We use project documents, site visits and, in addition, we conducted key informant interviews at all 13 NIFA-CEAP watersheds. The objective of the key informant interviews was to ascertain community values relative to water quality and conservation practice adoption. Currently, using all sources of information, we synthesized lessons learned into general categories – water quality, land treatment, modeling, socio-economic, education, and project management. Critical lessons learned about effective conservation will be presented and discussed. ***Instructors: Dr. Deanna Osmond, NC State University***

Irrigation 101 – Equipment and Basic Management Techniques – Successive dry years combined with record commodity prices have greatly accelerated the demand for irrigation of agronomic crops. Generally speaking, any irrigation is better than none, however some systems are better suited for different regions, crop and soils. This presentation will discuss the design and economic considerations of center pivots, traveling guns, subsurface drip (SDI), shallow and surface drip systems as well as reviewing pumping, fertigation, and basic irrigation scheduling. ***Instructors: Mr. James Adkins, Dr. Cory Whaley, Mr. Phillip Sylvester, University of Delaware***

Irrigation 201 – Advanced Irrigation Management Techniques*; Beyond ET* – Recent developments in soil moisture sensing have enabled it to become an affordable tool for irrigation management when combined with Evapotranspiration (ET) based scheduling. This presentation will address the challenges of selecting, siting, installing and maintaining soil moisture equipment, how to interpret the information gleaned, and how utilize the data to refine/correct the ET model resulting in an efficient irrigation schedule while maximizing yields. ***Instructors: Mr. James Adkins, Dr. Cory Whaley, Mr. Phillip Sylvester, University of Delaware***

Phosphorus Index SERA-17 Perspective into the Future -- SERA-17 is an organization of research scientists, policy makers, extension personnel, and educators. The mission of SERA-17 is to develop and promote innovative solutions to minimize phosphorus losses from agriculture by supporting: information exchange between research, extension, and regulatory communities; recommendations for phosphorus management and research, and initiatives that address phosphorus loss in agriculture. SERA-17 has been involved in the development of the phosphorus index and changes to the index, including a white paper in 2011 focusing on the current state of phosphorus indices. Recently, USDA Natural Resources Conservation Service has promoted a more uniform phosphorus index. The perspective of SERA-17 relative to the phosphorus index will be presented. ***Instructors: Dr. Deanna Osmond, NC State University***

Grazing Management Effects on Non-point Source Pollution of Pasture Streams--Although cattle grazing has been implicated as a major source on sediment, nutrient, and pathogen loading of water resources on a local and regional scale, the extent of these effects is controlled by factors controlling the location, timing, intensity and length of grazing. The percentage of time that grazing cattle are in or near pasture streams in the eastern U.S. is largely affected by the size, shape, and shade distribution of the pastures and may be controlled by strategic implementation of practices like riparian buffers, stabilized stream access points, or flash-grazing of riparian paddocks in a rotational grazing system that will reduce bare ground and manure concentration near pasture streams. However, while implementation of such practices may reduce the risks of non-point source pollution, the effects of stream hydrology on cut-bank erosion and upstream fecal loading from domestic and wild species on pathogen loading are so great that they may supersede the effects of grazing on non-point source pollution of pasture streams. ***Instructor: Dr. Jim Russell, Iowa State University, Ames, IA***

Managing Phosphorus Supplementation to Enhance Economic and Environmental Sustainability of Beef Cow-calf Operations-- Because phosphorus deficiency is believed to impair reproduction, phosphorus has traditionally been added to mineral supplements offered free-choice to beef cow herds. However, as the cost of phosphorus has increased by over 500% in the last decade, supplementing phosphorus in excess of requirements increases both the costs and the environmental risks associated with cow-calf operations, making strategic supplementation of phosphorus desirable. While phosphorus supplementation of beef cow herds may be needed by cows grazing mature or weathered forages grown on soils with low available phosphorus, supplementation is less necessary if cows have access to adequate quantities of vegetative forages grown on soil with optimum soil available phosphorus levels. ***Instructor: Dr. Jim Russell, Iowa State University, Ames, IA***

Grazing Impacts on Soil Physical Properties, Runoff and Sediment Production-- Understanding the effect of different grazing management systems will aid in finding production alternatives that may reduce phosphorus losses and maintain and improve the quality of grassland soils. Mixed species grazing management exhibited higher runoff volumes, suggesting that, over time, land management practices can affect soil properties and as a consequence, the sustainability of the grassland. ***Instructor: Ms. Brittany Parks, West Virginia University Graduate Student, Morgantowns, WV***

VI. Horticulture Sessions

Horticulture Track

Each session's CEU category is designated at the end of the abstract.

Produce Food Safety – Current Science—Foodborne illness associated with fresh fruits and vegetables is a crucial topic, highlighted by media and frequent recalls of potentially contaminated produce. The pre-harvest environment contains many opportunities for microbial contamination. The driving factors behind the transmission and survival of foodborne pathogens are still not completely understood. This talk will explore some of the current science on survival of foodborne pathogens and the potential risks of contamination that may underlie the rare events that occur in the field. ***Instructor: Dr. Kali Kniel, University of Delaware* (*CM=1.0)***

Urban Agriculture in the Mid-Atlantic—Urban agriculture has been growing rapidly throughout the United States and the Mid-Atlantic region. In this session urban agriculture will be explored, from local community gardens to agriculture as a part of large scale city revitalization projects. Production systems used in urban environments will be described including intensive production on raised beds, vertical growing systems, roof top gardens, and season extension. Discussions will include how crop advisors and consultants might get involved with urban agriculture projects and urban farmers. Information on urban farming projects in the Mid-Atlantic will be provided. An example is the Delaware Urban Farm Coalition which has worked to expand community gardens and improve access to healthy foods in the city. ***Instructor: Ms. Carrie Murphy, University of Delaware (CM=1.0)***

Time	Day 1: Tuesday, November 13, 2012				
8:30 -10:00	**Registration**				
	Pest Management Palmetto 1	**Crop Management Palmetto 2**	**Nutrient Mgmt. Palmetto 3**	**Soil & Water Mgmt Palmetto 4**	**Horticulture Session Palmetto 5**
10:00 - 10:50	Restoring Trophic Balance to Residential Landscapes—Dr. D. *Tallamy*	Probability of ROI using Soybean Seed Tmts—Dr. Shawn Conley	Managing the Nitrogen Cycle—Dr. D. Beegle	The Science and Soil Aspects of Biochar—Dr. J. Nowak	Produce Food Safety—Current Science—Dr. K. Kniel
11:00 – 11:50	Restoring Trophic Balance to Residential Landscapes—Dr. D. *Tallamy*	Probability of ROI using Soybean Seed Tmts—Dr. Shawn Conley	Managing the Nitrogen Cycle—Dr. D. Beegle	The Science and Soil Aspects of Biochar—Dr. J. Nowak	Produce Food Safety—Current Science—Dr. K. Kniel
11:50 – 1:00	**Lunch**				
1:00 – 1:50	Vegetable Disease Update—Dr. K. Everts	Trends in Penn. Soybean Prod. Pract.—Dr. D. Voight	N-STaR: New Approach N Fert Mgt—Dr. T. Roberts	Stream and River Dynamics—Ms. P. Edwards	Urban Agriculture in an Urban Environment—C. Murphy
2:00 – 2:50	Vegetable Disease Update—Dr. K. Everts	Trends in Penn. Soybean Prod. Pract.—Dr. D. Voight	N-STaR: New Approach N Fert Mgt—Dr. T. Roberts	Stream and River Dynamics—Ms. P. Edwards	Urban Agriculture in an Urban Environment—C. Murphy
2:50 – 3:10	**Break**				
3:10 – 4:00	Nematode Protect. Seed Tmts for Corn and Soybean Prod.—Dr. G. Tylka	Corn Response to Drought: It's All About Timing—Dr B. Nielsen	Fundamentals of Nitrogen Requirement—Dr. B. Arnall	NIFA Conservation Effects Assessment Project Results—Dr. D. Osmond	Growing Vegetables and Small Fruits in High Tunnels—Dr. L. Jett
4:10 – 5:00	Nematode Protect. Seed Tmts for Corn and Soybean Prod.—Dr. G. Tylka	Corn Response to Drought: It's All About Timing—Dr B. Nielsen	Fundamentals of Nitrogen Requirement—Dr. B. Arnall	NIFA Conservation Effects Assessment Project Results—Dr. D. Osmond	Growing Vegetables and Small Fruits in High Tunnels—Dr. L. Jett

Day 2: Wednesday, November 14, 2012					
Time	**Pest Management. Palmetto 1**	**Crop Management Palmetto 2**	**Nutrient Management Palmetto 3**	**Soil & Water Mgmt. Palmetto 4**	**Horticulture Session Palmetto 5**
8:00 – 8:50	Is It Time to Rethink No-Till Weed Control?—Dr. M. VanGessel	Increasing Double-Crop Soybean Yields—Dr. D. Holsshouser	Using Plant N Status/ Analysis during Corn Veg Growth—Grove	Irrigation 101—Equipment and Basic Management Techniques—J. Adkins, C. Whaley, P. Sylvester	Micropropagation in Horticulture—Dr. S. Kitto
9:00 – 9:50	Is It Time to Rethink No-Till Weed Control?—Dr. M. VanGessel	Increasing Double-Crop Soybean Yields—Dr. D. Holsshouser	Using Plant N Status/ Analysis during Corn Veg Growth—Grove	Irrigation 101—Equipment and Basic Management Techniques—J. Adkins, C. Whaley, P. Sylvester	Micropropagation in Horticulture—Dr. S. Kitto
9:50 – 10:10	**Break**				
10:10 – 11:00	Slugs in North Am: Status, Impact and Options for Bio. Control—Dr. J. Harwood	Update on Precision Ag Equipment—D. Wharry	Use of Manure & Industrial Byproducts Impr Soil Fert—Watts	Irrigation 201—Advanced Irrigation Management—Mr. J. Adkins, Dr. C. Whaley, Mr. P. Sylvester	Advances in Sweet Corn Genetics and Production—Ms. E. Ernest
11:10 – 12:00	Slugs in North Am: Status, Impact and Options for Bio. Control—Dr. J. Harwood	Update on Precision Ag Equipment—D. Wharry	Use of Manure & Industrial Byproducts Impr Soil Fert—Watts	Irrigation 201—Advanced Irrigation Management—Mr. J. Adkins, Dr. C. Whaley, Mr. P. Sylvester	Advances in Sweet Corn Genetics and Production—Ms. E. Ernest

12:00 – 1:00	**Lunch**				
1:00 – 1:50	What's Buggin' Your Fd Crops? J. Whalen & B. Cissel **Note: This is a 2 hr block**	Thoughts on Seeding Rates for Corn—Dr. B. Nielsen	Using Precision Ag Tools to Enhance Nutr. Mgt—Dr. J. Fulton	Phosphorus Index: SERA-17 Perspective into the Future—Dr. D. Osmond	Producing Quality Vegetable Transplants and Grafting Vegetables—Freeman & Johnson **Note: This is a 2 hr block**
2:00 – 2:50	**Continuation of 2 hour block**	Thoughts on Seeding Rates for Corn—Dr. B. Nielsen	Using Precision Ag Tools to Enhance Nutr Mgt—Dr. J. Fulton	Phosphorus Index: SERA-17 Perspective into the Future—Dr. D. Osmond	**Continuation of 2 hour block**
2:50 – 3:10	**Break**				
3:10 – 4:00	What's Buggin' Your Fd Crops? J. Whalen & B. Cissel **Note: This is a 2 hr block**	Corn Response to Early Season Defoliation—Dr. W. Thomason	Using Veris Technologies for Texture Mapping—Dr. R. Grisso	Grazing Mgt Effects on Non-Point Source Pollution of Pasture Streams—Dr. J. Russell	Producing Quality Vegetable Transplants and Grafting Vegetables—Freeman & Johnson **Note: This is a 2 hr block**
4:10 – 5:00	**Continuation of 2 hour block**	Corn Response to Early Season Defoliation—Dr. W. Thomason	ing Veris Technologies for Texture Mapping—Dr. R. Grisso	azing Mgt Effects on Non-Point Source Pollution of Pasture Streams—Dr. J. Russell	**Continuation of 2 hour block**

Day 3: Thursday, November 15, 2012					
Time	**Nutrient Management Palmetto 1**	**Crop Management Palmetto 2**	**Nutrient Management Palmetto 3**	**Soil & Water Management Palmetto 4**	**Horticulture Session Palmetto 5**
8:00 – 8:50	Seasonal Corn Nutr Conc. And Uptake—Dr. W. Thomason	Overview of Precision Farming Technologies—Dr. R. Grisso	Cation Exchange Capacity and Base Cation Fertility—Dr. R. Maguire	Managing P Supplementation to Enhance Econ. And Environ. Sustain. Cow-calf Operations—Dr. J. Russell	Understanding and Managing Cucurbit Vegetable Crops—K. Everts and G. Johnson **Note: This is a 2 hr block**
9:00 – 9:50	sonal Corn Nutr Conc. And Uptake—Dr. W. Thomason	Overview of Precision Farming Technologies—Dr. R. Grisso	Cation Exchange Capacity and Base Cation Fertility—Dr. R. Maguire	Managing P Supplementation to Enhance Econ. And Environ. Sustain. Cow-calf Operations—Dr. J. Russell	**Continuation of 2 hour block**
9:50 – 10:10	**Break**				
10:10 – 11:00	Homeowner Nutrient Management Efforts—Dr. Amy Shober	Status of Dicamba Tolerant Soybean Devlp & Commercialization—Dr. D. Mayonado	Managing N & P in Conserv Till Sys—Dr. H. Schomberg	Grazing Impacts on Soil Physical Properties, Runoff and Sediment Production—Ms. B. Parks	Understanding and Managing Cucurbit Vegetable Crops—K. Everts and G. Johnson **Note: This is a 2 hr block**
11:10 – 12:00	Homeowner Nutrient Management Efforts—Dr. Amy Shober	Status of Dicamba Tolerant Soybean Devlp & Commercialization—Dr. D. Mayonado	Managing N & P in Conserv Till Sys—Dr. H. Schomberg	Grazing Impacts on Soil Physical Properties, Runoff and Sediment Production—Ms. B. Parks	**Continuation of 2 hour block**
12:00	**Adjourn**				

Growing Vegetables and Small Fruits in High Tunnels— High tunnels are a low-cost season-extension technology used for producing a diversity of horticulture crops including vegetables, fruits, herbs and flowers. Specifically, high tunnels are high sided, passively vented, solar greenhouses covered with 1-2 layers of greenhouse plastic. Crops are grown directly in the soil beneath the high tunnel. In addition to accelerating crop growth and maturity, high tunnels protect the crop from an erratic environment where extremes in temperature, wind, rainfall, pests and light intensity can severely reduce marketable yield and quality. Cost share programs have greatly expanded high tunnel construction on farms in the Mid-Atlantic. This talk with provide information on high tunnel construction, management, crop production, and economics. Recent high tunnel research will be presented and future directions in high tunnel production will be discussed. ***Instructor: Dr. Lewis Jett, West Virginia University (CM=1.0)***

Micropropagation in Horticulture—Plant Plant tissue culture arose as a research tool in the 1970's and focused on attempts to culture, maintain and grow plant cells in vitro under sterile conditions. Techniques were developed to use tissue culture for micropropagation, and in the 1980s, many commercial laboratories were established around the world to capitalize on the potential of micropropagation for mass production of clonal plants for the horticulture industry. Today plant tissue culture applications encompass a range of technologies for crop breeding, plant improvement, virus elimination and mass propagation. In addition, tissue culture is an essential tool for biotechnology. This talk will highlight applications of plant tissue culture to horticulture, the achievements and limitations of tissue culture and some insights into current and possible future developments. ***Instructor: Dr. Sherry Kitto, University of Delaware (CM=1.0)***

Advances in Sweet Corn Genetics and Production—Sweet corn is one of the most important vegetable crops produced in the Mid-Atlantic, in terms of acreage, crop value and number of producers. Fresh market and processing sweet corn are produced for local, regional, and national markets. A wide array of varieties are available to commercial growers differing in color (yellow, white, or bicolor), length of season, cold tolerance, sugar content, kernel types, and ear size and shape. In this session, sweet corn genetics, kernel characteristics and isolation requirements will be described. Learn about advances in sweet corn breeding with yield stability, early vigor and cold tolerance, pest resistance. Regional results from yield trials with processing and fresh market sweet corn will be presented as well as research on seed vigor, stand reduction, tillage practices, and variable rate nitrogen application. Shifts in varieties and types for processing will be discussed. ***Instructor: Ms. Emmalea Ernest, University of Delaware (CM=1.0)***

Producing Quality Vegetable Transplants and Grafting Vegetables—Two Hour Session—Many of our common vegetable crops are grown from transplants and producing quality transplants is essential to maximize production. In this hands-on session, details of transplant production will be presented including facilities, media, seeds and seeding, germination and growing temperatures, watering, fertilization, pest management, and hardening off. Field transplant production will also be discussed. Other topics will include handling transplants in the field and issues with sourcing transplants. In addition, grafting vegetables as a tool for disease management and improving plant vigor will be discussed. Demonstrations of seeding and grafting techniques will be shown and participants will be able to try their hand at grafting plants. ***Instructors: Dr. Josh Freeman, Virginia Tech, and Dr. Gordon Johnson, University of Delaware (CM=1.0, NM=0.5, PM=0.5)***

Understanding and Managing Cucurbit Vegetable Crops—Two Hour Session—Cucurbit crops - watermelons, cantaloupes, specialty melons, cucumbers, summer squash, pumpkins, and winter squash - are very important economically in the Mid-Atlantic. In the first half of this 2-part session, production guidelines for cucurbits will be presented. Conventional, plasticulture, and cover crop based systems will be discussed and horticultural research on cucurbits in the region will be presented. Information on alternative and specialty cucurbit crops for our region will also be discussed.

Disease management is a major issue in cucurbits and the second half of the session will be devoted to common and emerging disease issues in cucurbits. Disease scouting guidelines, key diagnostics, and forecasting tools will be discussed. Research on disease management including rotations and cropping systems, chemical controls, and biological controls will be presented. Participants will get a chance to practice diagnostics on plant samples and to use quick diagnostic tests. ***Instructors: Dr. Kate Everts, University of Maryland and Dr. Gordon Johnson, University of Delaware (CM=1.0, PM=1.0)***

Registration Form

Mid-Atlantic Crop Management School

Princess Royale Oceanfront Hotel and Conference Center

Ocean City, Maryland

EITHER Register ON-LINE at https://crayola.hcs.udel.edu/conf/registration/crop_management ***OR Complete this and the following page and mail or fax to the University of Delaware Conference Services {contact information below}.***

Name _____

Company or Affiliation _____

Address _____

_____

City _____ ***State*** _____ ***Zip*** _____

Telephone _____ ***FAX*** _____

Email _____

CCA Certification Number _____

Nutrient Management Certification Number _____ ***State***_____

Pesticide Certification Number _____ ***State***_____

Registration fee on or before October 19 is $230.00. *Registration fee after October 19 is $255.00.*

*Total amount enclosed $*_____

Check, money order or credit card information must accompany the registration form and class choices. Make check or Money Order payable to: **University of Delaware**

Credit Card (circle one) *VISA* *MasterCard* *Discover*

Credit Card No: _____

Expiration Date: _____ Name on Card: _____

Mail completed form, class choices, and payment ***(no purchase orders)*** *to:*

Conference Services Attn: Gail Knapp
104 John M. Clayton Hall
Newark, DE 19716

Phone: 302-831-2214
FAX: 302-831-2998

Questions? - Please call – Dr. Richard Taylor (302-545-2395)

Sponsored by the University of Delaware, University of Maryland, and West Virginia University Cooperative Extension Systems in conjunction with the Mid-Atlantic CCA Board, and the USDA/NRCS.

Mid-Atlantic Crop Management School - Session Schedule

Note: There will be no general session. Registration will begin 8:30 am on November 13. Breakout sessions will begin at 10:00 a.m. on November 13 and at 8:00 a.m. on November 14 and 15.

Please examine the following schedule of course offerings. Course availability is on first-come, first served basis. Most sessions run for fifty minutes and provides 1 CEU in the assigned category unless otherwise noted. You can mix and match across topic areas – crop production, pest management, nutrient management, and soil and water. **Please read across each time frame and rank (1-5) by your preference (1 for first choice and 5 for last choice).** If your choices 1 and 2 are unavailable, you will be assigned to another session. You will receive a schedule noting your assigned sessions.

Day 1 — Tuesday, November 13, 2012

Time	Pest Management	Crop Management	Nutrient Management	Soil & Water Management	Horticulture Session
Room	**Palmetto I**	**Palmetto II**	**Palmetto III**	**Palmetto IV**	**Palmetto V**
10:00 - 11:50 (2 sessions)	☐Restore Trophic Balance to Residential Landscapes—Tallamy	☐Probability of ROI using Soybean Seed Tmts—Conley	☐Managing the Nitrogen Cycle—Beegle	☐Science and Soil Aspects of Char—Novak	☐Produce Food Safety—Current Science--Kniel
1:00 - 2:50 (2 sessions)	☐ Vegetable Disease Update—Everts	☐Trends in Penn. Soybean Prod. Practices—Voight	☐N-STaR: New Approach to N Fert. Mgt.—Roberts	☐ Stream and River Dynamics—Edwards	☐Urban Agriculture in the Mid-Atlantic—Murphy
3:10 – 5:00 (2 sessions)	☐Nematode Protectant Seed Tmts Corn Beans—Tylka	☐Corn Response to Drought: The Timing—Nielsen	☐Fundamentals of Nitrogen Requirement—Arnall	☐NIFA CEAP Results—Osmond	☐Growing Vegetables and Small Fruits in High Tunnels—Jett

Day 2 — Wednesday, November 14, 2012

Two hour sessions are bolded. If you pick and are assigned to one of the two hour sessions, it counts for both choices in that time slot.

Time	Pest Management	Crop Management	Nutrient Management	Soil & Water Management	Horticulture Session
8:00 – 9:50 (2 sessions)	☐Is it Time to Rethink No-till Weed Control—VanGessel	☐Increasing Double-Crop Soybean Yields—Holshouser	☐Using Plant N Status/Analysis during Corn Veg Growth—Grove	☐Irrigation 101: Irrigation Equipment—Adkins, Whaley, Sylvester	☐ Micropropagation in Horticulture—Kitto
10:10 – noon (2 sessions)	☐Slugs in NA: Status Impact Options—Harwood	☐Update on Precision Ag Equipment—Wharry	☐Use of Manure & Industrial Byproducts to Impr Soil Fertility—Watts	☐Irrigation 201: Adv. Irrigation Mgt.—Adkins, Whaley, Sylvester	☐Advances in Sweet Corn Genetics and Production—Ernest
1:00 – 2:50 (2 sessions) Except Bolded Sessions	☐**What's Buggin' Your Field Crops—Whalen & Cissel**	☐ Thoughts on Seeding Rates for Corn —Nielsen	☐Using Precision Ag Tools to Enhance Nutr Mgt—Fulton	☐Phosphorus Index SERA-17 Future Perspective—Osmond	☐**Producing Quality Vegetable Transplants/ Grafting Vegetables—Freeman and Johnson**
3:10 – 5:00 (2 sessions) Except Bolded Sessions	☐**What's Buggin' Your Field Crops—Whalen & Cissel**	☐Corn Response to Early Season Defoliation—Thomason	☐Using Veris Technologies for Texture Mapping—Grisso	☐Grazing Mgt Effects on Non-Point Poll of Pasture Streams—Russell	☐**Producing Quality Vegetable Transplants/ Grafting Vegetables—Freeman and Johnson**

Day 3 — Thursday, November 15, 2012

Time	Nutrient Management	Crop Management	Nutrient Management	Soil & Water Management	Horticulture Session
8:00 – 9:50 (2 sessions) Except Bolded Sessions	☐Seasonal Corn Nutr. Conc. and Uptake—Thomason	☐Overview of Precision Farming Technol.—Grisso	☐CEC and Base Cation Fertility—Maguire	☐Managing P Supplementation of Beef Cow-Calf Operations—Russell	☐ **Understanding and Managing Cucurbit Crops—Everts and Johnson**
10:10 – noon (2 sessions) Except Bolded Sessions	☐Homeowner Nutr Mgt Efforts—Shober	☐Status of Dicamba Tolerant Soybean Dvlp—Mayonado	☐ Managing N & P in Conserv. Tillge Sys—Schomberg	☐Grazing Impacts on Soil Physical Properties—Parks	☐ **Understanding and Managing Cucurbit Crops—Everts and Johnson**

Announcing the
18th Annual

Mid-Atlantic Crop Management School

November 13-15, 2012

Princess Royale Hotel and Conference Center, Ocean City, MD

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