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# Can We Hack Corn Production with Biological Input Products?

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Biological input products can be operationally defined as products where a living organism is added to the soil or plant system, with the intention to provide additional nutrients to the growing crop. Generally, the biological nitrogen (N) products either amplify an input component of the N cycle, namely mineralization or increased fixation of atmospheric N, or aim to minimize a loss pathway of the N cycle, namely decreasing volatilization or denitrification of N. Biological phosphorus (P) products either prevent or reverse the adsorption of plant-available P to soil minerals or amplify the natural processes that plant roots employ to access soil P. On-farm data collected from Maryland during the 2023 and 2024 growing seasons demonstrated limited efficacy of the N and P biological products tested. As farmers consider using biological input products, they should understand that there are likely limited conditions in which these products will be beneficial. These products may be promising in regions with greater soil organic matter or less soil variability, but there is the potential for these products to aid Mid-Atlantic farmers in specific scenarios where logistics or regulations prevent or restrict timely nutrient applications. It is crucial that local evaluations of these products are conducted to determine specific areas of a state or region where they can be beneficial. Farmers in Maryland, and the broader Mid-Atlantic region, are generally efficient with their N management and have soil P concentrations in areas that are orders of magnitude greater than other regions of the country, which potentially limit the utility of biological input products. However, it is possible that there are regions of a state or zones of individual fields where these products are likely to provide benefits, and on-farm testing and evaluation, in partnership with Extension personnel or crop consultants, is crucial to identify these areas.

# Assessing Drought Tolerant Corn Hybrids Under Reduced Irrigation

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With an average of nearly 60,000 acres planted annually, Southwest Georgia farmers are searching for answers to keep corn profitable. Corn plays a key role in crop rotation, but has a significant water use requirement. Several irrigation applications each growing season are a necessary evil in order to maintain profitable corn production in South Georgia. Farmers want to know if there are options to continue growing corn by reducing inputs via irrigation amounts while maintaining yield. To address these concerns, a study was conducted at the UGA Southwest Research Education Center (SWREC) in Plains, Georgia to assess the effects of irrigation reductions on corn yield, test weight and moisture. Seven corn hybrids (3 drought tolerant and 4 high-yielding) were planted in 12 row plots in 4 quadrants under the 4-tower pivot (Pivot #1) at the SWREC. Each quadrant received a decreasing amount of irrigation (100%, 75%, 50%, and 25%) based on UGA irrigation recommendations. Irrigation events were triggered based on the soil moisture data provided by an AquaSpy soil moisture sensor that was installed in the 100% treatment. Each hybrid under each treatment was harvested separately and weighed. Additionally, aflatoxin levels in each treatment were also determined. Results from the trial identified little reduction in yield with irrigation amounts reduced as much as 50%. The potential to reduce irrigation amounts could drastically reduce costs and keep corn profitable. Future studies aim to zero in on the optimal amount of irrigation reduction while maintaining profitable yield and further evaluation the performance of both high-yielding and drought-tolerant hybrids under reduced irrigation.

# Relationship between GER disease severity and mycotoxin accumulation in diverse Canadian inbred lines

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Gibberella ear rot (GER) and deoxynivalenol (DON) contamination in maize are significant concerns affecting yield and grain quality. Our study examines how different inoculation methods and climate interactions influence GER severity and DON accumulation across corn inbred lines. Using field trials in Ottawa and Ridgetown over multiple years, we assessed the variability of GER and DON under different inoculation techniques and environmental conditions. Results indicate that silk channel injection with low inoculum (SCL) provides the highest differentiation of genotypes for GER, while silk channel injection with high inoculum (SCH) maximizes DON variability. Additionally, silk spray methods (SSH and SSL) exhibited moderate variability, with SSH providing a more consistent assessment of GER across environments. Heat accumulated from flowering to maturity and rainfall were found to be key factors influencing DON accumulation, while early-season climate conditions that are favorable to the plant affected GER severity and DON negatively. These findings provide insights into the influence of weather variables on plant-pathogen interaction and selecting optimal inoculation methods for maize breeding programs targeting GER and DON resistance.

# Narrow row corn production

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1The Ohio State University, 2Penn State University, and 3North Dakota State University.

As the agricultural landscape has changed with seasonal weather shifts as well as technological advances, there is renewed interest in producing corn with narrow row spacings (22 inches or narrower). Research conducted in the Northeastern United States has suggested a consistent yield gain in silage yield in states like Pennsylvania, Wisconsin, and Ohio ranging from 4-8%, with many sites documenting a 6% yield gain. Delayed planting into June increased the silage yield gains with narrow rows compared to conventional row spacings in Pennsylvania. Researchers in Ohio and Pennsylvania conducted a series of trials to elucidate hybrid responses and optimal seeding rates associated with narrow row corn production. Hybrid interactions with row spacing were not evident, but narrow rows (15-inch spacing) resulted in grain yield gains of 3-4% and dry biomass yield increases of 4-8%. Optimal seeding rates in narrow rows, either 15-inch or 20-inch spacing, ranged from 32,000-36,000 seeds/acre and were similar or slightly greater than 30-inch row spacing based on small-plot and large-plot trials. No grain yield advantage from narrow row spacing was observed across seeding rates tested. Research from Michigan suggested grain yield gains in 15-inch rows were possible with coarse textured soils (+10-12 bushels), though fine textured soils only showed a 0-6 bushel yield gain. The heavier textured soils from Ohio and Pennsylvania may explain the more modest yield gains observed. Gains in yield for grain and silage might not justify potential increases of fixed and variable costs associated with the transition to narrow row production (e.g. equipment needs, management challenges with navigating narrow spacing), and these factors need to be considered. If a farmer has already transitioned to narrow row corn production, planting a full-season hybrid, and using increased seeding rates may be beneficial in farming high yield-potential environments.

# New York Corn Production and Cornell University Corn Breeding

Margaret E. Smith

Plant Breeding and Genetics, Cornell University

Field corn occupies about 3% of New York’s land and is the most important row crop. Corn grain acreage in NY has doubled since 1919 while silage acreage has increased 50% (USDA NASS, 2025), and NY silage yields doubled while NY grain yields quadrupled. My corn breeding position, established in 1970, originally focused on disease and insect resistance and this is still a major focus. Additional goals include nutritional quality, adaptation to organic management systems, and niche uses.

Leaf disease selection produced inbreds with strong resistance to gray leaf spot (NY22613) and northern leaf blight (NY73405). NY22613 also exhibits resistance to northern, southern, and anthracnose leaf blights and to anthracnose stalk rot (Junyun Yang, M.S. thesis). Mapping showed little evidence of individual locus resistance to multiple diseases, but suggested *liguleless1* as a candidate gene for NY22613 resistance to northern leaf blight (Dhyan Palanichamy, Ph.D. dissertation). Diallel analysis of NY212 (from US Germplasm Enhancement of Maize project) showed equal importance of GCA and SCA in anthracnose stalk rot resistance (Agustin Valverde, M.S. thesis). Cornell European corn borer resistance breeding built on germplasm from CIMMYT’s Multiple Borer Resistant population to release NY6371.

Collaborative research with CIMMYT-Zimbabwe revealed that GCA was more important that SCA for iron and zinc density and bioavailability, differences measured were significant given Zimbabwean diets, and field nitrogen status had a significant effect (Jennifer Long, Ph.D. dissertation). Higher heritability nutritional quality traits (*opaque2* and multiple aleurone) significantly affected grain niacin concentration in some inbred backgrounds, possibly synergistically (Yunting Dai, M.S. thesis). Genomic evaluation for 20 grain mineral concentrations revealed strong environmental influences on individual locus behavior (Philip Kear, Ph.D. dissertation).

Breeding for organic adaptation begun by Frank Kutka (Ph.D. dissertation) and Klaas Martens (farmer cooperator, Penn Yan, NY) led to commercial sale of two hybrids selected. USDA OREI research produced a corn population catalog (<https://practicalfarmers.org/programs/field-crops/u-s-testing-network/corn-population-catalog/>). Other niche breeding efforts involve northern flints (begun by Frank Kutka), blue flint, and semi-dwarf purple striped ornamental corn.

# Field Corn Disease in the Northeast

Jake Jones

FMC

Tar spot, caused by *Phyllachora maydis*, emerged as an economically important disease is in the Northeast in recent years. This disease favors cool, wet weather and two cultural practices that the Northeast US uses in corn production may also favor development of the disease, continuous corn production, and late planted corn following a small grain for forage. Varietal selection, fungicide selection, and fungicide timing can all be important tools to limit yield loss to this disease. A new disease that emerged in the Northeast in 2024 was corn stunt, found near the end of the growing season in New York. This disease is vectored by corn leafhopper, *Dalbulus maidis*, which is known to transmit four different pathogens including corn stunt spiroplasma (*Spiroplasma kunkelii*). Corn stunt is a devastating disease in other parts of the world and monitoring the spread of the corn leafhopper and scouting for disease symptoms will be important in upcoming years.

**Keywords**: tar spot, corn stunt, fungicide

# Pennsylvania Corn Silage Research Update

# Guojie Wang, Forage Crop Systems Extension Specialist & Daniela Carrijo, Grain Crop Production Extension Specialist, Department of Plant Science, The Pennsylvania State University

# In 2024, 94 corn silage entries from 11 seed companies participated in the corn silage variety testing program run by Penn State in seven locations with three maturity groups – 91-100-day early-season, 100-111-day mid-season, and 111-118-day late-season corn. The corn silage yield was dictated by location and its corresponding climatic and edaphic conditions, ranging from 25.5 to 15.4 tons per acre with 65% moisture content. We propose reconsidering the testing site selection to represent PA corn silage production areas more. In 2024 and 2025, we conducted short-statured corn studies in Central PA with different hybrids under different seeding densities. Short-statured corn yielded approximately 3 tons per acre less silage than the conventional corn (p<0.0001), while under 42,000 seeding density corn produced approximately 1 ton per acre higher silage than 34,000 seeding density (p=0.0096), irrelevant to corn stature status in 2024. In 2025, higher seeding densities under 42,000 and 46,000 also produced higher corn silage yields than lower seeding densities under 34,000 and 38,000 (p=0.0371), irrelevant to corn stature status. However, corn stature did not significantly affect silage yield in 2025 (p=0.7603). The results demonstrated the need for a long-term study of the yield difference related to corn stature status. We tested silage forage quality in 2025 and found that seeding density had no significant effect on silage forage quality parameter; in comparison, short-statured corn showed better forage quality with lower acid and neutral detergent fiber concentrations, higher starch and total non-fiber carbohydrate concentrations, leading to higher milk production per ton of short-statured corn silage than the conventional corn silage. For future studies, the Penn State research team proposes diversifying the corn silage-ryelage double cropping system by adopting perennial, diverse, and circular systems to stabilize forage yield and improve forage quality with less environmental footprint.

# Keywords: corn silage variety testing, short-statured corn, seeding density, diversification

# Predicting Cover Crop Nitrogen Content

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Cover crops offer multiple benefits including pest suppression, soil erosion prevention, and regulation of nitrogen retention and supply for subsequent cash crops. These cover crops can facilitate nitrogen release through mineralization processes that benefit the succeeding cash crop. However, the quantity of nitrogen released by cover crops is contingent upon various factors associated with both the cover crop itself (such as biomass and C:N ratio) and the soil environment (including moisture, temperature, texture, and composition).The objective of this study was to assess cover crop nitrogen content utilizing aerial sensing technology. To achieve this, three cover crop species—clover, canola, and triticale—were investigated, including their monoculture and mixed variants. Three rounds of cover crop biomass sampling and sensor data collection occurred between the first week of April and the first week of May. The Normalized Difference Vegetation Index (NDVI) was computed from crop reflectance data captured by a multispectral airborne sensor. A random forest methodology was employed to construct a model predicting cover crop nitrogen content based on NDVI, cover crop species, and growing degree days (GDD). Analysis of partial dependence plots from the airborne sensor model revealed that clover exhibited the highest nitrogen content among the cover crop species, while triticale exhibited the lowest nitrogen content for equivalent NDVI and GDD values. Additionally, findings indicated that higher GDD values correlated with increased cover crop nitrogen content due to heightened biomass accumulation. An exponential correlation was observed between NDVI and biomass nitrogen content.

# Effect of Barley and Winter Pea Cover Crops on Nutrient Availability in No-Till Corn

Emily Marsh and Chad Lee

University of Kentucky

Cover crops have long-term soil health improvements, the first of which is reducing erosion. However, popular cereal cover crops, such as rye (*Secale cereale*), can cause a yield penalty in following corn (*Zea mays*) crop. Legumes, such as Austrian winter pea (*Pisum sativum*), are thought to reduce this yield penalty in no-till systems. Additionally, sulfur deficiencies have been observed in some studies following cover crops. The main objective of this study is to determine if earlier termination and/or the addition of a legume will reduce cover crop competition for nitrogen. Cover crop treatments include no cover crop control, barley (*Hordeum vulgare*) alone, and an Austrian winter pea plus barley mix. Cover crops were terminated at either five weeks or two weeks before planting corn. Five nitrogen rates of 40, 170, 215, 260, and 349 lb N/A were applied, with 40 lb N/A applied at planting, and the remaining nitrogen applied as sidedress to V3 corn. An additional trial was conducted to examine the effect of sulfur on corn yields following a cover crop. Utilizing the same cover crop treatments, an additional 0 or 30 lb S/A as gypsum was applied. Agronomic data collected includes cover crop nutrient composition, cover crop biomass production, SPAD, ear leaf nitrogen content, soil nitrate and ammonia levels, and yield. Preliminary findings show that early termination of the cover crops can lead to an increase in corn nitrogen content during the growing season. Additionally, fertilizer sulfur increased corn yields following a cover crop at one location.

# Comparing Field Corn Hybrids in Southwest Georgia-2024

McAllister, S.1,Crews, B.2,Starr, W.3, Lopez, C.4, Cloud, C.5, Dowdy, M.6, Hayes, B.7, Kichler,J.8, Ingram, S.9, Prostko, E.10

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In 2024 field corn was planted on 370,000 acres in Georgia. Field corn producers face many difficult decisions. Hybrid selection is one of the most important and difficult decisions for growers due to the rapid turnover in available field corn hybrids. The goal of this research was to compare 10 of the most popular corn hybrids from 5 companies across 6 locations in Southwest Georgia. This area represents the geographic region encompassing the largest field corn acreage in the state. On-farm, replicated, irrigated, hybrid trials were planted in 6 row plots in grower fields in Terrell, Sumter, Grady, Colquitt, Mitchell, and Thomas Counties. Plot Sizes ranged from 0.26-0.76 acres each with (2-3 replications). Plant populations ranged from 24K-36K plants per acre at the various locations. Each hybrid was harvested separately and weighed on weigh wagons to determine yield based on 15.5% moisture content. All data were subjected to ANOVA with means separated using Fishers Protected LSD test (P=0.10). Average yield ranged from 152-255 bushels per acre at each location. Dynagrow 58TC94, Croplan 5893, and Dekalb C7045 showed the most yield stability across the various locations and were among the highest yield regardless of location. Croplan 5760 was below yield average in all locations except Mitchell County. All hybrids performed similarly, and across all locations the difference in yield from highest to lowest hybrid only differed 17-33 bushels at each location.

# Drought Tolerant Corn Variety Trial

Edwards P.1\*, V. Bist2, D. Collins3, B. Crews4, D. Lyon5, S. McAllister6, M. Mosteller7, T. Price8, S. Rogers9, B. Starr10, C. Young11

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Farmers are searching for answers to keep corn profitable. Corn plays a key role in crop rotation, but corn has a significant water use requirement. Multiple irrigation applications are an integral but expensive component to profitable corn production in South Georgia. Farmers want to know if there are options to continue growing corn by reducing irrigation amounts while maintaining yield and reducing overall costs. To address these concerns, a study was conducted at the UGA Southwest Research Education Center (SWREC) in Plains, Georgia to assess the various reductions in irrigation application amounts and its impact on yield, test weight and moisture. Seven corn hybrids (3 drought tolerant and 4 high-yielding) were planted in 12 row plots in 4 quadrants under the 4-tower pivot (Pivot #1) at the SWREC. Each quadrant received a decreasing amount of irrigation (100%, 75%, 50%, and 25%) based on UGA irrigation recommendations. Irrigation events were triggered based on the soil moisture data provided by an AquaSpy soil moisture sensor that was installed by the Ag Water Team in the 100% treatment. Each hybrid under each treatment was harvested separately and weighed. Yield, test weight and aflatoxin levels were also determined. Results from the trial identified little reduction in yield with irrigation amounts reduced as much as 50%. The potential to reduce irrigation amounts could reduce costs and keep corn profitable. During the growing season, the trial was featured in multiple field days with farmers and agents.

# Evaluating Moisture Thresholds in Corn Varieties in Southwest Georgia 2024

McAllister, S.1,Crews, B.2,Starr, W.3, Lopez, C.4, Cloud, C.5, Dowdy, M.6, Hayes, B.7, Kichler,J.8, Ingram, S.9, Prostko, E.10, Lyon, D.11, Edwards, P.12

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Corn irrigation is one of the most expensive inputs for Georgia producers. Many center pivot irrigation systems in Georgia share a pump, which greatly limits system watering capacity during times of peak moisture demand. This evaluation sought to correlate yield data from the 2024 UGA on farm corn variety trials to the duration of moisture sensors at each location remaining in the “optimal” moisture zone from Tassel (VT) to the dough stage (R4) which was approximately one month of the growing season, and the highest moisture demand. Six corn variety trials in Southwest Georgia featured 10 varieties from 5 companies. Each location utilized an Aquaspy moisture sensor in the first replication of the Dekalb 68-45 corn plot. Growing degree units for each location were calculated from the nearest GA Automated Weather Station to each trial based on planted date from each location, and yield data from each location was compared to the time moisture sensors were in the “optimal” moisture range for each location. Evaluation timing was from VT (tassel emergence) to R4 (soft dough stage) which was approximately a month long and the time of highest crop moisture demand. The locations that had the highest yield spent the most time in the “optimal” moisture range on the moisture sensor charts. Conversely, the lowest yielding locations spent the least amount of time in the “optimal” moisture range. The Grady County Sensor quit working halfway through the season, so it does not follow that trend. This trial validates the current irrigation scheduling recommendations from moisture sensors aid farmers in determining when to irrigate to obtain the higher yields from their corn crop.

# Master Irrigator Program Leads to Increased Adoption Rate of New Technologies for Irrigation Management

Edwards,\* P.1, Bennett, J.2, Bowen, D.2, Brown, W.2, Carter, B.2, Cloud, C.2, Collins, C.2, Crews, B.2, Dowdy, M.2, Frye, M.2, Green, R.2, Hall, D.4, Joyce, R.2, Lyon, D.5, Mallard, J.3, McAllister, S.2, Miller, J.2, Porter, W.6, Powell, S.2, Royal, C.2 , Sapp, P.2, Sapp, P.2, Shirley, A.2, Tanner, S.2, Tyson, B.2

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Irrigating without an irrigation scheduling method can have a significant impact on crop yield, irrigation water use efficiency, and water consumption. Technology aids us in better understanding where irrigation water ends up, whether the amount was sufficient, and can guide producers in setting the frequency of irrigation events. In 2018, only 11 percent of Georgia producers reported that they were using soil moisture sensors. The UGA Extension Ag Water team received a seed grant to begin the Master Irrigator Developmental Program in Georgia, which has led to 40 farmers being trained on irrigation water management using new technologies during the 2023 and 2024 growing seasons. The Master Irrigator Developmental Program was designed to train irrigation managers on advanced irrigation scheduling methods through several avenues including indoor seminars, in field one-on-one trainings, and guidance throughout the growing season. Participants were surveyed before and after participation concerning their preferred methods of irrigation scheduling. Prior to participating in the program, fifty-five percent of responses were either visible plant stress or feel of soil, both of which are not reliable-scientific methods. The post survey showed a fifty-nine percent reduction in the utilization of non-scientific methods such as feel of soil and visible plant stress in future irrigation scheduling procedures. With utilization of the knowledge gained and innovative technologies in the field, these producers are irrigating crops when the crops need moisture, and state water resources are being utilized more efficiently.

# Correlation between physiological tests and field emergence in treated corn seeds

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**Abstract:** The objective of this work was to evaluate the degree of linear association between field emergence with the results of germination and vigor of corn seeds belonging to different initial vigor and submitted to agrochemical treatment. Following seed treatments with (i) carbendazim/thiram + imidaclopride/tiodicarbe; (ii) piraclostrobine, methyl tiophanate and fipronil; (iii) methyl tiophanate/fluazinam + bifentrine/imidaclopride; and (iv) metalaxyl-m/ fludioxonil + thiamethoxam, seeds belonging to four different corn cultivars were assessed for their physiological potential. The strength of the Pearson correlation between germination and vigor tests with field emergence decreased after the chemical treatment, to a degree depending on the slurry composition, initial vigor and the test’s substrate.

**Keywords**: *Zea mays* L.; seed quality; stressful condition; pesticide; insecticide; fungicide

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# Business Meeting Minutes

7 February 2025, State College PA

Daniela announcements

* 2026 meeting to be held in Ottawa, hosted by Aida Kebede of Agriculture and Agri-Food Canada
* Date will be in early/mid-February
* Volunteers for helping to plan and host please join us for the business meeting!
* Let Daniela know if you would like to be added to our email list.

Business meeting

* The group tried out a shared chair and co-chair role last year. We will continue this in the future, so for 2026 Aida will be chair and Daniela will be co-chair.
* Upcoming chair is responsible for proceedings for the current year. Aida will need to reach out soon to all speakers to request abstracts.
* Daniela will share email list with additions of any new people who attended this year and others who want to be added.
* Will plan on a full day Thursday and half day Friday, with target date range during February.
* Share meeting announcement with Corn Specialists list or other lists to encourage broad attendance. Aida will share with Ontario Corn Growers Association.
* Potential organizer for 2027 in Lexington, Kentucky. Could be scheduled to allow people to also attend the Farm Machinery Show.

# State Reports

# Ohio State Report of Conditions – 2024

Osler Ortez, Richard Minyo, Alex Lindsey

The 2024 Ohio growing season will be remembered; one of the main challenges was a delayed start to the planting season. Despite above average temperatures in April and May, persistent rain events limited suitable days for field work, especially in the NW region of the state. As summary for the state, by May 5, 26% of corn was planted in Ohio according to USDA reports. By May 19, 46% of Ohio’s corn acres were planted and reported planted acres reached 90% by June 2 (slightly behind 2023 and ahead of the 5-year average for this time of the year). However, distribution of planted acres throughout the state was unequal due to the conditions mentioned previously. Temperatures in June through August were generally below average and precipitation was well below average. Southern and eastern parts of the state underwent extended periods of drought from June through August, from late August through the end of October drought conditions were widespread across most of the state. Overall, the heat-unit accumulation was higher in 2024 when compared to 2023.

Yields varied across the state depending on planting dates, rainfall distribution (timing, total precipitation received), and disease pressure. Despite fluctuating temperatures and variable precipitation during grain fill, Ohio’s Corn Performance Test (OCPT) sites had very good yields. Averaged across hybrid entries in the early and full season tests, yields were 260 Bu/A in the Southwestern/West Central/Central region, 216 Bu/A in the Northwestern region, and 253 Bu/A in the North Central/Northeastern region. Yields at individual test sites, averaged across hybrid entries in the early and full season tests, ranged from 208 Bu/A at Hoytville to 285 Bu/A at Hebron. The 2024 yield results were lower than that of 2023. Saturated soil conditions delayed planting in the NW and NE regions until mid-to-late May. Precipitation was below normal for the rest of the growing season (0 to 8 inches, depending on region; **Figure 1**), which limited yield potential compared to other regions in the state. The precipitation timing and totals were extremely variable across the state throughout the growing season.

**Figure 1**. Deviation of precipitation in Ohio during 2024. Map generated using the Midwestern Region Climate Center cli-MATE internet tool (mrcc.purdue.edu).

In summary, foliar diseases and insect pests were generally not a major factor in 2024. Gray Leaf Spot (GLS) and Northern Corn Leaf Blight (NCLB) could be found at a few locations in mid-July. Tar Spot, however, was state-wide with the highest incidence of disease pressure in central and southern Ohio. Tar Spot appeared late (R5) in the NW region with limited yield impact. Gibberella Ear Rot (GER) and other ear molds were observed in some hybrids at most locations.

Stalk lodging was largely absent across locations except at the South Charleston site where strong winds from hurricane Helene caused moderate-to-severe root lodging in many but not in all hybrids. The dry conditions throughout the summer accelerated maturation through the grain filling stages, with 96% of acres at the R5 stage and 70% of corn was black layered by September 29, which was 20-25 percentage points ahead of 2023 and the 5-year average (around 50%). Harvest also occurred more rapidly than average; USDA reports noted 90% of corn acres were harvested by November 3, whereas the 5-year average progress for the same date is 40% of acres harvested.

#  Wisconsin Corn Production Updates 2024

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The 2024 corn growing season in Wisconsin began with a wet spring, receiving 1.5 to 2 times more rainfall than the 30-year average from mid-April to late May. This led to planting and germination delays. Following germination, there was an increased incidence of slug damage in Wisconsin corn; however, it was not severe enough to cause any yield losses. As corn approached silking, the weather turned drier, and fall 2024 became one of the driest on record for Wisconsin. Dry conditions during silking and grain filling contributed to higher kernel abortion. Reports of southern corn rust and tar spot emerged in southern and south-central Wisconsin. The dry weather also caused corn to reach physiological maturity earlier than the five-year average, with most of the state’s harvest completed by mid-October to early November. Weather variability in 2024 affected corn yield, with grain and silage yields decreasing by 7% and 11%, respectively, compared to 2023. [The University of Wisconsin-Madison’s corn hybrid performance trials](https://cropsandsoils.extension.wisc.edu/articles/2024-wisconsin-corn-hybrid-performance-trials/) recorded yields slightly higher than the state average but lower than in 2023.

Looking ahead, weather variability is expected to intensify, with mid-21st-century temperatures projected to be 2.5 to 3°C higher than those in the mid-20th century. Average precipitation is anticipated to increase by 4 to 6 cm, accompanied by more torrential rainfall events and a rise in consecutive dry days. These challenges will inform the future corn agronomy research in Wisconsin which will primarily focus on evaluating the interactions between biotic and abiotic stresses and their impact on corn productivity under changing weather patterns.

# 2024 Georgia Season Summary

Phillip Edwards

University of Georgia Extension

In Georgia, the 2024 corn production was down due to both a decrease in planted acres and yield. Georgia corn farmers planted approximately 375,000 acres a 22.7% decrease from 2023. Corn is the third most planted row crop behind cotton and peanut. Corn planted for grain totaled 305,000 acres and 45,000 acres for corn silage, respectively. Average price received for corn for grain was $4.50 per bushel. Silage tonnage averaged 21 tons per acre. Corn acres are expected to increase in 2025.

# 2024 Ontario Corn Seasonal Summary

Aida Kebede

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In March 2024, Ontario farmers planned to plant 2.3 million acres of grain corn, 5% more than the 5-year average. However, planting faced challenges due to unsettled weather, with frequent rains limiting early planting and causing delays into May. By mid-May, planting was about halfway done, and some areas had to switch to soybeans due to soil conditions. By the end of May, planting was nearly completed, though some areas continued into June. Ultimately, the area planted was 2.2 million acres, close to the 5-year average.

Throughout the season, Ontario experienced variable weather with warmer-than-normal temperatures, though some cool spells occurred. By late June, crop heat units were 10% above average. Corn generally performed well despite the unsettled weather, with early-planted fields tasseling by mid-July and peak pollination around July 21. Western Bean Cutworm activity coincided with this period, raising concerns about ear molds. Tar spot disease also emerged as a major issue in 2024, especially outside traditional hotspots.

Corn silage harvest began in mid-September, and by the end of the month, most of it was complete. Despite hot temperatures during harvest, yields were slightly below average. In contrast, grain corn yields were above average, estimated at 180 bushels per acre, 8% higher than the 10-year average. Harvest progressed smoothly due to warm, dry conditions, with most corn harvested by early November.

Reports on ear mold and DON (vomitoxin) levels indicated lower-than-usual levels, thanks to favorable weather conditions for the crop. Tar spot, however, caused significant damage in new areas and could continue to spread in future years. The season saw average to above-average yields in most areas, with some localized yield losses due to heavy rainfall.

# 2024 Pennsylvania Corn Seasonal Summary

Approximately 1 million acres of corn were planted in Pennsylvania in 2024, with 650,000 acres being harvested for grain and the reminder for silage. The 2024 growing season was a contrast from the 2023 season in that we had a relatively good start, but conditions deteriorated throughout the season. Except for west PA where wet spring conditions caused planting delays, in most of PA planting progressed as normal. However, Hurricane Debby brought intense rainfall events in late August causing flooding damage in some locations. North PA was most affected, and some fields had to be terminated. Most of the month of September was hot and dry, with many counties experiencing more than 50% departure from average precipitation. However, September ended with several rainfall events brought by Hurricane Helene which jeopardized harvest and grain and silage quality. Reports on Gibberella ear rot and deoxynivalenol (DON) levels indicated higher-than-usual levels. State average yields in 2024 reported by USDA-NASS were 138 bushels/acre for grain, and 16 tons/acre for silage, both below the 5-year average values.

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