

## Auglaize County OSU Extension Weekly Agriculture Newsletter – May 27, 2020

### Scouting and Latest Information



**Corn field**



**Wheat field**

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

Thank you to those individuals that participated in the Tenth Auglaize County Farm Talk meeting on Tuesday. We had 8 people participate. 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. **At this time weather is the only topic on the schedule for next week.** Please join use every Tuesday for Auglaize County Farm Talk.

If you want to contact Brigitte Moneymaker you may contact her at [moneymaker.4@osu.edu](mailto:moneymaker.4@osu.edu) or 434-962-3525.

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' wheat straw bales for sale. This same individual is willing to sell his winter cover crops as forage to anyone interested.
2. At least 500 small square wheat straw bales for sale.

Call the OSU Extension office at 701-541-0043 or e-mail me at [stachler.1@osu.edu](mailto:stachler.1@osu.edu) to get the contact information.

## **Joke: What kind of pigs know karate??**

**Agricultural Fun Fact: The pounds of feed (grain, forage, etc.) a dairy cow needs to eat to produce 100 pounds of milk has decreased by more than 40% on average in the last 40 years!**

Rain fell 4 days this past week. Rainfall on Thursday, May 21<sup>st</sup> ranged from a trace near Bloody Bridge to 0.2" near Mercer Line and St. Rt. 197 roads. Rainfall on Friday ranged from 0" near Mercer Line and St. Rt. 197 roads, Harris and St. Rt. 29 roads, and Minster-Ft. Recovery and Sommers roads to 0.2" near Buckland-Holden and St. Rt. 501 roads. Rainfall on Saturday ranged from 0" at nineteen locations to 0.08" near Minster-Ft. Recovery and Sommers roads. Rainfall on Monday ranged from 0" near Dowty and County Road 66A roads and County Road 66A and St. Rt. 66 roads to 0.8" near St. Rt. 117 and St. Rt. 67 roads. Rainfall for the week ranged from 0.15" near Dowty and County Road 66A roads to 0.85" near St. Rt. 116 and Glynwood roads. Rainfall for the week averaged 0.4", 2.98" less than last week. The average rainfall for the month so far is 4.09". Rainfall is forecasted at least at 44% for this Wednesday to Friday, then almost no chance of rain through next Tuesday.

The average high temperature now is 75 degrees F, two degrees more than last week. Temperatures were above normal for 3 days of the week and below normal for 3 days of the week. The range in high temperature for the week was 59 to 86 degrees F. The average high temperature for the week was 73.8 degrees F, which is 2.7 degrees F warmer than last week and only 1.2 degrees F below the current normal high temperature! Temperatures for the next 7 days will almost above normal through Thursday, then below normal after that.

## **Wheat**



**Most advanced wheat - Flowering (Feekes 10.5)**



**Field of wheat**

Wheat development increased drastically this past last week. The most advanced stage now is flowering (Feekes 10.5), with most at heading (Feekes 10.1). Last year at this time 60% of wheat was fully flowered, so we are a little behind last year. With nearly all wheat heading, it is time to apply fungicide for head scab when 50% of heads are flowering. If you have a susceptible wheat variety to Fusarium head blight, then a fungicide application is necessary due to weather conditions. For moderately susceptible and moderately resistant varieties, the risk is much less, but with the forecast for the next few days, it may be warranted to apply fungicides to wheat. I kept the wheat condition the same as the week before. The current rating of the wheat crop is: 4% excellent, 44% good, 48% fair, 4% poor, and 0% very poor. Last week's rating was 4% excellent, 44% good, 48% fair, 4% poor, and 0% very poor. Leaf diseases are still at a very low level and wheat does not need to be sprayed, other than for Fusarium head blight.

## **Alfalfa**



**Near maximum height of alfalfa in a field**



**Tire tracks left in alfalfa field during harvest**

Alfalfa grew tremendously this past week compared to the week before. The maximum size of alfalfa is now up to 25.5" in some fields with an average maximum height of about 21.3". Most alfalfa is still in the vegetative stage. It is now time to harvest due to the amount of alfalfa weevils since that is a control strategy. Try to let the soil dry before harvesting so you do not get tracks in the field like the picture above.

## **Corn**



**Current maximum stage of corn**



**A corn field after the rain on Sunday**

No corn was planted this past week due to wet soils. Corn is emerging fairly good at this time. There are certainly some fields with thin stands, but not too many. I don't think many corn fields will have to be tilled under and completely replanted at this time. All fields have corn emerging non-uniformly. This means we likely took out the maximum yield. I'm estimating that 80% of the corn was planted in the county as of last Sunday. Last year at this time we had less than 3% of the corn planted in the county, but 99% in 2018! We should be at 78% planted now in Ohio, so we are on schedule. The largest corn at this time is at the V2 stage (2<sup>nd</sup> collar visible).

## Soybean



My estimate is that 75% of the soybeans have been planted in the county as of Sunday and all of that is or has emerged. At this time last year 1% of the soybeans had been planted in the county, but in 2018 97% were planted! We should be at 55% planted now in Ohio, so we are still ahead of historical planting. Stands are thin in spots in some fields, likely requiring some spot-planting, especially in low areas due to water, but it should be minimal. The most advanced soybean is in the VC stage (unifoliolate leaves unrolled).

## Weeds



**Cressleaf groundsel in a hay field in Coshocton County**



**Cressleaf groundsel**



**Largest lambsquarters I have seen**

The biggest topic to talk about is the cressleaf groundsel. Now that it is in full flower, it is present in more areas than I thought. Since it is a poisonous plant to livestock care must be taken to not harvest fields with more than a hand full of plants in the field. Luckily I have seen no hay fields in our county as bad as the picture above, but there are some wheat fields that are that bad and those fields should not be harvested for forage or straw, just harvest of grain. There are still fields that have no burndown, this is not a good situation. Get these fields sprayed as soon as possible. I am also seeing large weed densities in some fields that had no

preemergence herbicide applied, please watch these fields closely so a timely postemergence herbicide application can be made.

### Insects/other



**Alfalfa weevil and damage**



**See the severity of damage**

The alfalfa weevil are still at high levels. I can easily find 3 larvae per plant and damage is the worst I have seen since being on the job in the county. It is too late to spray now. The alfalfa is large enough now to be harvested as the best method of control, however 2<sup>nd</sup> cutting will need to be scouted closely in case they return.

**There were changes to the Engenia (<https://agro.basf.us/campaigns/engenia/tankmixselector/>) label, but I did not update the numbers below. There were NO changes to the XtendiMAX (<http://www.xtendimaxapplicationrequirements.com/Pages/default.aspx>), FeXapan (<https://www.corteva.us/products-and-solutions/crop-protection/fexapan/tank-mix-partners.html>), and Tavium (<http://www.syngenta-us.com/herbicides/tavium-tank-mixes>) labels this week. The Engenia label still has the most approved products compared to XtendiMAX and FeXapan. No new herbicide was added to the XtendiMAX label this past week, which totals 252 herbicides. No new adjuvant was added the XtendiMAX label, now totaling 442. No new nozzles were added to the XtendiMAX label, which totals 44. No new Drift Reducing Adjuvant (DRA's) were added to the XtendiMAX label this week, making a total of 107 DRA's. No nutritional products were removed from the XtendiMAX label which totals 259. No new**

products were added to the Insecticides, Fungicides, Insecticides plus Fungicides, Plant Growth Regulator and Other group on the XtendiMAX label which totals 115. No new adjuvants were added to the Engenia label, which now totals 600. No new herbicides were added to the Engenia label, which brings the total herbicide count to 204. No new products were added to the Other category (growth regulators and fungicides) on the Engenia label, which totals 37. No new insecticides were added to the Engenia label which currently has 49 products. No new Drift Reducing Adjuvants (DRA's) were added to the Engenia label, which totals 131. No new nozzles were added to the Engenia label, which totals 31. No new nutritional products were added to the Engenia label which totals 231 products. No new products was added to the pH Modifier group of the Engenia label which totals 17 products. The FeXapan label has many of same the products and nozzles as the XtendiMAX label, but NOT all are the same, so check the FeXapan label carefully. The FeXapan website has changed drastically! They now have DRA's listed for each product type that must be mixed with FeXapan. There are some products that need no DRA added! There are 13 glyphosate formulations, 229 herbicides, 41 insecticides, 17 fungicides, 96 DRA's, 317 adjuvants, 204 nutritionals, 30 plant growth regulators, 18 other products, and 46 nozzles that have been approved for the FeXapan label. 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.** 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, 143 herbicides, 19 glyphosate formulations, 9 glufosinate formulations, 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, 74 herbicides, 48 insecticides, 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 mixes with ANY rate of glyphosate, glufosinate and 192 other herbicides.
3. Never use Ensit 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.** Every Tuesday from 8:30 to 9:30 AM we will have a virtual agricultural meeting. The third Tuesday will be the Ag Breakfast. Next week's topic is Weather by Aaron Wilson and more. The link to get onto the meeting is as follows: <https://osu.zoom.us/j/2119847503> If you just want to call in the phone number and meeting code are as follows: 646-876-9923 2119847503#
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. This week there will be a meeting. Each office session is limited to 500 people and if you miss our office hours, we'll post recordings on [farmoffice.osu.edu](http://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 6<sup>th</sup>. Meetings after this date will go on as planned at least until further notice.**

**Answer to joke: Pork chops!!**

**Evaluating Corn Stands**



Corn stands are good in most fields, but there are thin spots in some fields and areas of some fields that flooded out completely. Now is the time to determine the amount of plants in a field to determine the need to spot or replant.

The following information is needed to determine if replanting is justified: 1. Original target plant population/intended plant stand; 2. Plant stand after damage; 3. Uniformity of plant stand after damage or lack of emergence; 4. Original planting date; 5. Possible replanting date; and 6. Likely replanting pest control and seed cost.

To estimate the damaged/reduced stand of corn, count the number of plants in a 17 feet 5 inches length of row with a corn row spacing of 30 inches. This length of row is 1/1000<sup>th</sup> of an acre. If you have corn rows spaced 20 inches apart, then the row length to check is 26 feet 2 inches. So if you count 20 plants within these distances, then there are 20,000 plants per acre. Take counts in various parts of the field, especially where the stand is thin, to properly assess the need for replanting.

Look at stand uniformity. Measure the large gaps between plants in a single row. Was the gap more or less than three feet? Gaps of four to six feet can cut yields about five percent. Gaps of one to three feet may reduce yields by 2 percent.

What is the estimated yield of corn planted at different populations and dates? A plant population of 15,000 plants per acre planted on April 30<sup>th</sup>, May 9<sup>th</sup>, May 19<sup>th</sup>, or May 29<sup>th</sup> has a 82, 79, 73, and 63% chance of obtaining maximum corn yield. A plant population of 20,000 plants per acre planted on April 30<sup>th</sup>, May 9<sup>th</sup>, May 19<sup>th</sup> or May 29<sup>th</sup> has a 92, 89, 84, and 73 percent chance of obtaining maximum corn yield. A plant population of 25,000 plants per acres planted on April 30<sup>th</sup>, May 9<sup>th</sup>, May 19<sup>th</sup>, or May 29<sup>th</sup> has a 98, 95, 89, and 79 percent chance of obtaining maximum corn yield. A plant population of 30,000 plants per acre planted on April 30<sup>th</sup>, May 9<sup>th</sup>, May 19<sup>th</sup>, or May 29<sup>th</sup> has a 100, 97, 91, and 81 percent chance of obtaining maximum corn yield. Based upon this information one can determine if a stand should be completely replanted or kept.

For example, if corn was planted on April 30<sup>th</sup> at a plant population of 30,000, then you would expect 100 percent of maximum corn yield. If on May 19<sup>th</sup> that same stand was reduced to 20,000 plants per acre, then the yield would be 92 percent of maximum and if complete replanting could occur on that same day, then one could expect 91 percent of maximum yield. Therefore, you would obtain a higher yield for corn planted on April 30<sup>th</sup> that had a stand reduction to 20,000 plants per acre compared to replanting on May 19<sup>th</sup>.

If replanting can occur within two weeks of planting and just a few areas had a reduced stand, then patching-in makes sense. If replanting occurs within three weeks after initial planting, yield potential is about 10% greater if you tear up the field and start over with an even emerging stand rather than patching-in.

Get out and check corn stands now to see if replanting is necessary. As you can see pretty low stand counts for corn planted early can maintain good yields. However, after the corn yields obtained from late-planted corn in 2019, maybe one should completely replant a field at a plant population higher than mentioned above?

## C.O.R.N. Newsletter

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

## Summer Weather Outlook



Our attention now turns to the summer growing season and what is in store. Some things are different this summer.

- The ocean temperatures are cooling in the eastern equatorial Pacific Ocean while ocean temperatures are above normal in the Gulf of Mexico into parts of the Caribbean. In addition, Lake Erie water temperatures will trend from cooler to warmer than normal as we get late into the growing season.
- With recent rains, soil moisture has increased again in Ohio and remains above normal in much of the corn and soybean belt. The soils are not as wet as 2019 but with above normal soil moisture will come plenty of evapotranspiration. In 2019 for Ohio, soil moisture generally ranked in the top 1-5% wettest while currently we are in the top 5-15% wettest. [https://www.cpc.ncep.noaa.gov/products/Soilmst\\_Monitoring/Figures/daily/curr.w.rank.daily.gif](https://www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/Figures/daily/curr.w.rank.daily.gif)
- Research shows 30-50% of summer rains come from local evapotranspiration from crops, trees etc. Given the wet soil conditions overall, expect a wetter than normal first half of summer, but not like last summer. We are likely to see the typical summer thunderstorm complexes in June and July ride along the high moisture content boundary of the corn crop from the northern Plains to Ohio.
- Rainfall becomes more uncertain the second half of summer. Given the warm Gulf of Mexico and Caribbean it will likely favor increased storm activity down there. When that happens we often dry out some at least in late summer up here.
- The outlook for June-August calls for slightly above normal temperatures with rainfall going from (above normal) first half to (normal or below normal) second half of summer. The above normal temperatures are favored more on overnight low temperatures versus daytime high temperatures due to soil moisture.

The latest climate outlooks are available at: <https://www.cpc.ncep.noaa.gov/>

**Author(s):**

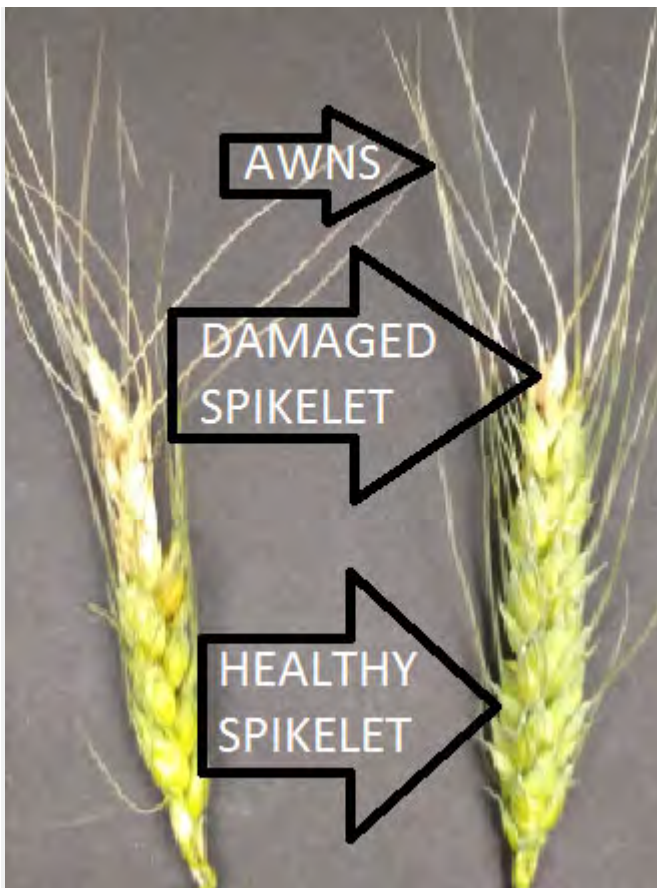
[Jim Noel](#)

## Good Time to Scout Wheat and Barley Fields



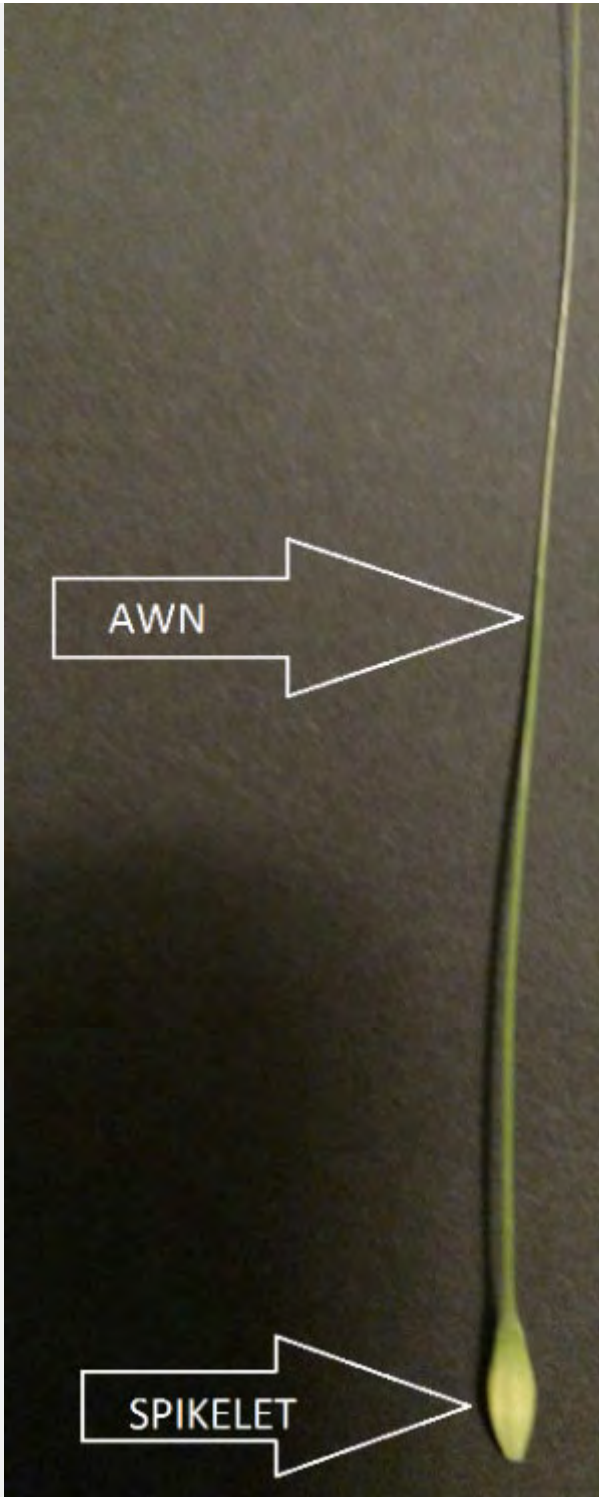
It has been a little over two weeks since overnight low temperatures were  $<32^{\circ}\text{F}$  throughout the state. These low temperatures can be cause for concern, but this concern may have been a bit premature. Now is a good time to scout wheat and barley fields to assess whether cold temperatures simply set back grain development, or whether they caused permanent damage.

- 1. Walk your field.** Make sure to examine several areas within each field. There are micro-climates within a field, and small differences in temperature can cause large differences in damage and grain yield. Barley out of the boot is able to withstand canopy temperatures just below freezing for several hours. Damage from cold temperatures may cause yellowing or browning of leaf tips, but provides limited insight on grain yield potential.
- 2. Collect heads.** Collect heads from both primary and secondary tillers. If there is cold damage, the extent will vary based on developmental stage at the time of the cold temperature/freeze event. Collect heads that look healthy and damaged for comparison. Healthy heads will appear unblemished, whereas freeze-damaged heads can have white spikelets and awns and may appear water-soaked. Depending on the extent of the freeze, damage may be patchy.
- 3. Look for symptomatic heads.** In plant tissue, freeze damage occurs when ice forms in the intracellular spaces. The formation of intracellular ice can rupture cell membranes and sub-cellular structures causing fatal injuries to the cell. When the wheat plant is headed, symptoms of freeze damage include spikelets and awns that are white or bleached in color (Figure 1). Plants that have white awns may still have a developing kernel. However, when a spikelet was white, we noticed no developing kernel.



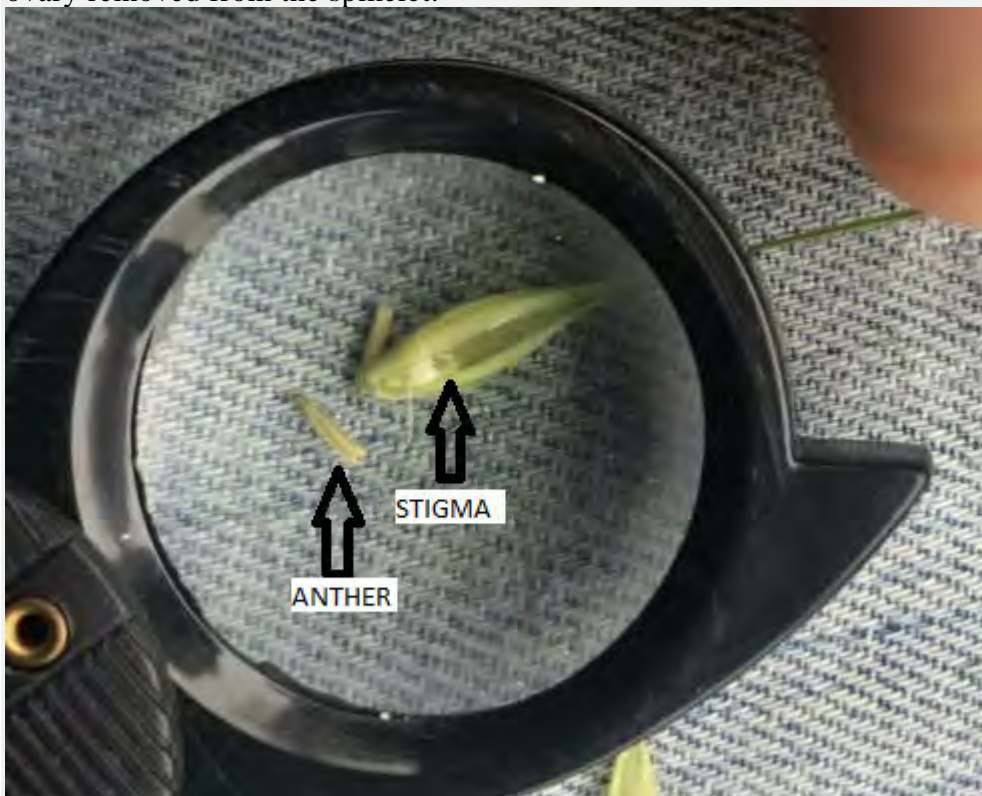
*Figure 1. Small grain awns and spikelets appear white or bleached as a result of freeze damage.*

**4. Examine spikelets.** Pull individual spikelets off of the small grain head. Figure 2 shows an individual spikelet. (This spikelet is from 'Puffin' winter malting barley. Other barley or wheat varieties may be awnless.) Examine spikelets from the top, middle, and bottom portion of the head. Flowering first begins at the middle of the head, then top, and finally the bottom portion. It is possible only a portion of the head to be damaged depending on which part of the head was flowering at the time of the cold temperature or freeze.



*Figure 2. Individual spikelet from barley head.*

**5. Disect the spikelet.** Disecting the spikelet is a much better way to examine if there is a developing kernel (grain) than simply feeling the head because just feeling the head for a developing kernel can be challenging when the kernel is small. The inside of a spikelet is shown in Figure 3. A healthy flower should have a stigma (female portion) that looks white and feathery. Anthers (male portion) may also be inside the spikelet or may have already been extruded from the spikelet. Figure 4 shows a healthy anther, stigma, and ovary removed from the spikelet.



*Figure 3. The spikelet should be dissected to examine the male (anther) and female (stigma) reproductive structures.*





*Figure 4. A healthy stigma, ovary, and anther that have been removed from an individual spikelet. This anther has been broken open, and shows that there is pollen production.*

**6. Look for developing kernel.** Last week, in southern and central Ohio, developing kernels were observed within spikelets. Some of these developing kernels were still very small (which is why the spikelet needs to be dissected instead of just felt) (Figure 5). Other kernels were further along and larger (Figure 6). In northern areas, it may be too early to observe a developing kernel. Keep checking fields over the next few days.

In summary, the cold events of May 9-13 were a cause for concern. Producers and agronomists are encouraged to scout fields regularly to evaluate kernel development by dissecting spikelets. Based on our observations of fields in southern, central, and northern Ohio, pollination seems to have occurred and kernels are developing.



*Figure 5. Small, but healthy developing kernels.*



*Figure 6. Larger developing kernel.*

In summary, the cold events of May 9-13 were a cause for concern. Producers and agronomists are encouraged to scout fields regularly to evaluate kernel development by dissecting spikelets. Based on our observations of fields in southern, central, and northern Ohio, pollination seems to have occurred and kernels are developing.

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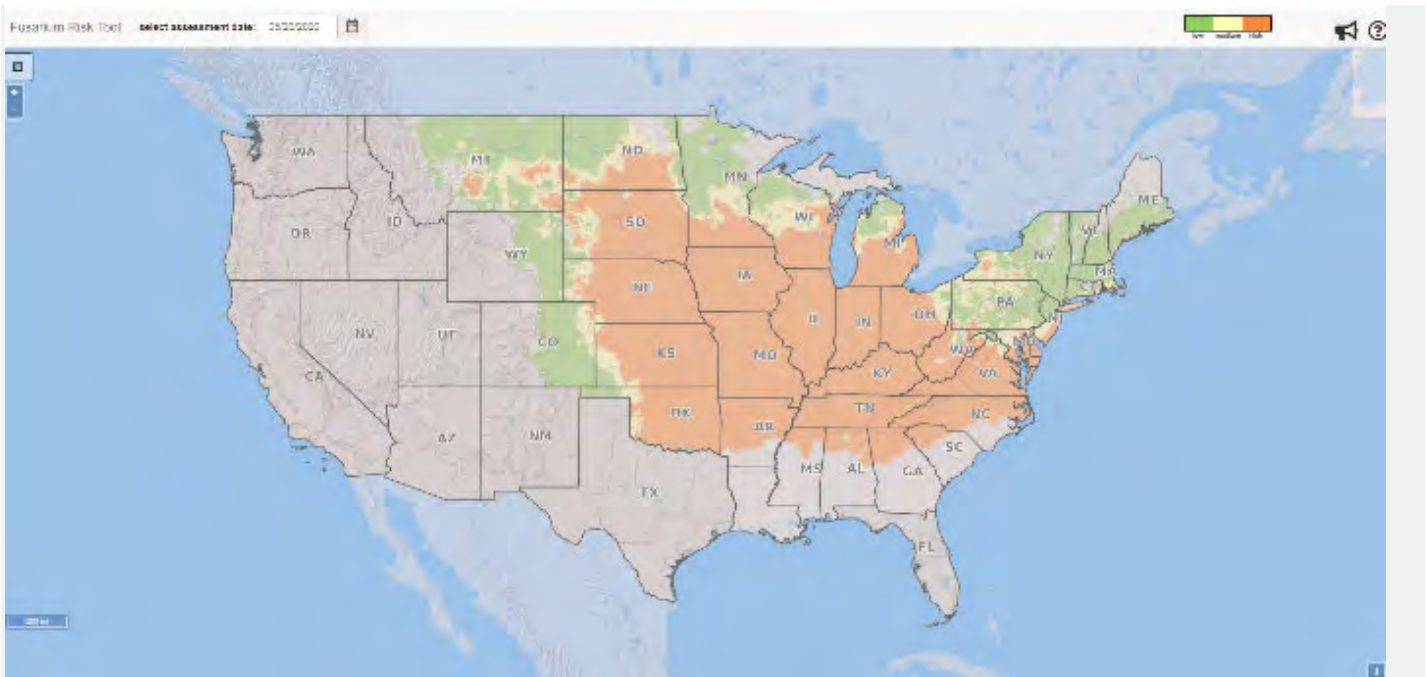
[Laura Lindsey](#), [Eric Richer, CCA](#), [Eric Stockinger](#)

## Using the Forecasting System to Assess the Risk of Head Scab



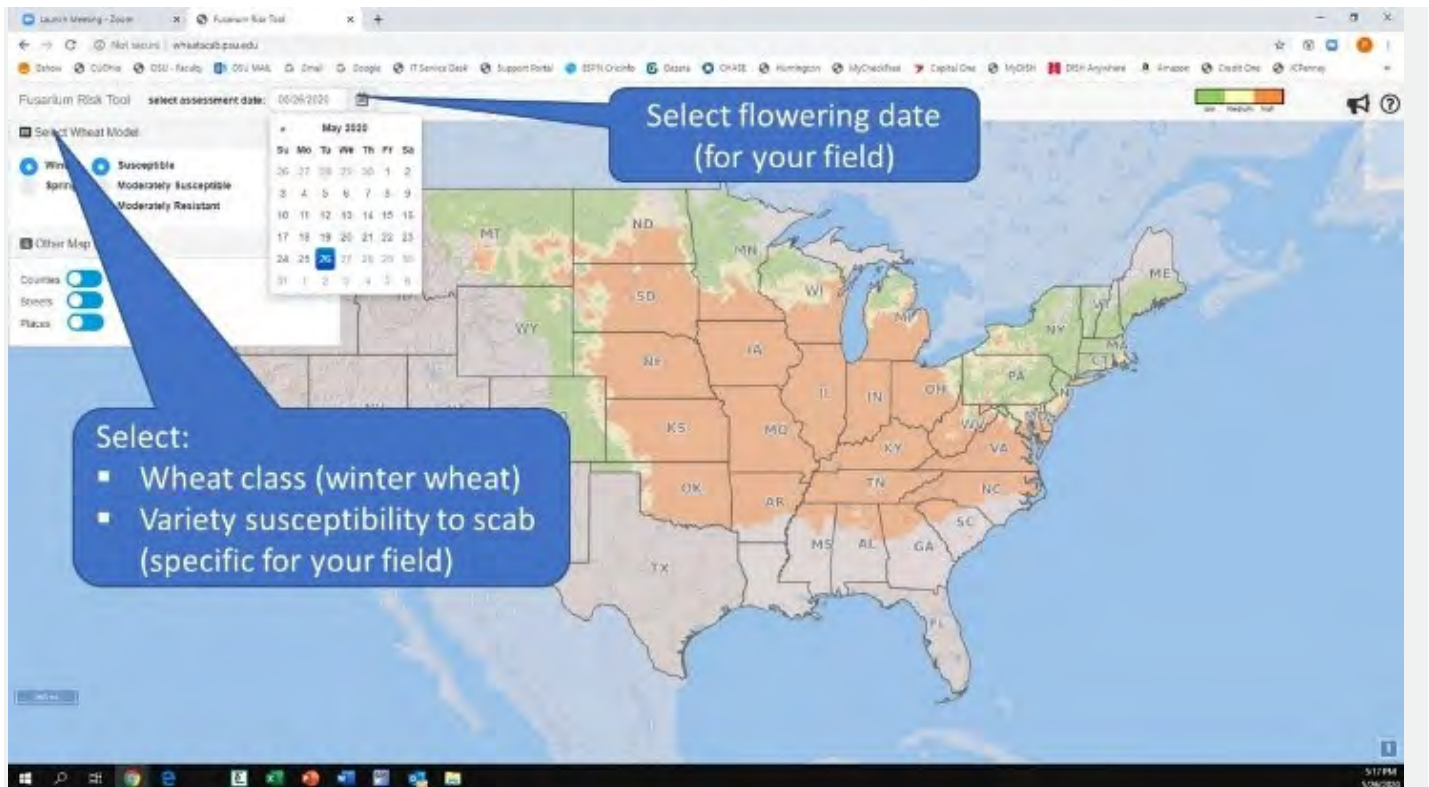
The head scab risk tool can be used to assess the risk of head scab and to help guide fungicide application decisions. Here are a few guidelines for using the system and interpret the output:

- 1.) Go to the website at [www.wheatscab.psu.edu](http://www.wheatscab.psu.edu). You will see a map of the United States with some states in green, yellow, red, or gray.

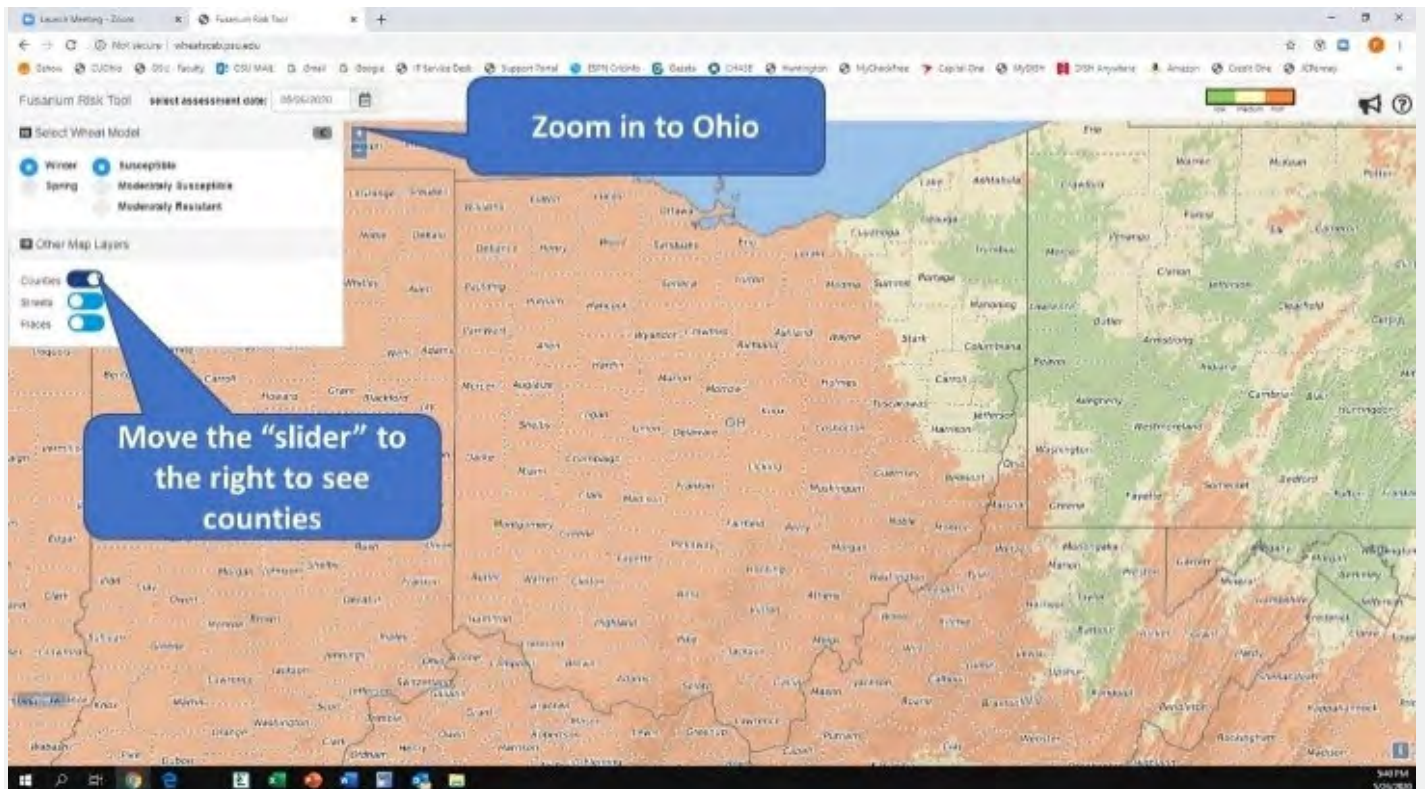


2.) STOP. Before you try to interpret the map, make sure that you select:

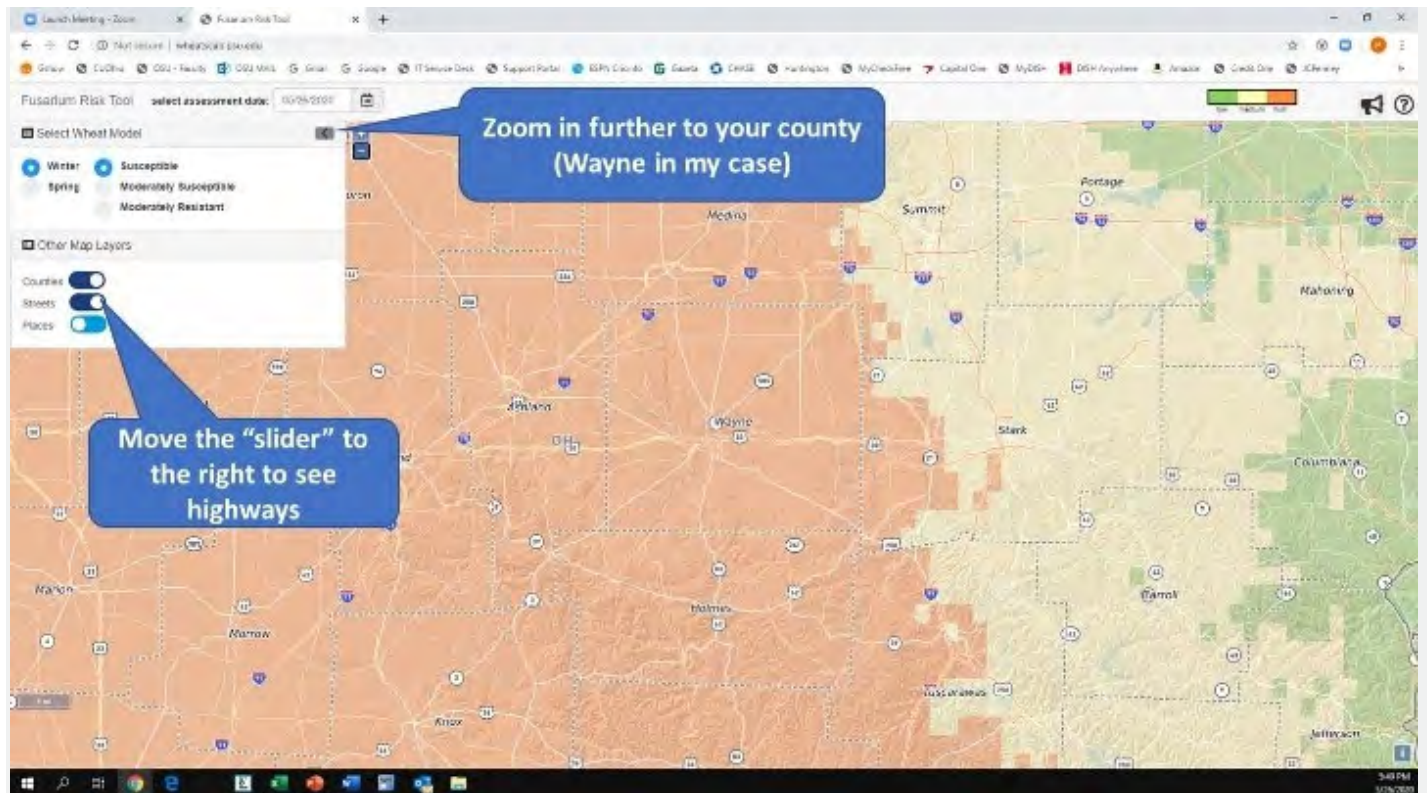
- a. The flowering (anthesis) date for your field,
- b. Winter wheat (the class of wheat we grow in Ohio), and
- c. The susceptibility of the variety planted in your field.



3.) Zoom in to Ohio and move the “Counties” slider over to the right to see county lines.



4). Zoom in further to your county and move the "Streets" slider over to the right to see major highways.

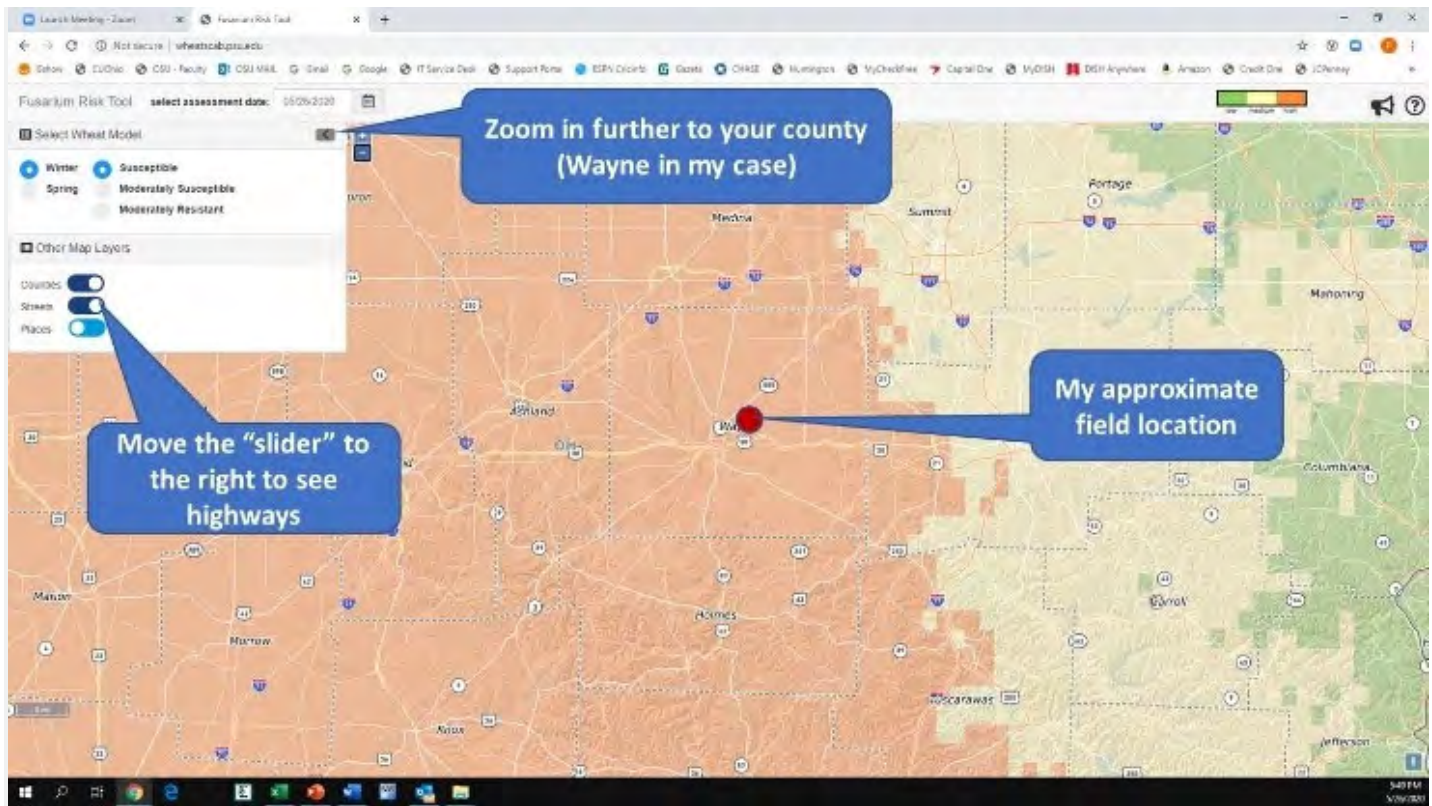


5.) Find the approximate location of your field and assess the risk for head scab (**\*susceptible variety**):

1.
  - a. Scab susceptible soft red winter wheat variety planted in my field in Wooster, OH.
  - b. Flowering on May 26, 2020.

**\*Map is red in the area of my field, meaning that scab risk is high.**

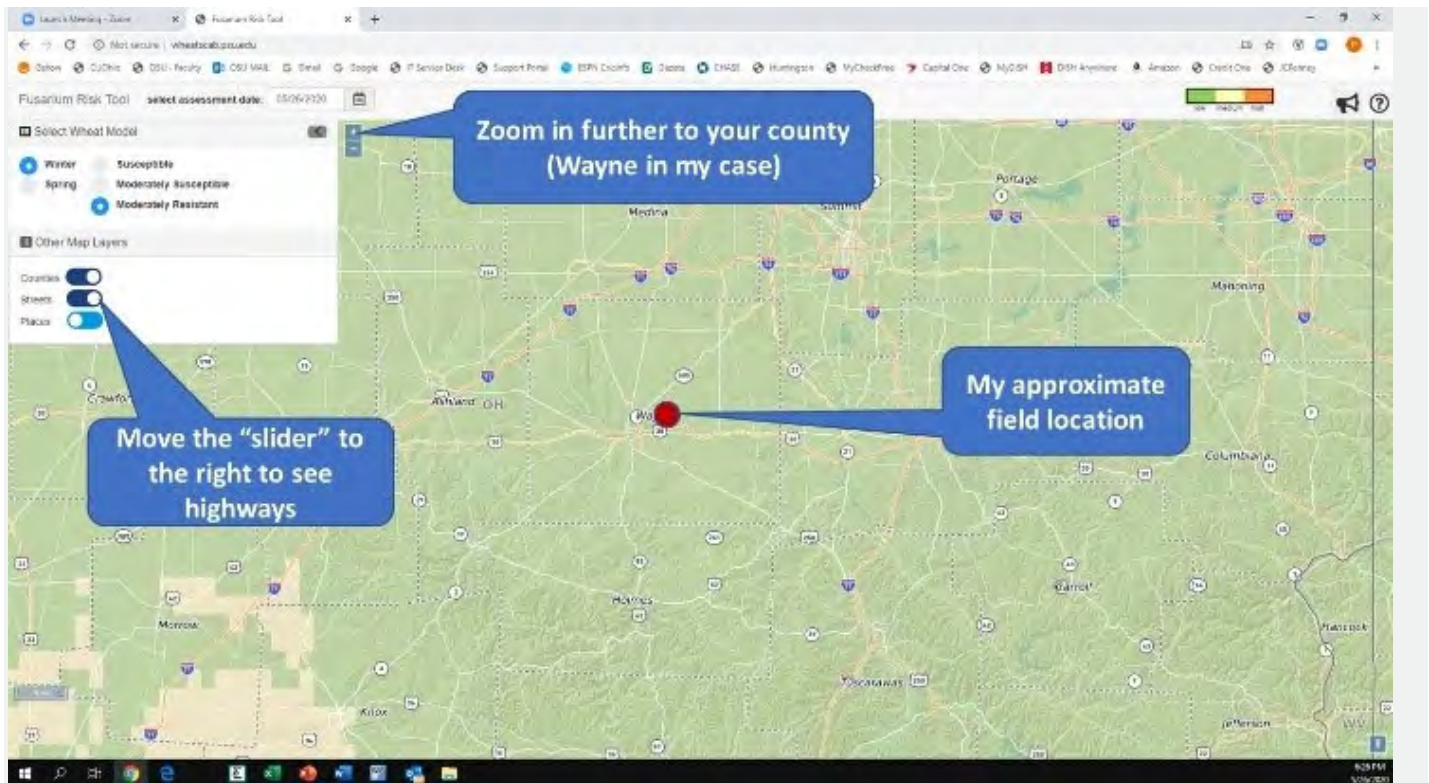




6.) Find the approximate location of your field and assess the risk for head scab (\*\***moderately resistant variety**):

- Moderately resistant soft red winter wheat variety planted in my field in Wooster, OH.
- Flowering today, May 26.

\*\*Map is green in the area of my field, meaning that scab risk is low.



Continue to use the tool to monitor the risk of head scab over the next several days as more fields in the northern half of the state approach anthesis. If the risk is moderate-high (the map is yellow or red) at the time of flowering, you should consider applying Prosaro, Caramba, or Miravis Ace, at anthesis (flowering) or within the first 4-6 days after flowering. Learn how to identify the flowering or anthesis growth stage here: [https://youtu.be/ybZVW\\_YbhxY](https://youtu.be/ybZVW_YbhxY)

**Author(s):**

[Pierce Paul](#)

**Alfalfa Continues to Mature**



The alfalfa crop over the past week has continued to advance in maturity. Pure alfalfa stands across Ohio are ready to be harvested for high quality forage (see table below). Producers in dryer regions were able to start harvesting alfalfa fields over the weekend. Western Ohio has had larger rainfall totals than Eastern Ohio over the last two weeks. Keep in mind that harvesting when the soil is too wet and soft will do non-reversible compaction damage to the stand and will lower the productivity the rest of this year and into future years.

Grasses in Central Ohio have headed out. Once grasses reach the early heading stage, they are already past the prime for high producing lactating dairy cows; however, grass in early heading is still good for feeding to many other classes of livestock with lower requirements than lactating dairy cows. Begin harvesting grasses as soon as you see a good harvest window.

The following table shows estimates of %NDF from several counties in Ohio.

<b>Date</b>	<b>Location</b>	<b>Average % NDF</b>	<b>Stage</b>
5/26/20	Auglaize County	32.2	Vegetative
5/26/20	Clark County	37.5	Bud
5/26/20	Crawford County	34.9	Vegetative
5/26/20	Licking County	38.8	Bud

Using the predictive equations for alfalfa quality (PEAQ) for estimating neutral detergent fiber (NDF) can be used for multiple cuttings throughout the growing season. Once the alfalfa crop reaches 16 inches tall, measurements can be taken to estimate %NDF using PEAQ.

Just as a reminder, here are the instructions on how to rapidly [predict NDF using PEAQ](#). Be sure to use this method when estimating NDF on pure alfalfa stands.

Looking ahead, as we see weather systems from the south move north potato leafhoppers (PLH) may begin to colonize in Ohio's alfalfa fields. Once PLH eggs are laid it only takes about three weeks for the eggs to develop into adults. Populations are usually sporadic but if present they can cause severe damage on the alfalfa crop. For more information on potato leafhoppers visit [here](#).

**Author(s):**

[Angela Arnold](#), [Mark Sulc](#), [Jeff Stachler](#), [Dean Kreager](#), [Jason Hartschuh](#), CCA

## Side-dressing Manure into Newly Planted and Emerged Corn



Ohio State University Extension has conducted manure application research on growing crops for several years in an effort to make better use of the available nutrients. Incorporating manure into growing corn can boost crop yields, reduce nutrient losses, and give livestock producers or commercial manure applicators another window of time to apply manure to farm fields.

Our research started with using manure tankers, modified with narrow wheels, and in recent years progressed to using drag hoses on emerged corn. We now feel confident that liquid livestock manure can be surface applied or incorporated into corn from the day of planting to the V4 stage of development.

In Darke County, we have used a drag hose to apply swine finishing manure to emerged corn fields with several farmers during the 2014-2019 growing seasons with great success. The corn was generally at the V3 stage of growth when the manure was incorporated as a side-dress but some years weather forced us to apply at the V4 stage.

**Darke County Farms Plot Results:**

<b>Darke County Six-Year Manure Incorporation Drag Hose Corn Plots</b>		
<b>Year</b>	<b>Swine Finishing Manure</b>	<b>28% UAN</b>
2019	195	168
2018	264	246
2017	165	145
2016	222	216
2015	154	121
2014	204	204
Average yield: bu/acre	200.7	183.3

The manure treatments have averaged 17.4 bushels per acre more than the 28% UAN treatments. These livestock producers incorporated approximately 6,500 gallons of swine finishing manure per acre to provide all the side-dress nitrogen needed. Most of the fields received 10 gallons per acre of 28% UAN as row starter. Also, most farmers planted their corn fields at an angle to make the drag hose work best for the commercial manure applicator.

In addition to providing the side-dress nitrogen, the manure application also provided almost precisely the amount of phosphorus and potash needed for both the current corn crop and the soybean crop the following season.

Additional on-farm manure side-dress plot results can be obtained by clicking on the On-farm Research link on the OSU Extension Agronomics Crops team website at <http://agcrops.osu.edu/> or follow OSU extension's manure research on Facebook at: Ohio State Extension Environmental and Manure Management.

OSU Extension's Nutrient Stewardship YouTube site is: [www.youtube.com/channel/UC7jUsQNGM8fCHjbZUdT9pKw](http://www.youtube.com/channel/UC7jUsQNGM8fCHjbZUdT9pKw)

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## Other Articles

### Navigating Direct Support for Ohio's Farmers and Ranchers Webinar on May 27 at 9:30 am

May 26<sub>2020</sub>

Share

Join OSU Extension's Ben Brown and Dianne Shoemaker for a webinar on "**Navigating Direct Support for Ohio's Farmers and Ranchers**" on **Wednesday, May 27, 2020 at 9:30 am** with special guest, Ohio Farm Service Agency Director Leonard Hubert. This webinar is generously produced and distributed by Ohio Ag Net.

This webinar is produced and distributed by Ohio Ag Net.

The webinar will be available for viewing at <https://farmoffice.osu.edu/>, or through [Ohio Ag Net's Facebook Live Video](#).

## Sign up for USDA-CFAP Direct Support to Begin May 26, 2020

May 20<sub>2020</sub>

Share3

**Ben Brown, Peggy Kirk Hall, David Marrison, Dianne Shoemaker and Barry Ward**  
The Ohio State University

Since the enactment of the Coronavirus Aid, Relief, and Economic Security (CARES) Act on March 27, 2020 and the announcement of the Coronavirus Food Assistance Program (CFAP) on April 17, 2020, producers in Ohio and across the country have been anxiously awaiting additional details on how the Coronavirus Food Assistance Program (CFAP) will provide financial assistance for losses experienced as a result of lost demand, short-term oversupply and shipping pattern disruptions caused by COVID-19.

The additional details on CFAP eligibility, payment limitations, payment rates, and enrollment timeline arrived on May 19, 2020, when the USDA issued its Final Rule for CFAP. In this article, we explain the Final Rule in this issue of *News from the Farm Office*.

[Click here to read the complete article](#)

Starting Tuesday, May 26, 2020, producers can contact their local FSA office and begin to sign up for CFAP. This bulletin serves as the authors' interpretations of the Final Rule released by USDA, and FSA interpretation may be different.

**OSU Extension and Ohio FSA will conduct a webinar in the upcoming days to outline program materials and answer questions.** For information about the webinar and additional information on CFAP, please visit [farmoffice.osu.edu](http://farmoffice.osu.edu). Information provided on the program by USDA along with a webinar for new FSA program participants is available at [farmers.gov/CFAP](http://farmers.gov/CFAP).

## The future is knocking: Global food production to be transformed using new technology

Date: May 20, 2020

Source: University of Copenhagen

Source: <https://www.sciencedaily.com/releases/2020/05/200520124935.htm>

The world's growing population and increasing human welfare will necessitate a 30-70% increase in food production over the next three decades. At the same time, the huge quantities of food needed must be produced in such a way that protects the environment and is resistant to climate change. If we are to succeed, it will require a complete overhaul of the way we produce food. Researchers from the University of Copenhagen, among others, have now created an overview of solutions that include a number of new technologies that can collectively address this global challenge. The results is published in *Nature Food*.

### **Food production**

"Unfortunately, if we are to meet the growing demand for food in the years ahead, optimising our current methods of production will be insufficient. They just won't do. A radical change is needed," states Svend Christensen, a professor and the Head of Department at the University of Copenhagen's Department of Plant and Environmental Sciences.

He continues: "We have identified 75 new technologies which, combined, can transform the entire food chain -- from production and processing, to consumption and waste management -- to meet the demands of the future for significantly greater food production, that protects the environment and while being resilient to climate change."

Together with an array of leading researchers from the 'Commonwealth Scientific and Industrial Research Organization' and the CGIAR Research Program on Climate Change, Agriculture and Food Security, Svend Christensen has identified a number of new and upcoming technologies that together, and each with their own approach, will be able to solve this global challenge for society. Most of these technologies are fully developed, while others are just a few steps away.

### **Artificial intelligence, micro-algae production and vertical farming**

Some of the more well-known technologies include artificial intelligence, robotics, genetic engineering, micro-algae production and vertical farming. Others include nitrogen-fixating cereals that do not require artificial fertilizers, biodegradable polymers and the breeding of insects for animal feed and foodstuffs.

While each of these technologies are distinguished by their ability to reduce the climate footprint, there are tradeoffs that public authorities and decision makers must take a stand on. Among other things, the researchers cite the use of GMOs, as well as varying levels of access to new technologies from country to country.

"There is no doubt that this will require the support of, and large investments from, politicians, so that technologies and know-how are available in as many countries as possible. At the same time, there is a need to test and adapt these technologies in order for them to be used across the food chain, from farm to fork. This requires considerable investment and an acceptance of some of the technologies that need to be developed and adapted over many years. But this is the way forward if we are to solve this enormous challenge," says Svend Christensen.



### **Public acceptance is necessary**

Some of the new technologies may seem controversial to consumers. Therefore -- in terms of generating public support and acceptance -- transparency, clear information and open dialogue will be necessary so that consumers can become comfortable with the new ways of producing food.

University of Copenhagen. "The future is knocking: Global food production to be transformed using new technology." ScienceDaily. ScienceDaily, 20 May 2020.

<[www.sciencedaily.com/releases/2020/05/200520124935.htm](http://www.sciencedaily.com/releases/2020/05/200520124935.htm)>

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