

Auglaize County OSU Extension Weekly Agriculture Newsletter – March 25, 2020

Scouting and Latest Information



Hello!! Good morning! I pray you are well.

Thank you to those individuals that participated in the first Auglaize County Ag Talk meeting on Tuesday. As mentioned in a special message on Monday that because of the COVID-19 issue, I can no longer hold face-to-face meetings, so I wanted to start a virtual meeting so we can still be in contact. Therefore every Tuesday from 8:30 to 9:30 AM we will be hosting a virtual meeting that can also act as a simple conference call for those of you not able to get online to view live. The meeting will be set up to discuss key, timely information for your operation and to open the floor for questions and sharing of information. If you think we need more than an hour, we can make a change, but let me know if we need to change. You may propose topics for the next meeting at anytime during the week by e-mailing or calling me. The major topics at this time for next Tuesday include H2Ohio with Chris Davis and cover crops in particular termination and safety of planting cover crops after herbicide use during the growing season. Please join us every Tuesdays for Ag Talk.

If you are a buyer or seller of hay, let me know and I can keep a list to share with others. Call the OSU Extension office at 419-739-6580 or e-mail me at stachler.1@osu.edu.

Joke: As a farmer, I hear lots of jokes about sheep.

Rain fell four days this past week along with some snow on Sunday! Rainfall on Wednesday, March 18th ranged from 0.68" near Santa Fe-New Knoxville and Kettlersville roads to 1.2" near Bloody Bridge. Rainfall on Thursday ranged from 0.2" near Mercer Line and St. Rt. 197 roads and near Uniopolis to 0.51" near Vally and Idel roads. Rainfall on Friday ranged from 0.02" near Valley and Idle Roads to 0.3" near Mercer Line and St. Rt. 197. Total liquid precipitation on Sunday ranged from 0.01" near Uniopolis, near Mercer Line and St. Rt. 197, and near Bloody Bridge to 0.32" near Santa Fe-New Knoxville and Shelby-Fryburg roads. Total liquid precipitation for the week ranged from 1.22" near Santa Fe-New Knoxville and Kettlersville roads to 1.7" near County Road 66A and St. Rt. 66 roads. Rainfall for the week averaged 1.51" 1.36", 0.15" more than last week.

The average high temperature now is 51 degrees F, three more than last week! We are on the rise! Temperatures were above normal for 2 days of the week and below normal for 5 days of the week. The range in high temperature for the week was 32 to 66 degrees F. The average high temperature for the week was 47.6 degrees F, which is 1.4 degrees F cooler than last week and 3.4 degrees F below the normal.

Wheat – Wheat is greening up, but growing slowly! I have not rated the wheat for some time. I rate the wheat the same as last week which was 7% excellent, 29% good, 69% fair, and 0% for poor and very poor.

Alfalfa – Alfalfa is growing slowly as well.

Corn – Nothing to report.

Soybean – Nothing to report.

Weeds – If you need help planning your herbicide programs, feel free to call me.

Insects – Nothing for this week.

There were drastic changes that occurred to the FeXapan label! There were NO changes to the XtendiMAX, Engenia, and Tavium labels. The Engenia label still has the most approved products compared to XtendiMAX and FeXapan. No new herbicides were added to the XtendiMAX label this past week, which totals 234 herbicides. No new adjuvants were added to the XtendiMAX label, now totaling 397. No new nozzles were added to the XtendiMAX label, which totals 36. No new Drift Reducing Adjuvant (DRA's) were added to the XtendiMAX label this week, making a total of 90 DRA's. No new nutritional products were added from the XtendiMAX label which totals 238. No new products were added to the Insecticides, Fungicides, Plant Growth Regulator and Other group on the XtendiMAX label which totals 104. No new adjuvants were added to the Engenia label, which now totals 560. No new herbicides were added to the Engenia label, which brings the total herbicide count to 167. No new products were added to the Other category (growth regulators and fungicides) on the Engenia label, which totals 31. No new insecticides were added to the label which currently has 34 products. No new Drift Reducing Adjuvants (DRA's) were added to the Engenia label, which totals 126. No new nozzles were added to the Engenia label, which totals 31. No new nutritional products were added to the Engenia label which totals 223 products. No new products were added to the pH Modifier group of the Engenia label which totals 17 products. The FeXapan label has many of the same products and nozzles as the XtendiMAX label, but NOT all are the same, so check the FeXapan label carefully. The FeXapan website has changed drastically! They now have DRA's listed per product type that must be mixed with FeXapan. There are some products that need no DRA added! There are 13 glyphosate formulations, 228 herbicides, 41 insecticides, 16 fungicides, 87 DRA's, 297 adjuvants, 195 nutritionals, 4 other products, and 44 nozzles that have been approved for the FeXapan label. There are 47 herbicides, 77 DRA's, 258 adjuvants, 30 nutritionals, 16 insecticides, 7 fungicides, 8 other products, and 41 nozzles approved for use with Tavium.

Upcoming Meetings

1. **Ag Madness.** Beginning March 25, 2020, OSU Extension will be offering a virtual educational session at 9:00 AM, Noon, and 3:00 PM. Go to the following website for the schedule of topics: go.osu.edu/AgMadness. I have attached a flyer with this newsletter about this awesome educational experience.

2. All face to face meetings have been cancelled or postponed through May 15th. Meetings after this date will go on as planned at least until further notice.

Answer to joke: I'd tell them to my dog but he'd herd them all!

What is Waterhemp?



Hair on redroot pigweed stem



No hair on waterhemp stem



Center right plant pigweed, rest waterhemp

Waterhemp is a member of the pigweed or Amaranthaceae family. There are actually two species, tall and common waterhemp. The scientific names are *Amaranthus tuberculatus* and *Amaranthus rudis*, respectively. I just call them waterhemp because both species can be present in our area and they can cross pollinate making hybrids that have characteristics of both and they are very difficult to separate when identifying them.

In 2019, waterhemp was present in 53% of soybean fields at harvest time in the county, a 2% increase from 2018. This is quite alarming and will be impossible to eliminate now in the western part of the county. There is a difference in the amount of waterhemp in the western and eastern part of the county with Interstate 75 as the dividing line. In 2019, 57% of soybean fields had waterhemp at harvest in the western part of the county compared to 46% in the eastern part of the county. Thankfully that was a 7% decrease in the western part of the county compared to 2018, but a 13% increase compared to 2018 in the eastern half of the county!

In the seedling stage waterhemp can be identified by its smaller and egg-shaped cotyledons compared to the wider and longer and linear redroot and smooth pigweed cotyledons. The cotyledons are the very first leaf structures that appear and are remnants of the seed. Waterhemp leaves are longer and narrower than smooth and redroot pigweed leaves and are lanceolate-shaped (more longer and narrower than pigweed). The leaves have a smooth to wavy leaf margin and have a shiny appearance due to the waxier leaf surface. The stems and the petioles, the structure that attaches the leaves to the stems, usually do not have ANY hairs compared to smooth and redroot pigweed that have hair. This is the key characteristic to properly identifying waterhemp from smooth and redroot pigweed.

It is important to understand the biology of waterhemp and how that impacts the control of it. Waterhemp produces a tremendous amount of seeds. Nearly all plants will produce at least from 75,000 to 100,000 seeds, but they can produce many more. It is pretty easy for a plant to produce 250,000 seeds. Plants can also produce up to 1,000,000 seeds or more, but these plants will need to germinate early and never be injured. Waterhemp usually does not begin germination until the first week of May which makes it easy to kill in the burndown or with tillage prior to planting, unless planting is delayed beyond mid-May. The biggest issue with waterhemp emergence is that it can emerge into early August. Research shows that only about 55% of the season's waterhemp has emerged by June 20th. That's a lot of waterhemp to emerge late into the season causing plants not to be controlled.

Another big issue is genetic diversity of waterhemp. There is probably no other species with as much genetic diversity leading to other problems. The reason for the genetic diversity is that waterhemp is dioecious meaning plants are male and female. Therefore, theoretically, all seeds on a female plant could be pollinated by a different male plant, although usually the nearest male plant provides the greatest pollen.

The biggest issue with genetic diversity of waterhemp is its capacity to become resistant to herbicides. This genetic diversity and lack of herbicide diversity allow plants to become resistant quickly. In the United States there is now a waterhemp biotype / plant that can resist six different herbicide sites of action. This plant is resistant to ALS-inhibiting herbicides (Group 2) such as Pursuit, Growth regulator herbicides (Group 4) such as 2,4-D, triazine herbicides (Group 5) such as atrazine, EPSPS-inhibitor (Group 9) such as glyphosate, PPO-inhibitors (Group 14) such as Flexstar (fomesafen) Cobra, and Ultra Blazer, and HPPD inhibitors (Group 27) such as Callisto, Laudis, Balance, Impact, and Shieldex. That leaves only Liberty and dicamba to effectively control waterhemp with postemergence herbicides! In Auglaize County we know waterhemp plants can be resistant to Groups 2, 9, and 14. Now there is a biotype in Illinois that is resistant to group 15 herbicides like Dual, acetochlor, and Zidua! That leaves only the Group 14 herbicides applied preemergence, linuron, and Group 3 herbicides such as Prowl to control waterhemp preemergence in soybean.

Waterhemp is a weed that all people in the county needs to know about, respect and destroy at all times if we are to reduce the amount of waterhemp. Always pull out any remaining plants in a field to stop seed production.

C.O.R.N. Newsletter

<https://agcrops.osu.edu/newsletter/corn-newsletter>

No news this week!

Other Articles

Technology to screen for higher-yielding crop traits is now more accessible to scientists

Date: March 16, 2020

Source: Carl R. Woese Institute for Genomic Biology, University of Illinois at Urbana-Champaign

Source: <https://www.sciencedaily.com/releases/2020/03/200316090330.htm>

Like many industries, big data is driving innovations in agriculture. Scientists seek to analyze thousands of plants to pinpoint genetic tweaks that can boost crop production -- historically, a Herculean task. To drive progress toward higher-yielding crops, a team from the University of Illinois is revolutionizing the ability to screen plants for key traits across an entire field. In two recent studies -- published in the *Journal of Experimental Botany* (JExBot) and *Plant, Cell & Environment* (PC&E) -- they are making this technology more accessible.

"For plant scientists, this is a major step forward," said co-first author Katherine Meacham-Hensold, a postdoctoral researcher at Illinois who led the physiological work on both studies. "Now we can quickly screen thousands of plants to identify the most promising plants to investigate further using another method that provides more in-depth information but requires more time. Sometimes knowing where to look is the biggest challenge, and this research helps address that."

This work is supported by Realizing Increased Photosynthetic Efficiency (RIPE), an international research project that is creating more productive food crops by improving photosynthesis, the natural process all plants use to convert sunlight into energy and yields. RIPE is sponsored by the Bill & Melinda Gates Foundation, the U.S. Foundation for Food and Agriculture Research (FFAR), and the U.K. Government's Department for International Development (DFID).

The team analyzed data collected with specialized hyperspectral cameras that capture part of the light spectrum (much of which is invisible to the human eye) that is reflected off the surface of plants. Using hyperspectral analysis, scientists can tease out meaningful information from these bands of reflected light to estimate traits related to photosynthesis.

"Hyperspectral cameras are expensive and their data is not accessible to scientists who lack a deep understanding of computational analysis," said Carl Bernacchi, a research plant physiologist with the U.S. Department of Agriculture, Agricultural Research Service (USDA-ARS) at the Carl R. Woese Institute for Genomic Biology. "Through these studies, our team has taken a technology that was out of reach and made it more available to our research community so that we can unearth traits needed to provide farmers all over the world with higher-yielding crops."

The RIPE project analyzes hundreds of plants each field season. The traditional method used to measure photosynthesis requires as much as 30 minutes per leaf. While newer technologies have increased efficiency to as little as 15 seconds per plant, the study published in JExBot has increased efficiency by an order of magnitude, allowing researchers to capture the photosynthetic capacity of hundreds to thousands of plants in a research plot.

In the JExBot study, the team reviewed data from two hyperspectral cameras; one that captures spectra from 400-900 nanometers and another that captures 900-1800 nanometers. "Our previous work suggested that we should use both cameras to estimate photosynthetic capacity; however, this study suggests that only one camera that captures 400-900 is required," said co-first author Peng Fu, a RIPE postdoctoral researcher who led the computational work on both studies.

In the PC&E study, the team resolved to make hyperspectral information even more meaningful and accessible to plant scientists. Using just 240 bands of reflectance spectra and a radiative transfer model, the team teased out how to identify seven important leaf traits from the hyperspectral data that are related to photosynthesis and of interest to many plant scientists.

"Our results suggest we do not always need 'high-resolution' reflectance data to estimate photosynthetic capacity," Fu said. "We only need around 10 hyperspectral bands -- as opposed to several hundred or even a thousand hyperspectral bands -- if the data are carefully selected. This conclusion can help pave the way to make meaningful measurements with less expensive cameras."

These studies will help us map photosynthesis across different scales from the leaf level to the field level to identify plants with promising traits for further study.

The RIPE project and its sponsors are committed to ensuring Global Access and making the project's technologies available to the farmers who need them the most.

Most bird feed contains troublesome weed seeds

Bird feed mixtures may be helping to spread troublesome weeds that threaten agricultural crops

Date: March 20, 2020

Source: Cambridge University Press

Source: <https://www.sciencedaily.com/releases/2020/03/200320132239.htm>

Many millions of homeowners use feeders to attract birds. But a two-year study featured in the journal *Invasive Plant Science and Management* suggests there may be one unintended consequence to this popular hobby. Bird feed mixtures may be helping to spread troublesome weeds that threaten agricultural crops.

When researchers examined the contents of 98 commercially available bird feed mixes, they uncovered several significant findings:

- The mixes contained seeds from 29 weed species.
- 96 percent of the mixes contained seeds for pigweed species weeds, which can represent a significant threat to agriculture.
- One in 10 contained Palmer amaranth or waterhemp seeds that demonstrated resistance to glyphosate in a greenhouse screening.
- Seeds from kochia, common ragweed, foxtail species and wild buckwheat were also found in many of the mixes.

The researchers also explored which harvested bird feed ingredients contributed most to weed seed contamination. They found that proso millet grain was closely linked to the presence of pigweed species weeds, while safflower and sunflower contributed most to the presence of kochia and common ragweed, respectively.

"While it is difficult to estimate the precise role commercial bird feed plays, there is a distinct possibility it may be an overlooked pathway for spreading troublesome weed species into new regions," says Eric Oseland of the University of Missouri.

To mitigate the risks, researchers recommend careful weed management in crop fields designated for bird feed, as well as the use of sieving during packaging to reduce weed seed contamination. They also point to the proven effectiveness of regulatory measures adopted in Europe to limit weed seed content in bird feed.

What's the "dirt" on organic hydroponics?

By: Ellen Essman, , Senior Research Associate , Senior Research Associate Thursday, March 12th, 2020

The Center for Food Safety (CFC), along with other groups and a number of organic farms, filed a lawsuit early this month claiming that USDA violated the Organic Foods Production Act (OFPA) when it allowed hydroponically-grown crops to bear the “Certified Organic” label. In January 2019, CFC filed a [legal petition](#) asking USDA to create regulations which would ban hydroponic operations from using the organic label. USDA denied the petition, and CFC’s current lawsuit also alleges that USDA’s denial violated the Administrative Procedure Act (APA). CFC asks the U.S. District Court for the Northern District of California to vacate USDA’s denial of their petition and to bar the agency from certifying any hydroponic operations as organic. The complaint can be found [here](#).

What do “hydroponic” and “organic” mean anyway?

Many of you are probably familiar with hydroponic and organic growing, but since the terms are very important in this lawsuit, it’s worth reviewing them before we continue.

The USDA, on its National Agricultural Library website, [defines](#) “hydroponics” as “growing plants in a nutrient solution root medium.” In other words, hydroponic plants can be grown in mediums such as sand, gravel, and water with additional nutrients. Simply put, hydroponic plants are not grown in the soil. OFPA (available [here](#)) says in order to sell or label an agricultural product as “organically produced,” the product must: 1) have been produced and handled without the use of synthetic chemicals, except as otherwise provided; (2) except as otherwise provided in this chapter and excluding livestock, not be produced on land to which any prohibited substances, including synthetic chemicals, have been applied during the 3 years immediately preceding the harvest of the agricultural products; and (3) be produced and handled in compliance with an organic plan agreed to by the producer and handler of such product and the certifying agent. Thus, for a plant to be “organic,” it must meet these criteria.

CFC’s argument under OFPA

In their lawsuit, CFC is principally concerned with the third part of the organic requirements listed above—that in order to be labeled as organic, an agricultural product must be “produced and handled in compliance with an organic plan.” Organic plans, in turn, must also meet a number of requirements. One of those requirements is that the “organic plan shall contain provisions designed to foster soil fertility, primarily through the management of the organic content of the soil through proper tillage, crop rotation, and manuring.” At its most basic, CFC’s argument is that fostering soil fertility is an integral and required part of the OFPA, and therefore, plants not grown in actual soil cannot meet all the requirements necessary for organic certification. In other words, since hydroponics by definition are not grown in soil, hydroponic farmers can’t foster soil fertility. As a result, CFC maintains that since fostering soil fertility is required in order for plants to be labeled “organic,” hydroponically-grown plants can’t be organic. By allowing hydroponics to be labeled organic, CFC asserts that USDA is in violation of the OFPA.

CFC’s argument under the APA

The plaintiffs also contend that USDA's denial of their 2019 petition violated the APA. The APA (you can find the relevant chapter [here](#)) is the law that federal agencies must follow when writing and adopting regulations. Under the APA, courts have the power to overturn agency actions if they are arbitrary, capricious, an abuse of discretion, or are otherwise unlawful. Additionally, courts can overturn agency actions when they go beyond the authority given to the agency by Congress. Here, CFC argues that USDA's denial of their petition was arbitrary and capricious and not in accordance with the law. Basically, they are arguing that USDA violated the APA by ignoring the soil fertility language that Congress included in OFPA.

What's USDA's take?

USDA's [denial](#) of CFC's petition gives us a little insight into what the agency's response to the lawsuit might include. The agency claims that the National Organic Program (NOP) has allowed hydroponic operations to be certified organic in the past. Furthermore, USDA counters that the statutory and regulatory provisions that refer to "soil" do not require every organic plant to be grown in soil. Instead, they say the provisions are simply "applicable to production systems that *do* use soil."

The court will certainly have a lot to sift through in this lawsuit. USDA still has to respond to the complaint, and hydroponic operations might throw their support behind the agency's cause. We'll be keeping an eye on what happens and will make sure to keep you updated!

The Ag Law Harvest

By: Ellen Essman, Senior Research Associate, Senior Research Associate Tuesday, March 10th, 2020

In Ohio and around the country, farmers are gearing up for a new planting season. Spring is (almost) here! Before we leave winter totally behind, we wanted to keep you up to date on some notable ag law news from the past few months.

Here's a look at what's going on in ag law across the country...

New law signed to ramp up ag protections at U.S. ports of entry. Last summer, a bill was introduced in the United States Senate by a bipartisan group of senators. The purpose of the bill was to give more resources to Customs and Border Control (CBP) to inspect food and other agricultural goods coming across the U.S. border. On March 3, 2020, the President signed the bill into law. The new law authorizes CBP to

hire and train more agricultural specialists, technicians, and canine teams for inspections at ports of entry. The additional hires are meant to help efforts to prevent foreign animal diseases like African swine fever from entering the United States. You can read the law [here](#).

The Renewable Fuel Standard gets a win. We reported on Renewable Fuel Standard (RFS) issues last fall, and it seems as though the battles between biofuel producers and oil refineries have spilled over into 2020. For a refresher, the [RFS program](#) “requires a certain volume of renewable fuel to replace the quantity of petroleum-based transportation fuel” and other fuels. Renewable fuels include biofuels made from crops like corn, soybeans, and sugarcane. In recent years, the demand for biofuels has dropped as the Trump administration waived required volumes for certain oil refiners. As a result, biofuels groups filed a lawsuit, asserting that EPA did not have the power to grant some of the waivers it gave to small oil refiners. On January 24, 2020, the U.S. Court of Appeals for the Tenth Circuit agreed with the biofuels groups. You can find the 99-page opinion [here](#). If you’re not up for that bit of light reading, here’s the SparkNotes version: the court determined that EPA did not have the authority to grant three waivers to two small refineries in 2017. The court found that EPA “exceeded its statutory authority” because it extended exemptions that had never been given in the first place. To put it another way, the court asked how EPA could “extend” a waiver when the waiver had not been given in previous years. The Trump Administration is currently contemplating whether or not to appeal the decision.

Virginia General Assembly defines “milk.” To paraphrase Shakespeare, does “milk by another name taste as sweet?” Joining the company of a number of other states that have defined “milk” and “meat,” the Virginia General Assembly passed a [bill](#) on March 4, 2020 that defines milk as “the lacteal secretion, practically free of colostrum, obtained by the complete milking of a healthy hooved mammal.” The bill would make it illegal to label products as “milk” in Virginia unless they met the definition above. Essentially, products like almond milk, oat milk, soy milk, coconut milk, etc. would be misbranded if the labels represent the products as milk. Governor Ralph Northam has not yet signed or vetoed the bill. If he signs the bill, it would not become effective until six months after 11 of 14 southern states enact similar laws. The 11 states would also have to enact their laws before or on October 1, 2029 for Virginia’s law to take effect. The states are: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and West Virginia. North Carolina has already passed a similar law.

And now, for ag law in our neck of the woods.

Purple paint bill reintroduced in Ohio. You may recall that the Ohio General Assembly has been toying with the idea of a purple paint law for the past several years. On March 4, 2020, Senator Bill Coley (R-Liberty Township) once again introduced a purple paint bill. What exactly does “purple paint” mean? If passed, the bill would allow landowners to put purple paint on trees and/or fence posts. The marks would have to be vertical lines at least eight inches long, between three and five feet from the base of the tree or post, readily visible, and placed at intervals of at most 25 yards. If the bill passed, such marks would be

sufficient to inform those recklessly trespassing on private property that they are not authorized to be there. People who recklessly trespass on land with purple paint marks would be guilty of a fourth degree criminal misdemeanor. You can read the bill [here](#).

Bill giving tax credits to beginning farmers considered. Senate Bill 159, titled “Grant tax credits to assist beginning farmers” had a hearing in the Senate Ways & Means Committee on March 3, 2020. The bill, introduced last year, seeks to provide tax incentives to beginning farmers who participate in an approved financial management program, as well as to businesses that sell or rent agricultural land, livestock, facilities, or equipment to beginning farmers. A nearly identical bill is being considered in the House, HB 183. Back in February, Governor Mike DeWine indicated he would sign such a bill if it passed the General Assembly. SB 159 is available [here](#), and HB 183 is available [here](#).

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