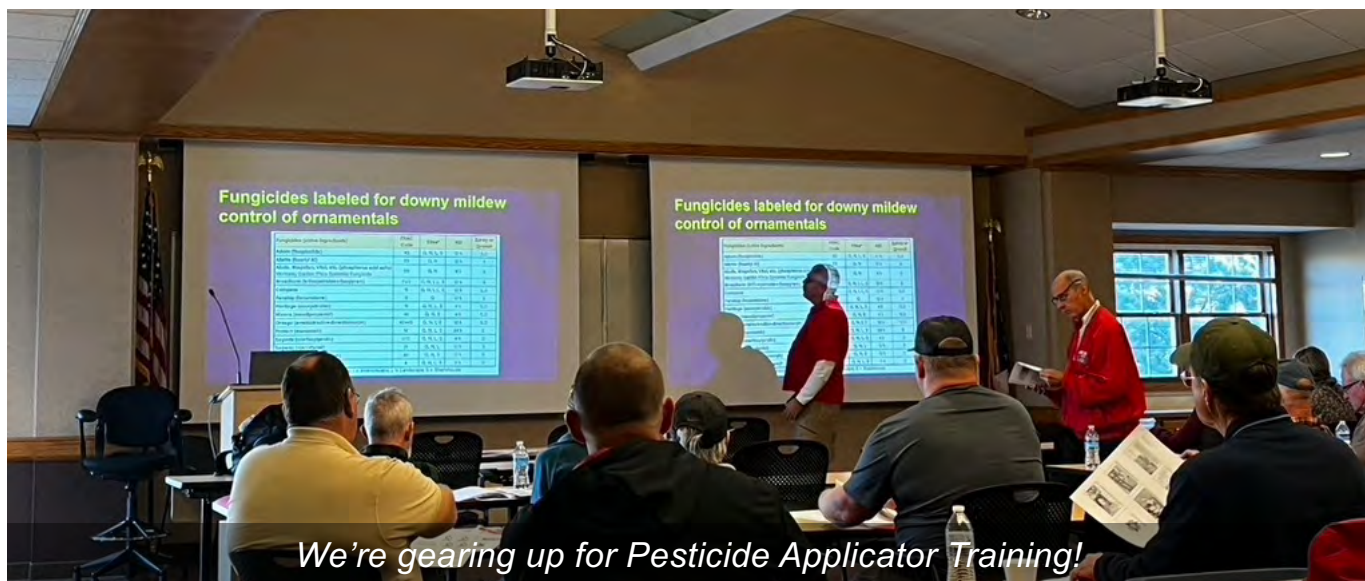


NORTHEAST OHIO AGRICULTURE NEWSLETTER

Your Weekly Agriculture Update for
Ashtabula and Trumbull Counties

November 26, 2024



We're gearing up for Pesticide Applicator Training!

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Hello Northeast Ohio Counties!

OSU Extension offices in Northeast Ohio will be offering many opportunities for farmers to renew their Private Pesticide Applicator license. Our next recertification opportunity is coming up next week on December 5th from 5-9PM via ZOOM. You can join this recertification session from the comfort of your own home.

If you prefer an in-person class, we have several lined up after the holidays as well. You can find all the details in the flyer at the end of this week's newsletter.

Happy Thanksgiving!

Lee Beers
Trumbull County
Extension Educator

OSU's new center will help Northeast Ohio farmers with value-added production

By Peggy Kirk Hall

Source: <https://farmoffice.osu.edu/blog/fri-11222024-851am/osus-new-center-will-help-northeast-ohio-farmers-value-added-production>

Our Agricultural & Resource Law Program team is excited to be part of the new [Northeast Ohio Ag Innovation Center \(NEO-AIC\)](#), a center that targets farm-based value-added businesses in Northeast Ohio. Based at OSU's campus in Wooster, Ohio, the center offers individual assessment and assistance to farmers in the Northeast region of the state who want to add or expand their production of value-added food, fiber, or fuel products. Ohio State's center is the newest of the [USDA-funded Ag Innovation Centers](#), which includes seven other centers in Massachusetts, New York, Minnesota, Georgia, Maryland, Missouri and Indiana.



The center will focus on "value-added agriculture," which refers to enhancing an agricultural product by altering its physical state, production method, or marketing approach, ultimately broadening the customer base for the product. Examples include:

- Making a physical change, like milling wheat into flour or making strawberries into jam, that transforms the original product into something new.
- Changing your production method, which includes growing organically, shifts how the product is produced and makes it more appealing to a specific market.
- Adding marketing labels like "locally grown" or "Ohio Proud" which enhance their appeal by emphasizing local origins and can attract new customers. *

The [NEO-AIC team](#) will work with clients to assess and assist with their specific needs for developing or expanding value-added production. The team will also coordinate connections with processors, markets, and distribution outlets throughout the region and identify new products and opportunities for farms. As the legal member of the team, I'll provide resources to help clients understand the laws and regulations that apply to their value-added production and their businesses. Specific services the team will provide include:

- Technical assistance: Help with legal and food safety questions and making connections to local service providers.

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- Value chain coordination: Help finding markets and distribution outlets for value-added products and strategic identification of new customer demands that can be filled by local farms.
- Business development support: Help with developing the plans necessary to start or expand a business, including legal and regulatory requirements, financing options, and connections to resources.

Thanks to the hard work and foresight of [Dr. Shoshanah Inwood](#), OSU secured financial support for the new center from USDA Rural Development. With additional assistance from Ohio State University Extension and The Ohio State University College of Food Agriculture and Environmental Sciences, NEO-AIC is able to offer its services free of charge to Northeast Ohio farms.

[Visit this link to learn more about the NEO-AIC.](#)

Career Opportunity with OSU Extension in Mahoning County

What is OSU Extension? We connect with people in all stages of life, from young children to older adults. We work with families and children, farmers and businessowners, community leaders and elected officials to build better lives, better businesses, and better communities to make Ohio great. Learn about us through this video: <http://go.osu.edu/weareextension>

OSU Extension seeks a dynamic, fun, inspiring, and motivated educator to work collaboratively with county, area, and state teams of professionals and with local agency leaders and volunteers. A focus in crop production in specialty crops is desired. The Educator will be responsible for a broad range of duties such as: Providing co-leadership for the Agriculture and Natural Resources programming targeted to Mahoning County needs; Utilize appropriate methods of community assessment to identify educational needs and opportunities; and Design, implement, teach, and evaluate educational programming, based on these needs. The Educator will adopt and develop new programs as well as replicate existing programs, work with county representatives and leadership concerning program funding and budget, secure external funds to support programming and operations, and participate as a member of county and state teams to further the overall mission, vision, and keys of both OSU Extension and Agriculture and Natural Resources.

Apply at <https://go.osu.edu/mahoninganr> by Sunday, December 8.

- This position is located in Mahoning County, Ohio, in the city of Canfield. This a two-year, term position.
- Applicants must submit a resume and cover letter detailing their complete work history.

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Winter Feeding Beef Cows on Pasture

By Garth Ruff and Jason Hartschuh

Source: <https://u.osu.edu/beef/2024/11/20/winter-feeding-beef-cows-on-pasture/>

2024 has been a roller coaster year with regards to pasture production and growth across much of Ohio. Here in the east central part of the state, drought took ahold in July and really hasn't eased up much. Pasture conditions continue to rate as poor or very poor and the hay crop was just a small percentage of a normal second cutting. Third cutting hay crop was nonexistent across the area.



Little has happened to improve the feed situation since drought conditions began.
Photo: Wiseman

At a series of programs across the region Jason Hartschuh and I discussed management options for winter feeding of beef cows in drought impacted areas the following were some of the highlighted discussion points.

Know how much stored forage is available. Taking hay inventory now is key. Not just counting bales, but knowing how many tons of forage is available versus what might have to be purchased supplementation. Getting out and actually weighing bales is the first step to planning winter feeding.

Don't guess, forage test. Forage testing is important when developing a supplementation plan. Know how much energy, protein, and fiber is in your hay will allow a nutritionist to help plan supplementation needs. There is a significant difference in the pounds of supplemental energy required between a poor hay sample at 45% Total Digestible Nutrients (TDN) compared to average grass hay with a TDN around 54-56%.

Find a nutritionist to work with. Having a nutritionist's contact that can help you formulate diets that meet the needs of you cow herd and your goals as a producer are key. We can provide some options and education in the area of herd nutrition; however, we as Extension educators are not trained to formulate diets on a daily basis. Much like a veterinarian, a relationship with a nutritionist (not just a feed salesperson) can be the difference between a profitable calf crop and a trainwreck in managing reproduction.

Protein source and cost. Supplementing protein is the highest cost feed component. Location in the state, number of head to feed, and ability to handle bulk ingredients will determine what protein sources you may consider. Often this discussion revolves around soybean meal and distiller's grains. Be sure to compare costs, and storage options. Protein sources that are high in moisture content such as wet distiller's grains or spent brewer's grains have shorter shelf lives.

Lick tubs can be a tool, not often the answer. More often than not energy is the limiting factor when it comes to supplementing beef cows. While some lick tubs can provide protein, they are usually not a cost-effective way to provide energy to a cow herd. Not all tubs are made equal, to a degree you get what you pay for as some tubs are harder and have higher quality protein sources than others. If feeding corn fodder or grazing stalks, tubs may be a protein supplementation option. If tubs fit your management approach, compare liquid lick tanks to baked tubs.

Be flexible. When feed is in short supply, flexibility is key. Sometimes the best bet is to reduce the need. Culling maybe the best option to get through winter feeding challenges.

Certified Crop Adviser Exam Preparation Class

By Lee Beers

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2024-40/certified-crop-adviser-exam-preparation-class>

Individuals looking to become a Certified Crop Adviser (CCA) should consider attending the Ohio CCA Pre-Exam Preparation Class offered by Ohio State University Extension. The session will be January 7-8, 2025, at the Shelby County Ag Building, 810-820 Fair Rd, Sidney, Ohio 45365.



This in-depth class will better prepare participants for the Tri-State CCA exam with a review of the four Performance Objective Competency Areas. These include nutrient management, soil and water management, integrated pest management, and crop management. Even if you are not considering the CCA program, this class is a great basic agronomy course that any farmer, ag retailer, or anyone working with field crops will find valuable. A detailed agenda for each day's topics is below.

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The cost for this two-day class is \$250/person which includes the publications listed below, lunch both days, and other program materials. Don't wait to register as class size is limited to 25. You can register by calling OSU Extension Trumbull County at 330-638-6783 or by registering with the following link: <https://bit.ly/OSU-CCAEXAMPREP-2025>.

Publications included with registration:

- Ohio Agronomy Guide
- Ohio, Indiana & Illinois Weed Control Guide
- The Ohio Corn, Soybean, Wheat and Forages Field Guide
- 2020 Tri-State Fertilizer Recommendations

The Local and International Exams are proctored online tests. You must pass both exams to obtain Certified Crop Adviser status. Tests are offered four times a year with registration opening January 2, 2025 for the next exam. You can learn more about the exam dates and sign up for reminders at <https://www.certifiedcropadviser.org/exams>.

For more information about the CCA program, visit <https://www.certifiedcropadviser.org/about-program>

Course contact: Lee Beers, CCA, Ohio State University Extension, beers.66@osu.edu, 330-638-6783

The Evolving Nature of Precision Ag: Forwards towards the 2040s

By Steve Sonka

Source: <https://farmdocdaily.illinois.edu/2024/11/the-evolving-nature-of-precision-ag-forwards-towards-the-2040s.html>

Last Monday's farmdoc daily article reviewed the path of precision agriculture over the last three decades (***Sonka***). It was the first of three articles. Today's article speculates about the future path of technologies and their effects. The third article in this set, The Confluence of Societal Interests and Precision Ag, is set for next Monday.

That practical philosopher, Yogi Berra, has been quoted as saying, "It's difficult to make predictions, particularly about the future" (Laidler). He is, of course, correct and the observations offered here shouldn't be assessed as predictions. A better term might be speculations, based upon the path of precision agriculture to date, societal needs, and an incomplete assessment of relevant technologies currently in late-stage development or early-stage commercialization. Implementation of those technologies, if successful, is likely to have significant impact on how decisions in the ag sector are made.

The article will identify specific technologies and products. These are not recommendations, instead their inclusion is to provide tangible examples. Finally, last week's article identified technology applications existing today that weren't widely known (or known at all) in the early 2000s. There will be technology applications in the 2040s that we're not aware of today.

Introduction

The ending observation of last week's article highlighted the growing recognition of the role of data and decision making in precision ag. This was contrasted with the observation that the early days of precision ag tended to emphasize the novelty of "shiny toys". This article's initial segments concentrate on data, but "shiny toys will be included".

Data Intensive Farm Management

Farmers always used information to help them make better decisions. I recall an Illinois farmer describing how, decades ago, he assessed the performance of differing corn varieties. The process involved painting numbers on telephone poles, planting different varieties in the spaces between those poles, and then, while harvesting, comparing how much corn was in the combine bin. When precision ag came along, quantitative data became available to link levels of fertilization and yields. With reasonable accuracy, less fertilizer could be applied to those areas of the field thought to have lower productivity. While useful correlations, that process didn't really address the "how much" question. How much less or how much more fertilizer should be applied to the areas thought to have lower or higher productivity? With private sector collaboration, a USDA-supported project, Data Intensive Farm Management (DIFM) is developing the capabilities to allow farmers to explore the "how much" question based upon data from field trials conducted on their own farm.

Figure 1 depicts the layout of a field trial conducted on an actual farmer's field where five levels of nitrogen application were compared. Each level of nitrogen is shown by its own shaded block. The pattern illustrates how the different nitrogen levels are tested throughout the field, with each small block being an experimental plot. The results directly respond to the "how much" question. Importantly, the associated field operations (input applications and harvesting) can be done with the farmer's existing equipment and processes.

Figure 1. Example of a Field Trial Layout



More information about this innovation is available from the DIFM program (<https://difm.farm>). This includes a freely available cloud-based cyber-infrastructure (“platform”). This tool can be used to design on-farm precision experiments, to transfer the design files to machinery, to upload as-applied yield and other kinds of data, and to store, manage, process and analyze that data. The end result is a report of the economic implications for each trial. This process is similar to the Total Quality Management revolution that led to major improvements in manufacturing performance in the 1990s (Hendricks and Singhal).

It’s not likely that an individual farmer would conduct such trials every year and on every field. However, as a young professor (decades ago), I got to interact with a group of swine producers who were striving to understand new technologies and approaches. They routinely met to share their experiences with the new tools entering the industry. Further they compared quantitative performance outcomes among themselves and their advisors. A similar approach, fueled by the DIFM method and possibly organized by ag retailers and/or Extension, would seem to be an extremely effective means to advance learning.

Seeing Over the Corn

In last week’s article, we observed that remote sensing was an emerging technology, although the preferred method of acquiring data wasn’t clear. As illustrated in Figure 2, drones and other means such as satellites, airplanes, and robots can be used for data acquisition, with differing strengths and weaknesses.

The use of remote sensing in agriculture is not new. World War II technologies led to use of airplane-based photography to map cropland features in the 1950s and satellites started to be employed for similar uses in the 1970s (**Nellis, et.al**).

While interesting, the resulting information lacked precision for many agricultural production decisions. I recall chatting with a farmer who was experimenting with aerial mapping about a decade ago. He mentioned that when areas of abundant vegetation were noted it was worth checking because it was either a really good stand of corn or of weeds.

Major advances in analytic methods have materially enhanced the specificity and results available from remote sensing. Anticipating crop yields during the growing season is one area where improvement has led to meaningful results. For example, integrating satellite data generated from a diverse spectral range has shown considerable success to rival traditional, more expensive methods of estimating yields over large-scale geographies (**Guan, et.al.**)



Obtaining data is one interesting use of remote sensing. Other applications will be addressed in next week's article.

Who's Holding the Steering Wheel (or the App)

The survey results reported in last week's article documented the massive increase in farmers use of guidance/autosteer technology. Evidently farmers were willing to "give up the steering wheel" even when they were in the cab. The future offers the potential for farm vehicles operating without a person being physically present on the machine. (Given the relatively controlled farm field setting, it is not hard to imagine several machines being controlled by one person using a controller or app on the cell phone. A next step would be those machines operating without a person in the field watching them.

Predicted benefits include enhanced productivity, efficiency and sustainability (**Nokia, Nolen**). Imagine, could the future farmer's last task before going to bed be to use his cell phone to check yields and see if the combine operating in the field was OK? While a bit "out there", thirty years ago the robotic milking machine seemed to many of us to be just as far "out there". They are now commonly used.

Much of the focus of current attention regarding autonomous farm equipment is focused on impacts on field practices. An interesting extension is to consider potential effects on farm equipment design. A constant trend throughout my lifetime has been that next

year's tractor would be bigger and more powerful than last year's. One constraint throughout that time was the need for a person to physically be on the machine. If that constraint is relaxed and the machine can operate day and night, would it make sense for a smaller machine to be preferred?

Finally, farmer safety may be an additional important benefit. While not emphasized here, a recent webinar addressed this topic in detail ([**farmdoc Webinar**](#)).

Generative Artificial Intelligence

An innovation that has dominated the media, and the financial markets recently is Generative AI. A simplified description of generative AI is that it is an artificial intelligence tool that can create new content based on analysis of patterns in existing data. For example, one could employ generative AI to entirely create an article exploring the future evolution of precision ag. (But I didn't!)

Before we reach conclusions regarding generative AI, it might be useful to note two things:

1. Generative AI is relatively new and our understanding of its impacts will be revealed over time and
2. Throughout history, the impact of innovations has been shown to follow a predictable pattern. That pattern is known as the Hype Cycle ([**Gartner**](#)). The Hype Cycle describes the typical steps a new technology follows from its introduction to market success:
 - a. A period of overestimated expectations as to the technology's potential impact,
 - b. Followed by disillusionment because those overestimated expectations aren't achieved immediately, and
 - c. Typically, after a few years, recognition that the technology does have positive impact—sometimes exceeding the overestimated expectations.

Generative AI was positioned at the Peak of Inflated Expectations in the 2023 hype cycle analysis ([**Gartner**](#)). Appreciating the tendency for irrational exuberance, it is important to consider Generative AI as a potential tool within precision ag.

- One such role as an embedded element within farm equipment. Most of us don't understand the technicalities associated with GPS navigation in our car but it's a tool we use. It is very likely that the capabilities of tomorrow's farm equipment will be improved by generative AI that the farmer never sees.
- The second role links to data analysis. Talking with today's farmer who is a successful user of precision ag tools, one is very likely to hear a comment such as, "DATA!!!, I'm drowning in data!" ([**Lin**](#)).

Discerning management insights from the reams of digital information currently available presents daunting challenges. Practices such as DIFM and data gathered from remote sensing are going to exacerbate the drowning in data phenomenon. Generative AI hopefully will be a key analytical tool to address that challenge.

In farming, tools that effectively employ generative AI could be beneficial, whether directly used by the individual farmer or in creating advisor recommendations. One potential benefit is the ability to interact with data and information resources in a more natural, human-like fashion. For example, for years it has been easy to be frustrated with search engine results that deliver hundreds of thousands of hits, but then require the user to sort through them to find useful responses. While not perfect, current generative AI platforms enable asking questions in a natural fashion and provide specific responses. That example may be a useful analogy, when applied to data from farm fields. Hopefully, tools employing generative AI will enable farmers to unlock insights about improved farm practices that today are hidden in a myriad of spreadsheets and reports. Interestingly, just last week, Bayer announced an initiative to sell agriculturally specific generative AI tools as a new product in the agricultural industry (**Bousquette**).

Use of generative AI throughout society is likely to experience many bumps in the road. Societal acceptance is already an issue of debate. Privacy breaches at the individual and international levels are surfacing. Such instances of misuse likely will proliferate. These may lead to societal limitations on the extent and manner in which generative AI can be used, including in agriculture.

Ubiquitous Connectivity

Underlying the perspectives discussed here is the expectation that rural connectivity will be much improved by the 2040s. Several federal programs have been initiated in recent years with the stated goal of improving rural connectivity. However, progress to date hasn't shown significant results (**Ferrechio**).

A 2024 announcement does indicate a differing path to achieving the rural connectivity goal (Tita and Maidenberg). That announcement described a deal to link Space'X's Starlink service to John Deere farm equipment. The goal is to provide ubiquitous connectivity, without which the benefits of the technological innovations noted in this article will not reach their full potential. Starlink's more than 5,000 satellites provide a powerful platform to extend across rural America. Hopefully, competitors, such as Intelsat and others, will emerge to provide additional service opportunities in rural America.

Wrapping Up

In this article a diverse set of future agricultural applications has been used as examples of enhanced decision-making methods that could be routinely employed by the 2040s.

An underlying purpose for describing those examples was to illustrate capabilities that are currently emerging. These capabilities would undergird the practices employed in a future precision agriculture:

- Ubiquitous connectivity to empower rural areas.
- Autonomous farm vehicles of large and small size.
- Massively expanded remote sensing networks integrating multiple means of data collection.
- Analytics which will employ concepts we've become introduced to in the last decade such as Big Data, Cloud Storage, and Traditional and Generative AI.
- The Data Intensive Farm Management concept, which could allow farmers and agribusiness managers to profoundly improve performance, similar to the past effect of Total Quality Management and similar concepts in manufacturing.

While individually intriguing, it is the combined effect and application of these technologies that will drive performance. Farmers and managers who lead in integrating them on the farm are likely to earn the early adopter benefits.

In this, and last Monday's article, the focus was predominately constrained to the boundaries of the farm. Next Monday's contribution will consider how technology may allow agriculture to more effectively respond to societal interests that extend beyond the farm gate.

CFAES

Evaluate the Distribution and Incidence of Post-harvest Rots on Chestnut Kernels.



We hope you will consider participating to this important project sponsored by Northern Nut Growers Association to Evaluate the Distribution and Incidence of Post-harvest Rots on Chestnut Kernels.

We are conducting a survey on post-harvest chestnut rots to better understand the spoilage pathogens affecting chestnut production. This project will investigate the incidence of fungal rots, evaluate the impact of sanitation treatments, and examine how different chestnut cultivars are affected by these molds. The results will provide crucial information for developing strategies to reduce economic losses due to post-harvest spoilage.

How You Can Help?

We are requesting chestnut samples from producers across the eastern U.S.

Sample Requirements:

- Minimum of 100 chestnuts per submission
- We are accepting treated and non-treated nuts
- Separate nuts by cultivar
- Please include information on location, cultivar, and any post-harvest treatments used with the samples

Where to Send Samples:

C. Wayne Ellett Plant and Pest Diagnostic Clinic
Department of Plant Pathology - Selby Hall 234
1680 Madison Avenue
Wooster, OH, 44691

Rot Assessment Details:

- Samples will be processed at our USDA-APHIS certified Diagnostic Clinic in Wooster, OH.
- Nuts will be visually inspected for post-harvest damage, including cracks, weevil infestation, and molds.
- Molds will be cultured, characterized, and identified using DNA sequencing.

Your Contribution Matters:

This research aims to reduce chestnut spoilage and improve the shelf life of chestnuts across the industry. Results will be shared with producers at the 2025 NNGA Annual Meeting and published.

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<https://ppdc.osu.edu>
<https://u.osu.edu/fruitpathology/>

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OHIO STATE UNIVERSITY EXTENSION TRUMBULL COUNTY

Master Gardener Volunteer Training 2025

Do you enjoy gardening, learning, and helping others in the community? **Become a Trumbull County Master Gardener Volunteer!** You will receive 50 hours of training in vegetables, flowers, trees, shrubs, soil, insects, diseases, and more. In turn, you will get the opportunity to share your knowledge with others by answering questions, collaborating on service projects, and presenting programs. A hybrid class requiring both online and in-person training sessions will be apart of this program.

To apply please follow the link below:

<https://go.osu.edu/tcmgv25>

Application Window: September 1, 2024 - December 1, 2024

Cost: \$250

Contact information: Noelle Barnes barnes.1127@osu.edu or 330-638-6783

CFAES

2025 Northeast Ohio Private Pesticide Applicator Recertification & Fertilizer Applicator Recertification Sessions

Private Pesticide Applicator Recertification:

Does your Private Pesticide Applicator License expire on March 31, 2025? If so, OSU Extension in Northeast Ohio has three face-to-face and two webinar pesticide recertification sessions available for applicators. Each of these sessions will offer 3 credits for pesticide recertification for CORE and all categories (1-7). Private Pesticide Applicators are encouraged to choose a session to attend.

Cost: \$40/Person

Fertilizer Applicator Recertification:

Does your Private or Commercial Fertilizer Applicator Certification expire in 2025? A one-hour session will be held immediately after the pesticide session for those who need to renew their Fertilizer Applicator Certification. **Cost: \$10/Person**

2025 Recertification Programs:

- **Online via Zoom, Thursday, December 5, 2024, 5:00 PM to 9:00 PM**
 - Pesticide starts at 5:00 PM, Fertilizer starts at 8:00 PM
- **Trumbull Co. Extension Office in Cortland, OH – Tues. January 21, 2025, 5:00 PM – 9:00 PM**
 - Pesticide starts at 5:00 PM, Fertilizer starts at 8:00 PM
 - For more information call: 330-638-6783
- **Geauga Co. Extension Office in Burton, OH – Wed. February 12, 2025, 1:00 PM – 5:00 PM**
 - Pesticide starts at 1:00 PM, Fertilizer starts at 4:00 PM
 - For more information call: 440-834-4656
- **Ashtabula Co. Extension Office in Jefferson, OH – Thurs. March 6, 2025, 1:00 PM – 5:00 PM**
 - Pesticide starts at 1:00 PM, Fertilizer starts at 4:00 PM
 - For more information call: 440-576-9008
- **Online via Zoom, Thursday, March 27, 2025, 5:00 PM to 9:00 PM**
 - Pesticide starts at 5:00 PM, Fertilizer starts at 8:00 PM



Register online at go.osu.edu/NEOPATREG or fill out the attached form.



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