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Auglaize County OSU Extension Weekly Agriculture Newsletter – July 22, 2020

Scouting and Latest Information

Corn

Soybean

Hello!! Good morning! I pray you are well! Due to my wedding, I will be on vacation and will NOT prepare a newsletter next week!

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. Brigitte will run the meeting.** 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.

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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 were the baby strawberries crying??

Agricultural Fun Fact: One bushel of wheat yields approximately 42 pounds of white flour or 60 pounds of whole-wheat flour.

Rain fell only 1 day somewhere in the county this past week. Much of the county is very dry, but some areas are doing fine! Rainfall on Rainfall on Sunday ranged from 0" at 13 locations, mostly the northern parts of the county to 0.3" near Sommers and Minster-Ft. Recovery roads. Rainfall for the week was the same as for Sunday. Rainfall for the week averaged 0.02", 0.81" less than last week. There is at least a 40% chance of rain Tuesday, Wednesday, Thursday, and Sunday (60%).

The average high temperature now is 84 degrees F. Temperatures were above normal for **4** days of the week and below normal for **2** days of the week. The range in high temperature for the week was 81 to 91 degrees F. The average high temperature for the week was 85.9 degrees F, which is 0.1 degree F cooler than last week, but 1.9 degrees F **warmer than** the current normal high temperature. Temperatures for the next 7 days will mostly be above normal!

Wheat

All wheat was been harvested in the county. There is still some straw to bale yet.

Alfalfa

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Super severe leafhopper burn

Moisture stressed 3rd cutting

There is still some second cutting of alfalfa to harvest. We likely will begin 3rd cutting this week, but it will be a short crop for many, but not all. Leafhoppers are still at staggering numbers! Notice picture above. Fields need to be scouted closely for leafhoppers. The lack of moisture in some parts of the county will really reduce 3rd cutting yields, but some are doing mostly fine.

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Most advanced corn (R1-silking)

Severe moisture stressed corn

Corn advaned quickly again this past week! Crop quality declined this past week due to the dry weather. Due to the cloudy conditions I was unable to see how much rolled corn there is in the county. I'm still not impressed with the crop. I rated the corn crop at 3% excellent, 27% good, 69% fair, 1% poor, and 0% very poor. Last week, I rated the corn crop at 4% excellent, 36% good, 60% fair, 0% poor, and 0% very poor. The range in corn is from V8 (eighth collar visible) to R1 (silking) stage. Most corn (79%) is at the R1 (silking) stage. No leaf diseases are present at this time. The red-headed flea beetle is still present in corn and caused quite a bit of damage in one field. Non-Bt corn needs to be scouted for western corn rootworm beetles as I found them in three fields with one field having silk clipping. Nitrogen and potassium deficiencies are still visible in some fields. Pollination seems to be going as planned at this time for most areas of most fields, but some likely will not even have an ear as seen above.

Soybean

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Most developed soybean (R3)

Field of soybean

Youngest stage of soybean (V1)

The soybean crop declined slightly this week due to the dry conditions! The current condition of soybean in the county is 20% excellent, 53% good, 24% fair, 3% poor, and 0% very poor. Last week's crop condition was 22% excellent, 53% good, 22% fair, 3% poor, and 0% very poor. The range in soybean stage is from V1 (first trifoliate) to R4 (pods greater than ¾" on one of 4 upper nodes of plant) stage, but most are at R3 (at least one pod 3/16" long on one of 4 upper nodes of plant). I found no leaf diseases. I did find more red-

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headed flea beetles thrips and potato leaf hoppers again this week. I found no spider mites this week. Most fields have about 5% defoliation now due to grasshoppers and Japanese beetles. I did see a field of soybean on Monday with probably 5% defoliation from Japanese beetles, so they are finally starting to show up in larger numbers. The biggest concern is I found spider mites for the first time! I found two spider mites on one leaf on one plant in one field. Potassium and manganese deficiencies are still present in some fields.

Weeds

Giant ragweed surviving corn herbicides

We are pretty much left with Cobra and the postemergence grass herbicides that can be used in most soybean fields due to its development. Notice the giant ragweed in a field of corn. Start scouting for these situations and remove plants by hand if possible.

Insects/Other

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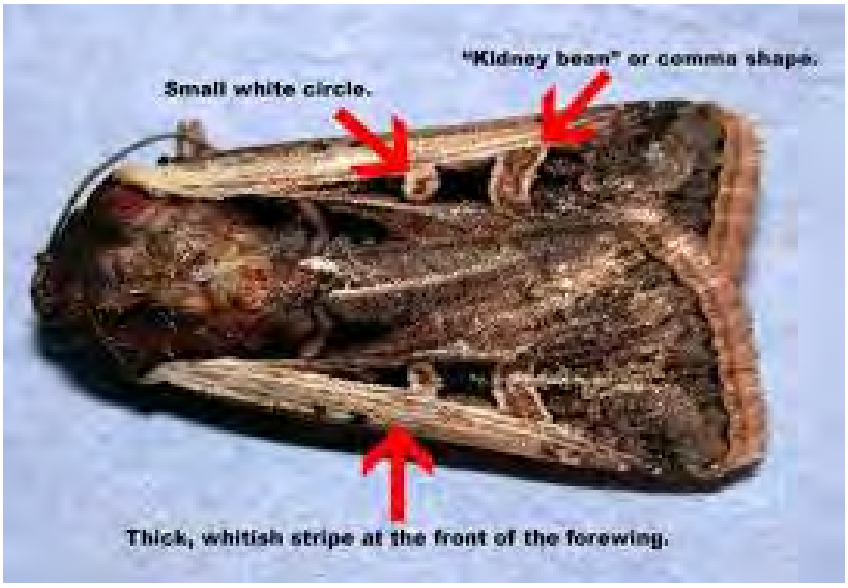

I found two western bean cutworm moths, one in each of two traps on Sunday. The moths were found in the southeast and northwest parts of the county.

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!** 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.

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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 postemgergence 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=K0VDSTZFOVlldGJWeUZaeVA3QUVrQT09 A password is now needed and 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 through July 22th. Meetings after this date will go on as planned at least until further notice.**

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!

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Answer to joke: Because their Ma and Pa were in a jam!!

Summer Alfalfa Seeding is Just Around the Corner

Late-summer is an excellent time to establish alfalfa! However, if we do not get some rain soon for much of the county, then we will not be able to seed. Some people could be successful because they keep getting rain.

Fertility is extremely important to successfully establishing alfalfa. Obtaining a recent soil test analysis is critical to establishing alfalfa. Soil pH should be 6.8 for soils having a subsoil pH of less than 6.0 and 6.5 for soils having a subsoil pH of greater than 6.0. If the soil pH is not at these levels, do not seed alfalfa since soil pH needs to be adjusted at least 6 months in advance to seeding.

Consult the Tri-State Fertility Guide (http://agcrops.osu.edu/publications/tri-state-fertility-guide-corn-soybean-wheat-and-alfalfa) for phosphate and potash recommendations. The critical soil test value for phosphorus is 25 parts per million Bray P1 and 88 to 150 parts per million for potassium. Incorporation of phosphate and potash is preferred to make it more available to seedlings and reduce losses into the environment. Apply boron at two pounds per acre if the soil test is less than one part per million. Sulfur may also be needed to maximize alfalfa production.

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Choosing the right alfalfa variety for the field is very important for the longevity of the stand and maximizing yield. Disease resistance characteristics and winter hardiness of varieties can be found from the University of Wisconsin (http://learningstore.uwex.edu/assets/pdfs/A1525.PDF). Other traits to consider when selecting varieties include potato leafhopper resistance, low lignin, pea aphid resistance, and Roundup Ready. Consult the Ohio Alfalfa Performance Variety trials (https://www.oardc.ohio-state.edu/forage2019/) for yield potential in Ohio by location.

Plant alfalfa from August 1st to August 15th. The earlier the planting the less likely sclerotinia stem rot will cause problems and the more successful establishment will be. Plant the highest quality seed available. Alfalfa seed must be inoculated with nitrogen fixing bacteria for optimal yields. Treat alfalfa seed with a fungicide to combat soil pathogens.

Seedbed preparation is extremely critical to successful establishment. Be sure field is devoid of weeds either with tillage or herbicides. Soil should be smooth and firm if tilled. Manage plant residues in advance to allow for the greatest seed to soil contact at the time of seeding. Alfalfa seed should be planted ¼ to ½ inch deep in clay and loam soils, but ½ to ¾ inch deep in sandy soils.

Recommended seeding rate is 80 seeds per square foot or 15 pounds per acre. The seeding rate can be drastically reduced if using a Brillion Sure Stand Alfalfa seeder.

Good luck with seeding alfalfa this summer.

C.O.R.N. Newsletter

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

Western Bean Cutworm Numbers Continue to Increase

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Western bean cutworm moth

Western bean cutworm (WBC) trap counts for the week of July 13 – 19 continue to increase in many Ohio counties. A total of 27 counties monitored 91 traps resulting in 467 WBC adults (5.1 average moths per trap) (Figure 1). Counties that are averaging more than 7 moths per week should begin monitoring for egg masses (Figure 2). These counties include Fulton, Huron, Lucas, and Sandusky. While numbers of WBC moths increased from the previous week, the general trend of WBC for 2020 is currently low compared to previous years (Figure 3).

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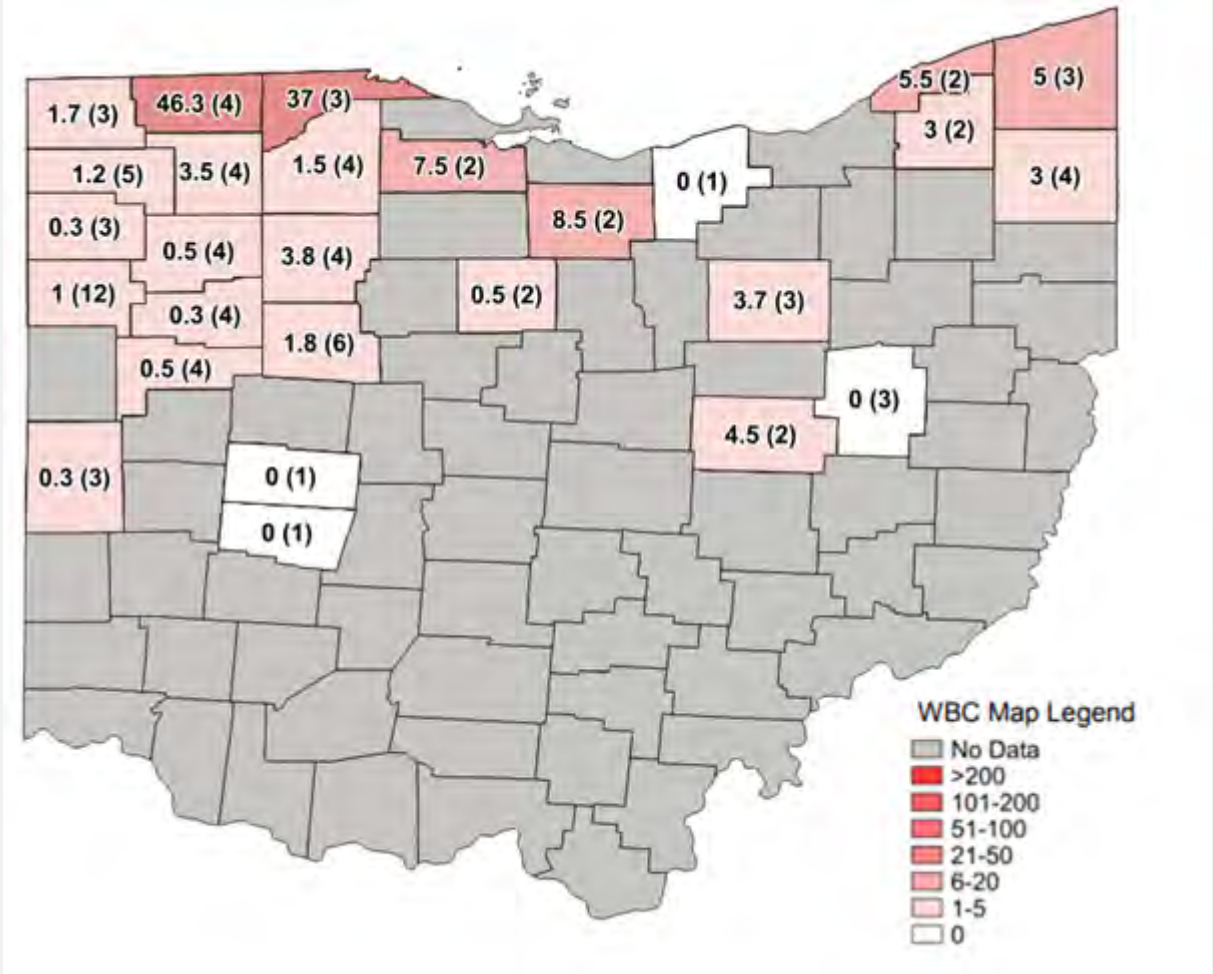

Figure 1. Average Western bean cutworm adult per trap followed by total number of traps in the county in parentheses for week ending July 19, 2020.

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Figure 2. Western bean cutworm egg mass.

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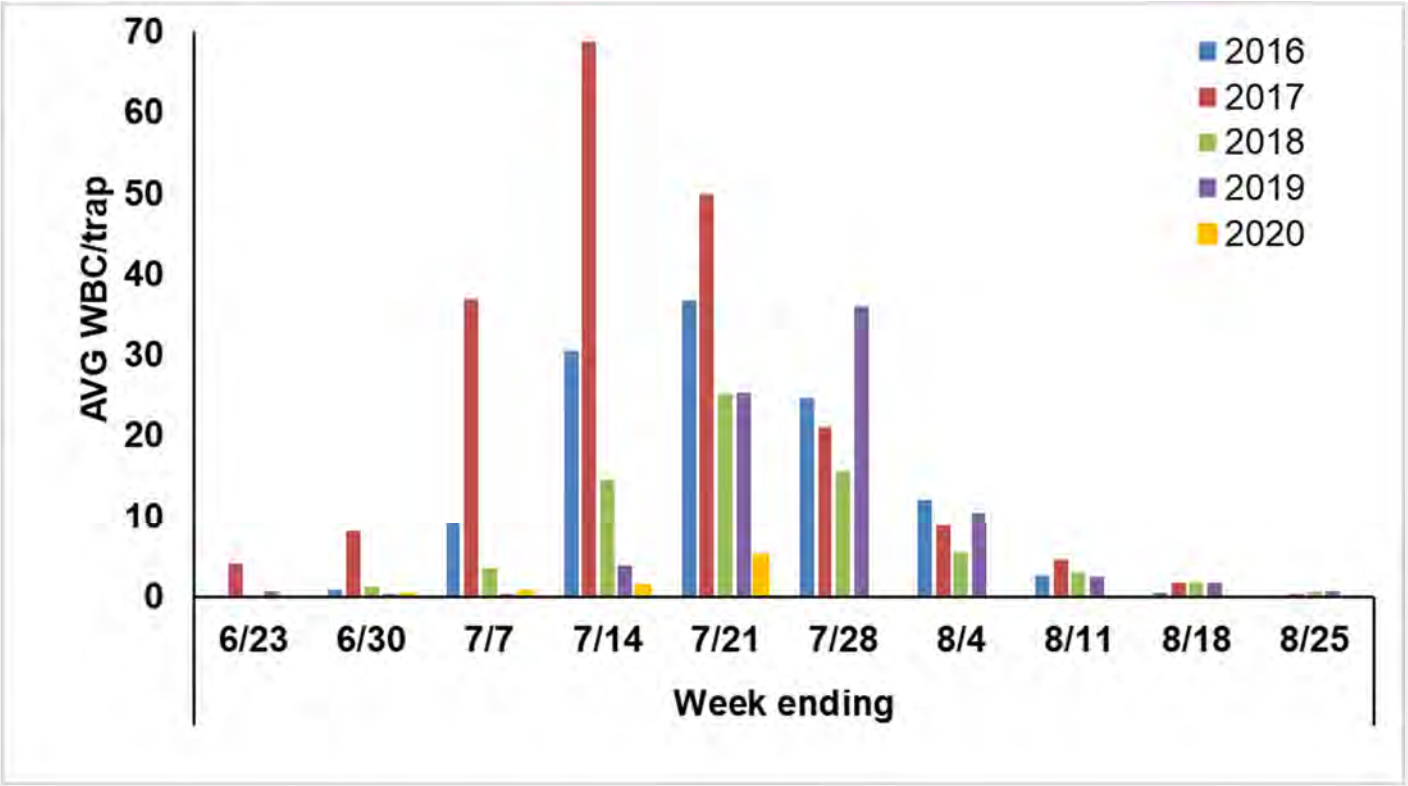

Figure 3. Average number of Western bean cutworm (WBC) moths captured weekly in Ohio from 2016 to 2020.

Scouting guidelines

Scout pre-tassel corn approaching tassel fields. Choose at least 20 consecutive plants in 5 random locations (scout different areas of the field that may be in different growth stages). Inspect the uppermost 3–4 leaves. Consider treatment if >8% of inspected plants have eggs or larvae (field corn) or in sweet corn, if >4% of inspected plants have eggs or larvae (processing market), or >1% of plants (fresh-market).

Treatment

If the number of egg masses/larvae observed exceed threshold, many insecticides are available to adequately control WBC, especially those containing a pyrethroid. However, as with any ear-burrowing caterpillar pest, timing is critical. Insecticide applications must occur after egg hatch, or after tassel emergence, but before caterpillars enter the ear. If eggs have hatched, applications should be made after 95% of the field has tassel. If eggs have not hatched, monitor for the color change. Hatch will occur within 24–48 hours once eggs turn purple. To search for larval injury after it has occurred, search the corn for ears having feeding holes on the outside of the husks.

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Drought Returns to Ohio

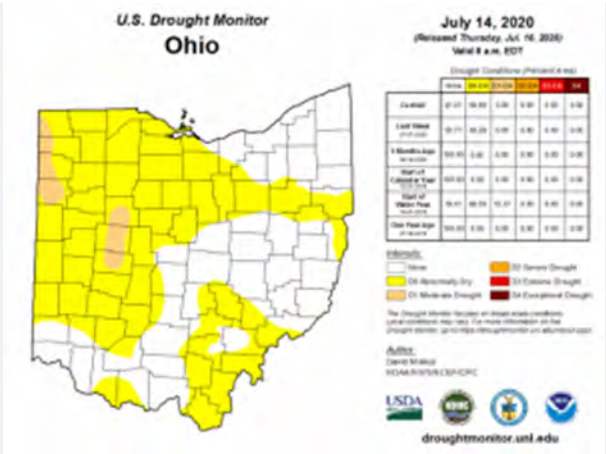

Figure 1: U.S. Drought Monitor for Ohio as reported on Thursday July 16, 2020.

Hot and mostly dry conditions have continued across Ohio. As of July 20, Columbus has reach at least 90°F on 16 out of 20 days in the month, with many locations around the state recording at least double-digit days at that mark. Temperatures this past week averaged 2-8°F above normal, with the warmest conditions compared to average across northern Ohio.

Outside of locally heavy thunderstorms, widespread rainfall has been lacking. Only far northeastern counties, far northwestern Ohio, and isolated locations generally south of I-70 picked up more than 0.50" of rain this past week, with much of the state collecting less than 0.10". With very little rain and intense evaporation rates (0.25-0.30" per day), soil moisture continues to dissipate across the region. Much of northwest Ohio has now fallen below the 10th percentile for soil moisture in the top 1 meter (3.3 feet) of the surface. These dry conditions have led to the introduction of ***D1 – Moderate Drought*** conditions for two small areas in Ohio (Figure 1), including Williams, Defiance, Paulding, Van Wert, Hardin, Logan, and Champaign Counties (~3% of the state). Abnormally dry conditions are now reported for nearly 60% of Ohio, and an expansion of these conditions is likely this week given the hot dry conditions over the weekend. Remember, if you are seeing drought impacts in your area, consider submitting a report to

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the Drought Impact Reporter. For more information on recent climate conditions and impacts, check out the latest Hydro-Climate Assessment from the State Climate Office of Ohio.
We are not expecting any major weather systems over the next seven days, but scattered storms with locally heavy rain are possible. The best chance for rain is on Wednesday and Thursday. Humidity will be elevated, which should keep highs primarily in the mid-80s to low-90s and lows in the upper-60s to low-70s. Overall, we are only looking at 0.25-0.75" over the next 7 days, with the greatest totals over the far northeastern counties and along the Ohio River (Figure 2).

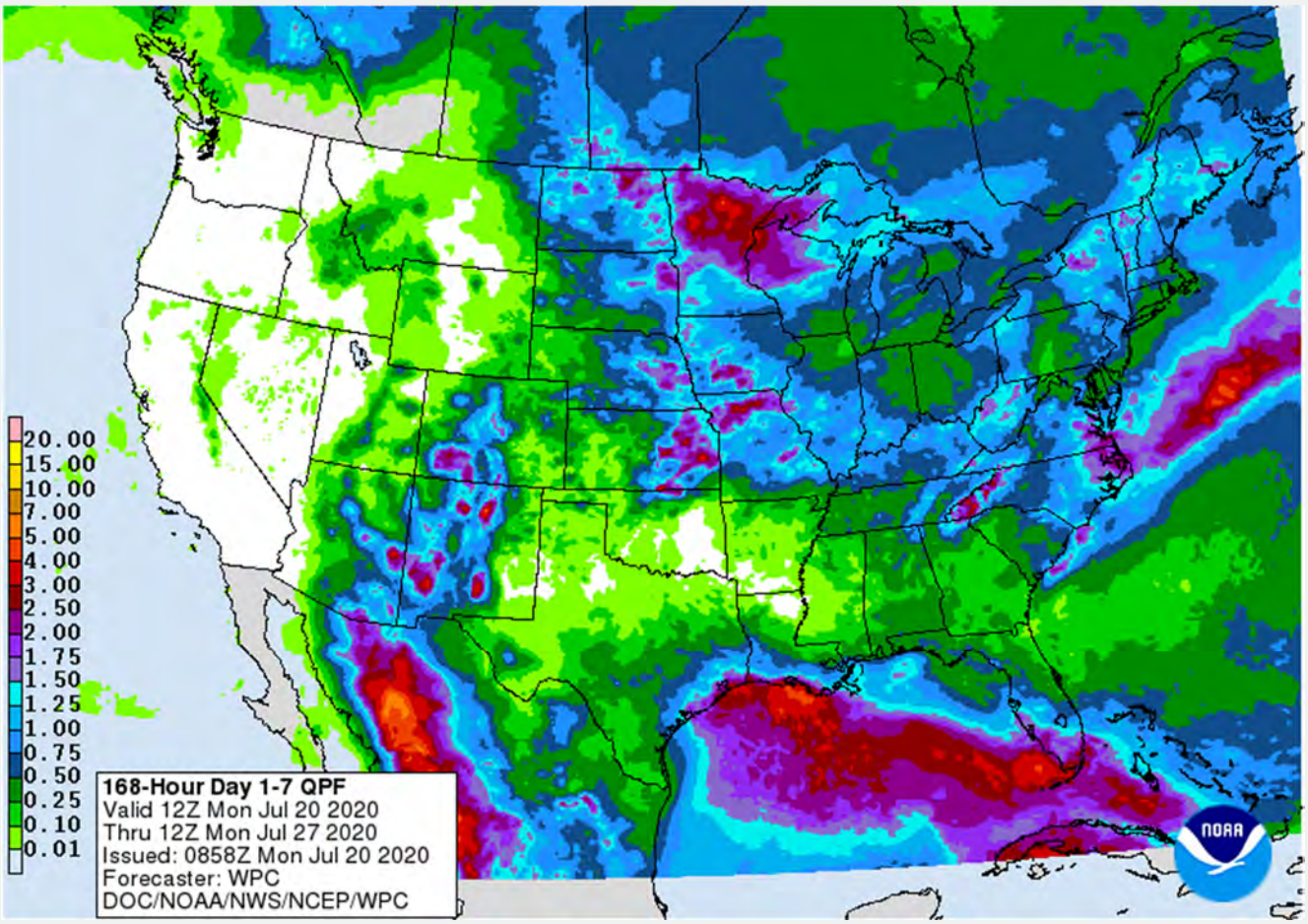

Figure 2: Forecast precipitation for the next 7 days. Valid from 8 pm Monday July 20, 2020 through 8 pm Monday July 27, 2020. Figure from the Weather Prediction Center.

The latest NOAA/NWS/Climate Prediction Center outlook for the 8-14 day period (July 28-August 3) shows increased confidence in ***above average temperatures*** with ***no strong indications of above or below (read near-normal) precipitation*** (Figure 3). Normal highs during the period should be in the mid-80s, normal lows in the mid-60s, with 0.85-1.05" of rainfall per week. The 16-Day Rainfall Outlook from

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NOAA/NWS/Ohio River Forecast Center shows the driest conditions likely remaining over the areas that have already dried out in northwest Ohio. This forecast suggests continued crop stress, with only isolated and intermittent relief.

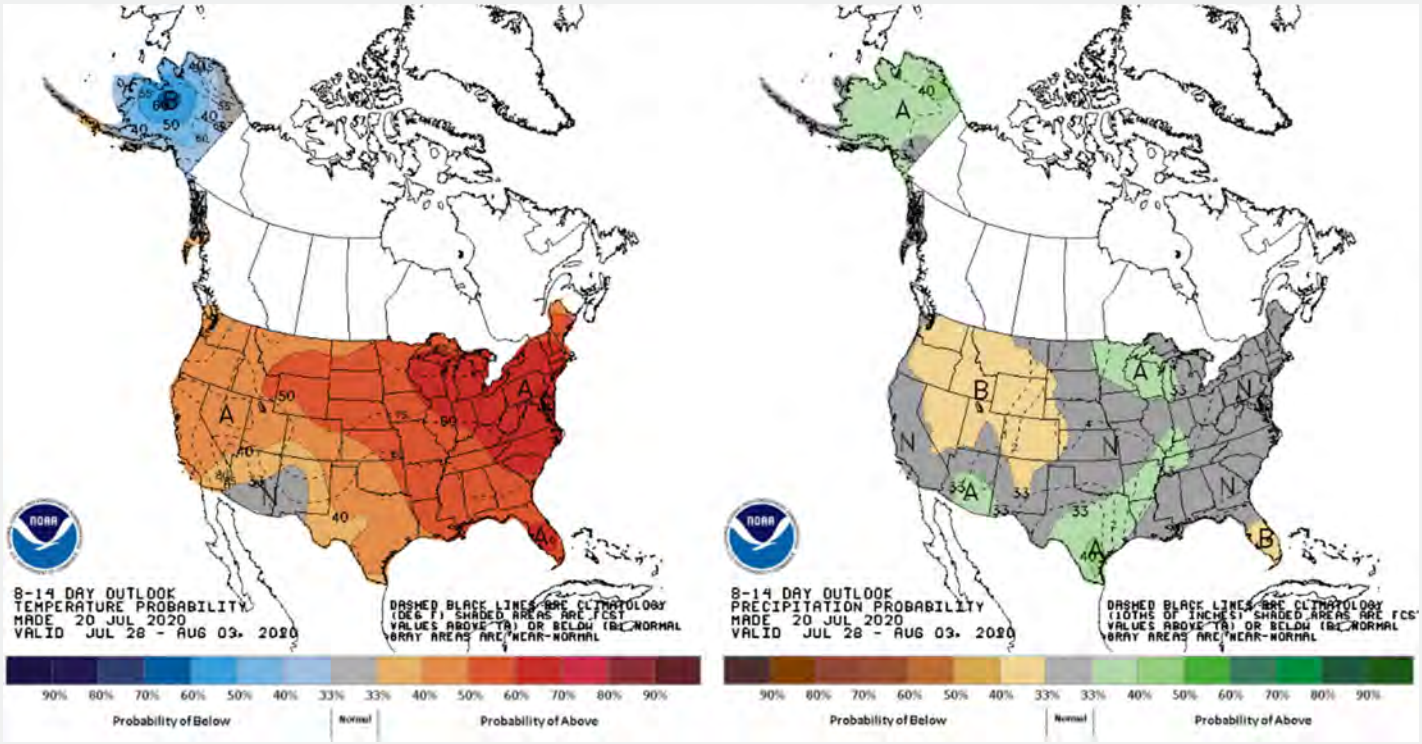

Figure 3: Climate Prediction Center 8-14 Day Outlook valid for July 28- August 3, 2020 for left) temperatures and right) precipitation. Colors represent the probability of below, normal, or above normal conditions.

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Aaron Wilson

Heat Alert – Farm Workers at Increased Risk this Summer

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Outdoor work during these hot summer months adds additional stress to our body's coolant system. Heat stroke, heat stress, or heat exhaustion – to distinguish between these terms does not matter – any form of heat stress can impair function. Working in extreme heat lowers the body's reaction time and can put workers at risk. When our body's internal temperature cannot cool itself fast enough, our body will react.

Heat is a leading weather-related killer in the U.S. Death from excessive heat can be explicit – meaning it is the underlying factor that caused the person to die. Or heat can be a contributing factor to the worker's death – meaning the heat placed them at risk for other workplace hazards. In this second example, heat could cause eyeglasses to fog up, create sweaty palms that loose grip, or invoke dizziness or irrational behaviors. Persons with cardiovascular or respiratory illnesses can also be vulnerable to heat; making heart attacks, strokes and other circulatory system attacks more common during the summer months.

Besides the sun and heat, wearing additional Personal Protective Equipment (PPE) can burden our body's regulatory capacity and place workers at increased risk for heat illnesses. Human skin is an important body organ. Its function is to regulate the heat and protect our other cells from damaging heat or trauma. Certain PPE (i.e. gloves, boots, rubber aprons) can interfere with our skin's sweat response system by holding excess heat and moisture inside. This makes our body even hotter. Wearing extra PPE can increase the physical effort for our muscles to carry additional weight while we work, thereby increasing our body's heat production. Respirators and face masks can increase the physical labor on our respiratory system.

For all outdoor workers, there are steps to take to reduce heat exposure. When workers need the benefit of PPE protection, there are additional steps they can take. The main goal in any heat-related situation is to lower the core body temperature.

Drink fluids before you are thirsty
• Encourage workers to drink small amounts of water more frequently throughout the work shift.

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• During strenuous work, persons should have 1 cup (8oz) of water every 15 – 20 minutes

Schedule more frequent rest breaks in hot weather
• Taking breaks allows the body to reduce the core temperature.

• Sitting in the shade or air-conditioning will help get the core body temperature lower in a faster period of time.

• During breaks, drink water and allow the body to rest.

• Remove PPE during breaks.

• Use cold packs or wet towels to continue cooling and reducing the body temperature.

Acclimate to the work environment
• Condition your body to outdoor work by gradually working outside for short periods of time. It may take 1 – 2 weeks to be at full capacity

• New workers are at increased risk of heat exhaustion if they have not acclimated their bodies to sweating or stabilizing their breathing.

Check on workers throughout the day
• Make sure workers have access to water and shade during extreme heat conditions.

• Senior workers may need extra rest times and could experience additional cardiovascular disease deaths.

• Check for signs of heat exhaustion: dizziness, excessive sweating, cold clammy skin

Wear the right clothes for the job
• Lighter colored clothing will not absorb as much heat. However lighter colors may not have UV protection from the sun's rays.

• Choose apparel that is loose fitting and breathable.

• Wide brimmed hats (with a 3-4" brim all the way around) will protect the top of the ears and back of the neck from UV rays. Ball caps are not the best work hats in direct sunlight.

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• Try wearable personal cooling systems to keep the core body temperature low throughout the work shift. Ice vests, cooling bandanas, or other water-cooled garments are available, and often can be worn in conjunction with PPE.

As the summer heat continues on, outdoor workers should take extra precaution for heat-related stress. Workers of all ages and experience levels can succumb to these dangerously high temperatures. Prevention is the best course of action.

Additional resources:
Heat Stress Tips from CDC:

https://www.cdc.gov/niosh/topics/heatstress/
Heat Stress for Trainers and Supervisors of Pesticide Applicators:

https://ohioline.osu.edu/factsheet/aex-892222
Heat Stress Infographic from NIOSH:

https://www.cdc.gov/niosh/topics/heatstress/infographic.html

Author(s):
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Leafhoppers, Grasshoppers, and Beetles, Oh My!

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Adult red-headed flea beetle (P. Beauzay, NDSU)

As the summer progresses we are receiving reports of insect problems often encouraged by hot, dry weather. Last week we reported on **spider mites** and especially if you are in an area of continued dry weather we recommend scouting your soybeans and corn https://agcrops.osu.edu/newsletter/corn-newsletter/2020-22/watch-spider-mites-dry-areas .

Some areas are also reporting increases in young **grasshoppers** in soybeans, another insect favored by dry weather. Grasshoppers of often start on field edges so early scouting may allow for an edge treatment. **Japanese beetles** are another common defoliator of soybean that are starting to appear. Both of these pests fall into a general defoliation measurement, and we recommend treatment if defoliation is approaching 20% on the majority of plants in post-flowering beans. Download our guide to estimating defoliation in soybean at https://aginsects.osu.edu/sites/aginsects/files/imce/Leaf%20Defoliators%20PDF_0.pdf

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Foliar defoliation in field corn caused by the adult red-headed flea beetle (Darin Eisinger)

A weird problem being reported not just in Ohio but in parts of the Midwest as far-flung as Minnesota is the **red headed flea beetle**, which is being found in corn and soybean. This is a small, narrow, shiny black beetle with a red head which springs like a flea when disturbed. Feeding in soybean creates small round holes and in corn longer narrow strips of damage. This feeding is seldom economic. In soybean follow the general defoliation threshold of 20%. Leaf feeding in corn is almost never economic, but be on the watch for silk-clipping, which is rare but possible. There are no thresholds in corn, but our Minnesota colleague Bruce Potter suggest this guideline: "flea beetles are very numerous (it is likely more than 5-10/plant), pollination is less than 50% complete, and numerous plants have silks clipped to within 1/2 inch, you might consider an insecticide."
Finally, earlier in the season we reported higher than usual numbers of **potato leafhopper** in alfalfa and encouraged stepping up scouting. In some fields third-cut alfalfa is being heavily impacted by this insect. You can review our scouting advice for this insect at https://agcrops.osu.edu/newsletter/corn-newsletter/2020-17/time-start-scouting-potato-leafhoppers-alfalfa

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Late Summer Establishment of Perennial Forages

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Preparing a firm seedbed for forages

The month of August provides the second window of opportunity for establishing perennial forage stands this year. The primary risk with late summer forage seedings is having sufficient moisture for seed germination and plant establishment, which is a significant risk this summer given the low soil moisture status across many areas.

The decision to plant or not will have to be made for each individual field, considering soil moisture and the rain forecast. Rainfall/soil moisture in the few weeks immediately after seeding is the primary factor affecting successful establishment.

No-till seeding in August is an excellent choice to conserve soil moisture for good germination. Make sure that the field surface is relatively level and smooth if you plan to no-till seed because you will have to live with any field roughness for several years of harvesting operations.

Sclerotinia crown and stem rot is a concern with no-till seedings of alfalfa in late summer and especially where clover has been present in the past. This pathogen causes white mold on alfalfa seedlings and infects plants during cooler rainy spells in late October and November. Early August plantings dramatically improve the alfalfa's ability to resist the infection. Late August seedings are very susceptible to this disease, with mid-August plantings being intermediate.

In a no-till situation, minimize competition from existing weeds by applying a glyphosate burndown before planting. Using no-till when herbicide-resistant weeds are present, such as marestail, creates a very difficult situation with no effective control options, so tillage is probably a better choice in those situations. Post-emergence herbicide options exist for alfalfa to control late summer and fall emerging winter annual broadleaf weeds. A mid- to late fall application of Butyrac (2,4-DB), bromoxynil, Pursuit or Raptor are the primary herbicide options for winter annual broadleaf weeds. ***Fall application is much more effective than a spring application for control of these weeds especially if wild radish/wild turnip are in the weed***

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mix. Pursuit and Raptor can control winter annual grasses in the fall in pure legume stands but not in a mixed alfalfa/grass planting. Consult the 2020 Ohio, Indiana, Illinois Weed Control Guide and always read the specific product label for guidelines on timing and rates before applying any product.
For conventional tillage seeding prepare a firm seedbed to ensure good seed-to-soil contact. Be aware that too much tillage depletes soil moisture and increases the risk of soil crusting. Follow the "footprint guide" that soil should be firm enough for a footprint to sink no deeper than one-half inch. Tilled seedbeds do not need a pre-plant herbicide.

Finally, keep in mind the following factors to increase establishment success.

- **Soil fertility and pH:** The recommended soil pH for alfalfa is 6.5 to 6.8. Forage grasses and clovers should have a pH of 6.0 or above. The minimum or critical soil phosphorus level for forage legumes is 30 ppm Mehlich-3 and for grasses 20 ppm Mehlich-3. The critical soil potassium level is 120 ppm for most of our soils.
- **Check herbicide history of field.** A summary table of herbicide rotation intervals for alfalfa and clovers is available at http://go.osu.edu/herbrotationintervals. Forage grasses are not included in that table, so check the labels of any herbicides applied to the field in the last 2 years for any restrictions that might exist.
- **Seed selection:** Be sure to use high quality seed of adapted varieties and use fresh inoculum of the proper Rhizobium bacteria for legume seeds. “Common” seed (variety not stated) is usually lower yielding and not as persistent, and from our trials the savings in seed cost is lost within the first year or two through lower forage yields.
- **Planting date:** Planting of alfalfa and other legumes should be completed between late July and mid-August in Northern Ohio and between early and late August in Southern Ohio. Most cool-season perennial grasses can be planted a little later. Check the Ohio Agronomy Guide for specific guidelines (see http://go.osu.edu/forage-seeding-dates).
- **Planter calibration**: If coated seed is used, be aware that coatings can account for up to one-third of the weight of the seed. This affects the number of seeds planted in planters set to plant seed on a weight basis. Seed coatings can also dramatically alter how the seed flows through the drill, so calibrate the drill or planter with the seed be planted.
- **Seed placement**: The recommended seeding depth for forages is one-quarter to one-half inch deep. It is better to err on the side of planting shallow rather than too deep.

Do not harvest a new perennial forage stand this fall. The ONLY exception to this rule is perennial and Italian ryegrass plantings. Mow or harvest those grasses to a two and a half to three-inch stubble in late November to improve winter survival. Do not cut any other species in the fall, especially legumes.

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Short-Season Forages for Late Summer Planting

Figure 1

Short-season forages planted in late summer can be sources of highly digestible fiber in ruminant livestock rations. There are several excellent forage options that can be considered for no-till or conventional tillage plantings in the late summer or early fall planting window. These forages can be a planned component of the overall forage production plan. They can be utilized on land that would otherwise sit idle until next spring, such as following wheat or an early corn silage harvest.

Oat or Spring Triticale silage

These cereal forages can be planted for silage beginning the last week of July and into early September. Dry matter yields of 1.5 to 3 tons per acre (about 5 to 5.5 tons at 30 to 35% DM) of chopped silage are possible if planted in late July to early August. Harvesting between late boot, or early heading, will optimize quality. Yields will be lower for plantings made in early September, in which case late autumn grazing would be a more viable option.

Potential feed value of oat silage can be similar to mid-bloom alfalfa. As a grass, maximum inclusion rates in diets for animals with high nutritional demand (e.g. lactating cows) are less than those for alfalfa, but it is a very acceptable feed.

Spring Triticale is biotype of the hybrid cross between cereal rye and wheat (there is also a winter biotype that acts like winter wheat). In our research, oat averaged slightly higher fall yields than spring triticale, but this varied across years. If cut at the proper maturity, spring triticale forage has a higher feed value than oat, similar to early-bloom alfalfa. Seed cost for spring triticale is usually higher than oat, but it is later maturing than oat or barley and will maintain its forage quality for an extended harvest window.

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About 50 lbs of nitrogen per acre will be needed to optimize yield potential of these cereal forages following wheat. Following corn silage harvest and especially if manure is applied before planting the short-season forage, there likely will be no need for additional nitrogen application.

Check herbicide rotation restrictions from the previously planted crop. Other potential challenges include rust infection, especially with oat. Rust could impact yield and feed quality and depends on when the infection of rust occurs during the growing season.

Oat or Spring Triticale and Winter Cereal Mixed Silage

Planting mixtures of oat or spring triticale with cereal rye, winter wheat, or winter triticale will allow a fall harvest or grazing as well as a harvest or grazing of the winter cereal next spring. Keep in mind that the window for harvesting rye silage in the spring to obtain high quality forage is usually very early and very short. Winter wheat and winter triticale mature later and more slowly in the spring than winter rye. Forage yields in the spring will be 2.5 to 3 tons of DM per acre of high quality forage when harvested in boot stage. In the fall, the oat/winter cereal or spring triticale/winter cereal mix should yield slightly more than oat or spring triticale alone, with the potential for the spring cereal harvest. Corn silage or soybean can be then planted after the winter cereal harvest in the spring.

Italian Ryegrass Silage

This grass emerges as fast as oats and could produce up to a ton of dry matter per acre in the fall if planted in August, and less yield if planted into September (it should be planted by mid-September at the latest). This crop would also be available for additional cuttings next year, starting in late April or early May and then every 25-30 days into June or early July.

In our research, a fall harvest and three additional harvests the following year have shown total yields between 3 to 5 tons of dry matter across all the harvests, when improved varieties of Italian ryegrass are planted and winter survival is good. Italian ryegrass can winterkill in severe winters. It is important to not allow a lot of growth going into the winter to avoid mold growth that damages the stand. To avoid this, make a late fall cutting or graze to a height of 3 inches late in the year. This crop will shut down by mid- to late-summer the year after a fall establishment. It would fit best in a rotation with sorghum-sudangrass or forage sorghum planted in early July.

Harvesting Italian ryegrass before heading optimizes quality, as with all grasses. When planted in September and harvested in late fall, the quality will be superb (NDF around 48% and NDF digestibility about 80%). August plantings harvested in late fall will be slightly lower in quality with crude protein in the mid-teens and NDF in the mid-50s. Next year, the crop will head out quickly at each harvest, and will be a medium quality forage. But with proper diet formulation, it can be used in even in lactating cow rations.

Summary

Utilizing short-season forages can provide excellent quality forage to supplement other forages such as corn

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silage and alfalfa or perennial grasses, while also increasing land use efficiency. Maintaining forage cover year-round protects the soil from erosion and contributes to building soil organic matter over the long-term.
Figure 1. Early November growth of Italian ryegrass (left) and oat+winter rye (right) after mid-September planting in Ohio

Author(s):
Mark Sulc, Bill Weiss

Other Articles

The Ag Law Harvest

By:Ellen Essman, Senior Research Associate Friday, July 17th, 2020
Written by Ellen Essman and Peggy Hall

This edition of the Ag Law Harvest has a little bit of everything—Ohio and federal legislation responding to COVID issues, new USDA guidance on bioengineered foods, and a judicial review of Bayer's Roundup settlement. Read on to learn about the legal issues currently affecting agriculture.

Ohio COVID-19 immunity bill stalls. While the Ohio House and Senate agree with the concept of immunity for COVID-19 transmissions, the two chambers don't yet see eye-to-eye on the parameters for COVID-19 liability protection. H.B. 606, which we reported on here, has passed both the House and Senate, but the Senate added several amendments to the legislation. The House won't be addressing those amendments soon because it's in recess, and doesn't plan to return for business until at least September 15. The primary point of disagreement between the two bills concerns whether there should be a rebuttable presumption for Bureau of Workers' Compensation coverage that certain employees who contract COVID-19 contracted it while in the workplace. The Senate amendment change by the Senate concerns exemption from immunity for "intentional conduct," changed to "intentional *misconduct*." Currently, there is not a plan for the House to consider the Senate's amendments before September 15.
Lawmakers propose bill to avoid more backlogs at processing plants.
Most people are aware that the COVID-19 pandemic created a huge backlog and supply chain problem in U.S. meatpacking plants. A group of bipartisan representatives in the House recently proposed the

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Requiring Assistance to Meat Processors for Upgrading Plants Act, or RAMP-UP Act. The bill would provide grants up to $100,000 to meat and poultry processing plants so the plants could make improvements in order to avoid the kind of problems caused by the pandemic in the future. The plants would have to provide their own matching funds for the improvements. You can find the bill here.

Revisiting the Paycheck Protection Program, again. In a refreshing display of non-partisanship, Congress passed legislation in late June to extend the Paycheck Protection Program (PPP). Employers who haven't taken advantage of PPP now have until August 8, 2020 to apply for PPP funds to cover payroll and certain other expenses. Several senators also introduced the Paycheck Protection Program Small Business Forgiveness Act, a proposal to streamline an automatic approval process for forgiveness of PPP loans under $150,000, but there's been little action on the bill to date. Meanwhile, the American Farm Bureau Federation is in discussion with the Senate on its proposal for other changes to PPP that would expand access to PPP for agriculture.

More clarification for bioengineered food disclosure. You may recall that the National Bioengineered Food Law was passed by Congress in 2016. The legislation tasked USDA with creating a national mandatory standard for disclosing bioengineered foods. The standard was implemented at the beginning of 2020, but USDA still needed to publish guidance on validating a refining process and selecting an acceptable testing method. On July 8, 2020, that guidance was published. The guidance provides steps for industry to take when validating a food refining process under the rule. A lot of food refining processes remove traces of modified genetic material. So, if a refining process is validated, there is no further need to test for bioengineered material to disclose. The guidance also contains instructions on testing methods. Basically, "any regulated entity that is using a food on the AMS List of Bioengineered Foods and does not want to include a bioengineered food disclosure because the food or ingredient is highly refined and does not include detectable modified genetic material" should follow these testing instructions. Therefore, any entity with highly refined foods that do "not include detectable modified genetic material" should follow the recently published guidance.

Bayer settlement proposal under scrutiny. Last month, Bayer, the owner of Roundup, announced that it would settle around 9,500 lawsuits related to alleged injuries caused by using the product. Not only was the proposal supposed to settle previous lawsuits, but it was also meant to address any future lawsuits stemming from purported injuries caused by Roundup. A judge from the United States District Court for the Northern District of California recently pumped the breaks on this plan, stating that any settlement that would resolve "all future claims" against Roundup must first be approved by the court. A hearing will be held on July 24, where the court will decide whether or not to "grant preliminary approval of the settlement."

Posted In: Biotechnology, Business and Financial, Food, Uncategorized

Tags: COVID-19, COVID-19 immunity, Paycheck Protection Program, meat processing, bioengineered food, roundup, Harvest

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New study shows how plants regulate their growth-inhibiting hormones to survive

Date: July 15, 2020
Source: Nagoya University
Source: https://www.sciencedaily.com/releases/2020/07/200715095452.htm

In a world with a consistently growing population and a climate crisis, food shortage is a looming threat. To alleviate this threat, crop scientists, botanists, genetic engineers, and others, have been exploring ways of boosting crop productivity and resilience. One way to control plant growth and physiology is to regulate the levels of "phytohormones" or plant hormones.

However, much remains to be known about the mechanisms that underlie this hormonal regulation in plants, limiting advancement in this direction. Now, in a study led by Nagoya University Japan, a team of scientists has discovered, using rice plants as the study model, that a process called "allosteric regulation" is involved in maintaining the phytohormonal balance in plants. Their findings, published in *Nature Communications*, could hold the key to significantly advancing the research on plant growth and development, providing a potential solution for food security.

Plants survive by adapting their development and physiology to their surrounding environments by controlling the levels of enzymes driving the synthesis of two phytohormones, gibberellin and auxin. Enzymes are proteins that bind to one or more reactant chemicals and speed up a reaction process. The binding site is called the activation site. In 1961, it was discovered that in bacteria, enzyme activity is enhanced or inhibited via allosteric regulation, which essentially is the binding of a molecule called the "effector" at a site other than the active site of the enzyme. In allosteric regulation, the structure of the enzyme changes to either support or hinder the reaction that the enzyme enables.

Professor Miyako Ueguchi-Tanaka of Nagoya University, lead scientist in the team that has now observed allosteric regulation in plants for the first time, explains their research findings, "We used a technique called X-ray crystallography and found that, as molecules of the enzymes (gibberellin 2-oxidase 3 [GA2ox3], and auxin dioxygenase [DAO]) bind to gibberellin and auxin (respectively), they interact among themselves and form 'multimeric' structures, comprising four and two units respectively. As the amounts of gibberellin and auxin increase, so does the rate of multimerization of the enzymes. And multimerization enhances the activity of the enzymes, enabling greater degradation of gibberellin and auxin. Synchronous structural changes and activity enhancement are typical of allosteric-regulation events."

The scientists further carried out "phylogenetic" analysis of GA2ox3 and DAO, which revealed that plants independently developed this hormone regulation mechanism at three separate time-points over the course of the evolutionary process.

Enthusiastic about the future prospects of these findings, Prof Ueguchi says, "The activity control system revealed here can be used to artificially regulate the activity of the growth inactivating hormones in plants. As a result, rice

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crop productivity can be improved and high-biomass plants can be produced in the event of food shortage or an environmental crisis."

Of course, this study is only a stepping stone for now, and much remains to be done to see how the findings of this study can be applied practically in agricultural lands. However, these findings certainly are encouraging, and they signal the coming of a new era of sustainable development fueled by biotechnological advancements.

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