

Auglaize County OSU Extension Weekly Agriculture Newsletter – August 5, 2020

Scouting and Latest Information



Size of cracks



Soybean

Hello!! Good afternoon! I pray you are well! I have returned and producing the newsletter again.

Every Tuesday from 8:30 to 9:30 AM we will be hosting a virtual meeting via Zoom 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. You may propose topics for the next meeting at anytime during the week by e-mailing or calling me. **Next week we will have Aaron Wilson speak about current weather.** Please join use every Tuesday for Auglaize County Farm Talk.

If you are a buyer or seller of hay or straw, let me know and I can keep a list to share with others.

List of individuals searching for hay or straw: None

List of individuals selling hay or straw:

1. About 200 3' X 3', 2019 wheat straw bales for sale.
2. At least 500 small square wheat straw bales from 2019 for sale.

Call the OSU Extension office at 419-739-6580 or my cell phone at 701-541-0043 or e-mail me at stachler.1@osu.edu to get the contact information.

Joke: Why did the lamb call the police??

Agricultural Fun Fact: We grow soft red winter wheat. It is processed into flour to make cookies, crackers, and pretzels. Hard red winter wheat grown in the plains states is good for baking. The flour is most commonly used to make bread, all-purpose flour, cereal, and Asian noodles. Hard red spring wheat is grown in the northern plains states. It has the highest protein content. The flour is used to make rolls, croissants, bagels, and pizza dough. Soft white wheat is commonly used to make cakes, pastries, and flat bread and is grown in the Pacific Northwest. Hard white wheat is most commonly used to make Asian noodles and bread. It is sweeter and has a milder flavor than the red wheats. Durum is grown in the northern plains. Durum is ideal for grinding into semolina flour which is used as a base to make pastas such as spaghetti and macaroni.

Rain fell 9 days somewhere in the county since the last newsletter. Much of the county has improved drastically with moisture, but some areas like Waynesfield is still dry! Rainfall on Monday, July 20th ranged from 0" at 11 locations, mostly the northern parts of the county to 0.05" near Valley and Idle roads and Lock Two and Tri-Township roads. Rainfall on Tuesday ranged from 0.5" near St. Rt. 117 and St. Rt. 67 roads and near Feikert and St. Rt. 385 roads to 1.96" near Brown and Pusheta roads. Rainfall Wednesday ranged from 0" at 13 locations to 0.1" near St. Rt. 197 and Mercer Line roads. Rainfall on Monday, July 27th ranged from 0.38" near Feikert and St. Rt. 385 roads to 2.0" near St. Rt. 66 and Vogel roads. Rainfall on Thursday ranged from 0" near Kossuth, near Wapakoneta-Fisher and Townline Lima roads, and near Feikert and St. Rt. 385 roads to 0.21" near County Rd 66A and Dowty. Rainfall on Saturday ranged from 0.11" near Wapakoneta-Fisher and Townline Lima roads to 1" near St. Rt. 197 and Mercer Line roads. Rainfall on Sunday ranged from 0" near C.R. 66A and St. Rt. 66 to 0.12" near Santa Fe-New Knoxville and Shelby-Fryburg roads. Rainfall on Monday, August 3rd ranged from 0" at 5 locations, mostly in NW corner to 0.67" near Feikert and

St. Rt. 385 roads. Rainfall since the last newsletter ranged from 2.27" near Uniopolis to 3.99" near Dowty and C.R. 66A. Rainfall since the last newsletter averaged 2.99", 2.97" more than last reported week. Rainfall for the month of July ranged from 1.6" near St. Rt. 117 and St. Rt. 67 roads to 5.79" near Sommers and Minster-Ft. Recovery roads. The average rainfall for the month of July was 3.37", 0.78" below the normal for the month of 4.15" Rainfall for the year to date is 25.48", 2.55" above the normal for the year to date of 22.93". There is at least a 55% chance of rain Sunday and Monday, otherwise it will be dry.

The average high temperature now is 83 degrees F, 1 degree less than the last newsletter. We are now on our temperature decent for the rest of the year!! Temperatures were above normal for **5** days since the last newsletter and below normal for **9** days since the last newsletter. The range in high temperature since the last newsletter was 75 to 90 degrees F. The average high temperature since the last newsletter was 82.7 degrees F, which is 3.2 degree F cooler than last report and 0.3 degrees F **cooler than** the current normal high temperature of 83 degrees F. The high temperatures for the month of July ranged from 79 to 93 degrees F. The average high temperature for the month of July was 86.3 degrees F, only 2.3 degrees F above the normal of 84 degrees F. There were 10 days of 90+ degrees F temperatures in July. Temperatures for the next 7 days will continue to rise to above normal.

Wheat

Start making preparations to seed wheat this fall.

Alfalfa



3rd cutting alfalfa

There is still some second cutting alfalfa to harvest! Harvest of 3rd cutting began since the last newsletter. Leafhoppers have crashed based upon a severely infested field. Where insecticides were used there are still some leafhopper left, but few.

Corn



Corn



Tip back and some poor pollination



Tip back and some poor pollination



Physiological flecking (rare)

Corn is advancing quickly! I did not change the rating of the corn crop because of the rain we received and the fact that you can't see the bad spots in fields. I rated the corn crop at 3% excellent, 27% good, 69% fair, 1% poor, and 0% very poor. The range in corn is from V15 (Fifteenth collar visible) to R3 (milk) stage. Almost all corn (97%) is at the R3 (milk) stage. About 57% of corn is at R3 stage. I have started to find gray leaf spot, but only one or two small lesions per 2nd leaf below ear leaf on only 10% of plants. Very little. I found no northern corn leaf blight as of Sunday. The red-headed flea beetle is still present in corn and has caused quite a bit of damage in some fields. Scout Non-Bt corn for European corn borer. Nitrogen deficiencies are showing up in the driest fields. Pollination is not perfect and tip dieback is occurring. Still unsure how much tip dieback will occur. May start doing yield checks this coming Sunday.

Soybean



Most developed soybean (R5)



R4 soybean



4-bean pod

The soybean crop is looking good and improved some since the last newsletter. The current condition of soybean in the county is 29% excellent, 52% good, 16% fair, 3% poor, and 0% very poor. Last newsletter rating was 20% excellent, 53% good, 24% fair, 3% poor, and 0% very poor. The range in soybean stage is from V4 (fourth trifoliolate) to R5 (Beginning seed – 1/8” long seeded pod on one of 4 upper nodes of plant) stage, but most are at R4 (Full pod - at least one pod 3/4” long on one of 4 upper nodes of plant). I found a few lesions of frogeye leaf spot in only 3 fields. The most frequent disease is downy mildew, but there is nothing we can do now for this disease. Most fields have at least 5% defoliation with some up to 10% defoliation from grasshopper and Japanese beetles, but this is not enough defoliation to warrant insecticide use. I see no spider mites at this time.

Weeds



Marestalk (horseweed) surviving herbicides

We are nearing the end of herbicide applications in soybean! Therefore the weeds like in the picture above will set seed and be a future problem. Start scouting for these situations and remove plants by hand if possible.

Insects/Other



European corn borer

Due to vacation I could not properly monitor the western bean cutworm, so I removed the traps. Insects causing defoliation in soybean include Japanese beetles, grasshoppers, and bean leaf beetle (very few at this time). I saw a stink bug last Friday so start scouting for these insects. I found European corn borer in an ear of corn on Sunday.

With the cancellation of dicamba products applied to dicamba soybean, I did not update the label information below. Not sure of label changes for Tavium (<http://www.syngenta-us.com/herbicides/tavium-tank-mixes>) this week. With the end of Engenia, FeXapan, and XtendiMAX, I deleted the tank-mix information, but since Tavium is still legal, I kept that. There are 47 herbicides, 101 DRA's, 316 adjuvants, 96 nutritionals, 16, insecticides, 7 fungicides, 8 other products, and 41 nozzles approved for use with Tavium.

Enlist One and Enlist Duo for Enlist soybeans and corn also have approved tank-mix partners and nozzles like the dicamba products. **There were no changes to the labels this week that I have time to find out!** The list of approved tank-mixtures for both of these products has been updated. Please follow these labels online at <https://www.enlist.com/en/herbicides.html> . There are 48 nozzles, 153 herbicides (10 new ones), 20 glyphosate formulations (1 new one), 10 glufosinate formulations (1 new one), 11 Dry AMS products, 85 insecticides, 30 fungicides, 21 plant growth regulators, 645 other products, and 315 fertilizers / nutrients labeled with Enlist One. There are 23 nozzles, 89 herbicides (15 new ones), 51 insecticides (3 new ones), 17

fungicides, 22 plant growth regulators, 8 Dry AMS products, 512 Other products, and 168 fertilizers / nutrients labeled with Enlist Duo.

Other information about the Enlist products include the following:

1. Enlist Duo rate is 4.75 pts/A which only has 1.0 lbs ae/A of glyphosate which is really not enough. You would think you could just add more glyphosate, but you CAN NOT add more glyphosate with Enlist Duo.
2. Enlist One can be mixed with ANY rate of glyphosate, glufosinate and 192 other herbicides.
3. Never use Enlist One alone on Enlist crops and always apply Enlist One at 2 pts/A
4. You CAN NOT add glufosinate with Enlist Duo!
5. When adding a postemergence grass soybean herbicide like quizalofop, clethodim, sethoxydim, or fluazifop to Enlist One add 33% higher rate of these products to reduce the antagonism with grasses OR apply the postemergence grass herbicides 7 days after the Enlist One.

Upcoming Meetings

1. **Auglaize County Farm Talk.** On Tuesdays from 8:30 to 9:30 AM we will have a virtual meeting. The link to get onto the meeting is as follows:
<https://osu.zoom.us/j/264219671?pwd=K0VDSTZFOVldGJWeUZaeVA3QUVrQT09> A password may be needed. If so it is Farmtalk (first letter in caps, then lower case for rest with no spaces). If you just want to call in the phone number and meeting code are as follows: 646-876-9923 264219671# with password of 07099073.
2. **The OSU Farm Office is Open.** The OSU Extension Farm Office Team will open our offices online and offer biweekly live office hours on Thursdays from **9:00-10:30 am** EST. The next session is next week. Each office session is limited to 500 people and if you miss our office hours, we'll post recordings on farmoffice.osu.edu the following day. **Register at <https://go.osu.edu/farmofficelive>.**
3. **All OSU Extension face to face meetings have been cancelled or postponed.**

4. The Farm Science Review has been cancelled for 2020 due to COVID-19, however it will proceed virtually, but the process has not been determined yet!

Answer to joke: Because he'd been fleeced!!

What are Those Yellow Spots on my Soybean Leaves?



After scouting soybean fields in the last week, I have noticed soybean leaves having yellow spots on the upper leaf surface in some fields. This is downy mildew of soybean.

This disease is caused by the pathogen *Peronospora manshurica*. The fungus overwinters on infected leaves and seeds. The pathogen can be transmitted by seed as well.

Initially look for small, light green irregular spots on the upper leaf surface. As time progresses the spot will enlarge and turn pale to bright yellow. The spots may even coalesce into irregular brown areas. On the underside of the leaf, look for tan to gray tufts of fungal growth. This fungal growth on the bottom side of the leaves is the most definitive way to identify it from other diseases. Pods and seeds can also become infected. The seeds may become covered with a whitish coating of fungal growth and spores.

Disease development occurs during dewy and high humidity and mild temperature conditions. All ages of the plant can be infected by the pathogen, but is mostly present after soybean begins to flower. Young leaves are most susceptible and infected leaves are often seen on the tops of plants. The pathogen is most commonly spread through wind dissemination.

Downy mildew is a widespread disease and has become more prevalent in the last few years. The disease is typically superficial and causes no yield loss, but can cause defoliation of plant and reduce yields under rare conditions.

The best way to manage this disease is to plant resistant varieties. Use an appropriate seed treatment at planting if the disease is present on the seed. Another management option is to bury infested residue where feasible and when the disease is severe. The last management strategy is to rotate soybeans with a non-bean crop for at least one year.

C.O.R.N. Newsletter

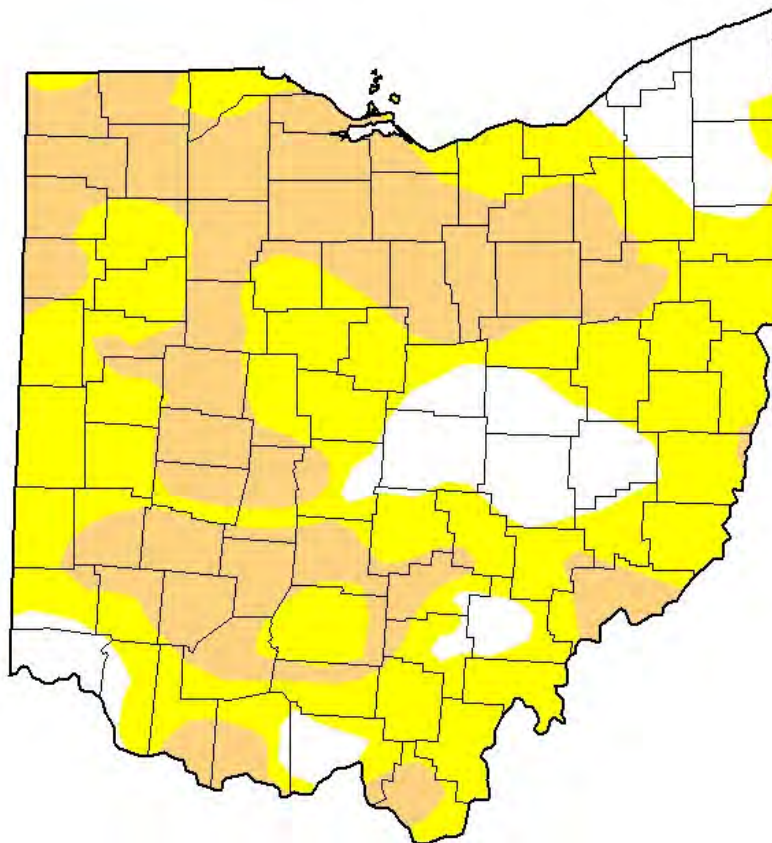
<https://agcrops.osu.edu/newsletter/corn-newsletter>

Drought Conditions Expand but Some Relief Ensues

As of the Thursday July 30, 2020 release of the U.S. Drought Monitor, 37% of the state is covered by D1-moderate drought conditions (Figure 1). Hot and mostly dry conditions continued through much of June and July, with only scattered areas of heavy rain throughout the state. This has depleted soil moisture and lowered stream flows. If you are seeing drought impacts in your area, consider submitting a report to the [Drought Impact Reporter](#).

U.S. Drought Monitor
Ohio

July 28, 2020
 (Released Thursday, Jul. 30, 2020)
 Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	15.25	84.75	37.20	0.00	0.00	0.00
Last Week 07-21-2020	21.10	78.90	23.12	0.00	0.00	0.00
3 Months Ago 04-28-2020	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 12-31-2019	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 10-01-2019	19.41	80.59	12.37	0.00	0.00	0.00
One Year Ago 07-30-2019	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Richard Heim
 NCEI/NOAA



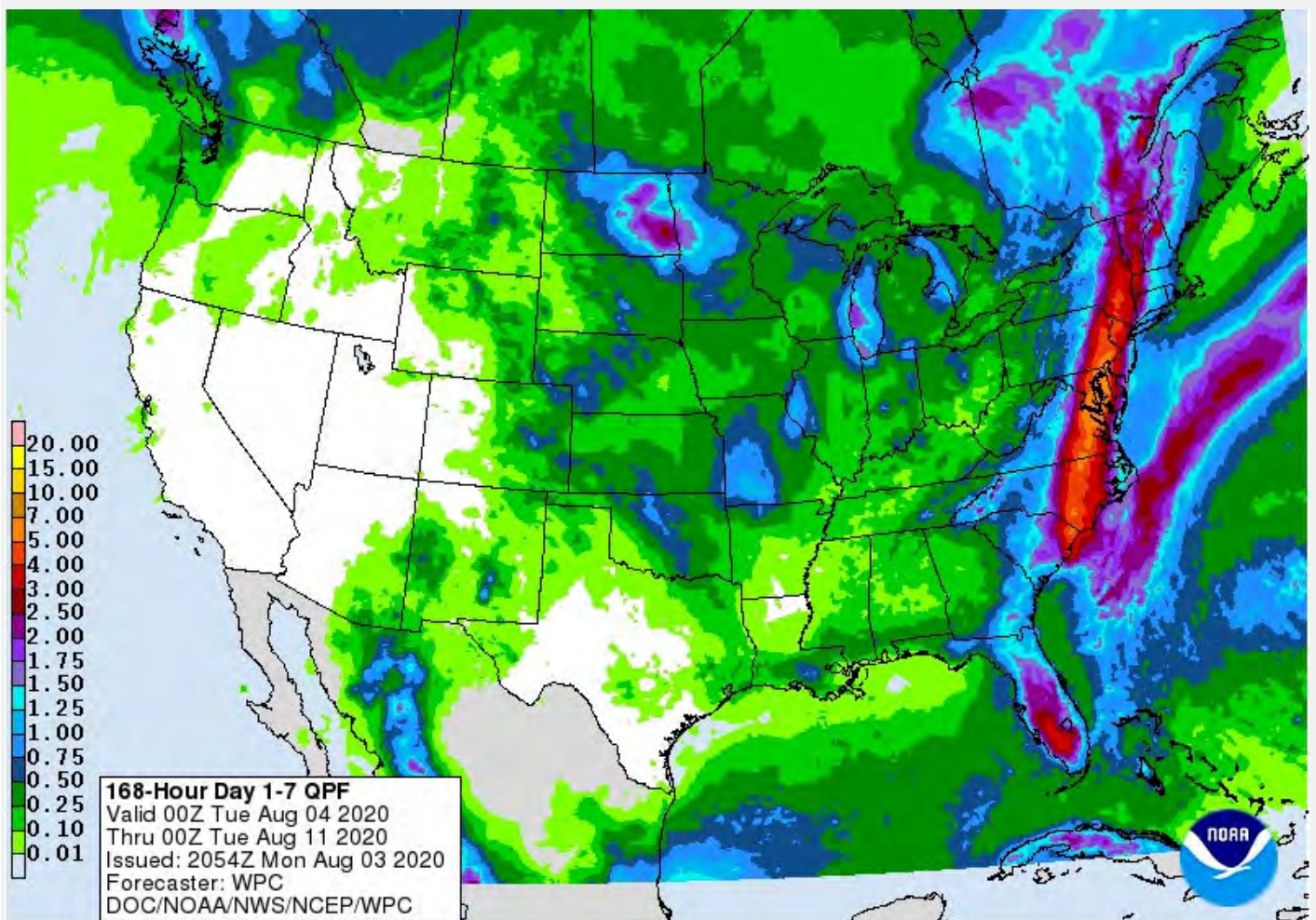
droughtmonitor.unl.edu

Drought Monitor for Ohio

Figure 1: U.S. Drought Monitor for Ohio as reported on Thursday, July 30, 2020

Over the last two weeks, the frequency and coverage of showers and storms have increased. West central, north central, and areas near the Ohio River have picked up widespread 2-4" over the last 14 days, with some local amounts greater than 5". Coupled with cooler temperatures this past week, drought conditions

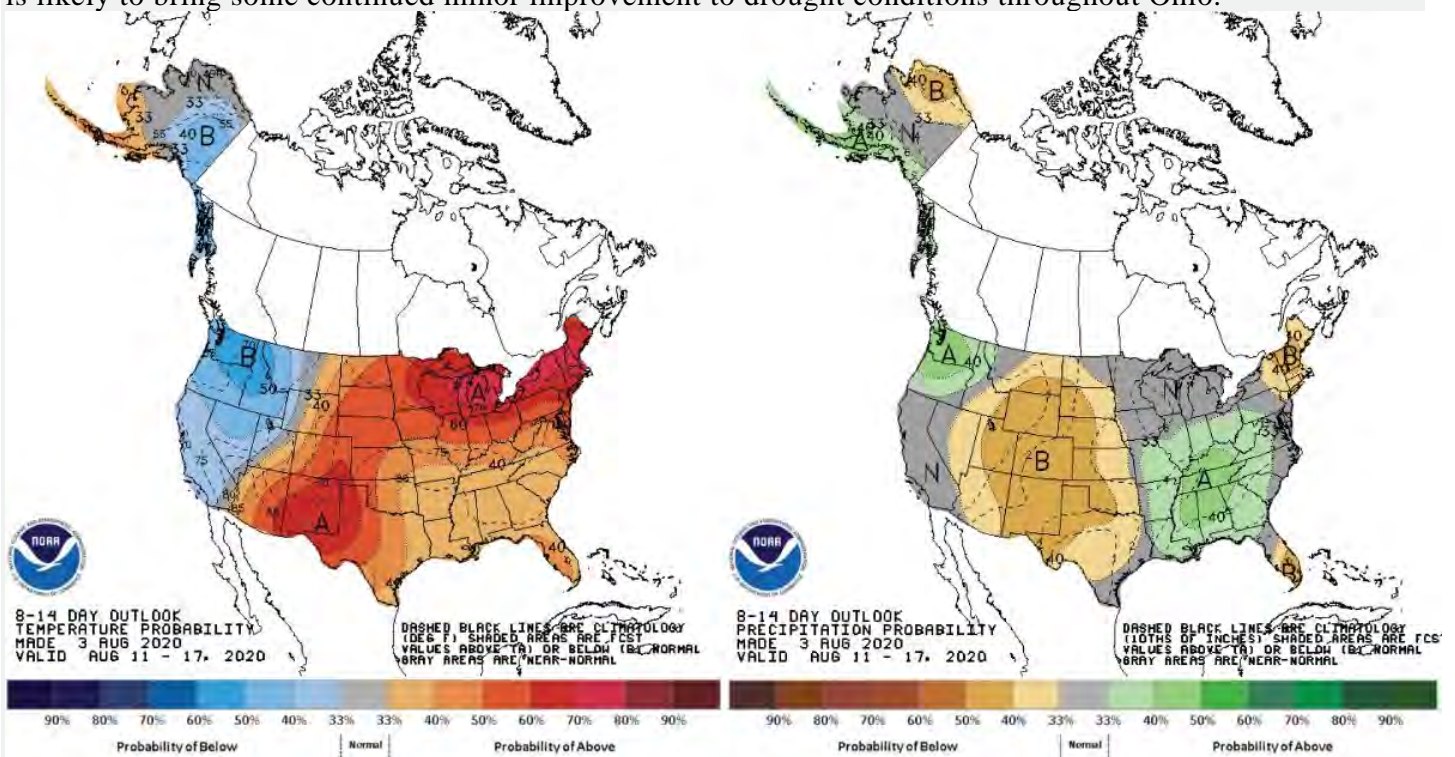
have relaxed in these areas of Ohio. For more information on recent climate conditions and impacts, check out the latest [Hydro-Climate Assessment](#) from the [State Climate Office of Ohio](#). Though we are dealing with a frontal boundary with showers and storms moving through the region through Tuesday, drier and less humid conditions are expected to set up for most of the week. Temperatures will be below average on Wednesday through Saturday, generally in the mid to upper 70s across northern Ohio and upper 70s to low 80s across the south. Overnight lows will likely drop into the 50s several nights this week. Showers and storms may return for Sunday and Monday, though we are only expecting light precipitation over the next 7 days (Figure 2).



Forecast Precipitation

Figure 2: Forecast precipitation for the next 7 days. Valid from 8 pm Monday, August 3, 2020 through 8 pm Monday, August 10, 2020. Figure from Weather Prediction Center.

The latest [NOAA/NWS/Climate Prediction Center](#) outlook for the 8-14 day period (August 11 – 17) shows the heat returning, with increased confidence in *above average temperatures* and *slightly elevated probability of above average precipitation* (Figure 3). Normal highs during the period are in the low to mid-80s, normal lows in the low to mid-60s, with 0.80-0.90” of rainfall per week. The [16-Day Rainfall Outlook from NOAA/NWS/Ohio River Forecast Center](#) shows about average rainfall over the period. This is likely to bring some continued minor improvement to drought conditions throughout Ohio.



8-14 Day Weather Outlook

Figure 3: Climate Prediction Center 8-14 Day Outlook valid for August 11 to 17, 2020 for temperatures (left) and precipitation (right). Colors represent the probability of below, normal, or above normal conditions.

Author(s):
 Aaron Wilson

Ten Counties on WBC Scout List as Statewide Numbers Begin to Decrease



Western Bean Cutworm Eggs

Western bean cutworm (WBC) trap counts for the week of July 27 – August 2 show a downward trend in the majority of monitoring counties. Despite the overall decrease in WBC numbers, ten counties are currently at the threshold (an average of 7 or more) indicating to scout for egg masses including, Ashtabula, Fulton, Geauga, Henry, Huron, Lucas, Sandusky, Wayne, Williams and Wood. A total of 27 counties monitored 87 traps, resulting in 418 WBC adults (a statewide average of 4.8 moths per trap) (Figure 1). Monitoring for WBC moths will continue in many counties until the end of August.

WBC Map Legend

-  No Data
-  >200
-  101-200
-  51-100
-  21-50
-  6-20
-  1-5
-  0

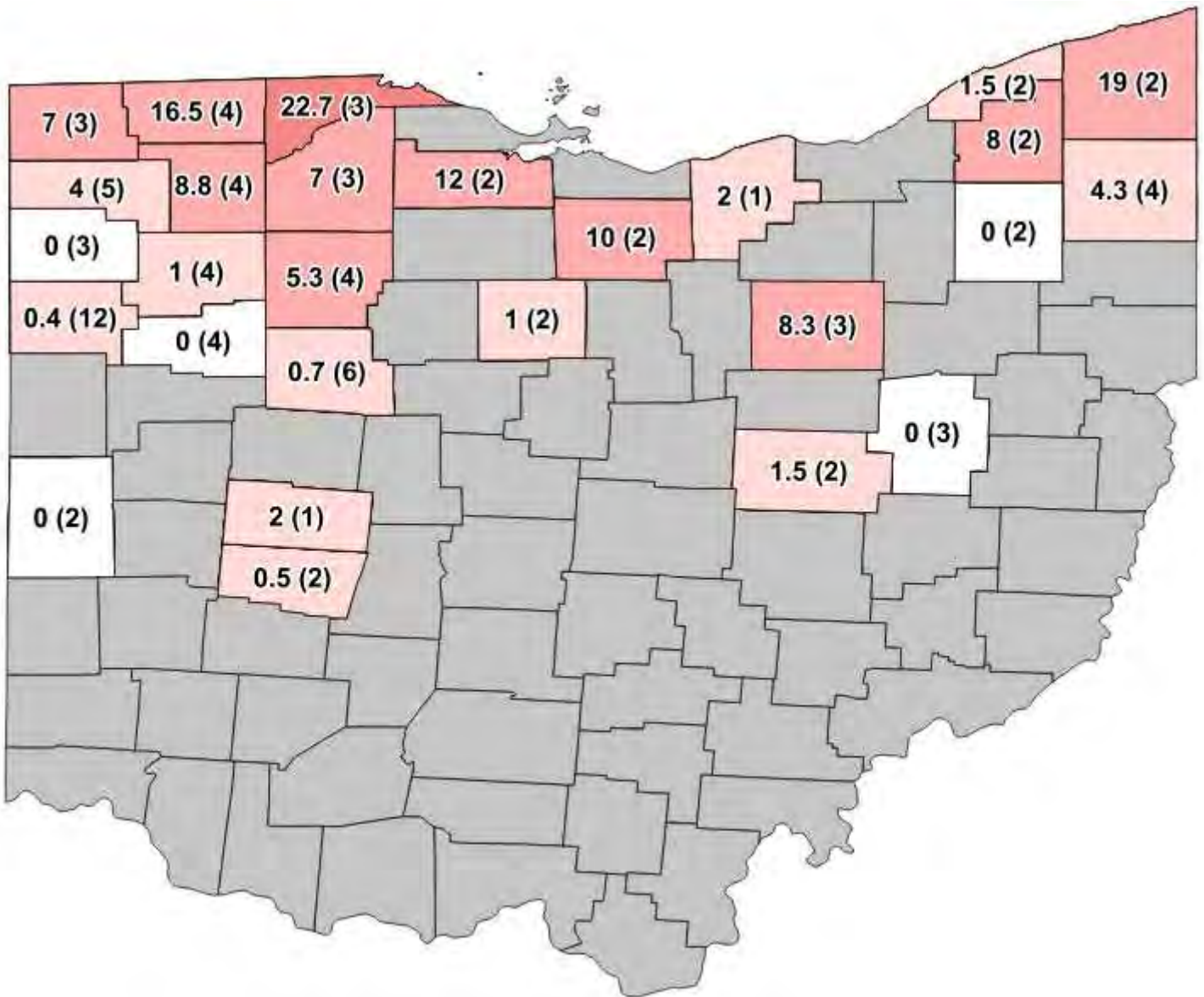


Figure 1. Average Western bean cutworm adult per trap followed by total number of traps in parentheses for week ending August 2, 2020.

Author(s):

Amy Raudenbush, Angela Arnold, Mark Badertscher, Jordan Beck, Frank Becker, Lee Beers, CCA, Bruce Clevenger, CCA, Sam Custer, Tom Dehaas, Craig Everett, Allen Gahler, Jason Hartschuh, CCA, Andrew Holden, James Jasinski, Stephanie Karhoff, Alan Leininger, Ed Lentz, CCA, Rory Lewandowski, Cecilia Lokai-Minnich, Matthew Lorentz, David Marrison, Sarah Noggle, Les Ober, CCA, Eric Richer, CCA, Garth Ruff, Beth Scheckelhoff, Clint Schroeder, Mike Sunderman, Curtis Young, CCA, Chris Zoller, Andy Michel, Kelley Tilmon

NRCS Seeks Comments on 590 Nutrient Management Standard Update

USDA's Ohio Natural Resources Conservation Service is inviting input, until August 31, 2020, during a 30-day comment period on their draft revisions to the Nutrient Management Practice Standard (Code 590). If approved, this Nutrient Management Standard would revise the current Ohio Field Office Technical Guide (FOTG) and provide the criteria and considerations required for all USDA Farm Bill financial and technical assistance related to the application of plant nutrients and manures.

"NRCS, with our partners, is committed to increasing the knowledge of nutrient loss risk and we will continue to implement a comprehensive approach to protect and enhance water quality," said Terry Cosby, state conservationist for Ohio. "The task force is to be commended for achieving consensus, given the complicated issues involved, the need to both protect Ohio's water resources and agricultural industry, and the need to develop something that was responsible yet practical, simple, and economical for Ohio's farmers to adopt."

A broad and diverse 19-member sub-committee of the State Technical Committee (590 Task Force) worked diligently over a six-month period to develop a science-based and implementable farm scale standard that uses the 4R approach as the basis to draw down high Phosphorus soils over time. The revised standard will protect Ohio's water quality and is practical and realistic for Ohio farmers to implement.

"I appreciate the committee's work to develop science-based guidelines to keep nutrients on the land," said Greg LaBarge, field specialist, Agronomic Systems Ohio State University Extension. "I look forward to continued work on site specific tools that help farmers identify better conservation practice placement."

Summary of the draft Nutrient Management Standard achievements:

-The draft standard will better protect Ohio's Water Quality by reducing losses of nutrients from crop fields.

-Simplified the language and made the standard more practical and usable at the field/farm level.

-The recommendations align with the newly revised Tri State Fertility Guide and are converted to the now standard Melich III soil test extraction method.

-Developed a more defined path to draw down high soil test phosphorus fields.

-Updated numerical criteria, including establishment of an upper soil test phosphorus limit on manure applications.

-Wider use of in-field and edge-of-field trapping practices was incorporated into the recommendations.

-Updated nutrient assessment procedures and tools identified to help farmers reduce risk of phosphorus loss at all soil test levels.

-Made a commitment to continue the work of the 590 Task Force to improve and refine assessment tools and procedures to evaluate nutrient loss risk.

"These new guidelines include revisions that incorporate updated scientific research while emphasizing that conservation on all farm fields is needed to achieve both agronomic crop needs and protection of Ohio's valuable waters," said Jessica D'Ambrosio, Ohio agriculture director for The Nature Conservancy and 590 Task Force member.

NRCS will continue to involve the 590 Task Force and its expertise as the process moves forward through the public comment period, to the adoption and implementation phase.

"We are appreciative of the process used by NRCS to review the Nutrient Management Standard here in Ohio," said Dr. Larry Antosch, senior director of Policy Development and Environmental Policy for Ohio Farm Bureau. "It provided the opportunity for all stakeholders to have a voice and to have their questions answered. The final draft document reflects the viewpoints of the diverse workgroup as all sides were able to come to agreement on the final draft document."

To view the draft Nutrient Management Standard (Code 590) documents open for public comment visit <https://www.nrcs.usda.gov/wps/portal/nrcs/oh/technical/>.

To submit a comment, email SM.RC.OH.StandardComments@USDA.GOV.

Author(s):

Greg LaBarge, CPAg/CCA

Other Articles

IT'S IN THE SCIENCE: COURT ALLOWS ENLIST DUO REGISTRATION BUT REQUIRES CLOSER LOOK AT MONARCH BUTTERFLIES

By: Peggy Kirk Hall, Thursday, July 23rd, 2020

In a decision that turns largely on scientific methodology and reliable data, the Ninth Circuit Court of Appeals yesterday allowed continued registration of the Enlist Duo herbicide developed by Dow AgroScience (Corteva). Unlike last month's decision that vacated registrations of three dicamba herbicides, the two-judge majority on the court held that substantial evidence supported the EPA's decision to register the herbicide. Even so, the court sent one petition back to the EPA to further consider the impact of Enlist Duo on monarch butterflies in application areas. One dissenting judge would have held that the science used to support the Enlist Duo registration violates the Endangered Species Act.

The case began in 2014, when the same organizations that challenged the dicamba registrations (National Family Farm Coalition, Family Farm Defenders, Beyond Pesticides, Center for Biological Diversity, Center for Food Safety and Pesticide Action Network North America) and the Natural Resources Defense Council each filed petitions challenging the EPA's registration of Enlist Duo. The EPA later amended the registration in 2015 and 2017, eventually allowing use of the herbicide on corn, soybeans and cotton in 34 states. The petitioners challenged the 2015 and 2017 registrations as well, and the Ninth Circuit consolidated the challenges into the case at hand.

The court's opinion begins with an explanation of why it agreed with the parties who brought the challenges that they had the legal right to do so, or had "associational standing." Likely of higher interest to our readers is how the court answered the questions of whether the EPA adequately examined the potential impacts of Enlist Duo under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the federal Endangered Species Act (ESA). Here's what the court had to say about the petitioners' claims under each law:

The FIFRA claims. The monarch butterfly issue was the only successful FIFRA claim advanced by the petitioners. The court agreed that the EPA didn't properly assess adverse harm to monarch butterflies that would result from increased 2,4-D use on milkweed in application fields, despite evidence suggesting that the butterflies might be adversely affected. The EPA stated that it didn't do so because the approval of Enlist Duo would not change the amount of milkweed being controlled by herbicides—those milkweeds would still be controlled with or without Enlist Duo. The court disagreed, stating that FIFRA required the agency to determine whether any effect was "adverse" before then determining whether the effect on the environment was unreasonable, which EPA didn't do in regard to the monarch butterfly. The court rejected all of the petitioners' other arguments under FIFRA:

Applicable standards. Several claims that the EPA applied the wrong FIFRA registration standards failed. The agency correctly used the broader and more stringent standard, which was to determine whether the registration would cause any unreasonable adverse effects on the environment.

Increased glyphosate use. Petitioners also argued that the EPA erred in determining that approval of Enlist Duo would not cause unreasonable adverse effects on environment because glyphosate was already being used. The registration would only impact which glyphosate was being used but not how much glyphosate was in use. The court agreed with EPA's assertion that due to the "nearly ubiquitous use" of glyphosate across the country before the approval of Enlist Duo registration, there would not be an increase in overall glyphosate use and no increased risks. Interestingly, the court distinguished increased use from new data about glyphosate use, stating that "this does not mean, of course, that new data about glyphosate will go unconsidered...."

Volatility risk. The court also rejected volatility risk arguments, one of the science-heavy parts of the opinion (begin at page 37 for a good read). The EPA had concluded the type of 2,4-D in Enlist Duo exhibits lower volatility and off-site vapor drift than other forms of 2,4-D. EPA reached this conclusion based several studies and data points: a laboratory study that examined degree of visual damage, six publicly available studies assessing plant growth and survival damage, data from a vapor flux study used to perform computer modeling to determine dose level and air concentration in order to predict adverse damages to plants off-field, a second type of modeling that assesses drift of wet and dry depositions, and atmospheric monitoring data. Petitioners claimed limitations to the studies and methodology used, contradictions between EPA scientists, failure to follow regulatory guidelines and to consider large enough field sizes in its modeling. The court commented that the evaluation of volatility "probably could have

been better,” but found no evidence showing that EPA’s conclusion was wrong or that volatility fears had materialized since approval of the herbicide. The court explained that the agency may apply its expertise to draw conclusions from probative preliminary data and “it is not our role to second-guess EPA’s conclusion.”

Mixing risks. Petitioners also argued that Dow intended to mix Enlist Duo with glufosinate and EPA failed to account for the synergistic effect of such mixing. With no evidence other than an abandoned patent application for a mixed product by Dow, the court held that FIFRA doesn’t require an analysis of theoretical tank mixing but only that which is contemplated on the label.

Nearly all of the EPA’s FIFRA decisions were supported by substantial evidence, the court concluded, with the exception of the monarch butterfly analysis.

The ESA claims. Science is a recurring theme in the court’s analysis of the petitioners’ ESA arguments, and also the source of sharp disagreement on the court. ESA’s section 7 requires a determination of the biological impacts of a proposed action. ESA consultation among the agencies is required if determined that an agency’s action “may affect” a listed species or critical habitat in an “action area.” The petitioners claimed that EPA failed in its determination on several grounds, requiring the court to review whether the EPA’s determination was arbitrary, capricious, an abuse of discretion, or contrary to law. Here are the arguments, and the court’s responses:

“No effect” finding. The petitioners argued that the EPA erred in determining that Enlist Duo approval would have “no effect” on plant and animal species and the court responded with another lengthy science-heavy discussion of “risk quotient” methodology and legal requirements to use the “best scientific and commercial data available.” The EPA employed a risk quotient methodology to conclude that there would be exposure to the herbicide but that such exposure would not lead to an effect on plants and animals. The two judges in the majority were willing to defer to the agency on this conclusion and its dependence on the risk quotient methodology, but Judge Watford strongly disagreed. Pointing out that the National Academy of Sciences had advised the EPA that the risk quotient method was “scientifically unsound,” the dissent concluded that the data derived from the methodology did not qualify as “scientific data” and therefore violated the ESA. The majority stated that the risk quotient methodology doesn’t violate the duty to use the best scientific and commercial data available, which means that the EPA must not disregard available scientific evidence that is better and does not require the agency to conduct new tests or make decisions on data that doesn’t exist. Deference to the agency was warranted, said the majority, and restraint against second guessing or using the court’s judgment.

Action area. For its ESA determination, the EPA limited the “action area” to treated fields, while petitioners argued that the herbicide would drift beyond treated fields. Again turning to the EPA’s science, the court held that the agency had science-based reasons for limiting the target area. The EPA had

appropriately accounted for drift through empirical data, mitigation measures, and label restrictions and no evidence in the record supported that the agency had made an error.

Critical habitat. The final argument advanced by petitioners was that EPA did not meet its duty to insure that there would be no “adverse modification” of critical habitat from the registration. Although there were 154 species with critical habitats in the states where Enlist Duo would be approved, EPA concluded that 176 of the species would not be in corn, cotton or soybean fields. Of the eight species remaining, the agency determined that there would be no modification to their critical habitats as a result of Enlist Duo registration because none of the species’ essential features or “primary constituent elements” were related to agriculture. Petitioners challenged the methodology EPA employed to reach this conclusion, but the court once again disagreed and deferred to the agency.

What remedy?

With only the monarch butterfly impact analysis in need of further study, the Ninth Circuit declined the petitioners’ request to vacate the Enlist Duo registration. The court chose instead to remand the petition without vacating the registration, stating that the EPA’s failure to consider harm to monarch butterflies was technical and not a “serious” error. Pointing also to the “disruptive” consequences of removing a pesticide that has been in use for over five years, the court stated that vacatur was not warranted when the EPA had substantially complied with FIFRA and fully complied with the ESA.

What’s next?

Enlist Duo registration will continue. The EPA must address evidence that its destruction of milkweed in fields harms monarch butterflies, however. The court advised the agency to “move promptly” in doing so.

Further action by the petitioners is likely. According to correspondence with [DTN](#), the petitioners are disappointed and will fight the decision. They will likely also follow the EPA’s science quite closely as it reexamines the monarch butterfly issue.

Read the Ninth Circuit's decision *National Family Farm Coalition et al v. U.S. EPA and Natural Resources Defense Council v. Wheeler*, [here](#).

Agricultural Nutrients and Water Quality: Recent Litigation in the United States

Since the advent of the Clean Water Act (CWA), states have attempted to address agricultural nutrient pollution through the National Pollutant Discharge Elimination Permit (NPDES) system. But legal challenges have plagued state NPDES permit programs from their beginnings, and litigation has become a common tool for reducing water quality impacts from manure and other agricultural nutrients. States have developed their own water quality laws and policies, and there have been legal challenges to those as well. These legal challenges arise from environmental interests and impacted neighbors and communities and can be pre-emptive or reactionary. Our newest report for the National Agricultural Law Center examines litigation involving agricultural nutrients from 2018 through 2020.

In the report, the cases are broken down into several categories. We examine what the courts have to say when it comes to NPDES permits for individual farms and whether they are properly issued by states, whether or not the government (state and federal) is following its own laws and regulations when carrying out water pollution policies, the validity of state CAFO General Discharge permits, and whether or not neighboring landowners have redress for potential agricultural runoff. Some of the cases are challenges to state water quality laws, or the issuance of an NPDES permit. A few other cases directly target agricultural producers. The report is entitled *Agricultural Nutrients and Water Quality: Recent Litigation in the United States*, and can be found [here](#).

In addition to the paper, we also recently updated part of our nutrient management project on the National Agricultural Law Center's website. The project was first published last year, and includes a report and a state chart. The chart tracks which states require nutrient management plans, nutrient application restrictions, and certification and education for nutrient applicators, and can be found [here](#). The chart also provides links to states' nutrient management laws and regulations. A few changes and additions have been made to state laws and regulations within the chart.

The USDA's National Agriculture Library funded our research on these related projects, which we conducted in partnership with the National Agricultural Law Center.

Report provides new framework for understanding climate risks, impacts to US agriculture

Date: July 29, 2020

Source: Colorado State University

Source: <https://www.sciencedaily.com/releases/2020/07/200729205009.htm>

Agricultural production is highly sensitive to weather and climate, which affect when farmers and land managers plant seeds or harvest crops. These conditions also factor into decision-making, when people decide to make capital investments or plant trees in an agroforestry system.

A new report from the U.S. Department of Agriculture focuses on how agricultural systems are impacted by climate change and offers a list of 20 indicators that provide a broad look at what's happening across the country.

The report, "Climate Indicators for Agriculture," is co-authored by Colorado State University's Peter Backlund, associate director of the School of Global Environmental Sustainability.

Backlund said the research team started with the scientific fact that climate change is underway.

"We looked at the U.S. agricultural system and examined the climate stresses," he said. "This report outlines data that farmers and land managers can use to understand how climate change is affecting their operations, and, hopefully, guide the development of effective adaptation."

In the report, the authors outline how the changes taking place in agriculture affect the system that many people make their livelihoods from.

"We want to help farmers, ranchers and land managers adapt better under climate change, which requires understanding what is actually happening on the ground. These indicators offer ways to measure the impacts of change," said Backlund.

20 climate indicators, based on robust data

The climate indicators described in the report are arranged in five categories, including physical (extreme precipitation and nighttime air temperature), crop and livestock (animal heat stress and leaf wetness duration), biological (insect infestation in crops, crop pathogens), phenological (timing of budbreak in fruit trees, disease vectors in livestock) and socioeconomic (crop insurance payments, heat-related mortality of agricultural workers).

Backlund said the research team chose these indicators based on the strength of their connection to climate change and availability of long-term data, which is needed to identify how impacts are changing over time and whether adaptive actions are having the desired effect.

"There had to be a measurement of a variable strongly coupled with climate," he said. "As we go forward, we will better understand the impact of climate change by using these indicators."

Researchers opted to include nighttime air temperatures as opposed to general temperature because nighttime temperatures have a big effect on the way plants develop.

Some of the indicators have national data, while others are more regional. Heat stress on livestock, a huge issue for feedlot operators, will be of interest to farmers and ranchers in states including Colorado.

"Heat interferes with the rate of reproduction and rate of weight gain," Backlund said. "This presses on the whole operation; it's not just that a few more animals will die from getting too hot."

The crop insurance payment indicator offers insight on the repercussions of climate events.

"You can see if you have a big climate event, like drought, one region will be much more affected than another," he said. "If farmers have good irrigation, they'll be much more capable in dealing with periods of low rainfall."

Backlund said the indicator covering weed range and intensity was also notable. As carbon dioxide concentrations increase, researchers are seeing extreme northern migrations and expanded ranges for weeds.

Colorado State University. "Report provides new framework for understanding climate risks, impacts to US agriculture." ScienceDaily. ScienceDaily, 29 July 2020.
<www.sciencedaily.com/releases/2020/07/200729205009.htm>.

Prepared by Jeff Stachler
Ohio State University Agriculture and Natural Resources Extension Educator, Auglaize County
stachler.1@osu.edu and 701-541-0043