

Auglaize County OSU Extension Weekly Agriculture Newsletter – November 13, 2019

Scouting and Latest Information



Harvesting soybean



Harvesting corn

Hello!! Good afternoon! I pray you are well. It dried out this past week and much corn and soybeans were harvested.

If you are a buyer and need some hay or have hay to sell, let me know. Call the OSU Extension office at 419-739-6580.

Joke: What is a sheep's favorite game???

Rain fell 2 day this past week with the first measurable snow fall on Monday. Rainfall on Wednesday, November 6th was just sprinkles for some and none for others. The most rain for the week was Monday which included significant snow. Total liquid precipitation (rain and snow melt) on Monday ranged from 0.16" at Santa Fe – New Knoxville and Kettlersville Roads to 0.6" at about 2 miles north of St. Marys. Snowfall for Monday ranged from 2" at about 5 miles east of New Hampshire to 4.5" at Santa Fe-New Knoxville and Kettlersville Roads with an average of 3.10". Rainfall for the week was the same as for

Monday's precipitation. Average liquid precipitation for the week was 0.32". Temperatures were way below normal for the week.

Tasks for the week included: fall tillage, hauling manure, harvesting corn and soybean, harvesting forage, spreading fertilizer and other amendments, and tiling fields.

I drove a section of the county on Monday.

Wheat – Wheat quality looks pretty good, although the stand is weak in some fields. I rated the wheat as 7% excellent, 29% good, 69% fair, and 0% for poor and very poor.

Alfalfa – Alfalfa should be dormant after Wednesday morning. When we warm up next week, dormant herbicide applications could be applied.

Corn – All corn is at the R6 (black layer) stage. Only about 70% of corn has been harvested in the county as of Monday. Some people are waiting for the moisture to come down as it is still in the mid to high 20's. Last year at this time 75% of the corn was harvested. I'm hearing yields from 130 to 310 bushels per acre. One producer claimed he will likely end up with a 230 bushel per acre average. One of the National Corn Grower plots yielded 265 bushels per acre. What phenomenal yields for late planting and early water-logged soils!! Get out and harvest the corn as it continues to lodge. I left the corn condition the same again this week since we are so close to harvest. The condition last week was 2% excellent, 14% good, 74% fair, 10% poor and 0% very poor.

Soybean – Soybean growth stage should be at R9 (all pods brown). I am going to say that 100% of soybeans have been harvested in the county as of Monday, but I'm sure there are still a few fields left. Yields are ranging from 37 to 68 bushels per acre with the average around 50 to 55 bushels per acre. Last year only 92% of soybeans were harvested at this time so we are ahead of last year.

Weeds – It is likely too late to apply fall herbicides, unless temperatures stay above the mid-40's for multiple days then maybe we could go back out, but weeds are likely severely damaged now, unless the snow cover is helping to protect them.

Insects - The cold has killed many of them now.

There were NO changes to the XtendiMAX , Engenia, FeXapan or 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 152 herbicides. No new adjuvant was added the XtendiMAX label, now totaling 344. Eleven new nozzles were added to the XtendiMAX label, which totals

37. No new Drift Reducing Adjuvant (DRA's) was added to the XtendiMAX label this week, making a total of 58 DRA's. No new nutritional products were removed from the XtendiMAX label which totals 203. No new products were added to the Insecticides, Fungicides, Plant Growth Regulator and Other group on the XtendiMAX label which totals 61. Three new adjuvants were added to the Engenia label, which now totals 485. No new herbicides were added to the Engenia label, which brings the total herbicide count to 144. No new products were added to the Other category (growth regulators, and fungicides) on the Engenia label, which totals 29. No new insecticide were added to the label which currently has 28 products. No new Drift Reducing Adjuvants (DRA's) were added to the Engenia label, which totals 105. No new nozzles were added to the Engenia label, which totals 29. No new nutritional products were added to the Engenia label which totals 177 products. No new product was added to the pH Modifier group of the Engenia label which totals 16 products. The FeXapan label has many of same the products and nozzles as the XtendiMAX label, but NOT all are the same, so check the FeXapan label carefully. There are 120 herbicides, 49 DRA's, 312 adjuvants, 151 nutritionals, 44 insecticides, fungicides, and others, and 26 nozzles that have been approved for the FeXapan label. There are 13 herbicides, 66 DRA's, 181 adjuvants, and 41 nozzles approved for use with Tavium.

Answer to joke: Baa-dminton!

Upcoming Meetings

- 1. Pesticide Applicator Exam Preparation Course.** This meeting will be held December 5, 2019 from 8:30 AM to 12:30 PM at the Auglaize County Administration Building in the basement room. Check flyer for additional details.
- 2. Pesticide Applicator Exam.** The ODA will be at the Auglaize County Administration Building in the basement room on December 12, 2019 starting at 10:00 AM to offer exams to commercial and private applicators. Register for the testing date as soon as possible by calling ODA (614-728-6987) or by going on line at: <https://agri.ohio.gov/wps/portal/gov/oda/divisions/plant-health/pesticides/exam-registration>

3. **Ag Outlook.** This meeting will be held January 8, 2020 from 1:00 PM to 4:30 PM and a second session from 5:45 PM to 9:15 PM at the Wapakoneta Eagles (25 East Auglaize St., Wapakoneta). Topics discussed will be Farm Bill Nuts and Bolts, Farm Bill, Farming Outlook, and Grain Market Outlook. Register before 12-31. A meal will be provide for free between the two sessions. See attached flyer for more information.

Carefully Consider Purchasing Non-GMO Corn Hybrids



More Non-GMO corn was planted in Auglaize County this season than in the last several years. Reasons for the change include the need for non-GMO corn for dairy feed, premiums for non-GMO corn, and a strategy to reduce input costs.

One of the traits incorporated into GMO corn is the production of the Bt toxin to control several different insect species in the larval stage. One of those insects is the European corn borer. Historically European corn borer was one of the most troublesome corn pests prior to Bt corn. Since the introduction of Bt corn, European corn borer populations have plummeted, but have not disappeared. There is concern that the population of European corn borer is increasing due to the increased planting of non-Bt corn.

Last year showed some evidence of this increase. There were several fields north of St. Marys last year where up to 50% of corn ears had dropped to the ground in parts of the field. It sounds like most of the field had at least 10% of the ears that had dropped to the ground. To know European corn borer caused the ears to drop you look at the ear shanks. In the middle of the ear shank there was a small round hole about one eighth of an inch in diameter and larva could be found in the shank of the ear. In addition to ear droppage some corn plants had broken over due to the tunneling in the stalk.

The larvae of the European corn borer will overwinter in corn residue. In mid-May they begin to pupate. The adult moth will emerge around the end of May to early July. Moths will fly to grassy areas or stay in the corn fields to mate and will lay eggs on the underside of corn leaves. The larvae that hatch will feed on the leaf surface or in the corn whorl until they are about 0.5 inch in length. After this they bore into the stem. These larvae are called the first brood or first generation. The larvae pupate and emerge as moths between mid-July to the end of September. These moths mostly mate in grassy areas and usually lay eggs on the underside of leaves in the youngest corn in the area. Larvae of this generation enter the ear to feed on kernels, enter ear shanks, or enter corn stalks. It is possible to have a third generation and that may have occurred year based upon the amount of damage.

Management of European corn borer is difficult with timely scouting and insecticide applications being necessary. In fields currently having an infestation, bury the corn residue as deep as possible to suffocate the larvae. Find people monitoring European corn borer moths. Watch for moth trap numbers to determine when to start scouting for egg masses or just start scouting the end of May. Once the number of plants having feeding damage reaches 75 or 80%, then it is time to apply an insecticide. The insecticide must be applied before the larvae bore into the stem, otherwise the insecticide can't get to them.

Scouting for the second generation is more difficult than for first generation. Knowing when moth flight is occurring is important. One way to notice this is when driving after dusk. If moths start hitting the windshield, then start looking for egg masses. Eggs are usually laid in late-planted corn or in fields with high first generation larvae.

Many insecticides are available to effectively control European corn borer. The biggest issue is getting it applied before the larvae enter the plant.

Other insects controlled by Bt-traits include western bean cutworm, corn rootworm, corn earworm, fall armyworm, and black cutworm. Most of these insects are not an economic issue, so the use of a Bt-hybrid is not necessary for these insects. That does not mean these insects can't be a problem for non-GMO corn. So know the limitations of planting non-GMO corn.

C.O.R.N. Newsletter

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

No information as we are now on an every other week publication until March.

Other Articles

Alfalfa and potassium: It's complicated

October 14, 2019

Rachel Leege

Source: <https://www.crops.org/science-news/alfalfa-and-potassium-its-complicated>

Has anyone ever told you to eat a banana when you have a muscle cramp or eye twitch? That's because bananas have potassium. Potassium is an important nutrient for humans, and an even more important nutrient when it comes to alfalfa.



*University of Minnesota Agronomist Joshua Larson harvests alfalfa research plots.
Credit: Craig Sheaffer*

With an economic value of \$9 billion annually in the United States, alfalfa is the most valuable crop behind corn and soybeans. Because of its high nutritional content, alfalfa is a common feed source for farm animals like cattle, horses, sheep and goats. So, understanding this relationship between alfalfa and potassium is a worthwhile goal.

“Potassium plays a role in many processes within an alfalfa plant,” says Jacob Jungers, a researcher at University of Minnesota. “For example, it’s important for converting sunlight to energy, transporting molecules and growing new cells.”

However, too much potassium can be a problem. “When alfalfa plants are given more potassium than they need, the concentration of potassium in the tissues increases,” says Jungers. “This is called luxury consumption.”

Our bodies do this too. We store certain vitamins in our fat cells when we consume more than we need.



USDA ARS staff inspect alfalfa roots for crown rot. Credit: Deborah Samac

This increased concentration of potassium affects the [nutritional balance](#) of alfalfa as a feed source for livestock. High potassium concentrations are especially concerning if fed to lactating dairy cows. “In addition to being costly for growers, over-fertilization can put dairy cows at risk of milk fever,” says Jungers. Milk fever is a metabolic disease cows can get around the time of calving that causes weakness, and sometimes even death. So, Jungers and his team wanted to identify potassium fertilization rates that increase yield and nutritive value, while reducing potassium concentration in the tissue.

Researchers experimented with five different rates of potassium fertilizer on alfalfa fields. Throughout the four-year study, they took measurements of the yield, nutritive value, and

potassium concentrations in the plant tissue. Soil samples were also taken to track the potassium levels in the soil.

“Potassium fertilization increased alfalfa yield, but decreased forage quality,” says Jungers. “This tradeoff was consistent among all alfalfa cultivars in the study.” Intensively harvested alfalfa did differ in overall yield, but it did not differ in its yield response to potassium fertilization.

When applied at recommended levels, potassium fertilization is important for high alfalfa yields. However, potassium fertilization will not prolong alfalfa stand life or productivity beyond the third production year.



University of Minnesota Summer Intern Bianka Simon Fuzaro inspects alfalfa plants for nutrient deficiency. Credit: Craig Sheaffer

“Many soil types are abundant in potassium, but relatively little is available to crops at any given time,” he says. “The amount of potassium that might someday be available to crops is largely dependent on soil texture, moisture, and other environmental factors.” Potassium fertilizer rates for alfalfa should be determined based on expected yield, soil test levels, and if the crop will be fed to cows.

The next steps in this work may be to consider the timing of potassium fertilization. In this study, potassium fertilizer was incorporated in the soil prior to planting the first year. Then, it was applied in the spring the following years. In the Midwest, application of potassium fertilizer is common in the fall or after the first cutting.

Understanding tradeoffs between alfalfa yield and quality is important for fertility management and sustainable production. Measuring and reporting these tradeoffs helps growers make the best decisions for their operations.

Read more about this research in [Agronomy Journal](#). This work was funded by the Minnesota Department of Agriculture Fertilizer Research and Education Council and the Midwest Forage Association.

Plants and fungi together could slow climate change

Date: November 7, 2019

Source: International Institute for Applied Systems Analysis

Source: <https://www.sciencedaily.com/releases/2019/11/191107084034.htm>

A new global assessment shows that human impacts have greatly reduced plant-fungus symbioses, which play a key role in sequestering carbon in soils. Restoring these ecosystems could be one strategy to slow climate change.

Human-induced transformations of Earth's ecosystems have strongly affected distribution patterns of plant-fungus symbioses known as mycorrhiza. These changes have greatly reduced vegetation featuring a particular variety of mycorrhiza -- ectomycorrhiza -- a type of plant-fungal symbiosis crucially important for soil carbon storage. The

study, published in the journal *Nature Communications*, shows that loss of ectomycorrhizal symbiosis has reduced the ability of these ecosystems to sequester carbon in soils.

Most plant species form symbioses with various fungi, in which fungi provide plants with nutrients, while the plants provide carbon to the fungi. Previous research has shown that these relationships increase the potential of vegetation to remove CO₂ from the atmosphere and sequester it in soils. However, because of the complexity of these relationships and multiple species involved, it has been difficult to estimate the global impact of such symbioses.

The study is the first to provide a global accounting of the distribution of mycorrhizal vegetation across the planet along with estimates of their contribution to terrestrial carbon stocks. Even with the loss of mycorrhizal symbioses, the study finds, that ecosystems encompassing mycorrhizal vegetation store on the order of 350 gigatons of carbon globally, compared to just 29 gigatons stored in non-mycorrhizal vegetation.

"Human activities such as agricultural practices have altered 50-75% of the Earth's terrestrial ecosystems, transforming natural areas with previously strong carbon sequestering mycorrhizal plant-associations to much weaker relationships. By altering the plants that grow across much of the Earth's surface from those with strong soil carbon storage to weak carbon storage we have potentially further contributed to increased atmospheric CO₂," says IIASA researcher Ian McCallum, a study co-author.

This study identifies a potential mechanism that could be used to decrease atmospheric CO₂ via enhanced soil carbon storage. Restoring native vegetation that forms ectomycorrhizal symbiosis with soil fungi, especially in abandoned agricultural and barren land, the authors say, could help alleviate anthropogenic soil carbon losses and ameliorate increases in atmospheric greenhouse gases.

"Among the pathways available to mankind to reach the atmospheric CO₂ removal goals, accumulation of carbon in vegetation and soil is one promising path, in which mycorrhizal symbiosis plays a very important role. Our new detailed maps of mycorrhizal distribution across the globe will allow for conscious policy design towards decreasing atmospheric CO₂ by sequestering carbon in soil and plants," says lead author Nadejda Soudzilovskaia, a researcher at Leiden University in the Netherlands.

Plants might be helping each other more than thought

Date: November 13, 2019

Source: University of Portsmouth

Source: <https://www.sciencedaily.com/releases/2019/11/191113095246.htm>

Contrary to the long-held belief that plants in the natural world are always in competition, new research has found that in harsh environments mature plants help smaller ones -- and thrive as a result.

The first study to examine plant interactions in a hostile environment over their lifespan found that plants sheltering seedlings help the smaller plant survive and are more successful themselves, a process in ecology called facilitation.

The study, led by Dr Rocio Pérez-Barrales at the University of Portsmouth and Dr Alicia Montesinos-Navarro at Desertification Research Center in Valencia, Spain, studied adult and seedling plants in the 'ecological desert' of gypsum soil in the south-east of Spain.

The findings could have significance for those managing harsh environments including coastal management.

Dr Pérez-Barrales said: "If you're a seedling in a barren landscape -- the top of a mountain or a sand dune, for example -- and you're lucky enough to end up underneath a big plant, your chances of survival are certainly better than if you landed somewhere on your own.

"What we have found which was surprising is an established large plant, called a 'nurse', shields a seedling, it also produces more flowers than the same plants of similar large size growing on their own."

This win-win for adult and seedling plants in harsh environments has not previously been reported.

"Scientists have often looked at such plant relationships and found an adult or a seedling at one stage of its life, and made conclusions," Dr Pérez-Barrales said. "But by studying these plants' entire lifespan, from seed germination and establishment, growth of young plants, and flowering in adult plants, we have evidence that the benefits for both stack up over time."

Dr Pérez-Barrales and her all-female team of scientists studied plant growth in southern Spain over three months during summer. The plants were growing in gypsum, a very poor soil, with little nutrients or water.

They found clear evidence the seedling and nurse were more likely to thrive when grown together, compared to either plant growing alone.

The seedling benefited from shade, more moisture and more nutrients, from the leaf litter of the 'nurse' plant, and probably higher bacteria and fungi in the soil, among other things. As it matured, the 'nurse' plant grew more flowers than similar plants nearby growing alone, greatly increasing her chances of producing seeds and propagating.

Other benefits of nurse-seedling partnerships include that more variety of plants growing together can trigger a positive cascade effects in the environment. For example, vegetation patches with nurse and facilitated plants with more flower density might be able to attract higher numbers and diversity of pollinators in an area, in turn supporting insect and soil life, and even provide a greater range of different fruit types for birds and mammals.

"The biggest winner for this system of nursing a plant is biodiversity," Dr Pérez-Barrales said.

"The more biodiverse an area, the more we have a greater number of species of plants, insect life, bacteria, fungi, mammals and birds, the better the chances are of long-term healthy functioning of the environment and ecosystems."

The research is likely to be of value to those who manage and protect plants in hostile and harsh environments, such as shingle and sand dunes ecosystems, both of which encircle the UK and are considered at high risk due to human intervention and climate change.

Most home gardeners and arable farmers plan to ensure their soil and conditions are the best they can be for optimum plant growth, but the findings might be of value to those who garden in inhospitable places.

Dr Pérez-Barrales suggested gardeners experiment with planting different species of different ages together to test which partnerships help plants thrive in any particular location.

Keeping up with all the recent RFS developments requires some energy

By: Ellen Essman, Senior Research Associate, Senior Research Associate Monday, November 04th, 2019
Source: <https://farmoffice.osu.edu/blog/mon-11042019-1023am/keeping-all-recent-rfs-developments-requires-some-energy>

If you've been keeping up with the ag news lately, chances are you've heard a lot about the Renewable Fuel Standard (RFS). As a refresher, the [RFS program](#) "requires a certain volume of renewable fuel to replace the quantity of petroleum-based transportation fuel." Renewable fuels include biofuels made from crops such as corn and soybeans. Lately, you may have heard discussion about a controversial new rule regarding the volumes of biofuels that are required to be mixed with oil. While all that talk has been going on, there has also been a lawsuit against the EPA for RFS exemptions given to certain oil refineries. Congress has been examining the exemptions as well. Having trouble keeping all of this RFS information straight? We'll help you sort it out.

EPA proposes new RFS rule

As we explained in our last Ag Law Harvest post, available [here](#), the Environmental Protection Agency (EPA) recently released a notice of [proposed rulemaking](#), asking for more public comment on the proposed volumes of biofuels to be required under the RFS program in 2020 and 2021. Agricultural and biofuels groups are not pleased with the proposed blending rules, arguing that the way EPA proposes to calculate biofuel volumes would result in much lower volumes than they were originally promised by President Trump. (The original promise was made in part to make up for waivers the Trump EPA had given to oil refineries.) Conversely, EPA and the Trump administration contend that the proposed rule does meet the previously agreed upon biofuel volumes. A hearing on the proposed rule was held on October 30, where many agriculture and biofuels groups expressed their concerns. The oil industry was also represented at the hearing. Members of the oil industry feel that the cost of mixing in biofuels is too high. It is unlikely any deal was struck at the hearing, but there is still an opportunity to comment on the proposed rule if you wish. Comments are due on November 29, 2019. You can click [here](#) for commenting instructions, as well as for a link to submit your comment online.

Ag and biofuels groups sue the EPA

In the midst of the argument over how the volumes of biodiesel under the RFS will be calculated, another related quarrel has emerged. At the center of this dispute are exemptions EPA has given to “small refineries” in the oil industry. The number of exemptions given has increased drastically under the Trump administration, which in turn has lessened the demand for biofuels made from crops like corn and soybeans. On October 23, 2019, agriculture and biofuel groups filed a [petition](#) against the EPA in the U.S. Court of Appeals for the D.C. Circuit. In the petition, the groups ask the court to review a decision made in August 2019 which retroactively exempted over 31 small refineries from meeting their 2018 biofuels requirements. The petitioning groups include Renewable Fuels Association, American Coalition for Ethanol, Growth Energy, National Biodiesel Board, National Corn Growers Association, and National Farmers Union.

How does the small refinery exemption work?

Typically, an oil refinery would have to mix a set volume of renewable fuels, like biofuels, into their gasoline or diesel fuel. The volumes are set annually. Small refineries, which are defined as refineries where “the average aggregate daily crude oil throughput does not exceed 75,000 barrels,” can petition the EPA for an exemption from meeting their renewable fuel obligations. Exemptions are typically given temporarily if the refinery can show they would suffer economic hardship if they were made to blend their fuel with biofuel. A refinery seeking an exemption has to include a number of records showing their economic hardship in their petition, such as tax filings and financial statements. EPA’s website explaining the small refinery exemption is available [here](#).

Why are ag and biofuel groups asking for judicial review?

Why are the groups we mentioned above upset about this particular set of small refinery exemptions? Well, first of all, the groups point to the brevity of the EPA’s decision. (The decision document can be found in the link to the petition, listed above.) The EPA’s decision document uses only two pages to explain their decision on 36 small refinery petitions. Because the decision was so short, the groups feel that EPA did not include the analysis of economic hardship for each refinery that they believe is required by the Clean Air Act and RFS regulations. Essentially, the groups argue that the EPA has not provided enough evidence or explanation for awarding the exemptions. You can read the groups’ press release explaining their reasoning [here](#).

Underlying all of this is the fact that more small refinery exemptions means lower demand for biofuels. In fact, the ag and biofuel groups claim that due to the 31 exemptions made in August alone, 1.5 billion gallons of renewable fuel were not used. In addition, the 31 exemptions are just a few of many awarded by Trump’s EPA. By all accounts, since Trump took office, there has been a sharp increase in exemptions granted. EPA has data on the number of exemptions available [here](#). The first year the Trump administration made exemptions is 2016.

Congress gets in on the action

It seems as though the House Subcommittee on Environment and Climate Change (part of the Committee on Energy and Commerce) is also worried about EPA's exemptions, or waivers, for small oil refineries. On October 29, 2019, the Subcommittee held an oversight hearing entitled "Protecting the RFS: The Trump Administration's Abuse of Secret Waivers." In fact, in their memo about the hearing, the Subcommittee cited some of the same issues in the lawsuit we discussed above; namely the increase in waivers and the consequent effect on biofuel demand. Testimony was heard from both ag/biofuels and oil representatives.

In the hearing, the Subcommittee also considered the proposed "Renewable Fuel Standard Integrity Act of 2019." The text of the bill is available [here](#). The bill would require small refineries to submit petitions for exemptions from RFS requirements annually by June 1. Additionally, it would require information in the waiver petitions to be available to the American public. For information and documents related to the hearing, as well as a video stream of the hearing, click [here](#).

What happens next?

As you can see, we're playing a waiting game on three separate fronts. For the RFS rule, we'll have to wait and see what kind of comments are submitted, and whether or not the EPA takes those comments into account when it writes the final rule. As for the lawsuit, all eyes are on the Court of Appeals for the D.C. Circuit. The court could determine that the law does indeed require EPA to include more information and analysis to explain their reasons for exemption. On the other hand, the court could find that EPA's decision document is sufficient under the law. In Congress, we'll have to wait and see whether the proposed bill gets out of the Committee on Energy and Commerce and onto the House floor. We will be keeping track of the RFS developments on all fronts and keep you updated on what happens!

Posted In: [Renewable Energy](#), [Uncategorized](#)

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