

Virtual Mid-Atlantic Crop Management School



February 13 – March 13, 2023

About the School

The online school offers 18 static learning courses followed by short assessments. Individuals needing training in soil and water, nutrient management, crop management and pest management can view modules and complete short assessments to obtain CCA and state nutrient management and pesticide recertification credits. The online offerings consist of professionally produced videos of selected sessions from the 2022 Mid-Atlantic Crop Management School that was offered in Ocean City in November 2022. Modules are available for credit for anyone who has not already received credit at the in-person school.

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 2022 Mid-Atlantic Crop Management School will offer CCA continuing education units (CEUs) approved by the Certified Crop Adviser Program in the following categories:

- Crop Management
- Nutrient Management
- Pest Management
- Precision Agriculture
- Soil & Water Management

Total CEUs earned will depend on course selection. This school also provides Pesticide Recertification Credits and Nutrient Management continuing education for DE, MD, VA, and WV.

Registration Information

Registration will remain open until 5 pm on Thursday March 13. Access to individual modules is available for \$15/module. Full access to all 18 modules is available for \$200*. **Note: You are not eligible to receive credits for a module if you received credit for attending the same talk at the in-person school in November 2022. Please check your records before registering for modules.**

**Full access is recommended for individuals who did not attend in-person Crop School in Nov 2022 and are seeking CCA or DE/MD Nutrient Management and pesticide credits. The full access price represents a \$45 savings over a-la-carte purchase.*

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

Visit to complete your registration online and make your module selections. Once you complete the online registration, you will receive a confirmation email providing verification of your module selection and receipt of payment.

Questions about registration or payment should be addressed to University of Delaware Nutrient Management Program at 302-735-8137 or nutrient-management@udel.edu.

Refund Policy:

- Refunds will be considered on a case-by-case basis and must be submitted in writing via email to nutrient-management@udel.edu
- **Refunds are not available for modules purchased by attendees who already received credit for that talk at the 2022 in-person meeting. Please check your records before registering!**

I. Module Access

Access to modules is separate from registration and must be processed manually by program staff. Registrations will be processed daily on weekdays through March 9. Weekend registrations will be processed the following Monday. For example, if you register at 6 pm on Wednesday February 15, you will receive access to the modules by 5 pm on Thursday February 16. *A separate confirmation email will be sent when your access is activated.*

II. Crop Management Sessions

Credits listed below for individual modules. Please check module CEU offerings before registering.

Top Tips for Planting Green -- Planting green is when cover crop termination is delayed until cash crop planting or later. Delaying cover crop termination can help manage soil moisture, suppress weeds, and protect soil, but comes with challenges, too. This presentation will lay out tips for planting corn and soybeans green that we've learned from replicated trials, plus input from farmers who regularly use the practice. **Instructor: Ms. Heidi Reed, Pennsylvania State University. (CCA Crop Management 1.0; DE and MD Nutrient Management 1.0; not eligible for VA or WV Nutrient Management) -- \$15**

Impact of Late-Season Management on Soybean Systems: Crop Yield and Quality-- Soybean is a crop which requires season long management. As with most crops, critical production decisions at and around planting can influence yield. However, late-season and harvest management decisions can be just as critical and have a major impact on yield potential. Late-season management decisions such as insect and disease management, desiccation, and harvest management can not only have an impact on yield but also seed quality. Information will be discussed on how these management considerations can impact soybean production systems in both semi-arid and humid regions, of southern the Great Plains and the Mid-South, respectively. **Instructor: Dr. Josh Lofton, Oklahoma State University. (CCA Crop Management 1.0; DE, MD Nutrient Management 1.0; not eligible for VA or WV Nutrient Management) -- \$15**

Soybean Planting Date and Management Interactions -- The date of planting has more effect on soybean grain yield than any other production practice. How early is too early, though? In this presentation, learn more

about ‘ultra-early’ soybean planting, potential pest problems, abiotic stress, and interactions with cover crops. Although early planting is ideal, soybeans are often planted late due to wet weather in the spring. This presentation will also cover soybean planting date and seeding rate interactions. **Instructor: Dr. Laura Lindsey, The Ohio State University. (CCA Crop Management 1.0; DE, MD Nutrient Management 1.0; not eligible for VA or WV Nutrient Management) -- \$15**

Are Maize Brace Roots Stealing Yield? -- The importance of maize brace roots has long-been debated – with some sources claiming these roots are critical for production and others claiming they are a sign of poor plant health. I will discuss our latest results to show that these roots are not only important to maintain plant stand and prevent lodging, but that these roots also uptake water and nutrients during the critical growth periods of maize plants. *Instructor: Dr. Erin Sparks, University of Delaware. (CCA Crop Management 1.0; DE, MD, WV Nutrient Management 1.0; not eligible for VA Nutrient Management) -- \$15*

Planting Technology Options and Considerations to Improve Field Performance and Productivity -- Several planting technologies are currently available for growers to utilize on their row-crop planters. Information on some of the basic and advanced planting technologies along with how these technologies can be effectively utilized for improving seed metering and placement accuracy, planting efficiency and crop productivity in row-crops will be shared in this session. **Instructor: Dr. Simerjeet Virk, University of Georgia. (CCA Crop Management 1.0; DE, MD Nutrient Management 1.0; not eligible for VA or WV Nutrient Management) -- \$15**

III. Nutrient Management Sessions

Credits listed below for individual modules. Please check module CEU offerings before registering.

Alternative Fertility Sources for Forage Systems – Ensuring proper soil fertility provides the foundation for a successful forage system. Commercial fertilizers are one option for providing nutrients but there are also other means for providing fertility to pastures and hayfields. This presentation will discuss the use of alternative fertility sources, including manure, legumes, soil biological activity, and other soil amendments, along with some fertility considerations for grazed versus harvested forages and strategies for ensuring more uniform nutrient distribution. **Instructor: Dr. Amanda Grev, University of Maryland. (CCA Nutrient Management 1.0; DE, MD, VA, WV Nutrient Management 1.0) -- \$15**

Soil Lime Requirement Test Methods, What They Are and How They Differ Across the Mid-Atlantic Region -- Acid soils and their management are ongoing management issues across the Mid-Atlantic Region. Generally slightly acid soils do not require lime, whereas more acid soils (pH < 6.2) and/or highly-buffered soils of the Mid-Atlantic require an assessment of exchangeable soil acidity. Regionally, there are four primary soil buffer pH methods used to assess reserve acidity: SMP, Adams Evans, Sikora, and Modified Mehlich, each with its own unique lime rate recommendations. The FRST lime project, which is led by university and USDA scientists, was initiated in January 2022 to: (1) review LGU pH and buffer pH methods utilized across the US; (2) document lime recommendation algorithms and constraints; and (3) develop regional/national harmonized lime recommendations based on new lime calibration work. This management session will review FRST lime project survey results, address similarities and differences in soil test buffer pH methods utilized for the measurement of soil exchangeable acidity, review lime recommendations, and identify soil properties and conditions where each is most effective. **Instructor: Dr. Robert (Bob) Miller, Agricultural Laboratory Proficiency Program. (CCA Nutrient Management 1.0; DE, MD, VA, WV Nutrient Management 1.0) -- \$15**

Refining Corn Nitrogen Management Strategies to Improve Sustainability -- Nitrogen management production is a perennial challenge for corn growers. This presentation will highlight how soil drainage class impacts nitrogen rate and timing decisions for economically and environmentally sustainable corn production in Wisconsin. In addition, discussion will focus on how this information can be used to improve nitrogen management decisions in the Mid-Atlantic region. **Instructor: Dr. Carrie Laboski, USDA-ARS. (CCA Nutrient Management 1.0; DE, MD, VA, WV Nutrient Management 1.0) -- \$15**

How Do Cereal Rye and Legume Cover Crops Affect the Optimum Nitrogen Fertilizer Rate of Corn?-- Applying the appropriate rate of N fertilizer is key to balancing the goals of profitability, productivity, and environmental quality in corn production. Previous research suggests that cover crops can increase or decrease the optimum N fertilizer rate of the subsequent crop, depending on the cover crop species and production environment. This presentation will describe a 12-location study evaluating how cover crop species and environment interact to influence the optimum N fertilizer rate for corn. The results can be used to inform N fertilizer rate adjustments for corn following dominant cereal and legume cover crops in different environments of the U.S. **Instructor: Dr. Hannah Poffenbarger, University of Kentucky. (CCA Nutrient Management 0.5; DE, MD, VA, WV Nutrient Management 1.0) -- \$15**

Maximizing Returns Through Effective Nutrient Management -- The cost of fertilizers was at an all-time high during 2022. This discussion will focus on what the cost of applying fertilizer can do to an operations bottom line at the end of the season, with a particular focus on finding opportunities to optimize returns from effective nutrient management. **Instructor: Mr. Nathaniel (Nate) Bruce, University of Delaware. (CCA Nutrient Management 0.5; DE, MD, VA, WV Nutrient Management 1.0) -- \$15**

IV. Pest Management Sessions

Credits listed below for individual modules. Please check module CEU offerings before registering.

Electrical Weeding and Other Novel Weed Control Technology in Annual and Perennial Crops -- Herbicides are the predominant tools used in many annual cropping systems to manage unwanted vegetation. However, the use of chemical control products is not always effective/desirable due to the evolution of herbicide resistance, limited release of new active ingredients, concerns with crop injury and off-target movement, and changing regulatory environments and public perceptions about pesticide use. Consequently, there is growing interest in the evaluation and adoption of novel technology for weed control. Electrical weeders, like the commercially available, tractor-mounted Weed Zapper™ Annihilator and Zasso Electroherb, control by applying a high voltage electric current directly to unwanted vegetation. This talk will discuss the results from NY field studies (2020 to 2022) describing the impacts of electrical weed control on weed growth and biomass accumulation, weed seed production and germinability, and soil health parameters. This presentation will also discuss the efficacy of other novel technologies for weed suppression including precision sprayers and cultivators. **Instructor: Dr. Lynn M. Sosnoskie, Cornell University. (CCA Pest Management 0.5; DE, MD, VA Private and WV Pest; VA Commercial pending) -- \$15**

Learning From the West, So We Can Grow our Best: Tar Spot and Other Disease Threats-- Will corn tar spot be a beast in the East? How do we prepare for a disease we've never experienced before? Learn what works and what doesn't from people who have been through it. Join us to talk about tar spot, the newest disease of corn, to understand diagnosis, management, and how risky our situation is. We'll also introduce you to other emerging diseases to keep on your radar so you'll be the best-prepared grower you can be. **Instructor: Dr. Alyssa A. Collins, Pennsylvania State University. (CCA Pest Management 1.0; DE, MD, VA Private and WV Pest; VA Commercial pending) -- \$15**

What's This in My Field? Identifying Pigweeds and Other Look-alikes -- Palmer amaranth is consistently rated as one of the worst weeds in agricultural fields. However, this species can be difficult to distinguish between other pigweed species early in the growing season. This session will offer a hands-on identification tutorial of pigweeds and pigweed look-alikes to help growers improve early season scouting. **Instructor: Dr. Kurt Vollmer, University of Maryland. (CCA Pest Management 0.5; DE, MD, VA Private and WV Pest; VA Commercial pending) -- \$15**

State Pesticide Credits at a Glance

Speaker	DE	MD	WV	VA Private	VA Commercial
Sosnoskie	PA - Core or Private Applicator = 1.0	2.0 Categories: 1A, 10*, PVT*	1 - Agricultural Plant Pest Control = 2 10 - Regulatory = 2 11 - Demonstration & Research = 2 12 - Pesticide Storage & Distribution = 2 PA - Private Applicator = 2	90 - Must view 2 of 3 presentations and view Protecting Pollinators in VA by Wilson, PPE by Olsen and Legal Update	Approval pending
Collins		2.0 Categories: 1A, 10*, CORE, PVT*			
Vollmer	1A - Agricultural Plant = 1.0				

V. Soil and Water Sessions

Credits listed below for individual modules. Please check module CEU offerings before registering.

Application of Digital Technologies in Irrigation Water Management -- The USDA reported that, on average, farmers in South Carolina applied 9.6 inches of irrigation in 2018, spending around \$40 per acre or \$7,825 per farm in energy expenses. But despite the high costs involved in irrigation, the overwhelming majority of farms (89%) still relied on "The Condition of the crop" as the primary method to decide when to irrigate, which could lead to water inefficiencies, reduced profits, and negative environmental impacts. Several digital technologies, such as sensor-based irrigation scheduling, embedded electronics, crop modeling, wireless sensor networks, and the Internet of Things (IoT), could provide new opportunities for facilitating and improving irrigation water management. Examples of the applications of some of these technologies in irrigation water management will be discussed. **Instructor: Dr. Jose Payero, Clemson University. (CCA Soil and Water 0.5; DE, MD Nutrient Management 1.0; not eligible for VA or WV Nutrient Management) -- \$15**

The Economics of Water Management: Coordination in Irrigation and Drainage -- Climate change in the Southeast and mid-Atlantic will produce higher average temperatures, increase annual precipitation, and prolong periods of drought. Agricultural producers can adapt to high temperatures and drought through irrigation, and to poorly drained soils and increasing precipitation through drainage. This presentation will explore the extent to which adaptation strategies involve the coordination of many producers, where group investment and operation of infrastructure determines private benefits via increased crop yields and higher land values. NC State-led research has examined the structure and operation of these types of organizations and historic and contemporary outcomes in terms of agricultural land value and crop output. **Instructor: Dr. Eric Edwards, North Carolina State University. (CCA Soil and Water 1.0; DE, MD Nutrient Management 1.0; not eligible for VA or WV Nutrient Management) -- \$15**

Woodchip Bioreactors: Funny Name, Serious Science -- Denitrifying woodchip bioreactors are a conservation drainage practice that reduces nitrate loss from drained fields while not impacting in-field production. This presentation will describe what bioreactors are and how they work. Factors affecting bioreactor performance will be discussed. Future design ideas for improving bioreactor technology will be presented. Join us to hear about conservation drainage! **Instructor: Dr. Laura Christianson, University of Illinois Urbana-Champaign. (CCA Soil and Water 1.0; DE, MD Nutrient Management 1.0; not eligible for VA or WV Nutrient Management) -- \$15**

Cover Crop Termination Methods and Early Season Soil Moisture -- Do you terminate your winter cover crops with herbicides, a roller-crimper, or both? The termination rates of these cover crop management strategies could impact spring soil moisture. Herbicide selection, specifically the choice between a contact and systemic product, could lead to differences in the plant senescence, evapotranspiration, and decomposition rates of the living and dead cover crop. Flattening cover crops with a roller-crimper reduces evapotranspiration and conserves soil moisture but does this change with herbicide selection? Field trials in Beltsville, MD are underway to quantify the evapotranspiration and decomposition rates of a cereal rye cover crop terminated with a systemic herbicide (glyphosate) versus a contact herbicide (paraquat), with an additional roller-crimper treatment. Preliminary results from the first year of these field trials will be presented and discussed. **Instructor: Dr. Cara Peterson, University of Maryland. (DE, MD, VA, WV Nutrient Management 1.0; not eligible for CCA credit) -- \$0**

VI. Precision Agriculture

Credits listed below for individual modules. Please check module CEU offerings before registering.

Precision Mapping Soils Using Conductivity, Imagery, and Direct Sampling -- Soil maps are an excellent resource to understand what lies beneath your feet. For precision applications, they do not necessarily match up to all yield limiting factors. Established methods to improve our understanding of field level variability include grid and zone sampling, electrical conductivity mapping, as well as drone and satellite imagery. We will overview the methodology as well as some Delmarva related projects from these different mapping techniques. **Instructor: Dr. Jarrod Miller, University of Delaware. (CCA Precision Agriculture 1.0, counts toward total credit requirement for individuals without the specialty certification; DE, MD, VA, WV Nutrient Management 1.0) -- \$15**



Crop School Planning Committee

Chairs

Dr. Nicole Fiorellino – University of Maryland
Dr. Jarrod Miller – University of Delaware
Dr. Amy Shober – University of Delaware

CEU Coordinator

Ms. Sydney Riggi – University of Delaware
Ms. Hilary Gibson – University of Delaware

Evaluation Coordinator

Ms. Jennifer Volk – University of Delaware

On-Site Facilities Coordinator

Mr. Joe Hatton – West Virginia Department of Agriculture

Recording Coordinator

Dr. David Owens, University of Delaware
Mr. Craig Yohn – University of Maryland

Program Teams

Crop Management

Dr. Nicole Fiorellino (Leader)– University of Maryland
Dr. Sarah Hirsh – University of Maryland
Dr. Jarrod Miller – University of Delaware

Nutrient Management

Dr. Mark Reiter (Leader)– Virginia Tech
Dr. Amy Shober – University of Delaware
Ms. Maegan Perdue – University of Maryland

Pest Management

Dr. David Owens (Leader) – University of Delaware
Dr. Alyssa Koehler – University of Delaware
Dr. Alan Leslie – University of Maryland
Dr. Mark VanGessel – University of Delaware
Ms. Emily Zobel – University of Maryland

Soil and Water Management

Ms. Jennifer Volk (Leader) – University of Delaware
Ms. Hilary Gibson – University of Delaware
Dr. Annie Rossi – USDA-NRCS
Mr. Isaac Wolford – USDA NRCS

Alternative Session

Mr. Andrew Kness (Leader) – University of Maryland
Ms. Erika Crowl – University of Maryland
Dr. Gordon Johnson – University of Delaware



The Mid-Atlantic Crop Management School is sponsored by the University of Delaware Cooperative Extension and University of Maryland Extension, in conjunction with the Mid-Atlantic Certified Crop Advisor (CCA) Board, and the United States Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS).

University of Delaware Cooperative Extension: The Mid-Atlantic Crop Management School is brought to you by the University of Delaware Cooperative Extension, a service of the UD College of Agriculture and Natural Resources — a land-grant institution. This institution is an equal opportunity provider. If you have special needs that need to be accommodated, please contact the office two weeks prior to the event.

University of Maryland Extension: University programs, activities, and facilities are available to all without regard to race, color, sex, gender identity or expression, sexual orientation, marital status, age, national origin, political affiliate, physical or mental disability, religion, protected veteran status, genetic information, personal appearance, or any other legally protected class.

*Dr. Jarrod Miller and Dr. Amy Shober
University of Delaware, Dept. Plant and Soil Sciences
531 S. College Avenue, 152 Townsend Hall
Newark, DE 19716*

*Dr. Nicole Fiorellino
University of Maryland, College Park
Dept. Plant Science & Landscape Architecture
4291 Fieldhouse Drive, 2124 Plant Science Building
College Park, MD 20742*

