

NORTHEAST OHIO AGRI-CULTURE NEWSLETTER

Your Weekly Agriculture Update for
Ashtabula, Portage and Trumbull Counties

March 14, 2023



Conservation Tillage Conference Kicks off Today at Ohio Northern University

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Hello Northeast Ohio Counties!

If you missed it last week, this week is Angie Arnold's last week with Extension. Lee and I want to thank Angie for all the great work she did here in NE Ohio. It was a pleasure working alongside her and collaborating on this newsletter together. We wish her the best of luck in all her future endeavors!

Agronomy Day is back March 28th! That is in two weeks! Sign up today at www.go.osu.edu/neoas23 or call 440-576-8009. (More info in this week's issue)

Have a great week!

Lee Beers
Trumbull County
Extension
Educator

Andrew Holden
Ashtabula County
Extension
Educator

Angie Arnold
Portage County
Extension
Educator

Where Could the U.S.-Mexico GM Corn Dispute End Up?

By: Ian Sheldon, Professor and Andersons Chair of Agricultural Marketing, Trade, and Policy, Agricultural, Environmental, and Development Economics, Ohio State University; Seungki Lee, Assistant Professor, Agricultural, Environmental, and Development Economics, Ohio State University and Chris Zoller, Associate Professor and Extension Educator, Agriculture & Natural Resources, Ohio State University Extension – Tuscarawas County

Source: <https://u.osu.edu/ohioagmanager/2023/03/13/where-could-the-u-s-mexico-gm-corn-dispute-end-up/>

Background to the Dispute

The recent announcement by the Office of the US Trade Representative (USTR) that it was requesting technical consultations with Mexico under the Sanitary and Phytosanitary Measures (SPS) Chapter of the United States-Mexico-Canada Agreement (USMCA), is the latest step in the ongoing dispute over Mexican efforts to ban imports of genetically modified (GM) corn (Office of USTR, March 6, 2023).

The dispute has its origins in a decree issued by the Mexican President Andrés Manuel López Obrador on December 31, 2020, calling for GM corn for human consumption to be phased out by the end of January 2024 (*Reuters*, February 13, 2023). Not surprisingly, given Mexico is the second-largest export market for US corn totaling \$4.792 billion in 2022 (USDA/FAS, 2021) (see **Figure 1**), with about 17 million metric tons of yellow corn crossing the border annually (USDA/ERS, December 13, 2022), the original decree ratcheted up trade tensions between the two countries. Following US pressure, Mexico scrapped the 2024 deadline banning GM corn for animal feed and industrial use on February 13, 2023, all the while retaining the ban on its use for human consumption (*Reuters*, February 13, 2023).

Despite these changes, the recent move by USTR is essentially the first step in the process by which the USMCA dispute settlement mechanism is triggered, once other efforts/mechanisms to resolve the issue have failed – specifically, in its response to a letter from USTR, Mexico did not “...allay U.S. concerns with Mexico’s measures concerning [genetically engineered] GE corn....Therefore, the United States does not consider that further use of other mechanisms would resolve the matter...” (Ambassador Katherine Tai, USTR, March 6, 2023).

Dispute Settlement under USMCA

Like the World Trade Organization (WTO), USMCA has a defined legal process by which trade disputes involving its member countries are to be settled. Once other procedures have been exhausted, technical consultations are the first stage of the process, USTR appealing to Chapter 9 of the USMCA addressing SPS measures,

“...Pursuant to Article 9.19.2, the United States requests technical consultations with Mexico with regard to Mexico’s measures concerning genetically engineered (GE) corn and certain other GE products. These measures may adversely affect U.S. trade with Mexico and appear to be inconsistent with Mexico’s commitments under the Sanitary and Phytosanitary (SPS) Measures chapter of USMCA...” (Ambassador Katherine Tai, USTR, March 6, 2023)

Substantively, USTR is arguing that in seeking to implement its regime on GM corn imports, Mexico is violating its commitment to ensure any SPS measures are “...based on relevant scientific principles...” (Article 9.6.6(b)), and an “...approval procedure that requires a risk assessment...” (Article 9.6.4 (a)). Therefore, the United States and Mexico should meet with “...the aim of resolving the matter cooperatively...” (Article 9.19.3)

If this fails, under Chapter 31 of USMCA concerning dispute settlement, the United States can seek establishment of an independent panel to investigate and rule on Mexico’s measures relating to GM corn, which, once constituted, would be expected to present its initial report within 150 days (Article 31.17.1). After a further period of 60 days, allowing for country comments and finalization of the report, the report would be made public (Article 31.17). Assuming the panel rules against Mexico, resolution of the dispute should then occur within 45 days, Mexico either removing its GM corn measures, providing compensation to the United States, or provision of some other remedy (Article 31.18.2). If Mexico fails to implement the panel ruling, the United States would be allowed to suspend trade benefits with Mexico equivalent to the damage caused by the latter’s GM corn measures (Article 31.19.1), most likely in the form of a tariff(s) against specific Mexican products.

How Might a USMCA Panel Rule?

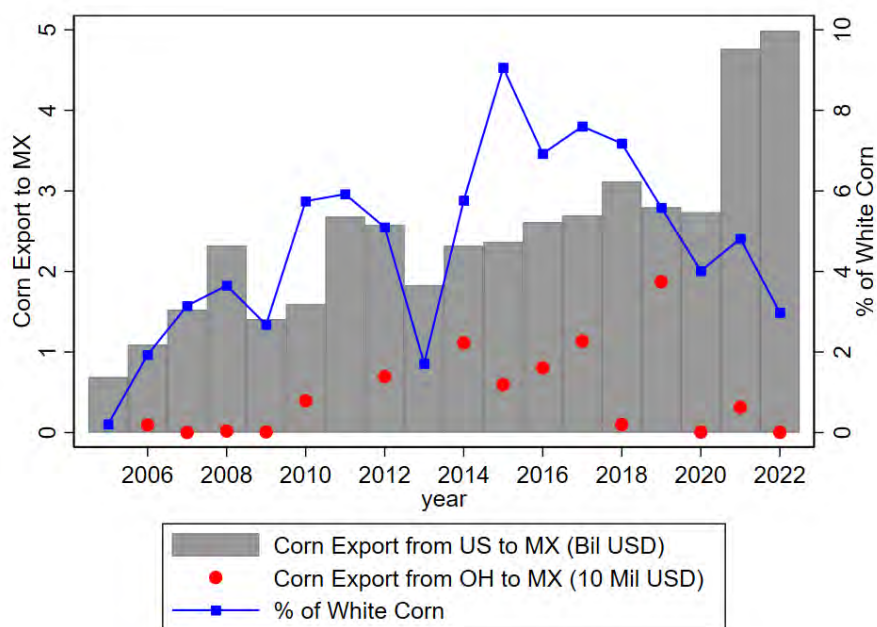
In thinking about how a USMCA panel might rule, it is important to note the chapter on SPS measures draws heavily on the approach applied in the WTO’s own SPS Agreement, the definitions contained in the latter being incorporated into the USMCA chapter on SPS measures. Therefore, while the United States is not expected to file a complaint against Mexico under WTO rules, it seems reasonable to argue the 2006 WTO ruling in favor of the United States against the European Union’s (EU) regulation of GM crops would likely influence any USMCA panel ruling. The WTO panel found the safeguard measures implemented by six EU member states against the import of specific GM crops, were not based on a risk assessment as required under the WTO’s SPS Agreement (Sheldon, *Brown Journal of World Affairs*, 2007). In other words, a USMCA panel is very likely to find for the United States against Mexico on the grounds that Mexico has not applied scientific principles and appropriate risk assessment in seeking to ban the import of GM corn.

Implications for the Ohio Corn Market

The direct economic impact of not resolving this dispute on the Ohio corn market would likely be modest, given the modest reported value of Ohio corn exports to Mexico over the past two years, as compared to the 10-year average of \$6.64 million, and the small proportion of white corn in US corn exports (see **Figure 1**). Specifically, over the last two years, Mexico accounted for only 2 percent of corn exports from Ohio, while Canada and Asia accounted for the largest shares at 39 and 35 percent respectively (see **Figure 2**). There are two reasons for these export market shares: Mexico's import diversification and increased use of Brazilian corn (*S&P Global Commodity Insights*, December 29, 2022), and strength of the US dollar.

However, two broader factors could result in substantial indirect impacts on Ohio farmers. First, there would likely be a “ripple” effect as additional supplies are diverted to the domestic market, driving down corn prices. As a result, Ohio corn farmers would likely see increased risk of a squeeze on their margins. Second, and more broadly, if this dispute is not resolved in favor of the United States, it would introduce considerable regulatory uncertainty, with the potential of undermining the stable operation of commodity markets. This could increase the cost of any risk management measures such as hedging and options, placing further financial strain on Ohio grain producers.

Figure 1. Corn Exports to Mexico (MX)

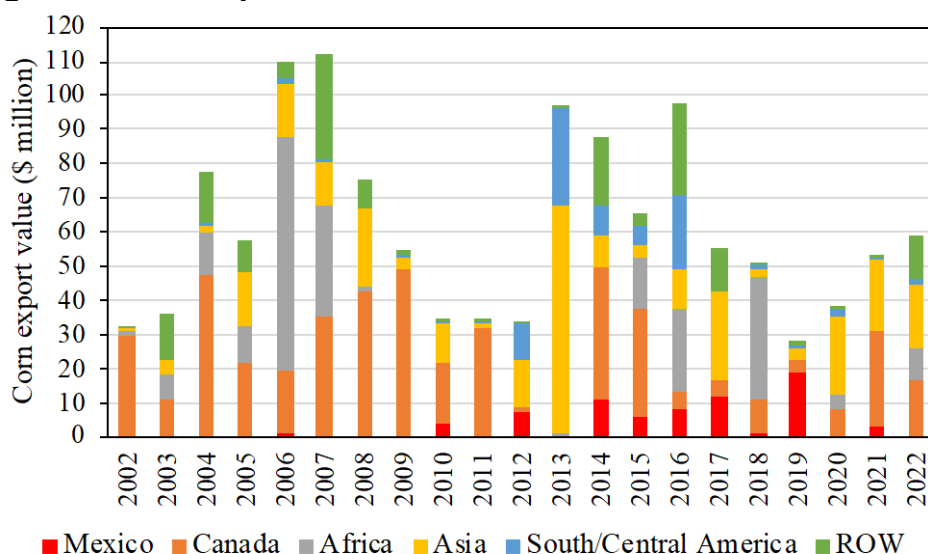


Note: Corn export graphs (bars and scatters) correspond to the left-axis. Exports from US to MX are in billion dollars, and exports from Ohio to MX are in 10 million dollars.

The line graph stands for the portion of white corn in total corn exports to MX and corresponds to the right-axis.

Source: US Census Bureau

Figure 2. Corn Exports from Ohio



Source: US Census Bureau

Planning for 2023

This latest development is another example of volatility in commodity markets and shows how world events impact US and Ohio agriculture. As you plan for the 2023 planting season, we encourage you to know your cost of production and understand the impact to your returns if the commodity market drops. How do a five, ten, and twenty percent drop in price impact your bottomline?

We encourage you to invest time developing cropping budgets. If you are looking for guidance in budget development, please see the 2023 OSU Extension Production Budgets available here: <https://farmoffice.osu.edu/farm-management/enterprise-budgets#2022>.

Role of Biologicals in Enhancing Nutrient Efficiency in Corn and Soybean

By: Connor Sible, Fred Below

Source: <https://access.onlinelibrary.wiley.com/doi/full/10.1002/crso.20263>

National, state, and regional corn and soybean yields continue to set new production records, and these higher yields are essential to meet the global food production needs of a growing population. With higher yields come a larger nutrient requirement per land area, and the use of fertilizers is critical to maintain soil nutrient supply.

However, the efficiency of fertilizer use (defined as the percent of the applied nutrient used by that season's crop) is typically low, particularly for nitrogen (N) and phosphorus (P), and improvements are needed to sustain high yields while mitigating off-target nutrient movement. Are biologicals the key?



Biologicals come in a range of colors and formulations, providing multiple opportunities for grower incorporation into their existing management programs. However, each product is unique, and it is essential to understand the type of product one is working with to best position the application for success. Photo by Carolyn Opperman

There has been a surge of biological products coming to market with claims to enhance soil nutrient supply and/or improve fertilizer use efficiency. However, not all products are created equal, and each performs in a unique way, resulting in questions of which product types work, where and how they work, and most importantly, what other management practices help realize the full economic benefit of these biological products.

Ensuring Crop Nutrient Availability With Fertilizer

There are 17 essential nutrients for plant growth and development. Carbon, hydrogen, and oxygen are supplied from water and the atmosphere, and the 14 mineral nutrients are supplied by the soil and supplemented with fertilizers. The three macronutrients of nitrogen (N), phosphorus (P), and potassium (K) make up the majority of fertilizer applications to corn and soybean (and other row crops) as they are required in the greatest amounts (Table 1).

Table 1. Nutrient accumulation and removal associated with producing 230 bu/ac corn followed by 60 bu/ac soybean in a two-year corn-soybean rotation in Illinois.

Nutrient Corn (230 bu) ^a		Soybean (60 bu)	Two-crop total
----- maximum total uptake (lb/ac) -----			
N	256	245	501
P₂O₅	101	43	144
K₂O	180	141	321
----- removed with the grain -----			
N	148	179	327
P₂O₅	80	35	115
K₂O	59	70	129

- ^a Data adapted from Bender et al. ([2013](#) and [2015](#)).

A clear problem associated with N fertilizers is the multiple mechanisms that can lead to N loss, and as a result, lower availability for crop uptake and lower fertilizer use efficiency. Nitrogen can be lost from the soil system through leaching (downward movement of nitrate-N with water into the subsoil), denitrification (gaseous loss to the atmosphere under waterlogged conditions), or volatilization (loss of ammonia-N as a gas into the atmosphere). Therefore, when N is applied as a fertilizer, it cannot be guaranteed that 100% will be present at the time of crop uptake, which for corn, has a peak uptake rate of 7 lb N/ac/day for approximately 21 days (Figure 1). While there are fertilizer additives like nitrification or urease inhibitors that slow the rate of N loss, and can help to time nutrient release with crop uptake, there are still opportunities for improvement like new biologically derived sources of N that may be less susceptible to loss.

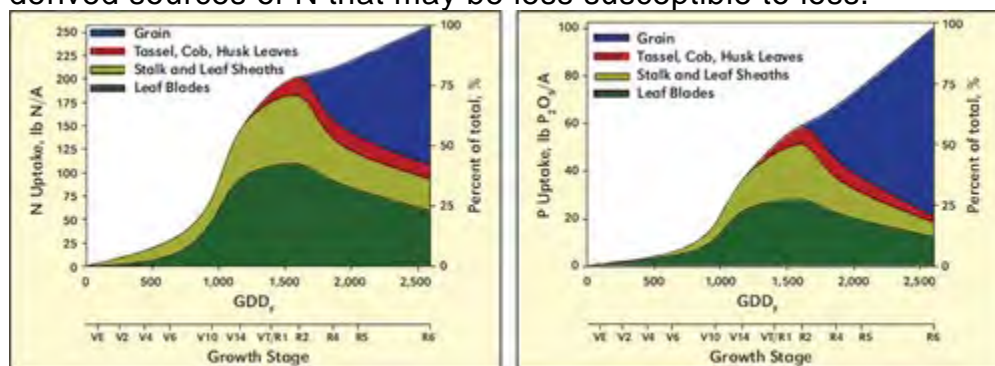


Figure 1
[Open in figure viewer](#)

Seasonal patterns of total corn N and P uptake partitioned across four plant parts. Figures adapted from Bender et al. ([2013](#)).

Phosphorus fertilizers supply P as the phosphate ion, which is easily complexed with soil cations like aluminum (Al), calcium (Ca), and iron (Fe) to form mineral phosphates or oxides. This absorption of applied P to clay minerals or cations leads to the inherently low uptake efficiency of P fertilizers (on average 15–40%). Phosphorus, however, has the highest harvest index of all the macronutrients with 79% of the total uptake removed with the grain (Figure 1), and this high harvest index along with the low uptake efficiency drives the need for annual applications of P fertilizers.

While many of our soils contain enough K to supply crop needs, the properties of the soil bind K tightly, and its availability for the crop during peak uptake can be limited. Thus, like P, the application of K fertilizers is needed to ensure there is enough plant-available K when the crop needs it.

For these reasons, N, P, and K fertilizers are typically applied at full rates in each season to ensure that crops have the available nutrition to meet yield demand as well as to maintain soil nutrient levels for future crops. This fertilization need stems from the concept of Liebig's Law of the Minimum where maximum yield potential is limited by the nutrient with the lowest availability for crop uptake. However, these annual fertilizer applications can sometimes result in excess N or a buildup of P in soils, which can lead to off-target movement to water systems.

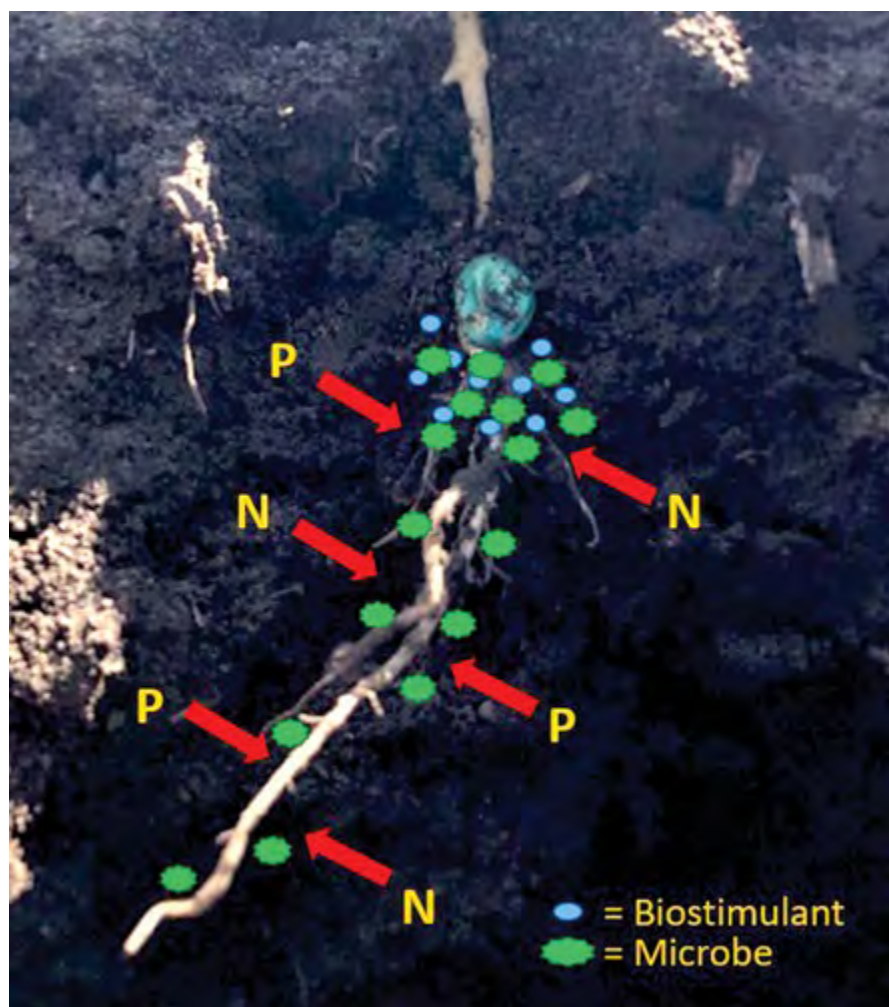
New technologies have been coming to the marketplace labeled as “nutrient efficiency” products—commonly referred to as biologicals, biostimulants, or biocatalysts—with claims to enhance soil nutrient supply and/or improve fertilizer use efficiency. This shifts the traditional approach of “apply enough fertilizer to ensure the crop has what is necessary to meet yield expectations” to “manage our fertilizer applications to ensure the applied nutrition is available as the crop needs it.” Rather than apply all fertilizer and hope it is still available for the duration of the season, can we manage the nutrients to become available as the crop develops?

There are many different categories of these biological nutrient efficiency technologies represented by hundreds of individual products, leading to confusion and skepticism as to their efficacy and ability to improve nutrient use efficiency. To understand the best approach for the use of a nutrient efficiency product, one must start with knowledge of the types of products, or categories, that exist and how that category works.

Categories of Biological/Biostimulant Products

Biologicals or biostimulants are common terms that are used to represent a wide array of specialty products available to growers, and while these umbrella terms are used for many different products, it is key to remember that these technologies

are all unique from each other. This is similar to when one uses the term “fertilizer” to represent all nutrient inputs even though fertilizers differ in the nutrients supplied, the percentages of nutrients within the product, and the rate of nutrient release. Nutrient efficiency products can also be categorized in different ways, including: (1) their active ingredient, (2) the nutrient that they impact, (3) their mechanism of action, (4) how they’re applied, and others. Most of these products can be grouped as living beneficial microorganisms or non-living biostimulants. As most products in the biostimulant category are targeted for in-season mitigation of crop stress, the remainder of this article will focus on the beneficial microorganisms related to improving crop nutrition.



Concept of the application of biologicals in-furrow to help stimulate the cycling of nitrogen (N) and phosphorus (P) from soils to improve availability for crop uptake. Depicted here is a developing corn seedling, where the biological applied near the seed stimulates the soil microbiome around the emerging root. Photo by Derek Lenzen.

Beneficial Microbes

Beneficial microbes refer to the products that contain living microorganisms of bacteria or fungi, and the active ingredient of these products is

the species contained within the inoculum being applied. An organism is identified in *italic* by its genus and species. Some microbial species are further identified with a specific strain, and occasionally this will also be listed on the product label. This is important because the beneficial microbes in the context of this article are

distinct from biopesticides in which the active ingredient can also be a microorganism. The bacteria *Bacillus subtilis* is one example where some strains are found in nutrient efficiency products while in others (like the strain MBI 600), they are classified as a biofungicide. The concept of applying a living microbe to an agronomic system is not new as inoculants have been on the market for decades that directly associate with legume plants, such as *Bradyrhizobium* spp. for soybean. What is new, however, are inoculants that target the soil in the root zone to enhance nutrient cycling, earning their namesake of nutrient efficiency products. With so many products on the market representing a wide variety of species and strains, it is important for growers to do some background research into the exact microbial species they are purchasing to understand how it functions and to know if such a microbial product is necessary on their farm. Most of these products can be classified into four major groups: (1) nitrogen-fixing bacteria, (2) phosphorus-solubilizing bacteria or fungi, (3) rhizosphere stimulation and residue decomposition, and (4) arbuscular mycorrhizal fungi (AMF).

The concept of N-fixing bacteria inoculation is well known, and most growers are familiar with the symbiotic association between *Bradyrhizobium* and soybean that leads to nodule formation (Figure 2). What has changed is the discovery of soil microbes that can fix N in the rhizosphere of grass crops like corn, wheat, or sorghum. Rather than developing nodules, these bacteria live along the root and feed on the root exudates. Products containing these microbes are marketed with the promise of providing plants with N, thereby allowing for a significant reduction (20% or more) in the need for fertilizer N inputs. These claims, however, are hard to prove, as most corn growers tend to apply excess “insurance” N, and as such, it is likely that many systems could reduce total N inputs by 5–15% (10–30 lb N/ac) and not see a yield loss.



Figure 2
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Soybean root with *Bradyrhizobium* nodules. Left, whole root at V6 growth stage; right, closer view of nodules.

Where we believe these N-fixing microbes can make a difference is in those areas of the field where N is insufficient due to either limited soil mineralization or due to loss of the fertilizer N from leaching or volatilization. Thus, this biologically

derived N effectively acts as an additional source of N for the crop and a source

that may be less susceptible to loss. The lower loss potential is because these microbes produce NH_4 , which does not leach and is made right in the root zone, enhancing the potential for immediate crop uptake. While use of these products would not directly increase the efficiency of fertilizer-applied N, it could provide enough peace of mind to eliminate excess applications of insurance N and allow for a 5–15% reduction in the current N rates without risking a yield loss. Optimistically, new and better versions of these products are likely to come to market that will allow for higher rates of N fertilizer reductions with less risk of yield loss.

Phosphorus solubilization by bacteria or fungi is also not a novel idea as microbes have been doing this in our soils since their existence. It is important to note, however, that solubilization of P is different from mineralization of soil P; microbes that solubilize P release inorganic P back into the soil solution while microbial mineralization is the enzymatic release of organic nutrients. Advancements in the techniques and understanding of soil microbiology have allowed for the identification of those microbes that are the most efficient at both processes and the ability to culture them and then to apply them as a concentrated soil inoculant. Most microbes solubilize P to a certain extent, but there are some species that are particularly effective, including: *Aspergillus* and *Penicillium* fungi and *Bacillus*, *Pseudomonas*, and *Rhizobium* bacteria.

Alternatively, those bacteria that are classified as rhizosphere stimulation and residue decomposition fit into the mineralization strategy. These microbes are efficient at producing enzymes and other metabolites that help benefit the entire soil system by stimulating native microbes into action to help cycle organic matter and stimulate root growth and development. These microbes are of particular interest in managing high-residue rotations such as cover crops, double crops, or continuous corn.

What is important to note when working with applied microorganisms is that just like a crop requires adequate nutrition, so do the microbes! The microbes themselves can only get so far, and it is incorporation of these microbes into a management program that provides the best benefit as observed in our research to improve yields of continuous corn (Table 2).

Table 2. Continuous corn grain yield as influenced by fall management practices of an applied biological of *Bacillus* bacteria, ammonium sulfate (AMS), or mechanical sizing of the previous year's residue at harvest. Presented data are the average of two years of a replicated trial in Champaign, IL in 2020 and 2021. Yields are expressed at 15.5% moisture.

Fall management	Yield	Δ Yield
	----- bu/ac -----	
Long-term continuous corn	153	—
Broadcast <i>Bacillus</i> blend	158	+ 5
Ammonium aulfate	162	+ 9
<i>Bacillus</i> + AMS	163	+ 10
Sized eesidue	166 _— *	+ 13 _— *
<i>Bacillus</i> + aized eesidue	166 _— *	+ 13 _— *
AMS + aized eesidue	167 _— *	+ 14 _— *
<i>Bacillus</i> + AMS + aized eesidue	178 _— *	+ 25 _— *

- * Significant at the .05 probability level compared with the unmanaged long-term continuous corn yield of 153 bu/ac.

Common microbes in these types of products are *Azospirillum brasilense*, *Bacillus amyloliquefaciens*, *Bacillus licheniformis*, and *Bacillus megaterium*. The key to the microbes in either the P solubilization or the residue-cycling categories is that they accelerate soil nutrient release and do not directly act on the applied fertilizer. However, in the case of P fertility, our research has shown that P-solubilizing microbes can also indirectly enhance the efficiency of P fertilizers. This is because microbes solubilize P by secreting weak organic acids that chelate cations like Ca and Al, separating them from the inorganic phosphate and making it plant available. While these organic acids facilitate the release soil P, the chelation of those cations also prevents them from binding with applied P fertilizer, keeping it available for crop uptake and increasing its efficiency. A two-year replicated study comparing in-furrow applications of P-solubilizing microorganisms shows this effect where the combination of a biologicals with starter fertilizer was able to increase yields when compared with either product applied alone (Figure 3).

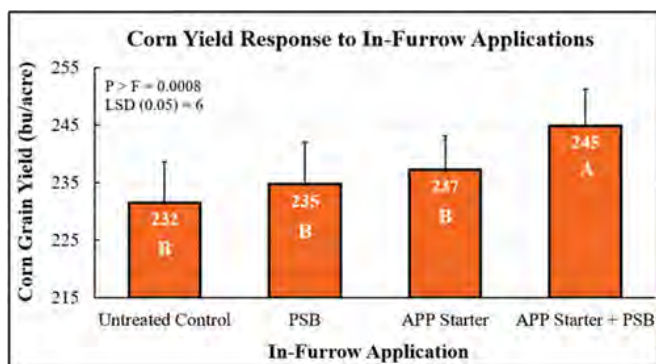


Figure 3

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Corn grain yield response to in-furrow applications of a phosphorus-solubilizing bacteria (PSB), ammonium polyphosphate starter (APP Starter), or a combination of the two. Presented data are the two-year averages from a replicated study

conducted at Champaign, IL in 2021 and 2022. Letters indicate significant differences between treatments at the 0.05 significance level.

The last group of beneficial microbes is the AMF, which are found naturally in soils and associate in a symbiotic relationship with plants. The AMF are unique in that they form a large hyphae network throughout the soil profile that in essence expands the crops' root system. As it relates to improving fertilizer efficiency, a greater exploration of the soil profile gives plants a better chance to intercept the applied nutrition for uptake through the AMF network. This network can be particularly important for P, which is relatively immobile in soils.

Conclusions

While biologicals and biostimulants are common terms associated with these products, there is quite a wide range in products that fit the lines of “nutrient-enhancing” technologies. This range provides many different opportunities for their use in agronomic systems, but to realize the full value of these products, it is essential to understand how they work to best integrate them successfully to achieve a return on investment. Most of these microbial solutions work to release nutrients from the soil, increasing plant-available nutrition in the soil solution. While this release can replace some fertilizer needs in the short term, one must be cautious of the long-term implications to ensure that we do not mine the soil of that nutrition. Rather, think of these products as helping to cycle the nutrients in the soil more efficiently to increase availability for crop uptake during the growing season.



Example of an in-furrow application of a liquid starter fertilizer (10-34-0) being applied with a biological/biostimulant product (phosphorus-solubilizing microbe). This application method pairs the microbial product directly with the fertilizer to increase NUE.

For N, the challenge of efficiency is the possibility that the applied fertilizer is

no longer present due to environmental losses. Therefore, the use of bacterial inoculants for N fixation is to supplement N where it was lost or provide comfort in reducing the 5–15% “insurance” N many growers apply. Conversely, the low efficiency of P fertilizers is due to their being unavailable for crop uptake and not

because of nutrient movement from where it was applied. This is where the use of biologicals/biostimulants can benefit fertilizer P efficiency, by upregulating the turnover of that P in the soil solution for better crop uptake. Before introducing any of these new products into their system, growers should consider what specifically they hope to change about their production practices with the new product, and then go and find the right product to fit that need.

Phosphorus Best Management Practices Field Day

By: Paige Garrabrant

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2023-06/phosphorus-best-management-practices-field-day>

Nutrient runoff and algal blooms are a growing problem while fertilizer costs are at an all-time high. Best Management Practice (BMP) Field Day is an event to address these problems and offer solutions for farmers, students, and community members interested in attending. BMP Field Day is a full day event to learn more about Phosphorus usage, the environment, and strategies to save on fertilizer. BMP Field Day will be held in-person March 29th at the Secrest Welcome Center at the Ohio Agricultural Research & Development Center in Wooster, Ohio. Sign-in starts at 8:00 am, the event starts at 8:30 am, and ends at 4:00 pm.

This event is provided free for farmers, students, and community members because of generous sponsorship from the USDA NIFA and is co-hosted by Virginia Tech and The Ohio State University. Registration includes a free lunch and tour of OARDC field sites. 4.5 CLM and 5.5 CCA credits will be available for attendees. Registration is free but required by March 20th. For more information and to register, visit <https://bmpfieldday.carrd.co>.

BMP Field Day will feature a variety of extension specialists and research scientists with expertise in Phosphorus and how it relates to soil, water, crop health, and more. The afternoon session will feature a Poster & Demo Symposium to showcase strategies to decrease fertilizer usage and costs while maximizing crop growth and protecting the watersheds. Attendees will also be transported on a tour bus to view two of OARDC's large-scale BMPs: a Sediment Capture and Reuse field site and Smart Drainage Field demonstration.

Please contact Dr. Catherine Freed (freedc@vt.edu) with any questions or for additional information regarding the event.

Extension Talk – Extension and Farm Bureau to hold Free Dinner Theater for Mental Health April 11th

By: Andrew Holden, ANR Educator – Ashtabula County

Northeast Ohio Agriculture

OHIO STATE UNIVERSITY EXTENSION
Ashtabula, Portage and Trumbull Counties

Hello Ashtabula County! Today I want to share some information about the dinner theater that is being offered on April 11th at the Pymatuning Valley Highschool by OSU Extension and Farm Bureau of Ashtabula County. A dinner theater, sometimes called a dinner and a show, is exactly that, a delicious meal, and an entertaining play. This event is free and open to the public but will be geared towards those in the agricultural community. Doors will open at 6:00 PM, curtain time is at 6:30 PM and the run time will be approximately 90 minutes.

The main topic that the show covers will be mental health. Specifically, mental health of farmers and those in the ag community. If you are in anyway familiar with farming, then you likely know that farming can be extremely stressful. Working in an industry that is dependent on the weather, deals with ever changing prices, and requires long hours can be both physically and emotionally taxing. Our hope is that this dinner theater will provide us in the ag community with some much needed resources for when things get tough.

Local resources/groups that will be discussed include the Ashtabula County Mental Health & Recovery Services Board and the Suicide Prevention Coalition.

To be completely honest, this sort of program is a bit out of my comfort zone from the educational events I normally hold. I am willing to bet that it is probably out of your comfort zone of events that you would normally attend. I believe that this event is important because of how common struggles with mental health and stress are. If you haven't dealt with these issues personally, it is likely that you know someone who has. My goal is to help us ag community members learn what to do when we, or someone we know, is experiencing hardship or stress. It can often feel like we are alone and no one knows what we deal with, but that is where we can help each other by talking about these topics and educating ourselves.

The night will be about enjoying a great meal, visiting with fellow community members, and learning about what resources are available to help you and those closest to you deal with stress. The actors will be community members that you know, so you won't want to miss their performance!

So make it a date night or sign up with some friends or family, come enjoy a free meal on a weeknight! Don't worry about getting a babysitter, we will have 4-H teen leaders available to help watch children during the event.

I really hope that you consider attending and encourage you to reach out if you have any questions. You can sign up by calling me at my office at 440-576-9008 or visiting www.go.osu.edu/theater. See you at the theater!

The Ohio State University Extension Office of Ashtabula County and the Ashtabula County Farm Bureau are partnering to host a Mental Health Dinner Theater!

April 11th at the Pymatuning Valley Highschool Cafeteria. Doors open at 6:00 PM, curtain time is 6:30 PM and the run time will be approximately 90 minutes.

Talking about mental health can be difficult, but it is an important topic for the agriculture community. Join us for a delicious free meal and enjoy a theatrical performance that addresses common issues that add stress to our lives.

No babysitter? No problem! Childcare will be provided by 4-H teen leaders.

This event will be limited to just 50 attendees so sign up today!

Reserve your spot today by visiting www.go.osu.edu/theater or by calling OSU Extension at 440-576-9008

Andrew Holden is an Agriculture & Natural Resources Extension Educator for Ohio State University Extension. Andrew can be reached at 440-576-9008 or Holden.155@osu.edu

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Northeast Ohio Agronomy School Returns March 28th, 2023

Source: www.go.osu.edu/neoas23

OSU Extension will be hosting the Northeast Ohio Agronomy School again in 2023 on March 28th!

Join us from 9:00 a.m.– 2:30 p.m. at the Colebrook Community Center in Colebrook, OH for a full day of agronomic programming. Cost for the program is \$15/person and includes snacks, lunch, and handouts. We will also have Agronomy Guides, Field Guides, and Weed Control Guides available for purchase. Pesticide and CCA credits will be available for those in attendance. To register for this event, please visit the website: www.go.osu.edu/neoas23 Online registration is preferred, but checks can be mailed to 39 Wall Street Jefferson, OH 44047 with name and phone numbers of attendees. For more information about the event please call 440-576-9008. The registration deadline for this event is March 23.

Northeast Ohio Agriculture

OHIO STATE UNIVERSITY EXTENSION
Ashtabula, Portage and Trumbull Counties

A wide variety of topics will be discussed throughout the day including Soybeans Disease Update, Weather/Climate Update, Farm & Roadway Safety, Precision Ag, and Energy Outlook. Speakers for this year's event include Dr. Dee Jepsen, Dr. Horacio Lopez-Nicora, Brent Sohngen, Dr. Aaron Wilson, and Alan Leininger.

This workshop is brought to you by the OSU Extension offices in Ashtabula, Trumbull & Geauga Counties with support from W.I. Miller & Sons, Centerra Co-op, Schwartz Farms, and Ohio Corn & Wheat! Thank you to all our sponsors for making this event possible!

Upcoming Extension Events

Pesticide and Fertilizer Applicator Trainings

March 21 – 1PM to 5PM – Ashtabula County Extension Office

March 30 – 5PM to 9PM – Online ZOOM

2023 Northeast Ohio Agronomy School

March 28 – 9AM to 3PM – Colebrook Community Center, Ashtabula County

Dinner Theater for Mental Health

April 11 – 6:00 PM – Pymatuning Valley Highschool Cafeteria

Cow-Calf School

April 14 – 3PM to 7PM – Novak Townline Farm, Trumbull County

Chainsaw Safety and Maintenance

April 22 – 9AM to 12PM – Trumbull County Extension Office



Lee Beers
Trumbull County Extension
520 West Main Street
Cortland, OH 44410
330-638-6783
beers.66@osu.edu
trumbull.osu.edu

Andrew Holden
Ashtabula County Extension
39 Wall Street
Jefferson, OH 44047
440-576-9008
holden.155@osu.edu
ashtabula.osu.edu

Angie Arnold
Portage County Extension
705 Oakwood St., Suite 103
Ravenna, OH 44266
330-296-6432
arnold.1143@osu.edu
portage.osu.edu

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Northeast Ohio Agriculture

OHIO STATE UNIVERSITY EXTENSION
Ashtabula, Portage and Trumbull Counties

CRP EQUALS BIG BENEFITS FOR FARMERS AND WILDLIFE

March 14

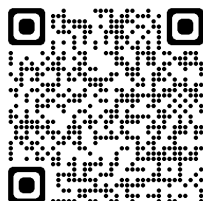
7:00 pm

**CRP General Signup
Free Virtual Webinar**

Come learn about the 2023 Conservation Reserve Program (CRP) General signup. Presenters will review vegetation types available for offer this year and cover tips and tricks for making your applications competitive. They will also discuss new and re-enrollment opportunities, cost share, incentives, rental payments, conservation plans, management, other Farm Bill programs, and more! After the presentation, Farm Bill Biologists will be available to answer your questions.

This event is FREE, but please RSVP at <https://GeneralCRP23.eventbrite.com> or scan the QR Code below. Registration closes on March 13th at Noon.

Please contact Ashley Dawson (adawson@pheasantsforever.org, (937) 217-7275) with questions or accommodation requests.



CFAES

**Thursday
March**

23

6:30 PM – 8:30 PM

Ashtabula County Fair
Grounds - Expo Building

NORTHEAST OHIO WINTER BEEF CLINIC

Join us for an informative night of beef education. The Ashtabula County Cattlemen's Association and Ashtabula County OSU Extension Office are partnering once again to offer another great Winter Beef Clinic.



The first hour will feature Tim Timmons , ABS Beef InFocus Manager, with his presentation, “A better Calf through genetics”. Tim will discuss Beef on Dairy and the services offered by ABS. Born and raised in Geauga County, Tim then went on to attend Ohio State University and has been with ABS for over 25 years.

The second hour will feature Andrew Holden and Julie Wayman, both Educators at the Ashtabula Co. Extension Office. Andrew and Julie will be speaking on knowing your input costs, marketing beef, and the Ashtabula County Local Food Guide. If you would like to receive an electronic copy of the budget tool Andrew will be covering, make sure to sign up with the link provided below.

This event is free to attend, but we ask that you please register by March 20th



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**Register today by visiting
www.go.osu.edu/WBC23
or by calling OSU Extension at
440-576-9008**

Ashtabula
COUNTY CATTLEMEN'S ASSOCIATION
EST. 1990

College of Food, Agricultural, and Environmental Sciences

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NORTHEAST OHIO AGRONOMY SCHOOL

The Northeast Ohio Agronomy School is back for 2023! A wide variety of topics will be discussed throughout the day Soybeans Disease Update, Weather/Climate Update, Farm & Roadway Safety, Precision Ag, and Energy Outlook.
Please see the back for speakers and the agenda.

The Agronomy School will be held at the Colebrook Community Center in Colebrook, OH. The community center is in the old Colebrook School at the intersection of OH-322 and OH-46. Cost for the program is \$15/person and includes snacks, lunch, and handouts. We will also have Agronomy Guides, Field Guides, and Weed Control Guides for purchase. Pesticide and CCA credits will be available. For more information, please call 440-576-9008. Registration deadline is March 23.

March 28th, 2023 • 9:00 a.m.– 2:30 p.m.

\$15/person includes lunch!

***Colebrook Community Center
682 US-322, Orwell, OH 44076***

To register: www.go.osu.edu/neoas23

*Online registration preferred, checks can be mailed to 39 Wall Street Jefferson, OH 44047 with name and phone numbers of attendees *

Check out the back page for the agenda and this year's sponsors!

2023 NORTHEAST OHIO AGRONOMY SCHOOL AGENDA

- 9:00 A.M. Farm & Roadway Safety
• Dr. Dee Jepsen
- 9:55 A.M. Soybeans Disease Update
• Dr. Horacio Lopez-Nicora
- 10:50 A.M. Break – Visit with Sponsors
- 11:00 A.M. Energy Outlook
• Brent Sohngen
- 11:55 P.M. Lunch – Sponsored by W.I. Miller and Sons
- 12:50 P.M. Weather & Climate Update
• Dr. Aaron Wilson
- 1:40 P.M. Precision Ag & Drones
• Alan Leininger
- 2:30P.M. Adjourn

EVENT SPONSORS

**W. I. Miller
& Sons**



ASHTABULA, GEauga,
LAKE AND TRUMBULL
COUNTIES



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To register:
www.go.osu.edu/neoas23

Best Management Practices (BMP) Field Day



Wednesday, March, 29th, 2023

Sign in: 8:00 am; Program 8:30 am to 4:00 pm

Secrest Welcome Center 2122 Williams Rd, Wooster, OH 44691

Registration is free! Please register by **March 20th**

<https://bmpfieldday.carrrd.co/>

Come join us for BMP Field Day!

BMP Field Day is an event focused on issues pertaining to Phosphorus usage and impacts on the environment. The major goal of BMP Field Day is to engage stakeholders about BMPs to enhance Phosphorus-use efficiency and decrease fertilizer runoff.

This event is sponsored & hosted by:



Topics include Phosphorus management, nutrient runoff, reducing fertilizer input costs, Phosphorus remediation, and many more!

**Field to water sessions:
8:30–11:30 am**

**Lunchtime Session
11:40–1:00 pm**

Lunch is included in registration

**Poster & Demo Symposium:
1:45–3:45 pm**

This includes transportation to Apple Creek for large-scale field demonstrations

For more information, visit our website (**bmpfieldday.carrrd.co**) or contact:
Dr. Catherine Freed (freedc@vt.edu) or **Brian Gwin** (gwin.35@osu.edu)

Pond Management Clinic

Thursday, March 30, 2023

6:00 - 8:00 pm

Centerville Mills Park Dining Hall

Bainbridge Township

8558 Crackel Road, Chagrin Falls, 44023

You won't want to miss this unique opportunity to gain information and ask questions about managing your pond. Our special guest, Eugene Braig, Aquatic Ecosystem Program Director with Ohio State University will present an enlightening overview of the, 'TOP 5 POND MANAGEMENT CONCERNS'.

TOP 5 POND MANAGEMENT CONCERNS!

Free and open to the public.

RESERVATIONS ARE REQUIRED

by March 27th to reserve your seat.

Register at <https://pondclinic2023.eventbrite.com>

or call Portage SWCD at 330-235-6811.



**Sponsored by Geauga & Portage Soil and Water Conservation
Districts**



CFAES

Join us at the (Dinner) Theater!

**Tuesday, April 11th
Pymatuning Valley
Highschool Cafeteria**

**Doors Open 6:00 PM
Curtain Time 6:30 PM
Run Time 90 Min**



Talking about mental health can be difficult, but it is an important topic for the agriculture community. Join us for a delicious free meal and enjoy a theatrical performance that addresses common issues that add stress to our lives.

Join Ashtabula County Ohio State Extension and the Ashtabula County Farm Bureau for dinner and a show, all at no cost to you!

No babysitter? No problem! Childcare will be provided by 4-H teen leaders.

This event will be limited to just 50 attendees so sign up today!

Reserve your spot today by visiting www.go.osu.edu/Theater
or by calling OSU Extension at 440-576-9008



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