Hello Northeast Ohio Counties!

If you have or know a student who is going to or currently studying in the agricultural field in college, make sure they know about the many scholarships available to them. Deadlines are fast approaching, and more information can be found in the newsletter.

If you get the chance to take any photos of agriculture in NE Ohio this week, we’d love to see them! Send a photo in for the chance for it to be featured in the newsletter next week!

Stay healthy!
How Atrazine Regulations Have Influences the Environment
By Rachel Leege
Source: https://www.agronomy.org/news/science-news/how-atrazine-regulations-have-influenced-environment

To combat weeds, farmers use a variety of tools and methods. By understanding the strengths and downfalls of each tool, a farmer can make the best decisions for his or her operation to keep pesky weeds out of the field.

One tool farmers can turn to for weed control is applying herbicides. New research is helping us understand a specific herbicide even better: atrazine.

Atrazine is one of the most common herbicides used in the United States. It can be used to manage weeds in crops like corn, sorghum, sugarcane and turf. The chemical kills weeds by preventing photosynthesis in the plant.

A benefit of herbicides, like those with atrazine, is that they reduce the need for tillage. In addition to its effects on soil health, tillage can increase erosion of precious soil. Reducing tillage conserves our soil by preventing erosion and maintaining healthy soil structure.

A downfall of atrazine, though, is that it can sometimes make its way into streams and rivers.

After the chemical is applied to a field, atrazine breaks down in the soil and turns into another compound, called deethylatrazine (DEA). This is a good thing, since DEA is less toxic to aquatic organisms than atrazine.
In recent years, atrazine use has been decreasing. However, despite the decrease in atrazine use, concentrations of the secondary compound, DEA, have been increasing. Karen Ryberg and her team thought there must be more to this puzzle than just atrazine use.

Ryberg, who works at the United States Geological Survey, wanted to determine the factors, other than usage, that influence trends in herbicide concentrations in streams.

The most common conversion of atrazine to DEA is through the activity of soil microbes – like fungi and bacteria. Therefore, atrazine breaks down quicker when it has more contact with soil microorganisms.

“Based on previous studies, we predicted factors affecting the atrazine concentrations in streams,” says Ryberg. “These included that corn acres in the watershed, weather, climate, and management practices.”

“In our study, we used existing data from 2002 to 2012 spanning many areas of the country,” explains Ryberg. Then models were used to analyze the data and test the team’s predictions of what caused the atrazine and DEA trends in the streams.

In the 1990s, new regulations addressed surface water contamination concerns. These regulations lowered application rates of atrazine for crops, and even prohibited its use near water wells. The goal was to reduce the overall concentration of atrazine in water.

“Concentration and use trends show that past atrazine regulations, especially in the Midwest, were successful,” says Ryberg. “More of the atrazine broke down into DEA before reaching streams.”

Despite an increase in the amount of corn acres grown between 2002 and 2012, the study showed atrazine use decreased in most areas of the United States.
Ryberg’s study also discovered that atrazine turns into DEA faster in dry areas without tile drainage.

Tile drains can be installed underground in wet farm fields to help move water and prevent flooding. Tile drains are like stormwater drains for farm fields.

Because tile drains help water from the field move faster through underground pipes, the water has less time to come in contact with soil. Therefore, soil microorganisms have less time to break down atrazine to DEA before water carries it out of the field toward nearby streams.

This finding means there may be more challenges with atrazine levels in the future. As farmers anticipate climate change and wetter field conditions, more tile drains may be needed in order to grow crops in adequate soil conditions.

Moving forward, Ryberg would like to build on this research for monitoring pesticides. “Ongoing monitoring is important to understand the degradation and transport processes of pesticides,” explains Ryberg.

Farmers will continue to adapt to changing conditions, including weed communities. Pesticide usage will change, and it is an ongoing challenge to monitor for new pesticides or mixtures of pesticides in the environment.

Read more about this research in the Journal of Environmental Quality. This project was funded by the USGS National Water Quality Program’s National Water-Quality Assessment Project.

**How cold is too cold (for winter wheat)?**

By Laura Lindsey

Source: [https://agcrops.osu.edu/newsletter/corn-newsletter/2020-10/how-cold-too-cold-winter-wheat](https://agcrops.osu.edu/newsletter/corn-newsletter/2020-10/how-cold-too-cold-winter-wheat)

Overnight temperatures on April 15 and April 16, 2020 dropped into the low to mid 20s across a large portion of Ohio (Figure 1), and unofficial reports show a few locations briefly dropped into the upper teens! These temperatures were generally 12-20°F below average (1981-2010). A closer investigation at a few of the colder
sites reveal temperatures remained below 32°F for 9-11 hours, below 28°F (hard freeze) for 7-9 hours, and below 22°F for 3-5 hours.

Figure 1. Daily overnight lows based on station observations for April 15-16, 2020. Figures generated at the Midwest Regional Climate Center

Injury to winter wheat depends primarily on three factors: 1) growth stage, 2) how cold, and 3) duration of cold temperature. Differences in freeze injury among cultivars can usually be attributed to slight differences in growth stage.

Although temperatures were low and there may be some yellowing/browning of leaves, the impact on wheat grain yield is likely to be minimal. In our research, at Feekes 6 growth stage, reductions in wheat grain yield began when temperatures fell to less than 20°F for a 15-minute duration. A 50% reduction in grain yield occurred at 12°F for a 15-minute duration.

Prior to Feekes 6 growth stage, the growing point of wheat is below the soil surface, protected from cold temperatures. However, at Feekes 6 growth stage, the first node appears and pushes the growing point (developing spike) up through the plant stem, and this developing spike can be damaged by low temperatures.
Damaged spikes can be observed by carefully cutting the wheat stem lengthwise to expose the developing spike at the first node. Damaged spikes will appear discolored and shriveled, which occurred at the 3°F temperature treatment (Figure 2).

![Image](image_url)

**Figure 2.** At Feekes 6 growth stage, cold temperatures cause damage to the forming wheat spike within the stem. Wheat spikes pictured (left to right) were exposed to 39, 28, 21, 14, and 3°F temperature treatments.

At Feekes 6 growth stage, damage from low temperatures will cause yellow or browning (necrosis) of the leaf tissue, most likely leaf tips or edges exhibiting symptoms first (Figure 3). Death of leaf tissues and stems may result in the formation of tertiary (regenerative) tillers from surviving plant crowns (Figure 4). These tertiary tillers may produce seed, but often time do not fully mature, resulting in small, lightweight kernels. Overall, grain yield is reduced in these situations as primary and secondary tillers account for the majority of grain yield.
Figure 3. At Feekes 6 growth stage, low temperatures cause yellowing or browning of the leaf and stem tissue. Wheat plants pictured (left to right) were exposed to 3, 14, 21, 28, and 39°F temperature treatments, corresponding to death of 100, 80, 50, 25, and 0% of the aboveground biomass, respectively.

Figure 4. Low temperature damage to wheat leaves and stems may cause uneven tillering. Here, the wheat plant has primary (1st), secondary (2nd), and tertiary (3rd) tiller development as a result of regrowth after a freeze event.
Slight Frost Injury on Forages
By: Mark Sulc
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2020-10/slight-frost-injury-forages

I have observed and received reports of only very slight frost burn on the tips of leaves of alfalfa and winter annual forage crops after the two cold nights last week in Ohio. On Monday, the alfalfa at the Western Agricultural Research Station looked excellent, with just scattered stems showing slight frost burn on the upper leaves. The 2019 late summer seedings also looked excellent. Italian ryegrass and winter wheat on the station showed just a little purpling on the upper leaf tips.

The situation could be a little more severe in certain pockets of the state, depending on the duration of the low night temperatures last week. However, reports from around the state indicate only slight damage to forage crops and they should grow right out of it with no significant effect on forage yields.

If more injury is observed in certain pockets, the recovery will be very dependent on the general health of the stand. The best recovery will be in younger stands where soil pH and fertility are in the optimal range, and the last cutting in 2019 was not taken by early September. If you have observed more severe injury, feel free to contact me with any questions you may have.

Attention Fruit, Vegetable, Herb, and Meat Farmers in Ashtabula County
If you are interested in selling your local food collectively through an online ordering system with a central processing/pick-up location, please contact Local Food Coordinator Julie Wayman at wayman.31@osu.edu or call 440-624-1022 to be including in meeting scheduling and notices. A group of farmers is forming now to discuss possible software options and logistics. Come be apart of a project to move local food forward together! All meetings will be held via Zoom or Conference Call.

Ashtabula Co. 2020 Ag Scholarships Due May 1
Last year thousands of dollars were awarded to local students to assist them in pursuing a college degree. If you or someone you know has an agriculture/4-H
background or is planning on or currently pursuing an agricultural degree, I encourage
you to check out the great opportunities below. All of these scholarships can be found
on our website, www.Ashtabula.osu.edu, or by contacting your school's guidance
counselor. If you have any questions about the scholarships you can also call me at the
Ashtabula Extension Office at 440-576-9008.

The Ashtabula County Agricultural Scholarship Committee and the Ashtabula
County OSU Extension are pleased to announce that applications are now being
accepted for a minimum of thirteen scholarships for the 2020-2021 school year to
Ashtabula County students enrolled in either an accredited full four year college or an
accredited two year technical institute. The Ashtabula County Agricultural Scholarship
Fund was founded on April 29, 1952 to promote interest in the study of agriculture,
family and consumer science, environmental sciences or natural resources in an
accredited full four-year college or an accredited two-year technical institute. This fund
awards scholarships to students attending an accredited four-year college or two year
technical school. Each year the general scholarship fund awards at least two $1,000
scholarships. The committee also works with local organizations and farm families to
offer additional scholarships. Both graduate and undergraduate students are
encouraged to apply for the scholarships which they meet the eligibility requirements.
The scholarships are for a one year period. A student may apply and be awarded a
scholarship in three years from the scholarship fund. Application forms with complete
instructions for applying are now available and can be received by stopping in at the
Ashtabula County Extension Office or by calling 440-576-9008. Applications can also
be accessed at: http://go.osu.edu/agscholarship. The application deadline is May 1st
and no late applications will be considered. More information can also be obtained by
emailing ashtabulacountyagscholarship@gmail.com

The Ashtabula County Cattlemen's Association are pleased to announce they will
be awarding two youth beef scholarships for the 2020-2021 school year. One $1,000
scholarship will be awarded to a deserving 2020 High School Senior who will be
attending an accredited full four year college or an accredited two-year technical
institute in 2020-2021. In addition, one $500 scholarship will be awarded to a current
College Student who is currently attending an accredited full four-year college or an
accredited two-year technical institute. Applicants must be resident of Ashtabula
County. The first preference by the Ashtabula County Cattlemen's Association is the
scholarships be awarded to deserving students who have been involved in the beef
industry as a youth. Applications must be received by the Ashtabula County Cattlemen's
Association by May 1st, 2020 by 4:30 p.m. for consideration for the scholarship. No late
applications will be considered. The application can be obtained at: Ashtabula.osu.edu.
Additional information can be obtained by calling the Ashtabula County Extension office
at 440-576-9008.
2020 Ashtabula County Farm Bureau Scholarship Application -Deadline Extended

Ashtabula County Farm Bureau would like to remind members of the county Farm Bureau of the scholarships that are available to college students working toward an undergraduate degree. Applicants must be residents of Ashtabula County and their parents/guardian or themselves must be paid Ashtabula County Farm Bureau members at the time of application and at time of payout.

Applications must include two signed and dated, current letters of recommendation, one of which must be a current Farm Bureau member. Students must be full-time enrollees of a two- or four-year college or university with a 3.0 grade point average. A major in agriculture or support field is preferred.

No handwritten forms will be accepted. The fillable form is available here, by email, or by calling the Ashtabula County Farm Bureau office at 440-426-2195.

The deadline for scholarships has been extended. All applications must be received or postmarked by May 8, 2020. Applications may be mailed, emailed, faxed to 440.426.9103 or hand-delivered to the Ashtabula County Farm Bureau office.

2020 Trumbull County Farm Bureau Scholarship Application -Deadline Extended

Trumbull County Farm Bureau would like to remind its members of the county Farm Bureau scholarships, available to a student who is either planning to attend or already attending a college, university or technical school and working toward an undergraduate degree. Applicant’s parent(s), stepparent, legal guardian or the themselves must be current members of Trumbull County Farm Bureau at the time of application and payout. The applicant must be enrolled full-time in a two- or four-year college, university or technical school. The recipient and/or a representative must attend the Trumbull County Farm Bureau Annual Meeting in the fall to receive monetary award.

The applicant must present him/herself to the selection committee for a personal interview. Due to Coronavirus/COVID-19, the interview dates on the application are postponed. Each applicant will be contacted to set up interviews.

No handwritten forms will be accepted. The fillable form is available here, by emailing or by calling the Trumbull County Farm Bureau office at 440-426-2195.

The deadline has been extended. All applications must be submitted or postmarked by May 1, 2020. Applications may be mailed, faxed to 440.426.9103, emailed or hand-delivered to the county office.
Agriculture and Natural Resources Madness

Tournament of Education

Begins March 25

Daily events at
9:00 a.m.  
Noon  
3:00 p.m.

Visit tournament website for schedule

goto.osu.edu/AgMadness

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Learn with us virtually!

Each day, three educational sessions will be presented relating to the “bracket” or subject. Brackets change daily and include topics like food safety, crisis management, home gardening, animal care, crop production, forestry, hemp and many more.

Events are presented virtually via webinars, social media, live events and watch parties. Links to all events are provided on the tournament website.

You can also find links to watch existing educational programs and find relevant resources as we prepare for the 2020 growing season amid COVID-19.

Brought to you by your OSU Extension educators, researchers, faculty, staff and partners.

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