Mid-Atlantic Crop Management School

November 18 – 20, 2025

Princess Royale Oceanfront Resort, 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 2025 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
- Pest Management
- Soil & Water Management
- Nutrient Management
- Professional Development
- Sustainability

Total CEUs 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, PA, VA, and WV.

Registration Information

The early-bird registration fee (recommended to ensure a place in the sessions of your choice) is **$350** if received by **October 24th**; **$410** if received by **November 7th**. Registration will close on **Friday, November 7th at 11:59 p.m. ET or when enrollment reaches capacity**. Payment of registration fee entitles you to participation in 2½ days of sessions, materials, 3 continental breakfasts, 2 lunches, and refreshment breaks. Eventbrite processing fee is included within the registration fees listed above.

***Required for 2025: GUEST TICKET –** Your registration does not include meals for any additional people joining the event. If you are bringing a guest with you, such as a spouse, and they plan to join the group for meals,

you must add the Guest Ticket to your registration and pay an additional fee. All attendees must present their name badges during the provided meals.

****New this year:** Tuesday Happy Hour: Join us for Happy Hour at Schooners located inside Princess Royale! Tuesday, 5–7 PM. A networking opportunity with drinks and limited food menu available for purchase.

2025 CCA Reception – The Mid-Atlantic CCA Board is hosting an off-site evening reception again in 2025 on Wednesday November 19th. The event is free of charge and open to any attendees of Crop School. The CCA of Excellence Award will be presented at the event and 10-, 20-, and 30-year Certified Crop Advisors will be recognized. If you are a current CCA or interested in becoming a CCA, please attend this event to learn more about the benefits of this certification. Seating is limited, you can reserve your spot at the reception at the end of this registration. More details will be provided when they are available.

Enrollment in Crop School and the reception are on a first-come, first-served basis.

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

Visit http://go.umd.edu/25crop 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, please contact Ms. Taylor Robinson at taylormr@umd.edu to discuss alternative payment options.*

Questions about registration or payment should be addressed to Ms. Taylor Robinson at taylormr@umd.edu or (410) 827-8056.

Cancellation Policy:

- Cancellations must be processed through Eventbrite prior to registration closure on November 7th.
- Any cancellation requests after November 7th can be emailed to taylormr@umd.edu.

Hotel Reservation Information

The Princess Royale Oceanfront Resort is located at 91st Street in Ocean City, MD. **Contact the hotel directly to make your reservation.**

Either call 1-800-4-ROYALE (1-800-476-9253) and identify yourself by Block Code: 25UMDCROP or as Group Name: MD Crop Management. You can also book online at

https://princessroyaleoceanresort.book.pegsbe.com/promo?offerCode=25UMDCROP&hotel=SBY398

Reserve your room no later than **October 17th, 2025** to guarantee the rates below.

- $119 per night (plus applicable fees & taxes) – Pool view
- $169 per night (plus applicable fees & taxes) – Oceanfront

I. Registration

General registration will begin 8:30 am on November 18. Registration packets and information regarding CEUs 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 am on November 18.

II. Crop Management Sessions

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

Low soybean plant population: Is replanting necessary? -- The decision to replant a soybean crop can be difficult. Collaboratively, US soybean agronomists representing a diversity of growing regions collated replant guidelines for their region to generate widely applicable recommendations and pictures depicting early-season stressors that reduce soybean plant population. If replanting can be done by May or early June, farmers should

consider replanting if there are fewer than 50,000 to 60,000 healthy, evenly distributed soybean plants per acre in southern regions, or fewer than 75,000 healthy, evenly distributed soybean plants per acre in northern regions. The decision to replant should focus on profitability and if possible, repair plant to improve the final stand instead of completely starting over. This presentation is intended to support educated replant decisions across the major US soybean regions. *Instructor: Dr. Carrie Ortel, Virginia Tech. Tuesday 10:00am and 11:00am.*

Seeding and Nitrogen Rate Interactions of New Short-Stature Corn Hybrids Compared to Current Full-Stature Hybrids -- The introduction of new short-stature corn hybrids (5–7 ft tall) is driving the need to rethink current agronomic practices that were developed solely for traditional, full-stature hybrids. These shorter plants are designed to improve standability, reduce lodging, and improve in-season equipment access, thus making them especially attractive for high-input systems and higher seeding rates. However, reevaluation of nitrogen (N) fertilizer and seeding recommendations for these hybrids is still required. This presentation will provide insights into key physiological and plant architecture differences between new short-stature hybrids and current, full-statue hybrids. In addition, this presentation will also highlight recently completed research trials across multiple years and locations in Indiana which compared seeding rate and N fertilizer rate interactions between multiple short-stature and full-stature hybrids grown in the same environments. Overall, full-stature hybrids tended to yield higher but were more vulnerable to lodging under high N and dense plantings. Short-stature hybrids stood better and produced similar biomass and stover quantities under adequate N, though they showed greater yield loss when N was limiting. These results suggest that short-stature hybrids can be a strong fit for high-management systems where standability and harvestability matter most, but they will require hybrid-specific fine-tuning of fertility and seeding practices to maximize their potential. *Instructor: Dr. Dan Quinn, Purdue University. Tuesday 3:10pm and 4:10pm.*

Short-Stature Corn Hybrids in High-Management Systems: Fertility, Fungicide, Row Spacing, and More -- The recent commercialization of modern short-stature corn hybrids presents a promising opportunity to enhance grain production efficiency and agronomic resilience in U.S. corn systems, particularly under increasingly variable and extreme weather conditions. This presentation will highlight recently completed research trials from multiple years and environments in Indiana which examined the response of multiple short-stature corn hybrids to different row spacing and seeding rate interactions. In addition, this presentation will also highlight preliminary results from a new research trial which further examines how short- and full-stature hybrids respond to intensive management practices, including fertility programs, seeding rate adjustments, and crop protection strategies. Current results showed that short-stature hybrids performed well at higher seeding rates, especially in narrow (20-in.) rows. In addition, maximum yields were consistently achieved when ear height was around 22–28 in. above the soil surface, while ears set below 22 in. risked higher harvest losses. Narrow rows improved grain yield at most locations by supporting higher final plant stands and more efficient light capture, with yield gains most evident at higher seeding rates. Overall, these findings highlight that short-stature hybrids offer strong potential for intensive management systems when paired with the right fertility, row spacing, and seeding rate decisions, but they may require a different playbook than traditional full-stature hybrids. *Instructor: Dr. Dan Quinn, Purdue University. Wednesday 8:00am and 9:00am.*

Beyond the Seed Tag: Tips for Improving Crop Variety Selection -- Strategic crop variety selection is arguably your most critical decision, directly impacting your farm's profitability and yield potential. Maximize your success by carefully choosing options with the right maturity for your region, essential traits and seed treatments for effective weed and insect control, and robust tolerance to common diseases and environmental stresses. Always prioritize varieties that demonstrate consistent, high yield stability across diverse environments, a fact best verified by unbiased university trial data. This presentation will discuss how to use available data to improve your decision-making ability. *Instructor: Dr. Nicole Fiorellino, University of Maryland. Wednesday 10:10am and 11:10am*.

Haze Conditions and Crop Responses -- Haze associated with wildfire smoke has been present in the summers over much of the United States. Questions often arise about the impact of this condition on crop growth, development, and yield. This presentation will focus on how smoke and haze can affect light and show how haze

has affected crops in years past. Some key factors that affect the impact of haze are related to the timing in relation to crop stage, the duration, and what other weather factors (e.g. temperature, rainfall) could be interacting with light. *Instructor: Dr. Alexander Lindsey, Ohio State University. Wednesday 1:00pm and 2:00pm.*

Seedling Struggles - Planting for Success -- The first step in producing a high yielding crop is planting. Gaining a uniform stand is important to achieve rapid canopy closure, help with later-season weed suppression, and enabling uniform crop stage development throughout the season. However, if planting conditions are not optimum the process of seedling germination and emergence can be affected. Planting too early or too late, or heavy rainfall after planting from an incoming front could influence emergence success. This presentation will focus on seedling germination and emergence as affected by temperature and flooding. *Instructor: Dr. Alexander Lindsey, Ohio State University. Wednesday 3:10pm and 4:10pm.*

Speed planting: Does it increase yield and which components do you need? -- Advanced planting technologies allow for faster planting, which means more acres covered during ideal planting windows, as well as - perhaps - fewer tractors, planters, and operators needed. There are caveats though - you can expect reduced plant stands, increased servicing needs, and field suitability issues, in addition to cost. Will increased yield by planting on time offset those costs? Which planter components are most important to enable faster planting speeds? *Instructor: Dr. Michael Mulvaney, Mississippi State University. Thursday 8:00am and 9:00am.*

Giant miscanthus: a promising crop for the mid-Atlantic on prime or marginal land -- Giant miscanthus is a perennial, warm-season grass bred to be a biomass crop currently being grown on Delmarva. This sterile hybrid must be propagated vegetatively, typically by rhizome. It is used for animal bedding, bioenergy, or as a raw material for fiber and various industrial applications. The cropped lifespan of giant miscanthus is 15 to 30 years, and the grass can grow up to 12 feet tall with roots reaching 8 feet deep. This talk will cover giant miscanthus production recommendations and management, including invasiveness potential, site selection, planting, fertilization, pest control, harvesting, and utilization. Furthermore, we will discuss recent research trials in which giant miscanthus successfully grew on marginal land experiencing flooding, salt-water intrusion, and heavy deer pressure—conditions that resulted in total soybean yield loss for several years prior to the study. While giant miscanthus did not grow in year-round flooded conditions and yield was negatively correlated with sodium level, it had little yield loss in areas with intermittent flooding and in soils with sodium levels well above what grain crops can tolerate. *Instructor: Dr. Sarah Hirsh, University of Maryland. Thursday 10:10am and 11:10 am.*

III. Nutrient Management Sessions

Each Session is Worth 1 CEU in Nutrient Management

Topdressing Poultry Litter on Growing Crops -- In this presentation, we'll discuss in-season application of poultry litter on growing corn and soybean crops. With wet springs, equipment failures, litter availability issues, or application scheduling conflicts, application prior to planting can be a real challenge for producers during an extremely busy time of the year. In 2022 and 2023, we applied varying rates of poultry litter to corn and soybean throughout the season to determine if growers can plant while soil conditions are good and apply litter during the season. *Instructor: Dr. Steph Kulesza, North Carolina State University. Tuesday 10:00am and 11:00am.*

Are You Sending Fertilizer Down The Drain? -- We know that nitrogen and phosphorus can be carried away by surface runoff and tile drainage discharge. But how much are we actually losing? And what can you do about it? The answer depends on a lot of factors including weather, soil type, and management. This presentation will cover ways to minimize your risk and give you the best chance that nutrients are used by the crop instead of going down the drain. *Instructor: Dr. Lindsay Pease, University of Minnesota. Tuesday 1:00pm and 2:00pm.*

Cover Crop Impacts on Soil Health and Nitrogen Testing -- The Pre Sidedress Nitrogen Test (PSNT) was developed around 1990 to show farmers the value of nitrogen in their manure. Since then, crop yields have increased substantially, and crop rotations now regularly involve cover crops. Recent research in Virginia was used to update the original PSNT recommendations. This research included cover crops, which have now been integrated into the PSNT, and also evaluated several soil health tests. Results of this research on PSNT and soil health tests will be presented. *Instructor: Dr. Rory Maguire, Virginia Tech. Tuesday 3:10pm and 4:10pm.*

Forage Nutritive Value and Mineral Concentrations of Common Pasture Forbs – In pasture-based systems, many common 'weeds' can serve as a source of forage and contribute to the nutritional needs of grazing livestock. Many of these 'weedy' species are actually forbs and are sometimes referred to as dynamic accumulators of minerals, with the ability to reach deep into the soil to access minerals and nutrients that can accumulate in the plant tissue and become available to livestock through grazing. The objective of this project was to assess the forage nutritive value and mineral concentrations of forbs commonly found in pastures and compare it to traditional forage species like orchardgrass. This presentation will cover species tested, sampling methods, and preliminary results from 2025 on-farm sampling. *Instructor: Dr. Amanda Grev, University of Maryland. Wednesday 8:00am and 9:00am.*

Nitrogen credits after leguminous crops -- Extension literature often recommends nitrogen credits following leguminous crops, such as peanut and soybean. Shouldn't those N credits change depending on when the next crop is planted (e.g. wheat vs. corn)? Shouldn't the N credit change depending on how much crop biomass or yield was produced by the legume? What does the science actually say about N credits following legume crops? *Instructor: Dr. Michael Mulvaney, Mississippi State University. Wednesday 1:00pm and 2:00pm.*

The Power of Manure -- Manure is a valuable source of crop-essential nutrients that, when managed carefully, can help build soil organic matter, enhance nutrient cycling, and improve overall soil health and climate resilience over time. In 2022, a statewide on-farm research project was initiated in New York State to quantify the nitrogen (N) replacement value, corn silage or grain yield, and soil health enhancements of various manure sources. Between 2022 and 2024, 19 on-farm field trials were implemented with additional trials ongoing in 2025. Yield data are being used to quantify differences in most economic N rate between manured and non-manured strips, and to quantify the yield impact of the manure applications. Join this session to learn more about the project, its findings to date, and opportunities to participate in the on-farm research in future years. *Instructor: Dr. Quirine Ketterings, Cornell University. Wednesday 3:10pm and 4:10pm.*

How Reliably Can We Estimate Soil Test Values at Different Depths? -- Variability in soil sampling depths among states complicates accurate nutrient management and cross-state comparisons for fertilizer recommendations, hindering the full potential of tools like the Fertilizer Recommendation Support Tool (FRST). This presentation will delve into findings from the FRST Soil Depth Sampling Project, which involved analyzing 2,936 soil samples from 197 agricultural fields across 32 U.S. states. We will discuss how soil properties, particularly phosphorus and potassium, exhibit stratification (higher concentrations in surface layers) more than pH, and how factors like geography, tillage history, and soil texture influence these patterns. Furthermore, we will introduce conversion equations and provide estimates of uncertainty for extrapolating soil test values to unmeasured depths, enhancing the reliability of interpreting soil tests across varied sampling protocols. The presentation will also confirm the validity of averaging incremental soil cores as a reliable approach for soil testing. These insights are crucial for crop consultants to make more informed, consistent, and reliable nutrient management decisions. *Instructor: Dr. Amy Shober, University of Delaware. Thursday 8:00am and 9:00am.*

Goal: Provide More Accurate Phosphorus Recommendations -- Different soil testing laboratories use various extraction methods (e.g., Mehlich-1, Mehlich-3, Bray P1) to measure plant-available phosphorus (P). These methods, however, often produce different results and interpretations. Although mathematical conversions can translate results from one method to another for specific soils within a region or state, our study found that these relationships do not hold for soils from all areas. This lack of understanding about regional limitations can lead to confusion and inaccurate fertilizer recommendations. Adding to this challenge, P levels can vary greatly within a single field. If research trials fail to account for this natural variability, true crop responses to fertilizer applications may go undetected. We are constantly working to provide farmers with the most accurate recommendations possible. Nationwide efforts are underway to improve soil test recommendations, including the development of the Fertilizer Recommendation Support Tool (FRST). This tool is a national database of historical and new soil test trials that will allow farmers and consultants to access data from many areas of the U.S. to help make decisions about their fertilizer needs. *Instructor: Dr. Sapana Pokhrel, University of Delaware. Thursday 10:10am and 11:10am.*

I*V. Pest Management Sessions*

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

Identifying Pest Management (IPM): A Vegetable Pest Management Research Update from The Eastern Shore of Virginia -- Identifying an insect is the first step in making a management decision. This presentation will summarize research trials from the Eastern Shore of Virginia in 2025 while providing strategies on how to identify insects and their damage across multiple vegetable systems. *Instructor: Dr. Kemper Sutton, Virginia Tech. Tuesday 10:00am and 11:00am.*

Bean There, Diagnosed That: Soybean Disease Identification Workshop -- Soybeans can face a number of disease challenges over the course of a season. Proper diagnosis is an important first step to thinking about disease management, but many soybean symptoms overlap. Using live specimens and preserved diseased plant samples, we will cover features to identify common diseases in soybean as well as resources available to aid identification and management. In addition to hands-on elements, this session will provide an overview of disease observations and nematode research highlights from the 2025 season. *Instructors: Dr. Alyssa Betts and Ms. Lauren Irwin, University of Delaware. Tuesday 1:00pm and 2:00pm.*

Next-Generation Weed Management: Innovative Solutions for Specialty Crop Productions -- Herbicides remain the predominant weed management strategy in specialty crops due to cost-effectiveness and broad-spectrum control. However, herbicide-resistant weeds, evolving Endangered Species Act regulations, and consumer demand for reduced pesticide use are driving interest in alternative technologies. Dr. Thierry Besançon, collaborating with Dr. Lynn Sosnoskie at Cornell University, is evaluating precision weed control technologies for New Jersey specialty crop systems. This research develops economically viable alternatives that maintain effective weed control while minimizing crop injury and environmental impact. This presentation showcases field research from three technology platforms: Precision Application Systems: Multi-season trials with optically-guided sprayers in highbush blueberry and grape production reduced chemical inputs by 40-60% while maintaining equivalent weed control compared to broadcast applications. Laser-Based Weed Control: Autonomous laser weeding systems in succulent pea, beet, and spinach production, including treatment timing comparisons, energy requirements, and economic adoption thresholds. Integrated Robotic Platforms: Autonomous seeding and cultivation systems in sweet corn, edamame, and cole crops, emphasizing precision mechanical weed control, labor efficiency, and farm operation integration. Dr. Besançon will preview upcoming electrical weed control research, including preliminary efficacy data and specialty crop applications. Economic analysis and implementation considerations for regional growers will be highlighted. This work advances sustainable, technology-driven weed management strategies that address regulatory and market pressures while maintaining specialty crop production viability. *Instructor: Dr. Thierry Besancon, Rutgers University. Tuesday 1:00pm and 2:00pm.*

Surveying Upstate New York Groundwater for Pesticide Residues: So Far, So Good -- The Soil and Water Group at Cornell University has long been carrying out groundwater research for the New York State Department of Environmental Conservation's Bureau of Pesticides Management. The goal is to ensure that label-compliant pesticide use is not inadvertently resulting in groundwater contamination, particularly in areas of significant use and vulnerable groundwater conditions. This session will present our collaboratively-developed approach that facilitates voluntary landowner participation, our results from multiple county-level studies, and the progress of our current larger project with broader upstate coverage. While there have been multiple low-level detections (particularly of herbicide degradation products), overall detection rates are low, and we have not observed a single exceedence of groundwater quality standards for pesticides. We have developed a simple modeling approach to better understand the observed patterns of detections and to expand the reach of this work. *Instructor: Dr. Brian Karl Richards, Cornell University. Tuesday 3:10pm and 4:10pm.*

Mode-of-Action: Understanding Herbicide Biology and Symptomology -- There are over 300 herbicide active ingredients registered for use in the United States. These herbicides are designed to target specific biological processes in plants, and are categorized by which processes they target. Understanding an herbicide's mode-of-action and site-of-action is critical for being able to assess crop injury and develop effective weed management strategies. This presentation will provide an overview of the effects of herbicides on different biological processes

as well as the injury symptoms commonly associated with specific herbicide groups. *Instructors: Dr. Kurt Vollmer, University of Maryland, and Dr. Cory Whaley, University of Delaware. Wednesday 8:00am and 9:00am.*

Management of Diverse Fungal Diseases in Watermelon -- The production of watermelon in the southeastern U.S. has been severely affected by a number of soi-borne and foliar pathogens. This presentation will focus on several topics including pathogen biology, innovative disease management options and future directions of multiple diseases including Fusarium wilt and anthracnose. Other topics like fungicide resistance and current breeding efforts will also be discussed. *Instructor: Dr. Bhabesh Dutta, University of Georgia. Wednesday 10:10am and 11:10am.*

Changes To Pesticide Labels: what you need to know -- The Endangered Species Act is changing how pesticides are registered and used. About ten pesticides are already affected, with more to follow as all registrations and re-registration move toward full ESA compliance. This session will cover how to determine whether a specific field or product is impacted, what changes may be required, and practical steps to stay in compliance. *Instructor: Dr. Mark VanGessel, University of Delaware. Wednesday 3:10pm and 4:10pm.*

V. Soil and Water Management Sessions

Each Session is Worth 1 CEU in Soil and Water Management

Opportunities and Challenges for Interseeding Cover Crops in the Northeast -- Interseeding cover crops can allow farms flexibility in getting cover crops established during the growing season. It may allow for the inclusion of more diverse species and enhance the services cover crops can provide. However, there are many management considerations to be successful with interseeding cover crops. This presentation will discuss both the benefits of interseeding, practical considerations, and best practice for success. *Instructor: Dr. Heather Darby, University of Vermont. Tuesday 10:00am and 11:00am.*

Interaction of soil chemical properties and soil health measurements to understand changes on farms - Soil health testing can be a tool, just like physical soil properties, to understand how management practices are changing your soil. Soil properties, such as CEC, can influence initial soil health expectations on a farm. The selection of conservations practices can have an impact on soil health and crop yeild. In this presentation, we will share the results of a 4-year soil health survey on how soil health results interact with other soil properties, crop yield, and practical soil health testing strategies and expectations. *Instructor: Dr. Jason Hartschuh, Ohio State University. Tuesday 1:00pm and 2:00pm.*

Enhancing the Productivity and Persistence of Perennial Forages -- Cool season perennial forages are the foundation of livestock diets in the Northeast. Management of forage species can be difficult especially when there are mixed stands or dual uses such as for hay and pasture. This presentation will highlight the importance of species selection, fertility management, and harvest strategies to maximize yield, quality, and stand persistence. *Instructor: Dr. Heather Darby, University of Vermont. Tuesday 3:10pm and 4:10pm.*

Utilizing liquid manure during the crop growing season -- Liquid manure applications during the crop growing season applies manure when a crop needs it for maximum nutrient utilization. Irrigation systems, such as 360 Rain, can be utilized to apply manure and irrigate crops. Irrigation systems like this can play a crucial role in a farm's nutrient management plan, increasing yield through timely water applications. During this presentation, we will discuss strategies for applying liquid manure during the growing season through sidedressing corn and utilizing portable irrigation equipment. *Instructor: Dr. Jason Hartschuh, Ohio State University. Wednesday 8:00am and 9:00am.*

Taking No-Till Systems to the Next Level -- No-till adoption has skyrocketed in the Mid-Atlantic in the past two decades. It has resulted in major benefits for farm economics, soil and water conservation, and soil health. But there is still room for further improvement that we will discuss in this presentation, such as greater integration of livestock, more diverse crop rotations, greater use of perennials, and cover cropping to favor greater internal cycles of nutrients, reduce inputs, improve soil health, and help our farm communities flourish. *Instructor: Dr. Sjoerd Duiker, Pennsylvania State University. Wednesday 10:10am and 11:10am.*

Irrigation Management - Lessons from 20+ years of Testing -- Beginning in 2001, the University of Delaware initiated a long-term research program to evaluate irrigation system performance and crop response under Mid-Atlantic production conditions. Over two decades, controlled field trials have been conducted to determine optimal irrigation scheduling strategies for corn, soybean, and wheat, with economic analyses. Complementary research has examined nutrient and crop production benefits of fertigation and fungigation, utilizing the region's first variable-rate center pivot and subsurface drip irrigation research platform. This presentation will synthesize results from multiple studies, highlighting the impacts of scheduling methods, application technologies, and management strategies on crop yield, water-use efficiency, and energy consumption. Findings will provide evidence-based guidance to improve irrigation decision-making, resource conservation, and profitability in grain production systems. *Instructor: Mr. James Adkins, University of Delaware. Wednesday 1:00pm and 2:00pm.*

Using Apparent Electrical Conductivity to Map Coastal Soils -- Apparent electrical conductivity (ECa) is a geophysical measurement that reflects how easily an electrical current moves through the soil. It is strongly influenced by soil texture, salinity, moisture, and cation exchange capacity, making it a valuable tool for characterizing variability across Coastal Plain soils. By mapping ECa, we can delineate management zones, refine soil sampling, and better understand field-scale processes that affect crop productivity. In this session, we will present case studies where ECa mapping was used to guide lime application, assess the impacts of saltwater intrusion, and evaluate nematode distribution, demonstrating how this technology can support both research and practical management decisions. *Instructor: Dr. Jarrod Miller, University of Delaware. Wednesday 3:10pm and 4:10pm.*

Broadcast interseeding into standing soybeans: There's a time and place -- Pennsylvania farmers struggle to establish cover crops other than cereal rye after soybean harvest, so a trial was initiated in 2020 with support from the Pennsylvania Soybean Board to explore one possible solution to this problem. Broadcast interseeding (BI) cover crops into standing soybeans could increase cereal rye growth or allow farmers to diversify cover crop species. The objectives for this trial were approached in a stepwise manner in three distinct phases: (1) determine cover crop species viable for BI into standing soybeans, (2) compare BI to post soybean harvest seeding, and (3) establish an optimum window for BI selected species. Twenty-three site years in 11 counties were included over the trial. For phase one, nine species were BI into standing soybeans using a variety of equipment targeting leaf yellowing. Plots were arranged in a randomized complete block with three to four replications. Phase two followed a similar design but added a post soybean harvest seeding comparison. In phase three, cereal rye or hairy vetch were interseeded with a drone on three dates per site, then compared with post-harvest seeding; sites served as replicates, with no within-site replication. Cover crop density and groundcover were measured in the fall, and again within three days of spring cover crop termination, plus cover crop biomass. All phases included commercial and research farms. Phase one revealed that cereal rye and clovers were the most and least successful species to use for this method, respectively. In phase two, BI increased, decreased, or had no impact on cover crop density and biomass over post-harvest seeding. The benefits of BI into standing soybeans increased as post-harvest seeding and spring termination dates got later. In phase three, drone BI provided quicker fall groundcover than post-harvest seeding, with minimal impact on rye biomass production or spring groundcover, but higher spring biomass and groundcover for hairy vetch. We conclude that BI can be a useful tool for Pennsylvania farmers to employ in a targeted manner, specifically when timely rainfall is predicted after seeding, and when spring cover crop termination is delayed, but performance is highly dependent on timely rainfall and minimal weed pressure. *Instructor: Dr. Heidi Reed, Pennsylvania State University. Thursday 8:00am and 9:00am.*

How Cover Crops Can Improve Soil Organic Matter, Soil Health, and Farm Resilience -- Soil organic matter plays a critical role in building resilient farming systems by supporting nutrient cycling, aggregation, water retention, and biological activity. This presentation will draw on Virginia research to show how cover crops contribute to soil organic matter formation and overall soil health, with practical implications for long-term productivity and resilience. We will discuss the soil science principles that connect soil organic matter to improved soil function, highlight how cover crop species and management influence outcomes, and consider how conservation practices can help farms adapt to challenges such as variable weather, rising input costs, and soil degradation. *Instructor: Dr. Joseph Haymaker, Virginia Tech. Thursday 10:10 am and 11:10am.*

VI. Alternative Session

CEUs for each session are provided after the abstract

Effectiveness of Plant ID Apps at Identifying Common Plant Species in Forage Systems -- Accurate plant species identification is essential in making management decisions for hay and pasture systems. A wide variety of mobile phone applications offer users the potential to quickly and easily identify plant species; however, the accuracy of mobile phone applications at correctly identifying plant species under field conditions is unclear. The objective of this project was to test the accuracy of nine popular mobile phone identification applications at identifying common plant species found in forage systems. This presentation will cover methods used for app evaluation, preliminary results, and ideas for future testing. *Instructor: Dr. Amanda Grev, University of Maryland. Tuesday 10:00am and 11:00am. (1 CEU in Crop Management)*

PFAS Occurrence, Transport, and Impacts in Agroecosystems -- The presence of per- and polyfluoroalkyl substances (PFAS) in beneficially reused biosolids and wastewater irrigation has become a topic of urgent concern in agricultural operations due to the potential for these compounds to persist in the environment, mobilize and impact water quality, accumulate in soils over time, and be taken up by crops. This presentation will provide background information about PFAS, an overview of the occurrence of PFAS in agroecosystems, and results from several field and greenhouse studies conducted at Penn State that have assessed the occurrence, fate and transport, and potential implications of research results for human health. Discussion will focus on how this information can be used to help inform best practices for continued beneficial reuse of wastewater and biosolids. *Instructor: Dr. Heather Preisendanz, Pennsylvania State University. Tuesday 1:00pm and 2:00pm. (1 CEU in Nutrient Management)*

Taming the most pesky problematic tree fruit diseases -- Growing apples and peaches in the Eastern U.S. can be challenging since our environmental conditions favor just about all diseases. This presentation will provide an update on the latest management strategies for diseases giving growers the most headaches: apple scab, powdery mildew, apple (Marssonina) blotch, bitter rot, fire blight, and brown rot. There will also be a brief update covering postharvest apple diseases and potential causes for apple tree decline. *Instructor: Dr. Kari Peter, Pennsylvania State University. Tuesday 3:10pm and 4:10pm. (1 CEU in Pest Management)*

Extending Lettuce Production into the Summer -- High temperatures can induce premature flowering (bolting) and development of bitter flavor in lettuce, which limits summer lettuce production in parts of the Mid-Atlantic Region. Over several seasons, I have tested three strategies for maintaining quality lettuce for summer production in southern Delaware: planting heat tolerant varieties, low tunnel shade cloth and white and silver plastic mulch. This presentation will summarize results from three summers of variety and management trials and provide recommendations on the best practices for outdoor summer lettuce production. *Instructor: Dr. Emmalea Ernest, University of Delaware. Wednesday 8:00am and 9:00am. (1 CEU in Crop Management)*

Agrivoltaics: Is it a Good Option for Mid-Atlantic Farms? -- Agrivoltaics is the simultaneous use of land for agricultural production and solar electricity generation. We set out to study the potential of Agrivoltaic systems for farmers and farming in the region. A diverse team at Rutgers/NJAES has established a program with research trials in purpose-built Agrivoltaic systems to carefully address these questions. Characteristics of the Agrivoltaics systems we built, lessons learned, and results from our first two years of experiments growing hay, vegetables, and soybeans in Agrivoltaics systems will be presented. *Instructor: Dr. Daniel Ward, Rutgers University. Wednesday 10:10am and 11:10am. (1 CEU in Sustainability)*

Update on tomato spotted wilt virus in the Mid-Atlantic region -- Tomato spotted wilt virus (TSWV) has caused significant losses across the mid-Atlantic region in recent years. TSWV has a wide host range and can infect over 1000 plant species including tomato and pepper as well as common weeds and ornamental plants. Already vectored by hard to control thrips, the virus has also developed resistance-breaking strains which can overcome genetic resistance. In this session, this presentation will cover TSWV, its epidemiology, and methods of control. *Instructor: Dr. Andy Wyenandt, Rutgers University. Wednesday 1:00pm and 2:00pm. (1 CEU in Pest Management)*

Beyond the Barn: Livestock Pests and Their Impact on Integrated Agricultural Systems – Livestock pests create economic impacts extending far beyond animal agriculture, with annual losses exceeding $2.4 billion affecting feed crop demand, commodity prices, and food security across integrated farming systems. This presentation provides species descriptions of major livestock pests and demonstrates how familiar IPM principles apply to coordinated pest management between crop and livestock operations. Attendees will gain actionable knowledge to implement collaborative approaches that protect both livestock and crop investments. *Instructor: Mr. Erika Machtinger, Pennsylvania State University. Wednesday 3:10pm and 4:10pm. (1 CEU in Pest Management)*

Beyond Breakeven: Pricing Strategies that Pay in Produce Marketing -- Marketing plays a central role in determining the profitability of produce, particularly in securing price premiums in competitive markets. This session will explore a range of pricing strategies beyond recovering costs. We will examine fundamental marketing concepts such as markups, margins, and how to effectively set prices above breakeven while accounting for fixed and variable costs. We will also explore strategies such as price discrimination, which allows sellers to capture value from different consumer segments, and bundling, which can increase sales volume and encourage larger transactions. Additional considerations will include how product differentiation (for example, emphasizing organic, local, or sustainably grow attributes) influence consumer valuation and willingness to pay. These insights may help producers improve their marketing position and compete more effectively. *Instructor: Dr. Kofi Britwum, University of Delaware. Thursday 8:00am and 9:00am. (1 CEU in Crop Management)*

Optimizing Grafted Watermelon Spacing for Yield and Profitability in Maryland -- Fusarium wilt is a persistent threat to watermelon production in the Mid-Atlantic The development of resistant rootstocks has provided an effective management option for fusarium wilt, however, the costs of grafted plants can be high compared to ungrafted plants. From 2021 to 2025, University of Maryland Extension conducted field trials evaluating grafted watermelon at multiple spacing treatments and per acre plant populations to understand how different plant spacing impacts individual fruit size, yield and economic return. Initial trials found grafted plants can be planted at a lower population without sacrificing yield. More recent studies are examining increasing the distance between raised beds from 6 feet up to 12 feet. Data collected included yield, fruit size, canopy cover, and disease incidence. Trials aimed to identify spacing strategies that maximize yield and return while considering the higher cost of grafted transplants. *Instructor: Mr. Hayden Schug, University of Maryland. Thursday 10:10am and 11:10am. (1 CEU in Pest Management)*

2025 Crop Management School Workshop Schedule

Tuesday, November 18, 2025

Time	Palmetto 2 & 3 (upstairs)	Palmetto 4 & 5 (upstairs)	Barbados & Cayman (downstairs)	Dominica & Eleuthera (downstairs)	Palmetto 1 (upstairs)
Session	**Crop Management**	**Nutrient Management**	**Pest Management**	**Soil & Water**	**Alternative**
10:00 - 10:50	Low Soybean Plant Population: Is Replanting Necessary? *Carrie Ortel*	Topdressing Poultry Litter on Growing Crops *Steph Kulesza*	Identifying Pest Management (IPM): A Vegetable Pest Management Research Update from The Eastern Shore of Virginia *Kemper Sutton*	Opportunities and Challenges for Interseeding Cover Crops in the Northeast *Heather Darby*	Effectiveness of Plant ID Apps at Identifying Common Plant Species in Forage Systems *Amanda Grev*
11:00 - 11:50	Low Soybean Plant Population: Is Replanting Necessary? *Carrie Ortel*	Topdressing Poultry Litter on Growing Crops *Steph Kulesza*	Identifying Pest Management (IPM): A Vegetable Pest Management Research Update from The Eastern Shore of Virginia *Kemper Sutton*	Opportunities and Challenges for Interseeding Cover Crops in the Northeast *Heather Darby*	Effectiveness of Plant ID Apps at Identifying Common Plant Species in Forage Systems *Amanda Grev*
11:50 - 1:00	**LUNCH BREAK**				
Session	**Pest Management**	**Nutrient Management**	**Pest Management**	**Soil & Water**	**Alternative**
1:00 - 1:50	Next-Generation Weed Management: Innovative Solutions for Specialty Crop Productions *Thierry Besancon*	Are You Sending Fertilizer Down The Drain? *Lindsay Pease*	Bean There, Diagnosed That: Soybean Disease Identification Workshop *Alyssa Betts and Lauren Irwin*	Interaction of Soil Chemical Properties and Soil Health Measurements to Understand Changes on Farms *Jason Hartschuh*	PFAS Occurrence, Transport, and Impacts in Agroecosystems *Heather Preisendanz*
2:00 - 2:50	Next-Generation Weed Management: Innovative Solutions for Specialty Crop Productions *Thierry Besancon*	Are You Sending Fertilizer Down The Drain? *Lindsay Pease*	Bean There, Diagnosed That: Soybean Disease Identification Workshop *Alyssa Betts and Lauren Irwin*	Interaction of Soil Chemical Properties and Soil Health Measurements to Understand Changes on Farms *Jason Hartschuh*	PFAS Occurrence, Transport, and Impacts in Agroecosystems *Heather Preisendanz*

2025 Crop Management School Workshop Schedule

Tuesday, November 18, 2025 (continued)

Time	Palmetto 2 & 3 (upstairs)	Palmetto 4 & 5 (upstairs)	Barbados & Cayman (downstairs)	Dominica & Eleuthera (downstairs)	Palmetto 1 (upstairs)
2:50 - 3:10	**BREAK**				
Session	**Crop Management**	**Nutrient Management**	**Pest Management**	**Soil & Water**	**Alternative**
3:10 - 4:00	Seeding and Nitrogen Rate Interactions of New Short-Stature Corn Hybrids Compared to Current Full-Stature Hybrids *Dan Quinn*	Cover Crop Impacts on Soil Health and Nitrogen Testing *Rory Maguire*	Surveying Upstate New York Groundwater for Pesticide Residues: So Far, So Good *Brian Karl Richards*	Enhancing the Productivity and Persistence of Perennial Forages *Heather Darby*	Taming the Most Pesky Problematic Tree Fruit Diseases *Kari Peter*
4:10 - 5:00	Seeding and Nitrogen Rate Interactions of New Short-Stature Corn Hybrids Compared to Current Full-Stature Hybrids *Dan Quinn*	Cover Crop Impacts on Soil Health and Nitrogen Testing *Rory Maguire*	Surveying Upstate New York Groundwater for Pesticide Residues: So Far, So Good *Brian Karl Richards*	Enhancing the Productivity and Persistence of Perennial Forages *Heather Darby*	Taming the Most Pesky Problematic Tree Fruit Diseases *Kari Peter*

2025 Crop Management School Workshop Schedule

Wednesday, November 19, 2025

Time	Palmetto 2 & 3 (upstairs)	Palmetto 4 & 5 (upstairs)	Barbados & Cayman (downstairs)	Dominica & Eleuthera (downstairs)	Palmetto 1 (upstairs)
Session	**Crop Management**	**Nutrient Management**	**Pest Management**	**Soil & Water**	**Alternative**
8:00 - 8:50	Short-Stature Corn Hybrids in High-Management Systems: Fertility, Fungicide, Row Spacing, and More *Dan Quinn*	Forage Nutritive Value and Mineral Concentrations of Common Pasture Forbs *Amanda Grev*	Mode-of-Action: Understanding Herbicide Biology and Symptomology *Kurt Vollmer and Cory Whaley*	Utilizing Liquid Manure During the Crop Growing Season *Jason Hartschuh*	Extending Lettuce Production into the Summer *Emmalea Ernest*
9:00 - 9:50	Short-Stature Corn Hybrids in High-Management Systems: Fertility, Fungicide, Row Spacing, and More *Dan Quinn*	Forage Nutritive Value and Mineral Concentrations of Common Pasture Forbs *Amanda Grev*	Mode-of-Action: Understanding Herbicide Biology and Symptomology *Kurt Vollmer and Cory Whaley*	Utilizing Liquid Manure During the Crop Growing Season *Jason Hartschuh*	Extending Lettuce Production into the Summer *Emmalea Ernest*
9:50 - 10:10	**BREAK**				
Session	**Crop Management**	**Nutrient Management**	**Pest Management**	**Soil & Water**	**Alternative**
10:10 - 11:00	Beyond the Seed Tag: Tips for Improving Crop Variety Selection *Nicole Fiorellino*	--	Management of Diverse Fungal Diseases in Watermelon *Bhabesh Dutta*	Taking No-Till Systems to the Next Level *Sjoerd Duiker*	Agrivoltaics: Is it a Good Option for Mid-Atlantic Farms? *Daniel Ward*
11:10 - 12:00	Beyond the Seed Tag: Tips for Improving Crop Variety Selection *Nicole Fiorellino*	--	*Management of Diverse Fungal Diseases in Watermelon* *Bhabesh Dutta*	Taking No-Till Systems to the Next Level *Sjoerd Duiker*	Agrivoltaics: Is it a Good Option for Mid-Atlantic Farms? *Daniel Ward*
12:00 - 1:00	**LUNCH BREAK**				

2025 Crop Management School Workshop Schedule

Wednesday, November 19, 2025 (continued)

Time	Palmetto 2 & 3 (upstairs)	Palmetto 4 & 5 (upstairs)	Barbados & Cayman (downstairs)	Dominica & Eleuthera (downstairs)	Palmetto 1 (upstairs)
Session	**Crop Management**	**Nutrient Management**	**Pest Management**	**Soil & Water**	**Alternative**
1:00 - 1:50	Haze Conditions and Crop Responses *Alexander Lindsey*	Nitrogen Credits After Leguminous Crops *Michael Mulvaney*	--	Irrigation Management - Lessons from 20+ years of Testing *James Adkins*	Update on Tomato Spotted Wilt Virus in the Mid-Atlantic Region *Andy Wyenandt*
2:00 - 2:50	Haze Conditions and Crop Responses *Alexander Lindsey*	Nitrogen Credits After Leguminous Crops *Michael Mulvaney*	--	Irrigation Management - Lessons from 20+ years of Testing *James Adkins*	Update on Tomato Spotted Wilt Virus in the Mid-Atlantic Region *Andy Wyenandt*
2:50-3:10	**BREAK**				
Session	**Crop Management**	**Nutrient Management**	**Pest Management**	**Soil & Water**	**Alternative**
3:10 - 4:00	Seedling Struggles - Planting for Success *Alexander Lindsey*	The Power of Manure *Quirine Ketterings*	Changes To Pesticide Labels: What You Need to Know *Mark VanGessel*	Using Apparent Electrical Conductivity to Map Coastal Soils *Jarrod Miller*	Beyond the Barn: Livestock Pests and Their Impact on Integrated Agricultural Systems *Erika Machtinger*
4:10 - 5:00	Seedling Struggles - Planting for Success *Alexander Lindsey*	The Power of Manure *Quirine Ketterings*	Changes To Pesticide Labels: What You Need to Know *Mark VanGessel*	Using Apparent Electrical Conductivity to Map Coastal Soils *Jarrod Miller*	Beyond the Barn: Livestock Pests and Their Impact on Integrated Agricultural Systems *Erika Machtinger*

2025 Crop Management School Workshop Schedule

Thursday, November 20, 2025

Time	Palmetto 2 & 3 (upstairs)	Palmetto 4 & 5 (upstairs)	Barbados & Cayman (downstairs)	Dominica & Eleuthera (downstairs)	Palmetto 1 (upstairs)
Session	**Crop Management**	**Nutrient Management**		**Soil & Water**	**Alternative**
8:00 - 8:50	Speed planting: Does it Increase Yield and Which Components Do You Need? *Michael Mulvaney*	How Reliably Can We Estimate Soil Test Values at Different Depths? *Amy Shober*	--	Broadcast Interseeding into Standing Soybeans: There's a Time and Place *Heidi Reed*	Beyond Breakeven: Pricing Strategies that Pay in Produce Marketing *Kofi Britwum*
9:00 - 9:50	Speed planting: Does it Increase Yield and Which Components Do You Need? *Michael Mulvaney*	How Reliably Can We Estimate Soil Test Values at Different Depths? *Amy Shober*	--	Broadcast Interseeding into Standing Soybeans: There's a Time and Place *Heidi Reed*	Beyond Breakeven: Pricing Strategies that Pay in Produce Marketing *Kofi Britwum*
9:50-10:10	**BREAK**				
Session	**Crop Management**	**Nutrient Management**		**Soil & Water**	**Alternative**
10:10 - 11:00	Giant miscanthus: A Promising Crop for the Mid-Atlantic on Prime or Marginal Land *Sarah Hirsh*	Goal: Provide More Accurate Phosphorus Recommendations *Sapana Pokhrel*	--	How Cover Crops Can Improve Soil Organic Matter, Soil Health, and Farm Resilience *Joseph Haymaker*	Optimizing Grafted Watermelon Spacing for Yield and Profitability in Maryland *Hayden Schug*
11:10 - 12:00	Giant miscanthus: A Promising Crop for the Mid-Atlantic on Prime or Marginal Land *Sarah Hirsh*	Goal: Provide More Accurate Phosphorus Recommendations *Sapana Pokhrel*	--	How Cover Crops Can Improve Soil Organic Matter, Soil Health, and Farm Resilience *Joseph Haymaker*	Optimizing Grafted Watermelon Spacing for Yield and Profitability in Maryland *Hayden Schug*

2025 Planning Committee

Executive Committee

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

Administrative Support

Ms. Taylor Robinson – University of Maryland
Ms. Gioiella Del Vecchio – University of Delaware

CEU Coordinator

Ms. Sydney Riggi – University of Delaware
Mr. Drew Harris – University of Delaware

Evaluation Coordinator

Ms. Emily Zobel – University of Maryland

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Dr. Jarrod Miller – University of Delaware
Dr. Raman Sharma – Rutgers University

Nutrient Management

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

Pest Management

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

Soil and Water Management

Dr. Sarah Hirsh – University of Maryland
Mr. Isaac Wolford – USDA NRCS

Alternative Session

Mr. Andrew Kness (Leader) – University of Maryland
Ms. Erika Crowl – University of Maryland

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).

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