Hello Northeast Ohio Counties!

Crops are really progressing, and second cutting hay is being mowed across NE Ohio.

We have seen some sulfur deficient corn in the NE Ohio Region. Check out the first article to find out what our extension research team has found through field trials.

Have a great week!
Do You Need to Apply Sulfur to Reach your Corn Yield Goals?

By: Steve Culman, Louceline Fleuridor, Master Candidate, Greg LaBarge, CPAg/CCA, Harold Watters, CPAg/CCA, Ed Lentz, CCA
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/19-2021/do-you-need-apply-sulfur-reach-your-corn-yield-goals

There is a general interest in applying sulfur fertilizer to maximize corn productivity and we’ve heard industry professionals claim that sulfur deficiency is widespread across Ohio. How much truth is there to this? Do we have a widespread sulfur deficiency in Ohio?

Since 2013, Ohio State University Extension has run 53 sulfur trials in corn, primarily with spring-applied sulfur (gypsum, ammonium sulfate, or thiosulfate) before planting, at-planting, or soon after planting. Not surprisingly, applying these readily available sulfur sources typically increases sulfur concentrations in leaf tissue and corn grain. However, the impacts on corn grain yield are less consistent, with only 44% of trials showing a positive response to sulfur (Figure 1). Interestingly, only 5 trials showed a statistically significant positive response, and 3 trials where in-furrow applications resulted in significant yield decline, presumably due to high salt content. Our data suggest that sulfur deficiency is not a widespread problem in Ohio, but some corn fields will positively respond to sulfur fertilization. We continue to monitor and evaluate the need through on-farm trials. The Tri-State Fertilizer Recommendations provide more guidance on managing sulfur and provide specifics about when crop response to S is more likely to be seen: https://go.osu.edu/fert-recs

Putting Poison Hemlock in Perspective

By: Mark Loux, Ted Wiseman, Allen Gahler
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/19-2021/putting-poison-hemlock-perspective

Northeast Ohio Agriculture

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Poison hemlock seems to be on everyone’s radar more than usual this year, especially in northern Ohio. We know that while hemlock has been all over southern Ohio for years, it is continuing to spread northward, where new occurrences and observations of it may be engendering concern in the general public and local government. There have also been comments that it seems “worse than usual” this year in some areas, and we don’t have a ready explanation for what would cause this. For any plant that reproduces by seed, an abundance of seed in one season can lead to much higher populations the following season. Seed-based population increase tends to be exponential. When left uncontrolled for several years, the populations may stay low for a few years until seed production reaches a certain level, and that amount of seed can cause a large and very observable increase in population.

Poison hemlock in Ohio has made the news over the past month, in articles such as this one. From a frequency of poisoning standpoint, some of these articles can make it seem worse than it is. Hemlock is in the *Apiaceae* or parsley plant family, which also includes wild carrot (Queen Anne’s lace), wild parsnip, cow parsnip, and giant hogweed. Giant hogweed is the truly bad actor in this group but has not become established in Ohio. All of these species share some of the same characteristics with poison hemlock to varying degrees. This comprehensive article in the OSU BYGL newsletter does a nice job of presenting information on the various species, including identification.
Poison hemlock has been in Ohio for a long time, and there are many areas it is never subject to any control measures – abandoned fields, forest borders, etc. And there are other areas hemlock grows well where it should be controlled because it reduces the quality and safety of these areas or can be seen by people. These areas include parks, roadsides, ditches, hayfields, pastures, etc. Poison hemlock is poisonous to humans and livestock, but only when ingested. Poisoning seems to be extremely rare because: 1) it’s not a plant that smells or tastes good, so animals avoid it; and 2) humans are not prone to wandering down roadsides eating plants, especially the ones that do not appear appealing. Contact with hemlock can also cause skin and eye problems which are way more likely than internal poisoning. The severity of this response varies depending upon the sensitivity of the individual and the degree of contact. This does not happen from a distance though – only with direct contact with plant parts or fluids from the plants. Anyone mowing or removing hemlock by hand should keep this in mind and protect themselves from skin and eye contact. Mowing large populations with open station tractors is not recommended.

Within this plant family, poison hemlock and wild parsnip present the most risk to livestock, based on the level of infestation in Ohio and toxicity. Livestock seldom eats these plants due to strong odor and taste, and most problems occur when no other forages/desirable plants are available, often during droughts. It is also possible for these weeds to inadvertently end up in hay bales where they retain toxicity. Many other plants that can have toxic effects on livestock will see those toxins dissipate during the hay drying process, or the during fermentation process if hay is ensiled or wrapped. This is not the case with poison hemlock – toxins will remain viable and lethal regardless of the curing and storage methods. All parts of the plants are poisonous with the seed heads being the most toxic.
hemlock contains eight piperidine alkaloids, with coniine (mature plants) and g-coniceine (young plants) being the two predominant toxic compounds. Experimental hemlock poisoning in livestock has shown a wide range of clinical signs suggesting variation in the toxic alkaloid content in the plant. Cattle eating as little as 300 grams up to 0.5 percent of body weight has shown to be fatal. Bluish discoloration of the skin from poor circulation, respiratory paralysis, and coma without convulsions are common signs before death which usually occurs within 2-3 hours after consuming a lethal dose. Wild Parsnip contains chemicals called furanocoumarins which cause severe sunburns. Housing infected livestock in shade may help reduce its effects. Other clinical signs may include acute disorders to the central nervous system or digestive tract without a fever but weakness and rapid weight loss. Other symptoms may include suddenly accelerated heartbeat, stomach, and intestinal irritation, general distress, or repeated attempts to void feces.

Poison hemlock and wild parsnip are on the Ohio noxious weed list, and therefore need to be controlled before becoming large enough to present a threat, and before seed production to prevent spread. Information on the Ohio noxious weed law can be found in this bulletin and on the OSU Farm Office page. At this time of the year when these plants are flowering, producing seed, and dying, it’s not always possible to use chemicals to control them. The goal should be getting rid of existing plants through cutting, mowing, or hand removal, and limiting production and spread of seed. The most effective timing for the application of herbicides is fall when plants are low-growing rosettes in their first year of growth, or early the
Northeast Ohio Agriculture

OHIO STATE UNIVERSITY EXTENSION
Ashtabula, Portage and Trumbull Counties

following spring when plants are still small. Herbicide effectiveness ratings in Table 21 of the “Weed Control Guide for Ohio, Indiana, and Illinois”, which lists pasture and CRP herbicides. Additional products labeled for roadsides, industrial areas, etc but not shown in this guide are also effective.

Corn Rootworms and Fireflies
By: Andy Michel, Kelley Tilmon, Curtis Young, CCA, Aaron Wilson
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/19-2021/corn-rootworms-and-fireflies

Most of us remember a connection between fireflies and corn rootworm hatch. This connection may not be absolute and could have changed since we’re now using different production practices than in the past.

We also know a lot more about corn rootworm biology. In Ohio, western corn rootworms are by far the most common (although you may see some northern corn rootworms). Adult rootworms lay eggs in the late summer and these eggs typically hatch the following June. We also know that peak egg hatch (i.e., 50% of the total hatch) occurs between 684 to 767 accumulated growing degree days (base 52°F). Our map below shows that much of Ohio has reached or exceed these GDD. If rootworms are in your field, chances are they have hatched and begun their feeding.
Over the next few weeks, corn should be inspected for damage. Prioritize your scouting in non-rotated corn (i.e. 2nd, 3rd-year corn, or more), and corn without below-ground Bt traits or insecticidal seed treatments. However, some rootworm populations have also adapted to infest 1st-year corn, as well as to overcome virtually all Bt traits (important note—we have NOT detected any Bt-resistant rootworms in Ohio yet). See our corn rootworm fact sheet (https://aginsects.osu.edu/sites/aginsects/files/imce/ENT_16_14%20CRW.pdf) for more information on inspecting corn roots for damage. If any damage is detected on Bt roots, please contact us or your local extension educator, because it might be an early indication of resistance in Ohio.

**Milkweed and Hemp Dogbane – Who’s Who?**

By: Christine Gelley, ANR Educator, Noble County OSU Extension
Source: https://u.osu.edu/beef/2021/06/16/milkweed-and-hemp-dogbane-whos-who/

Both milkweed and hemp dogbane have become more apparent over the past week. These two plants are related but have some distinct differences that can help landowners identify them and implement control measures when needed.
Similarities between the two include having creeping roots; leaves that appear on opposite sides of the stem; and they produce a milky sap. Differences include that young milkweed leaves have fine hairs and hemp dogbane are nearly hairless; milkweed stems are generally thick and green, but hemp dogbane stems are usually red to purple and thinner in comparison; hemp dogbane frequently branches in the top canopy, while milkweed will typically not branch unless mowed; and seed pod shape is distinctly different after flowering with milkweed producing an upright tear drop shaped pod and hemp dogbane producing a long bean-like pod that hangs from the plant.

While the usefulness of milkweed in the landscape is often justified for monarch butterfly populations, hemp dogbane has fewer redeeming qualities. Historically hemp dogbane has been used by Native Americans to make rope, clothing, and baskets. Both have the capability of spreading rapidly by their creeping roots and seed production. Both are best controlled in agricultural settings by a combination of strategic mowing and systemic herbicide application.

Both milkweed and hemp dogbane are considered poisonous to livestock. Toxicities can occur from fresh or dried leaves, stems, and roots. While death from poisoning is rare, reduced production efficiency is common if consumed. Symptoms range from mild to severe and include vomiting, diarrhea, coordination loss, tremors, heart problems, respiratory distress, and death.
While eliminating milkweed and hemp dogbane from all ecosystems would be unwise, treatment of some kind is advised in situations where livestock are consuming forage from areas with high populations. Learn more about milkweed and hemp dogbane by comparing the photos provided above or by watching the video from last summer that follows comparing the two plants side by side.

**The Ag Law Harvest**

By: Jeffrey K. Lewis, Attorney and Research Specialist, Agricultural & Resource Law

Source: [https://farmoffice.osu.edu/blog/fri-06182021-1044am/ag-law-harvest](https://farmoffice.osu.edu/blog/fri-06182021-1044am/ag-law-harvest)

Did you know that a housefly buzzes in the key of F? Neither did I, but I think the musical stylings of the Cicada have stolen the show this summer.

Aside from Mother Nature’s orchestra, federal agencies have also been abuzz as they continue to review the prior administration’s agencies’ rules and regulations. This week’s Ag Law Harvest is heavily focused on federal agency announcements that may lead to rule changes that affect you, your farm or business, or your family.

**USDA issues administrative complaint against Ohio company.** The USDA’s Agricultural Marketing Service (“AMS”) issued an administrative complaint on May 4, 2021, against Barnesville Livestock LLC (“Barnesville”) and an Ohio resident for allegedly violating the Packers and Stockyards Act (“P&S Act”). An investigation conducted by the AMS revealed that the Ohio auction company failed to properly maintain its custodial account resulting in shortages of $49,059 on July 31, 2019, $123,571 on November 29, 2019, and $54,519 on December 31, 2019. Companies like Barnesville are required to keep a custodial account under the P&S Act. A custodial account is a trust account that is designed to keep shippers’ proceeds from the sale of livestock in a secure and centralized location until those proceeds can be distributed to the seller. According to the AMS, Barnesville failed to deposit funds equal to the proceeds received from livestock sales into the custodial account. Additionally, Barnesville reported a $15,711 insolvency in its Annual Report submission to AMS. Operating with custodial account shortages and while insolvent are both violations of the P&S Act. The AMS alleges that Barnesville’s violations place livestock sellers at risk of not being paid fully or completely. If Barnesville is proven to have violated the P&S Act in an oral hearing, it may be ordered to cease and desist from violating the P&S Act and assessed a civil penalty of up to $28,061 per violation.

**USDA to invest $1 billion as first investment of new “Build Back Better” initiative.** The USDA announced that it will be investing up to $1 billion to support and expand the emergency food network so food banks and local organizations can
serve their communities. Building on the lessons learned from the COVID-19 pandemic, the USDA looks to enter into cooperative agreements with state, Tribal, and local entities to more efficiently purchase food from local producers and invest in infrastructure that enables organizations to more effectively reach underserved communities. The USDA hopes to ensure that producers receive a fair share of the food dollar while also providing healthy food for food insecure Americans. This investment is the first part of the USDA’s Build Back Better initiative which is focused on building a better food system. Build Back Better initiative efforts will focus on improving access to nutritious foods, address racial injustice and inequity, climate change, and provide ongoing support for producers and workers.

**Colorado passes law changing agricultural employment within the state.** On June 8, 2021, Colorado’s legislature passed Senate Bill 87, also known as the Farmworker Bill of Rights, which will change how agricultural employees are to be treated under Colorado law. The bill removes the state’s exemption for agricultural labor from state and local minimum wage laws, requiring agricultural employers to pay the state’s $12.32/hour minimum wage to all employees. Under the new law, agricultural employees are allowed to organize and join labor unions and must also be paid overtime wages for any time worked over 12 hours in a day or 40 hours in a week. The bill also mandates certain working conditions including: (1) requiring Colorado’s department of labor to implement rules to prevent agricultural workers from heat-related stress, illness, and injury when the outside temperature reaches 80 degrees or higher; (2) limiting the use of a short-handled hoe for weeding and thinning in a stooped, kneeling, or squatting position; (3) requiring an agricultural employer give periodic bathroom, meal, and rest breaks; and (4) limiting requirements for hand weeding or thinning of vegetation. Reportedly, Colorado’s Governor, Jared Polis, is eager to sign the bill into law.

**Wildlife agencies release plan to improve Endangered Species Act.** The U.S. Fish and Wildlife Service (“FWS”) and the National Marine Fisheries Service (“NMFS”) have released a plan to reverse Trump administration changes to the Endangered Species Act (“ESA”). The agencies reviewed the ESA following President Biden’s Executive Order 13990, which directed all federal agencies to review any agency actions during the Trump administration that conflict with the Biden-Harris administration objectives. The agencies look to reverse five ESA regulations finalized by the Trump administration which include the FWS’ process for considering exclusions from critical habitat designations, redefining the term “habitat,” reinstating prior regulations for listing species and designating critical habitats, and reinstating protections under the ESA to species listed as threatened. Critics of the agencies’ plan claim that the current administration’s proposals would remove incentives for landowners to cooperate in helping wildlife.
EPA announces intent to revise the definition of “waters of the United States.” On June 9, 2021, the EPA and the Department of the Army (the “Agencies”) announced that they intend to change the definition of “waters of the United States” (“WOTUS”), in order to protect the nation’s water resources. The Agencies’ also filed a motion in a Massachusetts federal court requesting that the court send the Trump administration’s Navigable Water Protection Rule (“NWPR”) back to the Agencies so they can initiate a new rulemaking process to change the definition of WOTUS. In the motion, the Agencies explained that pursuant to President Biden’s Executive Order 13990, they have reviewed the necessary data and determined that the Trump administration’s rule has led to significant environmental harm. The Agencies hope to restore the protections that were in place prior to the 2015 WOTUS rule. According to the EPA, the Agencies’ new regulatory process will be guided by: (1) protecting water resources and communities consistent with the Clean Water Act; (2) the latest science and the effects of climate change on the nation’s waters; (3) practical implementation; and (4) the experience and input of the agricultural community, landowners, states, Tribes, local governments, environmental groups, and disadvantaged communities with environmental justice concerns. The EPA is expected to release further details of the Agencies’ plans, including opportunity for public participation, in a forthcoming action. To learn more about WOTUS, visit https://www.epa.gov/wotus.
Northeast Ohio Agriculture

Ohio State University Extension
Ashtabula, Portage and Trumbull Counties