

Announcing the
23rd Annual



Mid-Atlantic Crop Management School

November 14-16, 2017

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 management, crop management and pest management can create their own schedule by choosing from 5 program options offered each hour. 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

Continuing Education Credits

The 2017 Mid-Atlantic Crop Management School will offer CCA continuing education units (CEU's) approved by the Certified Crop Adviser Program in the following categories:

- Crop Management
- Nutrient Management
- Pest Management
- Professional Development
- Soil & Water Management

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 to ensure a place in the sessions of your choice) is **\$275** if received by **September 15**; **\$285** if received by **October 30**; **\$325** if received by **November 6**. Registration will close on **November 6**. Payment of registration fee entitles you to participation in 2 ½ days of sessions, materials, 3 continental breakfasts, 2 lunches, and refreshment breaks.

Enrollment is on a first-come, first-served bases. Breakout sessions will be limited to 100 participants in each session with the exception of the 5th session, which has attendee limitations.

All registrations must be completed online and be paid by credit card at the time of registration.*

Visit <https://go.umd.edu/crop17registration> to complete your registration online and make your session selections. Once you complete the online registration, you will receive a confirmation email providing verification of your session schedule and receipt of payment.

**If you are unable to provide credit card payment and wish to pay by check, complete the online registration and select the alternative payment option listed. Please note that your selected sessions can only be guaranteed once full payment has been processed.*

Questions about registration or payment should be addressed to University of Maryland Conferences & Visitor Services at 301-314-0324 or cropregistration@umd.edu.

Cancellation Policy –

- All cancellations must be submitted in writing via email to cropregistration@umd.edu
- Cancellation requests received on or before November 6 are fully refundable, less a processing fee of \$25.00.
- No refunds after November 6.
- Substitutions are allowed at no additional cost provided notification is sent to cropregistration@umd.edu prior to the event start date.

Hotel Reservation Information

The Princess Royale Oceanfront Hotel and Conference Center is located at 91st Street in Ocean City, MD.

Contact the hotel directly to make your reservation. Call **1-800-4-ROYALE** or **410-524-7777** and identify yourself by **Group ID # 4020** or as a **Crop Management School participant**. Reserve your room no later than **Oct 13** to guarantee the rates below.

\$73 per night (plus applicable fees & taxes) – Oceanview/Poolview Suite

\$93 per night (plus applicable fees & taxes) – Oceanfront Suite

I. Registration

General registration will begin 8:30 a.m. on November 14. Registration packets and information regarding CEU's and recertification 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 14.

II. Crop Management Sessions

Each Session is Worth 1 CEU in Crop Management unless noted.

Managing Wheat for Profit -- Proper, timely management practices are universally important for attaining high wheat yields and quality grain. These practices can be adjusted to for site-specific needs and are often readjusted within the season to compensate for changing or emerging stresses or environmental conditions. This session will discuss the essential building blocks for producing higher yields and practices to optimize final grain end-use quality. *Instructor: Dr. Wade Thomason, Virginia Tech. Tuesday 10:00 and 11:00 am.*

Filtering the Kool-Aid: Episode II -- Frankly, today's agricultural world is teeming with misinformation, half-truths, pseudo-data, and sincere but incompetent researchers. This presentation will teach CCAs how to distinguish between factual agronomic information and crap-tual agronomic information. Come prepared to be educated, entertained, and probably insulted by what I have to say about separating agronomic fact from crap. *Instructor: Dr. Bob Nielsen, Purdue University. Tuesday 1:00 and 2:00 pm.*

Unmanned Aircraft: Updates on Rules and Research -- Unmanned aerial vehicles (UAVs) are more accessible than ever with lower costs and relaxed rules. Should you buy your own or pay someone else to gather data for you? This session will outline evolving UAV technology, regulations and updates to research as they apply to crop production. *Instructors: Mr. James Adkins and Dr. Jarrod Miller, University of Delaware. Tuesday, 3:10 and 4:10 pm.*

A Potpourri of Corn Field Problems -- This presentation will share examples of common and uncommon corn field problems that I have experienced over the years. This presentation will include images, background details, diagnostic evidence, circumstantial evidence, some plant physiology, and causal agents. *Instructor: Dr. Bob Nielsen, Purdue University. Wednesday 8:00 and 9:00 am.*

Agronomic Practices that Optimize Profitability of Soybean Production -- With recent fluctuations in the price of soybean, it is important to target production practices that will optimize profitability. Places to make gains when margins are tight include: optimizing seeding rate, targeting fertilizer application, and informed use of fungicides and insecticides. This presentation will discuss seeding rate, fertilizer, fungicides and insecticides, and other inputs that influence the profitability of soybean production. Additionally, this presentation will include a discussion of soybean yield components and how they are altered by management practices. *Instructor: Dr. Laura Lindsey, The Ohio State University. Wednesday 10:10 and 11:10 am.*

Wide-Row Wheat Production Practices -- Many farmers are interested in growing wheat in wide-rows (15-inch spacing) because they may no longer have or maintain a grain drill. Other farmers are interested in wide-row wheat to intercrop soybean prior to wheat harvest. This presentation will discuss the yield penalty associated with growing wheat in wide rows, variety

selection, nitrogen application, seeding rate, and disease management. *Instructor: Dr. Laura Lindsey, The Ohio State University. Wednesday 1:00 and 2:00 pm.*

Improving the Winter Wheat Double-Crop Soybean Production System -- Maximizing wheat yield requires attention to detail and good timing. In producing wheat, it is important to understand wheat yield components and how management practices and stress affect wheat yield at each stage of growth. This session will focus on identifying growth stages and on key management practices at critical stages to maximize wheat yield. *Instructor: Dr. Carrie Knott, University of Kentucky. Wednesday 3:10 and 4:10 pm.*

The Role of Plant Growth Regulators in Winter Wheat Production -- Interest and use of plant growth regulators has increased in winter wheat production in recent years, particularly as a tool to reduce lodging while increasing nitrogen rates. However, there are conflicting reports on the effectiveness of plant growth regulators when greater than recommended nitrogen rates are applied. The different findings and reasons for those differences will be discussed. *Instructor: Dr. Carrie Knott, University of Kentucky. Thursday 8:00 and 9:00 am.*

Best Management Practices for Rapeseed in the Mid-Atlantic -- Industrial rapeseed is a broadleaf winter oilseed whose price is not tied to the grain market. It is a viable alternative to winter small grains and can be used as a rotational tool to manage grassy weeds where winter small grains are typically planted. Acreage is growing in the mid-Atlantic region and growers need comprehensive information to successfully produce this crop. In this session we will cover best management practices for growers including land preparation and planting, nutrient and pest management as well as harvest management. *Instructor: Dr. Angela Post, North Carolina State University. Thursday 10:10 and 11:10 am.*

III. Nutrient Management Sessions

Each Session is Worth 1 CEU in Nutrient Management

Biochar: A Useful Soil Amendment-- Biochar is one of the products of a process called pyrolysis (burning biomass, including manure, in a low-oxygen environment) and has received growing attention over recent years. It can be used as a soil amendment, but the properties it adds to the soil depends on the initial composition of what was burned. The effects of various types of biochar on nutrient cycling in the soil will be discussed along with some considerations for use. *Instructor: Dr. Melissa Wilson, University of Maryland. Tuesday 10:00 and 11:00 am.*

Soil Salinity in the Mid-Atlantic: Origins, Consequences and Management- Despite annual rainfall of 40 inches a year, saline (salt-affected) soils occur in the Mid-Atlantic region under certain circumstances. Extreme weather conditions are leading to expanded acreage of saline soils. The various ways saline soils can develop in a humid climate will be discussed as well as the impact of saline soils in nutrient management and crop growth. Management options depend upon the origin and severity of salinity. *Instructor: Dr. Patricia Steinhilber, University of Maryland. Tuesday 1:00 and 2:00 pm.*

The NutrientStar Program: -- NutrientStar is an independent, third-party program that determines just how effective nutrient management tools are at helping farmers optimize their fertilizer use – and potentially save on input costs. The mission of the program is to identify fertilizer management products and decision support tools that effectively keep nutrients in the field

and reduce fertilizer losses. Scientific assessments provide valuable information on a tool's performance to the entire commodity crop supply chain – from farmers to food companies – while benefiting air and water quality across America. *Instructor: Dr. Wade Thomason, Virginia Tech. Tuesday, 3:10 and 4:10 pm.*

Soil Acidity and Aglime -- To use an old cliché, soil pH is basic to good soil management. However, soil acidity management is often relegated to a lower priority. Achieving optimum response from fertility and other input such as seeds and pesticides depends directly on having optimum soil acidity management. Understanding the causes and impacts of soil acidity, and the relationships to nutrients especially Ca and Mg and how to manage it is critical to good crop management. This session will cover the basics of soil acidity and the interactions with other nutrients and crop inputs, along with the essentials of liming materials and management. *Instructor: Dr. Doug Beegle, Penn State University. Wednesday 8:00 and 9:00 am.*

Phosphorus in Soils and Manure -- Knowledge about the phosphorus (P) in soils and manures is needed to understand the behavior of P in soils and predict the losses via leaching and surface runoff pathways. *Instructor: Dr. Gurpal Toor, University of Maryland. Wednesday 10:10 and 11:10 am.*

Hay and Pasture Nutrient Management to Maintain Stands and Increase Productivity -- Present Maryland N recommendations for cool-season grasses emphasize a late fall application to help maintain stands, improve stand density and increase late winter/early spring growth. Legumes can provide some or all of the N requirements for grasses, however, fertility and pH requirements vary among different legumes. Whether or not legumes should be included in hay and pasture stands depends upon their intended use. All of these aspects, including the role potassium also plays a key role in grass stand maintenance will be discussed. *Instructor: Dr. Les Vough, USDA-NRCS. Wednesday 1:00 and 2:00 pm.*

Capturing Nutrients with Early Planted Cover Crops -- Early-planted, deep-rooted cover crops can improve nutrient management and N use efficiency of corn and soybean agriculture. First, we will discuss the huge pools of mineral N (average of 250 pounds/acre) that remain in the soil profile (0-7 feet deep) in September after growing corn or soybean. Second, we will discuss how cover crop systems can most effectively capture and recycle this leftover pool of N. A mixed species cover crop planted by early September can capture N (and other nutrients) from as deep as 6 feet, and release these nutrients to subsequent crops. We will discuss the importance of cover crop species and planting/establishment techniques for improving N capture and reuse. *Instructor: Mrs. Sarah Hirsh, University of Maryland. Wednesday 3:10 and 4:10 pm.*

Soil Fertility Trends in the Mid-Atlantic: -- The IPNI soil test summary is the fourth in a series of summaries conducted over the past 15 years. In 2015, over 4.3 million samples were included in the analyses from both public and private laboratories and analyzed using a standard set of soil test interpretation equivalencies. In general, potassium (K) levels and changes over time in the mid-Atlantic are in agreement with university recommendations. Soil test phosphorus (P) levels in the region are trending downward, but the majority of samples are still above critical levels for crop production. This presentation will discuss regional and by-state data and trends, nutrient balances, and nutrient management strategies that can positively and negatively

affect soil test levels in the future. *Instructor: Dr. Steve Phillips, International Plant Nutrition Institute. Thursday 8:00 and 9:00 am.*

Enhanced Efficiency Nitrogen Fertilizers: What are they? Why use them?: -- Understanding ways to improve nitrogen management in corn, wheat, and other non-legume cropping systems will allow producers to potentially use less nitrogen fertilizers while maintaining or increasing yields. One strategy to increase nitrogen use efficiency is to use fertilizers additives that improve the uptake and utilization of nitrogen from fertilizers. Additives that fall into this classification are called enhanced efficiency nitrogen fertilizers (EENF's). Within EENF's there are different modes of action, similar to herbicides and fungicides. Understanding these modes of action will allow producers, distributors, and crop consultants make decisions about which products are the right fit for your production practices. *Instructor: Dr. William Frame, Virginia Tech. Thursday 10:10 and 11:10 am.*

IV. Pest Management Sessions

Each Session is Worth 1 CEU in Pest Management unless noted.

Insect Pest Management Update for Sweet Corn and Other Vegetable Crops -- This session will address current research on insect pest management in sweet corn and other vegetables grown in the Mid-Atlantic U.S. Information will help decisions on whether control measures are necessary for certain insect pests, and selecting the most appropriate insecticide that is not only effective on the target pest, but also compatible with natural enemies and pollinator protection. *Instructor: Tom Kuhar, Virginia Tech. Tuesday 10:00 and 11:00 am.*

Integrating Dicamba into Mid-Atlantic Soybean Production -- This presentation aims to address how dicamba will fit into soybean weed management programs in the mid-Atlantic region. Specifically, control of herbicide-resistant common ragweed, horseweed, and Palmer amaranth by dicamba will be discussed. Dr. Cahoon will also discuss volatility, spray drift, and tank contamination and how to avoid off-target deposition of pesticides. *Instructor: Dr. Charlie Calhoon, Virginia Tech. Tuesday 1:00 and 2:00 pm.*

Controlling Row Crop Insects and Insect Resistance Monitoring -- This presentation will present information on current insect pest problems in row crops. Results of surveys for invasive pests, insecticide resistance monitoring programs, and insecticide performance evaluations will be discussed. *Instructor: Dr. Sally Taylor, Virginia Tech. Tuesday, 3:10 and 4:10 pm.*

No Pesticides, No Problem! Insect Pest Management in Organic Crops -- In organic farming systems, the mainstays of insect pest management in non-organic systems – genetically modified crops and pre-emptive or reactive applications of synthetic insecticides - are not allowed. This session will address concepts and practices for insect pest management in transitioning and organic crops. Information will be presented on how to crop and soil management practices affect pest and beneficial insects. *Instructor: Dr. Mary Barbercheck, Penn State University. Wednesday 8:00 and 9:00 am.*

Herbicide Performance Beyond What's in the Jug -- Herbicide performance depends on many variables, with the right product and the right timing being the two most critical. But, when applications are made under less than ideal conditions or there is not a highly effective option available, then factors such as nozzle selection, time of day, or spray coverage becomes even more critical. This presentation will address the importance of these

issues and other considerations for optimizing herbicide applications. *Instructor: Dr. Mark VanGessel, University of Delaware. Wednesday 10:10 and 11:10 am.*

Identification and Management of Soybean Stem Diseases-- Stem diseases of soybeans are one of the more challenging groups of disorders in plant pathology. Growers in the Mid-Atlantic encounter stem diseases of some sort on an annual basis, and losses in some instances can be significant. This talk will discuss major pathogens causing stem diseases on soybeans in the mid-Atlantic, keys for diagnosis, and control recommendations. Participants will receive a copy of the Soybean Disease Scouting Guide. *Instructor: Dr. Nathan Kleczewski, University of Illinois. Wednesday 1:00 and 2:00 pm.*

Diagnosis and Management of Brassica Diseases -- This presentation will cover diagnosing plant disease problems in brassica crops and understanding the environmental conditions that favor those pathogens. Cultural and fungicide disease management options will be discussed for each disease in each crop. *Instructor: Dr. David Langston, Virginia Tech. Wednesday 3:10 and 4:10 pm.*

V. Soil and Water Sessions

Each Session is Worth 1 CEU in Soil and Water Management

Phosphorus Removal Structures: Fighting Small Battles to Win the War -- Dissolved phosphorus (P) transport from soils to surface waters is not alleviated through traditional conservation practices. Eliminating the source of high P soils through “draw-down” is a necessary but slow process, often requiring decades. During that time, dissolved P will continue to be lost with every flow event. A new BMP that offers an immediate solution while the root of the long-term problem is addressed, is the P removal structure. P removal structures are landscape-scale filters for removing dissolved P before it reaches a water body, and can be applied to a variety of situations such as ditches, tile drains, ponds, and drainage swales. Several types of structures will be presented along with the basics of design. *Instructor: Dr. Chad Penn, USDA-ARS. Tuesday 10:00 and 11:00 am.*

Western Lake Erie Basin: A Perfect Storm -- Eutrophication of Lake Erie has been attributed to excess loading of nitrogen and phosphorus (P), although P is usually considered the most limiting nutrient. Although total P loading to Lake Erie has been consistent for several decades, it has experienced a recent “re-eutrophication” that is attributed to a greater proportion of dissolved P input. An algal bloom in August, 2014, was so severe that the city of Toledo issued a “do not drink” water advisory due to harmful levels of microcystin. There are several reasons for this increase in dissolved P loading, but no “silver bullet”. Phosphorus cycling and non-point transport in the Western Lake Erie basin will be presented along with examples of nutrient loads from several sub-watersheds. *Instructor: Dr. Chad Penn, USDA-NRCS. Tuesday 1:00 and 2:00 pm*

The BHSL On-Farm Fluidized Bed Technology - How it Works Using Poultry Litter as a Fuel Source -- After the birds are collected for processing, the poultry manure from the grow-out houses is transferred to the manure storage area. Over the next flock, the manure is automatically transferred to the BHSL energy plant which converts the manure into heat or heat and electricity. The process is overseen by the BHSL Remote Operations Centre and meets strict emissions limits. Benefits include; improved house environmental conditions, a known use for manure, enhanced bird welfare, heavier birds, improved feed conversion,

heating and electricity savings as well as renewable energy incentives. The left-over ash is a valuable fertilizer. *Instructor: Mr. Ken Le Faive, BHSL. Tuesday, 3:10 and 4:10 pm.*

Conservation Drainage-Bringing Drainage to the 21st Century -- Recently there have been advances in the field of agricultural conservation drainage with the development of four practices that help reduce sediment and nutrient loss. Starting in the field, old surface inlets (catch basins) can be replaced with NRCS Code 620-Underground Outlet (blind inlet) to stop surface sediment and phosphorus losses. At the outlet of a drain tile three options are available: a structure for water control (NRCS-587), a saturated buffer (NRCS-739), or a denitrifying bioreactor (NRCS-605), all of which help reduce nitrate-nitrogen and can help reduce phosphorus losses. To manage the water table annually and minimize nutrient loss a drainage water management plan (DWM, NRCS code 130) can be created to help the landowner better manage the conservation drainage practices installed. Used in combination these practices can maintain the desired drainage for agronomic objectives while also achieving water quality goals. *Instructors: Mr. Tim Rosen, Mid Shore RiverKeepers. Wednesday 8:00 and 9:00 am.*

Saltwater Intrusion and Legacy Nutrient Release across Coastal Farmland -- As the world’s climate changes, rural coastlines are becoming more vulnerable to sea level rise. Consequently, coastal ecosystems such as tidal salt marshes, riparian forests, and farmland are undergoing major changes in nutrient cycling. With centuries of farming and fertilization, nitrogen (N) and phosphorus (P) in excess of plant demand can accumulate in soils (known as legacy nutrients). Sea level rise and associated saltwater intrusion can remobilize legacy nutrients years or even decades after application, supplying a persistent but unpredictable source of nutrients to downstream waterways. Effective nutrient management requires a better understanding of P and N cycling in these intersecting ecosystems. *Instructor: Ms. Danielle Weissman, University of Maryland. Wednesday 10:10 and 11:10 am.*

Floodplain Reconnection for Water Quality and Water Storage Benefits on the Pocomoke River -- Floodplain restoration presents a promising opportunity to address water resource concerns. Few studies, however, confirm targeted benefits. We evaluated river-floodplain water exchange and phosphorus trapping in natural, reconnected, and disconnected floodplains along the Pocomoke River. Hydrology data from three restored floodplain sites showed similarity to the hydrologic regime of a natural floodplain, and differences from disconnected floodplain sites, and confirmed that levee breaches enhance river-floodplain interactions. Phosphorus sedimentation far exceeded phosphate release from restored floodplain soils, indicating that levee breaches have been successful for improving water quality. *Instructor: Mr. Steve Strano & Dr. Kathy Boomer, USDA-NRCS. Wednesday 1:00 and 2:00 pm.*

Ethics for the Certified Crop Advisor -- Crop Advisors and Agronomists often are asked to perform a wide range of tasks throughout each season. The life of many crop advisors and agronomists is fast-paced, has long hours, and tends to be overwhelming at times. Between the demands of farmers, staff, marketing, research, field work and billing it is sometimes difficult to have time to consider more than just what needs to get done next. With this a schedule, one might ask where to fit in thinking about ethics and appropriate conduct. Are you operating ethically? Are you sure? At times ethics can become a gray area

in our professional lives. A review of professional ethics is useful from time to time to remind ourselves of our professional responsibility to be cognizant of ethics and the potential ramifications of unethical behavior. This talk will review ethics and ask for your input on what the most ethical response is in various professional/agronomic situations. *Instructor: Mr. Matt Duncan, Crop Production Services. Wednesday 3:10 and 4:10 pm.*

Silage Leachate Collection and Treatment -- This presentation will discuss silage leachate production, collection, and treatment. Included will be a discussion on estimating volumes and potential environmental effects. Handling methods and treatment options will be reviewed for both low-flow, concentrated leachate and high-flow, diluted materials generated during rainfall events. High flows are only associated with large concrete bunk complexes. Methods presented commonly used in Northeastern United States. *Instructors: Mr. Peter Vanderstappen, USDA-NRCS. Thursday 8:00 and 9:00 am.*

Soil Compaction -- Soil compaction is a common plant growth and yield limiting factor often overlooked in field evaluations and farm management. Compaction can occur under numerous circumstances and can effect root growth, nutrient uptake by plants and nutrient and water movement in and through the soil. This session will discuss compaction and soil mixing in agricultural lands due to farming practices and energy industry construction projects such as oil/gas pipelines and transmission line installation. Areas of discussion will include; types of compaction, causes of compaction, methods to identify and measure compaction, how to determine if soil conditions make the soil more or less prone to be compacted, methods to limit compaction, and de-compaction techniques. *Instructor: Mr Matt Duncan, Crop Production Services. Thursday 10:10 and 11:10 am.*

EPA Perspective: Improving Water Quality through Voluntary Agricultural Partnerships and Watershed Planning -- The watershed approach is fundamental to implementing work at the local scale to achieve water quality results. A watershed plan is a strategy and roadmap for achieving water quality resource goals. These plans provide the technical basis to guide work related to pollutant loads, sources, and conservation practices strategically prioritized in critical areas that will have the greatest impact on water quality. Successful planning includes the establishment of strong partnerships through stakeholder, community and producer involvement and implementation of plans that define achievable water quality goals and develop conservation systems that address the pollutants and met producers' needs. This presentation will cover the core components of watershed planning, outline principles that increase the likelihood of water quality improvement in agricultural landscapes, and discuss key EPA programs and initiatives that help farmers and landowners voluntarily implement conservation practices for water quality benefits. *Instructor: Mrs. Erika Larson, USEPA. Thursday 8:00 and 9:00 am.*

Adapting and Mitigating for Climate Change While Managing for Soil and Water -- The Northeast Climate Hub in partnership with University of Delaware Cooperative Extension recently developed an interactive virtual experience, called As If You Were There. This online tool showcases adaptation strategies that can help producers deal with changing temperatures and precipitation patterns and features mitigation strategies that

improve energy efficiency and sequester carbon. Many of the practices featured have soil and water benefits. This presentation will introduce the project and highlight the sites that are utilizing soil and management techniques that benefit producers now and will improve an operations resiliency in the future. *Instructor: Mrs. Jennifer Volk, University of Delaware. Thursday 10:10 and 11:10 am.*

VI. Alternative Session: Costs and Benefits

CEUs for each session are provided after the abstract

Crop Budgets and More -- Cost of production is very important when making decisions related to your farm enterprise and grain marketing. Enterprise budgets provide a valuable tool to enable the farm manager to make decisions and plan for the coming production year. The enterprise budget uses farm revenue, variable cost, fixed cost and net income to provide a clear picture of the financial health of each farm enterprise. The class will teach where to find the crop budgets and custom rates, what the integral parts of a crop budget are and how to use the budgets. *Instructors: Mrs. Shannon Dill & Mrs. Jennifer Rhodes, University of Maryland. Tuesday 10:00 and 11:00 am.*

Determining Highest Economic Yields in Crop Production Practices -- Crop consultants, retailers, and others in agriculture have widely adopted the "4-R Nutrient Stewardship" approach as a framework for managing fertilizer resources to achieve cropping system goals. When discussing the 4-R's we typically focus on selecting the Right source, to apply at the Right rate, at the Right time, and in the Right place. However, the cropping system performance objectives we hope to achieve are of equal if not greater importance. We have to determine how to balance performance objectives that might be in competition, such as profitability, yield, and environmental protection. *Instructor: Dr. Josh McGrath, University of Kentucky. Tuesday 1:00 and 2:00 pm.*

How Strategic Cover Cropping Doesn't Cost – It Pays -- Cover crops have a host of conservation benefits to soil and water, but do they pay? Regardless of being a "good" or "bad" corn year, there are large pools (average of 250 pounds/acre) of mineral N that remain in the soil profile (0-7 feet deep) after growing corn or soybean. Certain cover crop systems will capture this N in the fall, and release it on the soil surface the following spring, allowing for reduced fertilizer applications. We will discuss the cost of various cover crop species and establishment techniques (e.g., broadcast, drilling, aerial seeding), and how these costs can be offset by reduced spring input costs (e.g., fertilizer and/or herbicide) and an overall improvement in soil fertility, water conservation and even cash crop yields. *Instructors: Mrs. Sarah Hirsh, University of Maryland. Tuesday, 3:10 and 4:10 pm.*

Assessing the Profitability of Foliar Fungicides in Mid-Atlantic Winter Wheat -- Foliar diseases can significantly impact yield and grain quality in winter wheat, especially residue borne pathogens belong to the Leaf blotch complex, which has increased with the adoption of minimum tillage. Fungicides are often utilized for disease management, and growers now have many options when it comes to choosing a product and application timing. Information presented will be specific to the mid-Atlantic, with a focus on examining the utility of commonly used fungicide programs and potential profitability. *Instructor: Mr. Phillip Sylvester, University of Delaware. Wednesday 8:00 and 9:00 am.*

Using Vegetable Crop Budgets for Crop Management

Decisions -- The University of Delaware has updated vegetable crop budgets for fresh market and processing vegetables in spreadsheet format. In this session budgets for over 20 vegetable crops will be examined. Critical parts of a crop budget will be discussed along with how to obtain valid fixed cost, variable cost, and return information. Training will center on how to use these budgets for crop management decisions with an emphasis on using the information provided to make partial budgets for comparisons of costs and returns. Participants will get hands-on training on using these budgets (bring a tablet or notebook With Excel) and how to enter their own information. Case studies will be presented with different budget scenarios and crop decisions.

Instructors: Mrs. Emmalea Ernest & Dr. Gordon Johnson.

Wednesday 10:10 and 11:10 am.

Costs/Benefits of IPM Practices in Commercial Horticulture --

Integrated pest management is designed to give the best economic outcome for pest control. This talk will cover the choices you can make to measure the costs and benefits in commercial horticulture. *Instructors: Mr. Chuck Schuster, University of Maryland. Wednesday 1:00 and 2:00 pm.*

Valuing Compost in Agronomic and Horticultural

Applications: -- Commercial bulk compost is often available to farmers In the Mid-Atlantic region from local and regional suppliers. Many studies have found that significant soil health benefits are provided when compost is used in horticultural and agronomic crop production systems. However, what is often missing is how to value those benefits. Composts can differ significantly and information will be provided on compost testing, what these tests mean, and how to use this information to start the valuation process. Results of studies where compost costs and benefits have been assessed will be presented. How to value long term compost benefits will also be discussed. Results of local studies will be presented on using different compost sources in vegetable crops. *Instructor: Dr. Gordon Johnson, University of Delaware. Wednesday 3:10 and 4:10 pm.*

What is the True Value of Phosphorus Additions in High P Soils in Selected Vegetable Crops --

Phosphorus is an important nutrient for Delmarva vegetable, grain, and oilseed crops. Dissimilar to grain and oilseed crops, vegetables often demonstrate increased yield even with very high soil test phosphorus concentrations. This session will overview vegetable crop phosphorus needs along with expected yield responses from additional fertilizer additions, even on very high soil tests.

Instructors: Dr. Mark Reiter, Virginia Tech. Thursday 8:00 and 9:00 am.

Costs and Benefits of Irrigation in Field Crops: -- The capital costs to install irrigation are highly variable depending on irrigation type, field size, water source and geography. This session will weigh the initial setup and operation costs versus the potential yield increases. Application efficiency, pumping costs, management time and maintenance will be quantified followed by a detailed discussion of the qualitative benefits/costs. *Instructors: Dr. Cory Whaley and Mr. James Adkins. Thursday 10:10 and 11:10 am.*

2017 Crop Management School Workshop Schedule

Tuesday, November 14, 2017

Time	Crop Management Palmetto 2 & 3 (upstairs)	Nutrient Management Palmetto 4 & 5 (upstairs)	Soil and Water Mgt. Barbados & Cayman (downstairs)	Pest Management Dominica & Eleuthera (downstairs)	Interactive Session Palmetto 1 (upstairs)
10:00 - 10:50	Managing Wheat for Profit <i>Dr. Wade Thomason</i>	Biochar: A Useful Soil Amendment <i>Dr. Melissa Wilson</i>	Phosphorus Removal Structures: Fighting Small Battles to Win the War <i>Dr. Chad Penn</i>	Insect Pest Management Update for Sweet Corn/Vegetable Crops <i>Dr. Tom Kuhar</i>	Crop Budgets and More <i>Mrs. Shannon Dill</i> <i>Mrs. Jenny Rhodes</i>
11:00 - 11:50	Managing Wheat for Profit <i>Dr. Wade Thomason</i>	Biochar: A Useful Soil Amendment <i>Dr. Melissa Wilson</i>	Phosphorus Removal Structures: Fighting Small Battles to Win the War <i>Dr. Chad Penn</i>	Insect Pest Management Update for Sweet Corn/Vegetable Crops <i>Dr. Tom Kuhar</i>	Crop Budgets and More <i>Mrs. Shannon Dill</i> <i>Mrs. Jenny Rhodes</i>
11:50 - 1:00	LUNCH BREAK				
1:00 - 1:50	Filtering the Kool-Aid: Episode II <i>Dr. Bob Nielsen</i>	Soil Salinity in the Mid Atlantic: Origins and Management <i>Dr. Patricia Steinhilber</i>	Western Lake Erie Basin: A Perfect Storm <i>Dr. Chad Penn</i>	Integrating Dicamba into Mid-Atlantic Soybean Production <i>Dr. Charlie Cahoon</i>	Determining the Highest Economic Yields in Production <i>Dr. Josh McGrath</i>
2:00 - 2:50	Filtering the Kool-Aid: Episode II <i>Dr. Bob Nielsen</i>	Soil Salinity in the Mid Atlantic: Origins and Management <i>Dr. Patricia Steinhilber</i>	Western Lake Erie Basin: A Perfect Storm <i>Dr. Chad Penn</i>	Integrating Dicamba into Mid-Atlantic Soybean Production <i>Dr. Charlie Cahoon</i>	Determining the Highest Economic Yields in Production <i>Dr. Josh McGrath</i>
2:50 - 3:10	BREAK				
3:10 - 4:00	Unmanned Aircraft: Updates on Rules and Research <i>Mr. James Adkins</i> <i>Dr. Jarrod Miller</i>	The NutrientStar Program <i>Dr. Wade Thomason</i>	Fluidized Bed Technology and Poultry Litter as a Fuel Source <i>Mr. Ken Le Faive</i>	Controlling Row Crop Insect Pests and Insect Resistance Monitoring <i>Dr. Sally Taylor</i>	How Strategic Cover Cropping Doesn't Cost – It Pays <i>Mrs. Sarah Hirsh</i>
4:10 - 5:00	Unmanned Aircraft: Updates on Rules and Research <i>Mr. James Adkins</i> <i>Dr. Jarrod Miller</i>	The NutrientStar Program <i>Dr. Wade Thomason</i>	Fluidized Bed Technology and Poultry Litter as a Fuel Source <i>Mr. Ken Le Faive</i>	Controlling Row Crop Insect Pests and Insect Resistance Monitoring <i>Dr. Sally Taylor</i>	How Strategic Cover Cropping Doesn't Cost – It Pays <i>Mrs. Sarah Hirsh</i>

Wednesday, November 15, 2017

Time	Crop Management Palmetto 2 & 3 (upstairs)	Nutrient Management Palmetto 4 & 5 (upstairs)	Soil and Water Mgt. Barbados & Cayman (downstairs)	Pest Management Dominica & Eleuthera (downstairs)	Interactive Session Palmetto 1 (upstairs)
8:00 - 8:50	A Potpourri of Corn Field Problems <i>Dr. Bob Nielsen</i>	Soil Acidity and Aglime <i>Dr. Doug Beegle</i>	Conservation Drainage: Bringing it into the 21 st Century <i>Mr. Tim Rosen</i>	No Pesticides? No Problem! Insect Pest Management in Organic Crops <i>Dr. Mary Barbercheck</i>	Assessing the Profitability of Foliar Fungicides on Wheat <i>Mr. Phillip Sylvester</i>
9:00 - 9:50	A Potpourri of Corn Field Problems <i>Dr. Bob Nielsen</i>	Soil Acidity and Aglime <i>Dr. Doug Beegle</i>	Conservation Drainage: Bringing it into the 21 st Century <i>Mr. Tim Rosen</i>	No Pesticides? No Problem! Insect Pest Management in Organic Crops <i>Dr. Mary Barbercheck</i>	Assessing the Profitability of Foliar Fungicides on Wheat <i>Mr. Phillip Sylvester</i>
9:50 - 10:10	BREAK				
10:10 - 11:00	Agronomic Practices that Optimize Profitability of Soybean Production <i>Dr. Laura Lindsey</i>	Phosphorus in Soils and Manure <i>Dr. Gurpal Toor</i>	Saltwater Intrusion and Legacy Nutrient Release <i>Ms. Danielle Weissman</i>	Herbicide Performance: Beyond What's in the Jug <i>Dr. Mark VanGessel</i>	Using Vegetable Crop Budgets for Management Decisions <i>Dr. Gordon Johnson</i> <i>Mrs. Emmalea Ernest</i>
11:10 - 12:00	Agronomic Practices that Optimize Profitability of Soybean Production <i>Dr. Laura Lindsey</i>	Phosphorus in Soils and Manure <i>Dr. Gurpal Toor</i>	Saltwater Intrusion and Legacy Nutrient Release <i>Ms. Danielle Weissman</i>	Herbicide Performance: Beyond What's in the Jug <i>Dr. Mark VanGessel</i>	Using Vegetable Crop Budgets for Management Decisions <i>Dr. Gordon Johnson</i> <i>Mrs. Emmalea Ernest</i>
12:00 - 1:00	LUNCH BREAK				
1:00 - 1:50	Wide-Row Wheat Production Practices <i>Dr. Laura Lindsey</i>	Hay and Pasture Nutrient Management <i>Dr. Les Vough</i>	Floodplain Reconnection on the Pocomoke River <i>Mr. Steve Strano</i> <i>Dr. Kathy Boomer</i>	Identification and Management of Soybean Stem Diseases <i>Dr. Nathan Kleczewski</i>	Cost/Benefits of IPM in Commercial Horticulture <i>Mr. Chuck Schuster</i>
2:00 - 2:50	Wide-Row Wheat Production Practices <i>Dr. Laura Lindsey</i>	Hay and Pasture Nutrient Management <i>Dr. Les Vough</i>	Floodplain Reconnection on the Pocomoke River <i>Mr. Steve Strano</i> <i>Dr. Kathy Boomer</i>	Identification and Management of Soybean Stem Diseases <i>Dr. Nathan Kleczewski</i>	Cost/Benefits of IPM in Commercial Horticulture <i>Mr. Chuck Schuster</i>
2:50 - 3:10	BREAK				

Wednesday, November 15, 2017 (Continued)

Time	Crop Management Palmetto 2 & 3 (upstairs)	Nutrient Management Palmetto 4 & 5 (upstairs)	Soil and Water Mgt. Barbados & Cayman (downstairs)	Pest Management Dominica & Eleuthera (downstairs)	Interactive Session Palmetto 1 (upstairs)
3:10 - 4:00	Improving the Winter Wheat Double Crop Soybean Production System <i>Dr. Carrie Knott</i>	Capturing Nutrients with Early Planted Cover Crops <i>Ms. Sarah Hirsh</i>	Ethics for the Certified Crop Advisor <i>Mr. Matt Duncan</i>	Diagnosis and Management of Brassica Diseases <i>Dr. David Langston</i>	Valuing Compost in Agronomic and Horticulture Applications <i>Dr. Gordon Johnson</i>
4:10 - 5:00	Improving the Winter Wheat Double Crop Soybean Production System <i>Dr. Carrie Knott</i>	Capturing Nutrients with Early Planted Cover Crops <i>Ms. Sarah Hirsh</i>	Ethics for the Certified Crop Advisor <i>Mr. Matt Duncan</i>	Diagnosis and Management of Brassica Diseases <i>Dr. David Langston</i>	Valuing Compost in Agronomic and Horticulture Applications <i>Dr. Gordon Johnson</i>

Thursday, November 16, 2017

Time	Crop Management Palmetto 2 & 3 (upstairs)	Nutrient Management I Palmetto 4 & 5 (upstairs)	Nutrient Management II Barbados & Cayman (downstairs)	Soil and Water Mgt. I Dominica & Eleuthera (downstairs)	Interactive Session Palmetto 1 (upstairs)
8:00 - 8:50	The Role of Plant Growth Regulators in Winter Wheat Production <i>Dr. Carrie Knott</i>	Soil Fertility Trends in the Mid-Atlantic <i>Dr. Steve Phillips</i>	Silage Leachate Collection and Treatment <i>Mr. Peter Vanderstappen</i>	Improving Water Quality Through Agricultural Partnerships and Planning <i>Ms. Erika Larson</i>	What is the True Value of P Additions in High P Soils for Selected Vegetables <i>Dr. Mark Reiter</i>
9:00 - 9:50	The Role of Plant Growth Regulators in Winter Wheat Production <i>Dr. Carrie Knott</i>	Soil Fertility Trends in the Mid-Atlantic <i>Dr. Steve Phillips</i>	Silage Leachate Collection and Treatment <i>Mr. Peter Vanderstappen</i>	Improving Water Quality Through Agricultural Partnerships and Planning <i>Ms. Erika Larson</i>	What is the True Value of P Additions in High P Soils for Selected Vegetables <i>Dr. Mark Reiter</i>
9:50 - 10:10	BREAK				
10:10 - 11:00	Mid-Atlantic Rapeseed Production Recommendations <i>Dr. Angela Post</i>	Enhanced Efficiency Nitrogen Fertilizers <i>Dr. Hunter Frame</i>	Soil Compaction <i>Mr. Matt Duncan</i>	Adapting for Climate Change While Managing Soil and Water <i>Mrs. Jennifer Volk</i>	Costs and Benefits of Irrigation in Field Crops <i>Dr. Cory Whaley</i> <i>Mr. James Adkins</i>
11:10 - 12:00	Mid-Atlantic Rapeseed Production Recommendations <i>Dr. Angela Post</i>	Enhanced Efficiency Nitrogen Fertilizers <i>Dr. Hunter Frame</i>	Soil Compaction <i>Mr. Matt Duncan</i>	Adapting for Climate Change While Managing Soil and Water <i>Mrs. Jennifer Volk</i>	Costs and Benefits of Irrigation in Field Crops <i>Dr. Cory Whaley</i> <i>Mr. James Adkins</i>



Mid-Atlantic Crop Management School

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Alternative Session: Costs and Benefits

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Mr. Chuck Schuster – University of Maryland



Mid-Atlantic Crop Management School

November 14-16, 2017

Princess Royale Hotel and Conference Center, Ocean City, MD

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