CFAES

OHIO STATE UNIVERSITY EXTENSION

NORTHEAST OHIO AGRI-CULTURE NEWSLETTER

Your Weekly Agriculture Update for Ashtabula and Trumbull Counties

July 2, 2019

Finally, many local farmers were able to put up hay this past week.

In This Issue:

Hello Northeast Ohio Counties!

Hopefully most of you were able to skirt the rains and get some field work done. The dry weather has been a welcome relief for many despite the hot temperatures.

If you are looking for forage options, please see the news release from NRCS regarding options for prevented plant acreage. A bad year in 2018 is contributing to feed shortages in 2019. If you need help deciding which option is best for you give us a call and we can talk about the pros and cons.

Take care, stay safe, and Happy Independence Day!

Lee Beers
Trumbull County
Extension Educator

Andrew Holden
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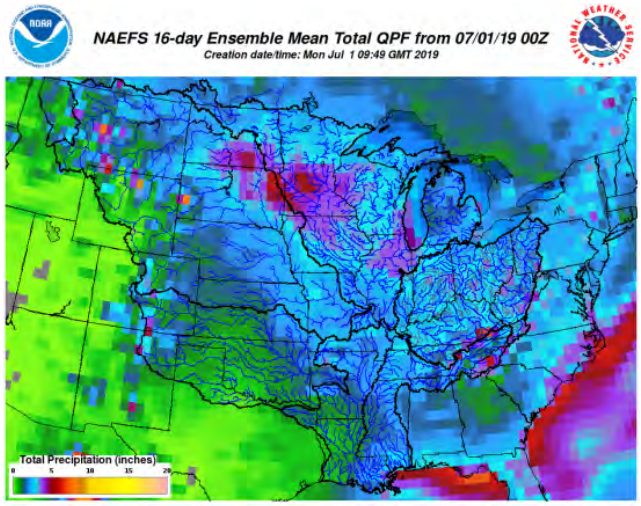
Above normal temperatures and precipitation will rule July

By: Jim Noel
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/201920/above-normal-temperatures-and-precipitation-will-rule-july



Above normal temperatures and precipitation will rule July.

Even though it has gotten a little drier recently, the pattern around a big high pressure to the west and south of Ohio favors a warm and humid July with rain chances. However, there will be swings in the pattern from week to week.

The first week of July will offer a very warm and humid pattern with increasing rain chances.

Week 2 will offer a cooler pattern but with continued rain chances.

Week 3 and 4 will return to above normal temperatures and rainfall near normal.

For the next two weeks, expect the average rainfall to be 2-4 inches across the state which is at or above normal.

Looking ahead to August, expect above normal temperatures with rainfall normal or above normal.

It should be noted that the above normal temperatures will be driven much more so by overnight low temperatures versus daytime maximum temperatures. Maximum temperatures will generally only be a few degrees above normal while overnight minimum temperatures will at times be 5-10 degrees above normal.

What's happening with hemp?

By: Ellen Essman, Senior Research Associate
Source: https://farmoffice.osu.edu/blog/wed-06262019-1227pm/ohio-ag-law-blog-what%E2%80%99s-happening-hemp

Since the passage of the 2018 Farm Bill, the world of agriculture has been all abuzz about the potential for adding a new crop to the rotation—industrial hemp. (Our post on the hemp provisions in the Farm Bill is available here.) The passage of the bill caused states like Ohio, which did not previously implement hemp pilot projects in 2014, to scramble to introduce state legislation allowing hemp to be grown within their boundaries. What is more, questions have arisen about how hemp and products derived from the plant should be regulated under the federal law.

Ohio continues to tinker with its hemp bill

Ohio's bill to legalize hemp is currently stalled in the Ohio House of Representatives. Speaker Larry Householder indicated that the House will not vote on the bill until September 2019. The hemp bill was first introduced in the Ohio Senate in February, passed the Senate in March, and advanced to the House floor on June 4. The bill still contains a lot of the same language and provisions from when it was introduced in February, which you can read about in our post here. However, since it was first introduced, numerous additions have been inserted into the language of the bill.

First, the original version of the hemp bill only required a license to cultivate hemp. The version currently on the House floor also requires a license to process hemp into different products. Moreover, the current version of the bill would make licenses for both cultivating and processing hemp valid for three years instead of five years. The new language in the bill also creates a Hemp Marketing Program, which would fall under the same laws and regulations as the grain and soybean marketing programs. Legally cultivated hemp would also be added to the list of agricultural uses permitted under the current agricultural use value (CAUV) for land, which would mean land used to grow hemp would qualify for a lower tax assessment.

The most recent version of the bill also adds many more topics to the list for the Ohio Department of Agriculture (ODA) to promulgate via regulation. The new version tasks ODA with adding conditions for acquiring hemp cultivation licenses, such as experience, and procurement of equipment, facilities, a sufficient amount of land, and financial responsibility requirements. ODA is charged with establishing a compulsory setback distance between hemp cultivation and medical marijuana cultivation, and with including regulatory language banning hemp cultivation or processing licensees from also cultivating or processing marijuana. ODA must also establish requirements for recordkeeping and reporting for licensees. These are just a few of the new regulations ODA is authorized to enact.

The most recent bill, much like the first version, includes overarching prohibitions. The current list of actions banned under the law is as follows:

- No person shall cultivate hemp without a hemp cultivation license issued by ODA;
- No person shall process hemp without a hemp processing license issued by ODA;
- A person who is licensed to cultivate or process hemp shall not violate any provision of the hemp law or regulations;
- A person subject to a corrective action plan issued by ODA shall not fail to comply with the plan;
- No person may transport hemp in violation of the hemp law or rules; and
- Any other requirements or procedures necessary to enforce the law.

The most recent rendition of Ohio's hemp bill would keep the provisions of the first version of the bill relating to negligent and reckless violations of the law, but new enforcement tools have been added. Finally, the new and improved hemp bill includes an emergency clause, which would make the legislation immediately effective upon its passage in both houses and signature by the governor.

FDA holds a hearing on the safety of CBD products

On May 31, the Food and Drug Administration (FDA) held public hearing to gather information and scientific data about cannabis products, so that such information can be used for future regulatory oversight by the agency. Industrial hemp is a type of cannabis plant, so the hearing included discussion of hemp and hemp-derived compounds, such as cannabidoil (CBD). In particular, FDA was interested in whether different amounts of cannabis in a product would affect people differently, or cause safety concerns, whether there is any data to show that cannabis is safe in food and dietary supplements, whether there are, or if there need to be, industry standards in the manufacturing of cannabis products to ensure safety and quality, and how marketing and labeling should be used to address potential risks connected to using cannabis products. The hearing did not result in any FDA decisions on cannabis products and their regulation, although it is an indicator that regulations will probably be coming soon. This means that sales of CBD oil and other products made from hemp will have to follow FDA regulations in order to be manufactured and sold. Information on the hearing is available here. As we reported in one of our Ag Law Harvest posts, those people still interested in submitting their comments about cannabis and cannabis compounds to the FDA can do so until July 2.

USDA releases its interpretation on transportation of hemp

In another federal development, on May 28, the United States Department of Agriculture (USDA) released a memo addressing the transportation of hemp. The 2018 Farm Bill

specified that states can ban hemp production and sales within their boundaries, but states cannot bar legally grown hemp from being transported through their state. Since hemp regulations under the 2018 Farm Bill have not yet been promulgated, technically, there is no hemp that has been legally produced under the new law yet. As a result, law enforcement in several states has continued to arrest people transporting hemp. Furthermore, in at least one decision in Idaho, a court determined that it was illegal to transport hemp. USDA released the memo to explain its disagreement with such interpretations.

In its memo, USDA says that the language decriminalizing hemp in the 2018 Farm Bill was "self-executing," so it is no longer illegal to possess hemp or THC from hemp. USDA further asserts that hemp grown under pilot programs allowed under the 2014 Farm Bill can be legally transported across state lines because the 2018 Farm Bill did not immediately repeal the pilot programs. USDA argues that this means that the hemp grown under 2014 pilot programs is legally produced, can be legally possessed, and therefore can be legally transported across state lines under the new Farm Bill.

It is important to note that USDA's memo is meant as guidance to the states, and is legally persuasive, but not legally binding. This means a person could theoretically still be arrested for transporting hemp through a state, and the courts may or may not uphold the state's decision. After the federal regulations under the 2018 Farm Bill are in place, however, there will be less wiggle room for states to carry out their own interpretations, which will likely but an end to this controversy.

What does it all mean?

While the regulation of hemp products, the transportation of hemp, and the legality of hemp in certain states may still be in question, all of this activity means that the state and federal governments are attempting to work all the kinks out. Over time, the rules regarding how to produce, process, sell, and transport hemp, will likely become more defined and clear. In the meantime, those interested in legally growing and processing hemp will have to play a waiting game.

Western Bean Cutworm Monitoring

By: Amy Raudenbush, Kimberley Gault, Mark Badertscher, Bruce Clevenger, CCA, Sam Custer, Tom Dehaas, Allen Gahler, Mike Gastier, CCA, Jason Hartschuh, CCA, Andrew Holden, Stephanie Karhoff, Rory Lewandowski, CCA, KJ Martin, Cecelia Lokai-Minnich, David Marrison, Les Ober, CCA, Eric Richer, CCA, Garth Ruff, Jeff Stachler, Mike Sunderman, Alan Sundermeier, CCA, Curtis Young, CCA, Andy Michel, Kelley Tilmon

Source: https://agcrops.osu.edu/newsletter/corn-newsletter/201920/western-bean-cutworm-monitoring

The Ohio State University Western bean cutworm (WBC) network has officially started monitoring traps as of last week. Green bucket traps containing a lure were placed along the edges of corn fields during the week of June 17th. The first trap count includes WBC adults captured during the week of June 24th. Overall, 22 counties monitored 62 traps across Ohio; which resulted in 12 WBC adults captured (0.2 average moths per trap) (Figure 1).

WBC

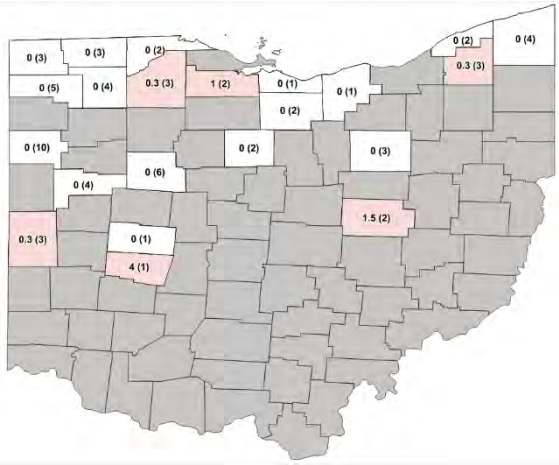


Figure 1. Average Western bean cutworm adult per trap followed by total number of traps in the county in parentheses for week ending June 29, 2019.

The adults are moths that begin to emerge in late June and peak flight occurs anytime between the 2nd through 4th week of July (Figure 2). Monitoring for the adults allows us to pinpoint the optimal time to begin scouting for egg masses as well as track peak flight across the state. While it is too early to tell what kind of year we will have with WBC, it is important to note that WBC prefers to lay eggs in pre-tassel corn.

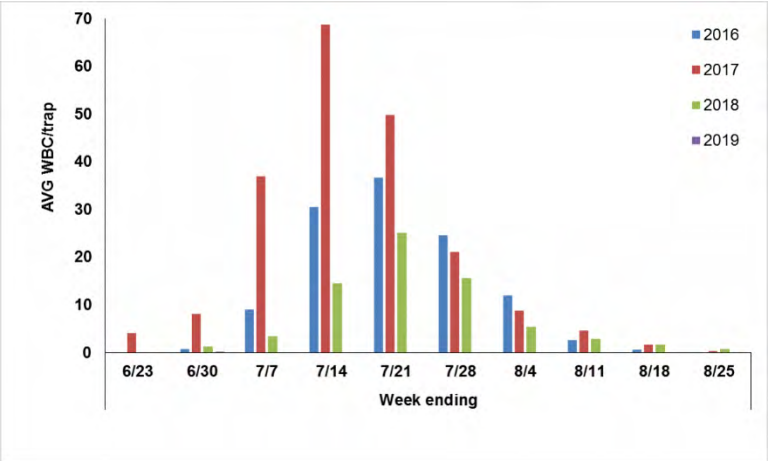


Figure 3. Average Western bean cutworm (WBC) adults for each week from June 23 through August 25 in 2016 (blue), 2017 (red), 2018 (green) and 2019 (purple).

More information on our trapping summary for the 2018 field season can be found

here: https://aginsects.osu.edu/sites/aginsects/files/imce/Trapping%20summary%202018%20AGINSECTS.pdf
Further information on WBC can be found in our fact sheet: http://ohioline.osu.edu/factsheet/ENT-40 and a free article in the *Journal of Integrated Pest Management:* http://jipm.oxfordjournals.org/content/1/1/A1

Ohio NRCS Announces Disaster Recovery Funding to Plant Cover Crops on Flooded Cropland Acreage

COLUMBUS, June 28, 2019 – Extreme weather conditions like the recent excessive rains and tornados have negatively impacted Ohio farmers. The U.S. Department of Agriculture's Natural Resources Conservation Service will invest $4 million to help Ohio agricultural producers recover. Technical and financial assistance is now available to producers who were unable to plant their crops, or who have experienced crop loss due to flooded or wet fields. This sign-up is an opportunity for farmers to plant a cover crop.

"NRCS can be a valuable partner to help Ohio landowners with their agricultural recovery effort," said State Conservationist Terry Cosby for NRCS in Ohio. "This special sign-up encourages farmers to plant cover crops to improve water quality and soil health, prevent soil erosion, and suppress weeds on areas not planted to crops."

NRCS will utilize the Environmental Quality Incentives Program (EQIP) for this special disaster recovery sign-up. EQIP is a voluntary conservation program that helps agricultural producers protect the environment while promoting agricultural production.

Cover crops provide an alternative to fields going fallow and remaining uncovered. Cover crops also improve soil vitality by adding nutrients and organic matter. Many fields that are saturated for a long period of time face a loss of soil organisms. Cover crop roots reestablish soil health and create pathways for air and water to move through the soil, which is key to restoring it.

There are significant changes with cover crops and we want producers to be successful in their 2020 planting year. Educational cover crop workshops and field days are readily available throughout Ohio to learn more. Additional information is also available on the NRCS website and farmers.gov/prevented-planting.

Landowners should coordinate with other USDA farm agencies when participating in related programs. It is a producer's responsibility to work directly with their insurance agent and RMA to ensure they understand their policy.

To apply for this special EQIP opportunity, visit your local USDA Service Center. Applications will be accepted beginning July 1, 2019 until funding is exhausted. ***USDA is an equal opportunity provider, employer and lender.***

What to do about Nitrogen Fertilizer in Corn?

By: Steve Culman, Peter Thomison, Alexander Lindsey, Harold Watters, CPAg/CCA, Greg LaBarge, CPAg/CCA, Laura Lindsey
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/201920/what-do-about-nitrogen-fertilizer-corn

The persistent rain this year may force many growers to sidedress their nitrogen in corn much later than what is considered normal. Other growers may be supplementing their earlier N applications to replace N lost from denitrification and leaching. The following are some suggestions based on common questions we've been hearing.

Do I need additional N?

Nitrogen is one the most dynamic crop nutrients in the soil and has many pathways for loss. It's leaky nature plus the fact that crops need it in such large quantities makes the task of knowing exactly how much N to apply very challenging. The excessive water this spring has clearly driven losses in many fields, but how much? Recent research at Ohio State has shown that ear leaf N, soil nitrate and grain yields were significantly reduced after just 2 days of standing water in the field. So N losses can occur quickly with excessive water.

What tools can help me determine if I need additional N?

A perfect indicator of N need does not exist, but some tools can help. Crop sensing tools like NDVI meters or crop sensing aerial imagery can provide insight if they are used routinely. Soil-based tests can also monitor N availability. Soil nitrate is the most widely-available and vetted test. A value of 25 ppm or higher indicates that there is sufficient N. More information can be found here: https://agcrops.osu.edu/newsletter/corn-newsletter/2017-20/manure-psnt-and-n-recommendations Ongoing research at Ohio State is looking to develop soil health indicators that can provide insight into how much N will be available over the growing season.

How late can N be applied?

Corn typically takes up less than 1 pound/ acre of N before the V4 stage, but N uptake rates will increase dramatically through tasseling. N uptake does continue beyond tasseling and into grain fill, but at much lower rates. Research at Ohio State and Purdue has shown that if sidedress applications are not made due to saturated conditions,

rescue N fertilizer applications can increase yields and reduce the negative impact of flooding. Note these responses are much more likely to occur in fields that had high N loss conditions (excessive water).

How much N should be applied?

This is a difficult question to answer, it's important to keep in mind that yield potential of corn can be severely restricted by excessive stress in the early phases. But corn that has simply grown too tall to sidedress might not have been severely stressed and yield potential could still be good. The potential of N loss and the extent of stress should be considered when determining N rates. It's also important to consider the likelihood of economic return to invested N fertilizer. This economic model is used to maximize farmer profitability: http://go.osu.edu/corn-n-rate

What is the best N source to use?

This choice will likely be driven by application equipment, but best practices for minimizing N losses should be considered and practiced if at all possible. Consider that N losses can increase as the growing season progresses and soil and air temperatures rise. For example, if broadcasting with urea, consider a stabilizer such as Agrotain to minimize volatilization losses.

Making High Quality Baleage

By: Mr. Jason Hartschuh
Source: https://dairy.osu.edu/newsletter/buckeye-dairy-news/volume-21-issue-3/making-high-quality-baleage

Spring 2019 has been challenging to say the least. Hay fields have disappeared due to winter kill and small grains matured before we could make hay. Making the forages that you have at the highest quality possible will be key. One way to maintain forage quality with small dry weather windows is to make silage or baleage instead of dry hay. The ideal conditions for baleage is to bale the hay between 40 to 65% moisture and wrap within 2 hours of baling. This process uses anaerobic conditions and the acids produced in fermentations to preserve hay. Baleage fermentation is slower than in haylage, often taking 6 weeks. When forage is baled between 25 to 40% moisture, it will not ferment properly and baleage at these moisture levels should be considered as temporary storage. During such situations, preservation is primarily a function of maintaining anaerobic, oxygen-limiting conditions. Mold is very likely at this moisture; higher bale densities and more wraps of plastic is required to better seal out oxygen. Baleage at this moisture will not maintain quality very long in storage, and thus, it needs to be fed as

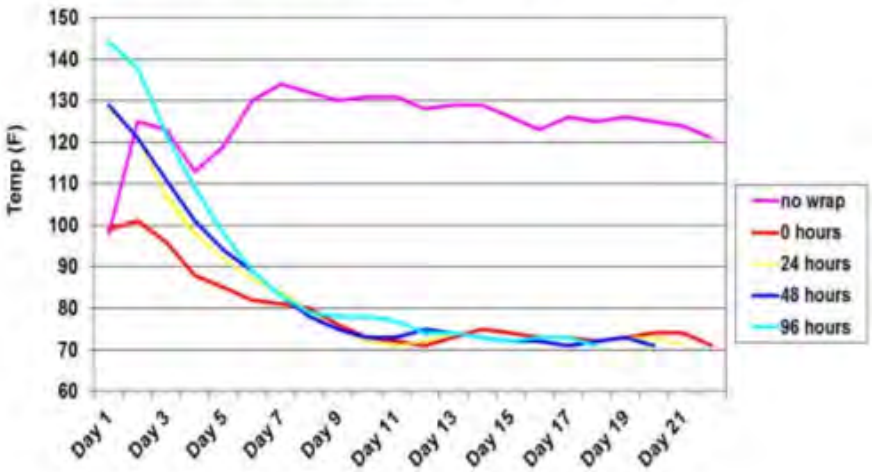
soon as possible. Baleage can be utilized as a plan or as a backup, but the best baleage is a plan and not a rescue.

If you are thinking baleage might be a needed option for you, either as planned or when your dry hay window disappears, start your plan before you are calling around to find a bale wrapper. The first consideration is how fast will you be able to feed the forage? This is a major consideration when selecting the type of bale wrapper you will buy or rent. The two options are individual wrappers, which are usually ideal if feeding 50 head or less from these bales. These machines can usually wrap 20 to 30 bales per hour and use twice as much plastic as a line wrapper. Line wrappers can wrap 40 to 50 bales per hour using less plastic, but they require uniformity between bales. When bales aren't uniform, there is oxygen captured between bales, often leading to spoilage within the tube of bales where bales meet. They require higher feed-out rates of ideally two bales per day. With a line wrapper, the end of the next bale is exposed to oxygen when you remove one bale to feed and the spoilage clock begins.

Determining where you will be storing bales ahead of time is very important. Making sure that the plastic is not punctured, allowing oxygen to enter and spoil the forage, due to storage site selection is critical. Ideal storage is in a well-drained location with year around access. Stone pads can work well as long as they don't puncture the plastic. Be weary of storing on stubble, grassy areas, or under trees. These areas often attract rodents, lead to plastic damage, or have sticks that fall and puncture the plastic. Stored forage should be checked weekly for damage and holes taped as soon as they are found.

While **KEEPING OXYGEN OUT** is the most important part of making high quality baleage, it starts with mowing. When baleage is the planned storage method, your harvest capacity-limiting factor will be how many bales you can wrap an hour with the ideal goal of wrapping the bales within 4 hours. Based on research done at the University of Wisconsin-Madison, we recommend laying swaths as wide as your mower will allow, helping preserve forage quality and speeds up drying to 65% moisture by 10.8 hours. When baling, your goal needs to be for the highest density bales that you can make. A study from Penn State shows that by increasing bale density from 6 $lb/ft^3$to $8lb/ft^3$,you gain an extra 12 hours of bunk life in the haylage due mostly to better bale fermentation. It is important to wrap bales as soon as possible after baling to avoid spoilage. The temperatures of bales that were wrapped each day from at baling to 4 days after baling are provided in Figure 1 (data from University of Wisconsin). With the temperature on day one representing the actual day of wrapping. These data show that just 24 hours after baling, the bales that are not wrapped were over 120ºF. While wrapping bales even 4 days after baling stopped the heating process, the quality of these bales still declined.

Figure 1. Effect of Timing of Bale Wrapping on Bale Temperature



Most bale wrap is one mil low-density polyethylene and bales need a minimum of 5 mils of plastic to seal out oxygen, requiring a minimum of 6 wraps. Types of plastic vary greatly in their stretchiness, which can reduce thickness by up to 25%. Some stretch is necessary so that the plastic stays sticky and seals well between the layers of plastic. Be cautious when wrapping in the rain as this will reduce the stickiness and allow more oxygen to penetrate, causing spoilage. Also, be cautious when wrapping forages that poke through the plastic which will require more layers. When oxygen enters the bale, they start to heat and quality declines when temperatures are over 120ºF. The amount of time until bales are wrapped and the number of mils of wrap significantly effects internal bale temperature. Figure 2 shows that 6 to 12 mils of plastic maintained similar bale quality. With less wraps than this, bale spoilage is often prevalent. The general recommendations for layers of bale wrap are provided in Table 1.

Figure 2 Effect of Plastic Wrap Thickness on Bale Temperature

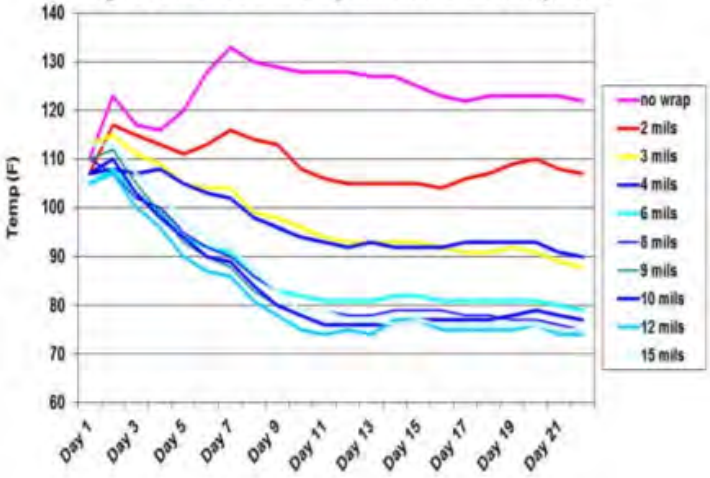


Table 1. General recommendations for layers of bale wrap.

Moisture (%)	Fermentations	Layers of plastic
< 30%	Possible, but not ideal for fermentation. Some mold growth likely	8 layers minimum to ensure oxygen exclusion
30 to 45%	Possible, but not ideal for fermentation. Some mold growth could occur	8 layers minimum to ensure oxygen exclusion
45 to 60%	Ideal for baleage production and fermentations	Use 6 layers of 1 mil film
60 to 70%	Possible, but high moisture can result in spoilage and low palatability	8 layers of wrap to ensure oxygen exclusion
>70%	Too wet for proper fermentation, baleage production is not recommended	Wait for the forage to dry down further before bailing

After bales are wrapped, handle them carefully using a squeeze so that plastic is not torn. If plastic is torn in storage, the tears should be taped as soon as you notice them. For this reason, bales should be inspected weekly in storage. Never use bale spears to move wrapped haylage until the day you are going to feed it. It is recommended that bales be fed within a year of wrapping. Haylage that is to wet, over 60% moisture, should be feed within 3 months, and haylage that is below 40% will not ferment well and should be fed within 6 months. Most of the time when we make baleage as a rescue, it falls in the range of needing to be fed within 6 months. When done right, baleage can last a year and make excellent feed that often has 5% better quality than dry hay. When done wrong, haylage can spoil, mold, and grow organisms that will make your animals sick; use your eyes and nose to be sure that the forage your going to feed is of high quality. Don't force animals to eat forage they don't want.

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Ohio State Fair to feature inaugural Dean's Charity Steer Show

COLUMBUS—A new event that will celebrate Ohio agriculture, Ohio communities, and Ohio children is planned for the 2019 Ohio State Fair. The inaugural Dean's Charity Steer Show will be held from 2–4 p.m. on Tuesday, July 30, at the Voinovich Livestock & Trade Center at the Ohio Expo Center and State Fair.
The event will be hosted by Cathann A. Kress, vice president for agricultural administration and dean of The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES).

"This will be an exciting event to bring together our community to celebrate agriculture and kids, both for our 4-H youth development programs as well as youth benefitting from the Ronald McDonald House," Kress said. "All proceeds from the show will benefit the Ronald McDonald House Charities of Central Ohio."

Thirteen celebrity exhibitors, most of whom have no livestock experience, will not only show a steer, but will also compete to see who can raise the most money for Ronald McDonald House Charities of Central Ohio. Each exhibitor will be paired with an experienced 4-H livestock family and their steer, and practice with them before entering the show ring.

Families and Ohio 4-H members will represent the counties of Athens, Carroll, Fayette, Geauga, Highland, Huron, Licking, Miami, Pickaway, Putnam, Tuscarawas, and Wood. Celebrity exhibitors, in addition to Kress, will include Matt Barnes, WCMH-TV Channel 4 anchor; Mark Berven, president and chief operating officer of Nationwide Property & Casualty; Bobby Carpenter, former Ohio State and NFL football player, and Anthony Rothman, sports talk hosts for "Carpenter and Rothman" on 97.1 FM The Fan, Columbus; Jay Edwards, small business owner from Athens County; Clay Hall, sports director for Columbus' WSYX 6/Fox 28 TV; Woody Johnson, host of "Woody and the Wake-Up Call" on WCOL-FM 92.3, Columbus;

Clark Kellogg, former NBA player and lead CBS Sports college basketball analyst; Rick Malir, chief executive officer and co-founder of City Barbeque; Bob McElligott, sports broadcaster for the Columbus Blue Jackets; Shelley Meyer, former first lady of Ohio State football and instructor for Ohio State's College of Nursing; Bob Peterson, public servant and eighth-generation farmer from Fayette County; and Adam Sharp, executive vice president of the Ohio Farm Bureau Federation.
"Every dollar we raise means families can stay together only steps away from their hospitalized child during one of the most stressful times of their lives," Kress said. "Last year, more than 4,500 families were provided 82,000 nights of lodging by the Columbus Ronald McDonald House, the largest Ronald McDonald House in the world."

The facility provides a home-away-from-home for families facing a child's illness and hospitalization. Located across the street from Nationwide Children's Hospital, the Columbus Ronald McDonald House provides not only lodging, but also meals, a place to rest, laundry facilities, an exercise room, informal gathering areas, and activities for siblings of hospitalized children.

The Dean's Charity Steer Show, which will be an annual event, will be coordinated by CFAES, the Telhio Credit Union, and the Ohio Cattlemen's Association.
To learn more and to donate to your favorite celebrity exhibitor,
visit give.osu.edu/deanscharitysteershow.

'Planting green' cover-crop strategy may help farmers deal with wet springs

By: Heidi K. Reed, Heather D. Karsten, William S. Curran, John F. Tooker, Sjoerd W. Duiker.
Source: Planting Green Effects on Corn and Soybean Production. Agronomy Journal, 2019; 0 (0): 0 DOI: 10.2134/agronj2018.11.0711

Allowing cover crops to grow two weeks longer in the spring and planting corn and soybean crops into them before termination is a strategy that may help no-till farmers deal with wet springs, according to Penn State researchers.

The approach -- known as planting green -- could help no-till farmers counter a range of problems they must deal with during wet springs like the ones that have occurred this year and last year. These problems include soil erosion, nutrient losses, soils holding too much moisture and causing a delay in the planting of main crops, and main-crop damage from slugs.

"With climate change bringing the Northeast more extreme precipitation events and an increase in total precipitation, no-till farmers especially need a way of dealing with wet springs," said Heather Karsten, associate professor of crop production ecology, whose

research group in the College of Agricultural Sciences conducted a three-year study of planting green. "We wanted to see if farmers could get more out of their cover crops by letting them grow longer in the spring."

As cover crops continue to grow, they draw moisture from the soil, creating desired drier conditions in wet springs for planting corn and soybeans. With planting green, after those main crops are planted into the cover crops, the cover crops are typically terminated by farmers with an herbicide. The decomposing cover crop residues then preserve soil moisture for the corn and soybean crops through the growing season.

The study took place at five sites over three years -- on three cooperating Pennsylvania farms that plant no-till in Centre, Clinton and Lancaster counties; at Penn State's Russell E. Larson Agricultural Research Center in Centre County; and at the University's Southeast Agricultural Research and Extension Center in Lancaster County.

At each location, researchers compared the results of planting green to the traditional practice of terminating cover crops 10 days to two weeks before planting the main crops of corn and soybeans.

Cover crops included in the study were primarily rye and triticale, as well as a mixture of triticale, Austrian winter pea, hairy vetch and radish in one location.

Findings of the research, recently published online today in Agronomy Journal, were mixed, according to study leader Heidi Reed, a doctoral student in agronomy when the research was conducted who is now an educator with Penn State Extension, specializing in field and forage crops.

Reed noted that planting green appeared to benefit soybean crops more than corn.

Planting green increased cover crop biomass by 94 percent in corn and by 94 to 181 percent in soybean.

However, because planting green results in more cover crop residues acting as mulch on the surface, it also cooled soils from 1.3 to 4.3 degrees Fahrenheit at planting.

At several of the sites during the study years, main-crop plant populations were reduced when planted green, possibly due to the cooler temperatures slowing crop emergence and nutrient cycling, and/or from cover crop residue interference with the planter. In corn, in a few cases, crop damage by slugs was also increased when corn was planted green.

No-till farmers struggle with slugs damaging corn and soybean seeds and seedlings because no-till doesn't disturb the soil and kill slugs or bury their eggs the way tillage does.

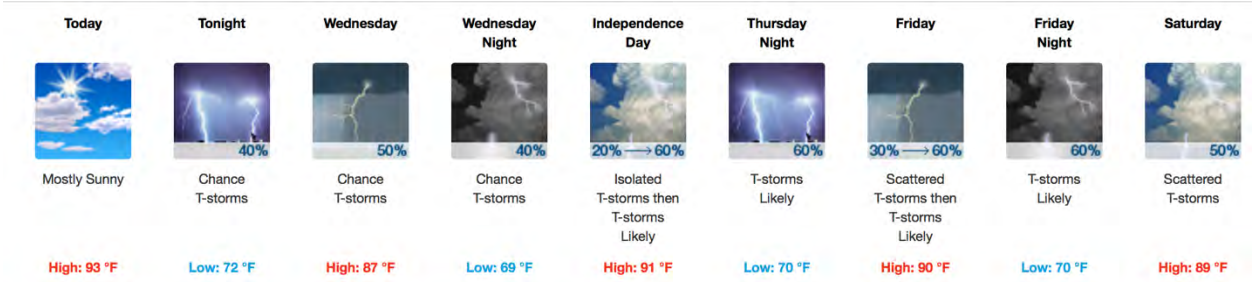
"No-till with cover crop residues also provides habitat for some crop pests and keeps the soil moist -- so no-till cover crop systems tend to be great slug habitat," Karsten said.

"We had hoped that letting cover crops grow longer in the spring would supply alternative forage for the slugs, as well as habitat for slug predators such as beetles -- and these factors would reduce slug damage of the main crop seedlings. But we did not see a consistent reduction in slug damage on main crops as we expected."

When researchers compared crop-yield stability between the two cover crop termination times across the multiple locations and years, corn yield was less stable and reduced by planting green in high-yielding environments; however, soybean yield was not influenced by planting green.

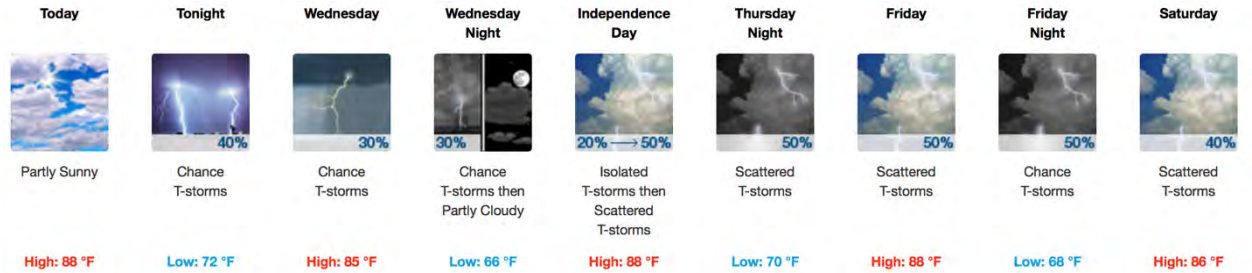
"We concluded that corn was more vulnerable to yield losses from conditions created by planting green than soybeans, " Reed said. "Since soybean yield was stable across study locations, and not affected by cover crop termination date, we suggest that growers who want to extend cover crop benefits and avoid the risk of crop-yield reduction from planting green should consider trying it first with soybean."

Extended Forecast – NOAA, Weather.gov, Cortland, OH



Today	Tonight	Wednesday	Wednesday Night	Independence Day	Thursday Night	Friday	Friday Night	Saturday
Mostly Sunny	Chance T-storms	Chance T-storms	Chance T-storms	Isolated T-storms then T-storms Likely	T-storms Likely	Scattered T-storms then T-storms Likely	T-storms Likely	Scattered T-storms
	40%	50%	40%	20% ⟶ 60%	60%	30% ⟶ 60%	60%	50%
High: 93 °F	Low: 72 °F	High: 87 °F	Low: 69 °F	High: 91 °F	Low: 70 °F	High: 90 °F	Low: 70 °F	High: 89 °F

Extended Forecast – NOAA, Weather.gov, Jefferson, OH



Today	Tonight	Wednesday	Wednesday Night	Independence Day	Thursday Night	Friday	Friday Night	Saturday
Partly Sunny	Chance T-storms	Chance T-storms	Chance T-storms then Partly Cloudy	Isolated T-storms then Scattered T-storms	Scattered T-storms	Scattered T-storms	Chance T-storms	Scattered T-storms
	40%	30%	30%	20% ⟶ 50%	50%	50%	50%	40%
High: 88 °F	Low: 72 °F	High: 85 °F	Low: 66 °F	High: 88 °F	Low: 70 °F	High: 88 °F	Low: 68 °F	High: 86 °F

Upcoming Event

THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

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INAUGURAL EVENT

Don't Miss It! **JULY 30, 2019 @2 p.m.**

All proceeds benefit:
Ronald McDonald House Charities® Central Ohio

CATHANN A. KRESS
VICE PRESIDENT AND DEAN

2019

Ohio Expo Center & State Fair
Voinovich Livestock & Trade Center

DEAN'S CHARITY STEER SHOW

Local celebrity exhibitors partnered with a 4-H member and their steer.

Awards include: Best Steer, Showmanship, and People's Choice.

A "sale," (same as a livestock sale but no actual transfer of livestock) raising funds to benefit the Ronald McDonald House Charities® of Central Ohio.

cfaes.osu.edu/deanscharitysteershow

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