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OHIO STATE UNIVERSITY EXTENSION

COSHOCTON COUNTY AGRICULTURE & NATURAL RESOURCES

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Hello Coshocton County! 2019 will be one of those years which we will talk about for decades. What a crazy wet weather year we have had. For local farmers we are actually in a lot better shape than the rest of Ohio but the torrential rains of last week have caused flooding in some of our river bottom ground which the corn and soybeans in those fields will never recover from.

On the good note, it appears as we are getting a brief break from the rain (although we received an unwelcomed shower here in Coshocton at 5:30 pm!). A lot of hay is on the ground. Keep praying for drier weather and those impacted by our flooding.

We had a really good Dairy Farm Bill Meeting last Friday. Thanks to the Farm Service Agency for pulling this meeting together for our dairy producers.

I have been out and about the county pulling soil samples this week as part of a state-wide project looking at the levels of **Soybean Cyst Nematodes** in soybean fields. If you have soybean field which is not performing up to par, than it could be due to soybean cyst nematode. I still have a few slots still available for testing, so if you would like to be part of this project, just call me at the Coshocton County Extension office at 740-622-2265 or drop me an email at marrison.2@osu.edu.

Sincerely,

David Marrison

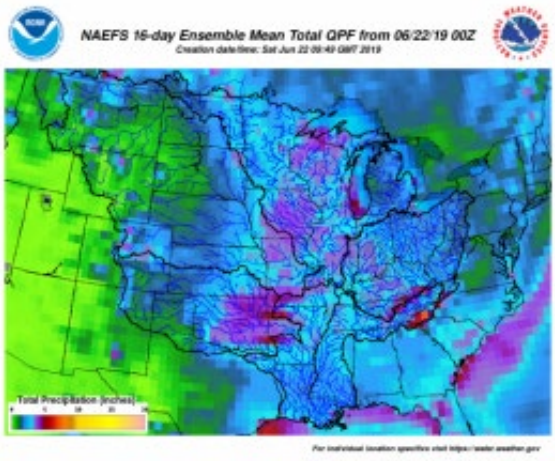
Coshocton County OSU Extension ANR Educator

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Wetter Than Normal Weather Still Favored for July

By Jim Noel
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/201919/wetter-normal-still-favored-much-ohio-much-july

After a wet start to the last week of June, we will see some drying for the second half of the week. As a dome of warm air builds aloft, it will produce an above normal temperature week ahead with maximum temperatures mostly in the 80s and minimum temperatures in the 60s and 70s across the state as well.



Look ahead to the week 2 outlook across Ohio, The NOAA Climate Prediction Center is calling for a greater chance of above normal temperatures and rainfall. This will be triggered by storms riding along the northern boundary of a very warm high-pressure system to the south of Ohio. The latest CPC week two outlooks at be found at https://www.cpc.ncep.noaa.gov

Looking further ahead to week 3 and week 4 outlooks, odds favor a return to slightly below normal temperatures. This will be a function of below normal maximum temperatures. However, minimum temperatures will remain at or above normal due to the high soil moisture conditions and the humid airmass in place. Rainfall is continuing to lean above normal especially in the western half of the heavy agriculture areas of Ohio. See the attached images. The week 3/4 outlooks can also be found at https://www.cpc.ncep.noaa.gov/

The two-week average rainfall total still looks above normal as discussed above with rainfall averaging 2-4 inches across Ohio. Normal rainfall for Ohio for the two week period is 1.50-2.00 inches.

Making High Quality Baleage

By: Mr. Jason Hartschuh, Extension Educator for Agriculture and Natural Resources, Crawford County
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.

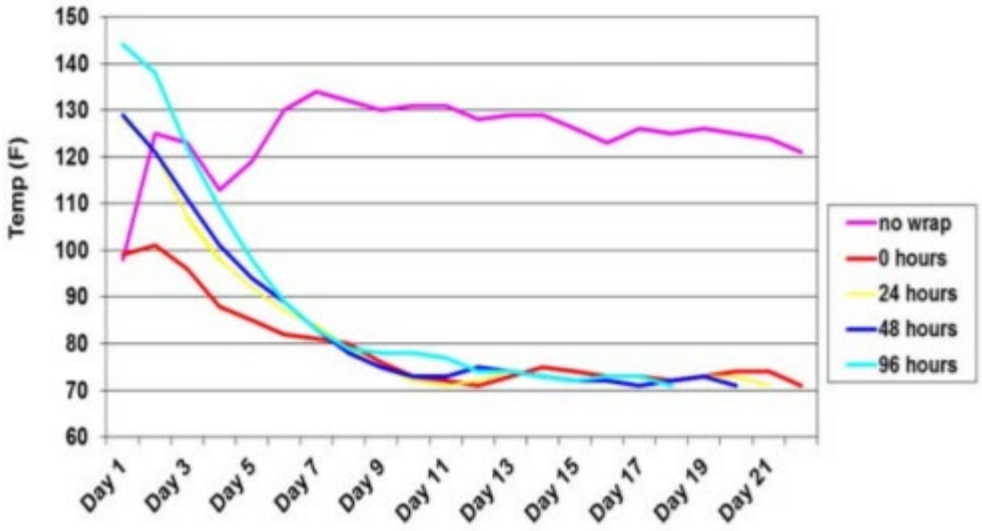
If you are thinking baleage might be a needed option for you, either as planned or when your dry hay window disappears, start your plan before you are calling around to find a bale wrapper. The first consideration is how fast will you be able to feed the forage? This is a major consideration when selecting 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.

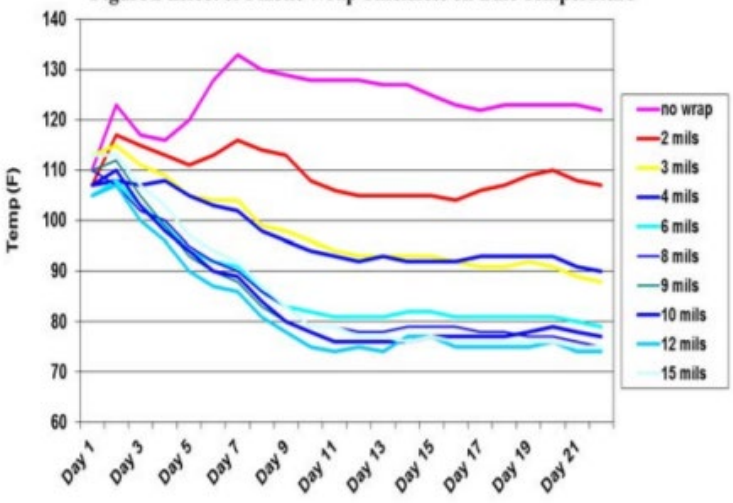
While KEEPING OXYGEN OUT is the most important part of making high quality baleage, it starts with mowing. When baleage is the planned storage method, your harvest capacity-limiting factor will be how many bales you can wrap an hour with the ideal goal of wrapping the bales within 4 hours. Based on research 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/ft3 to 8lb/ft3, 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

Figure 2 Effect of Plastic Wrap Thickness on Bale Temperature



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.

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.

References

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Undersander D., and C. Saxe, "Field Drying Forage for Hay and Haylage" UW Extension Focus on Forage", April 2013, https://fyi.extension.wisc.edu/forage/drying-forage-for-hay-and-haylage/ Accessed May 2019

Wet Weather & Soybean Stand

By: Laura Lindsey and Alex Lindsey
Source:

Saturated soils after soybean planting can cause uneven emergence and stand reductions of varying extent depending on the stage of the soybean plant and other environmental factors including temperature and duration of saturated conditions. Additionally, increased disease incidence may further reduce plant stand.

Saturated Soil Prior to Germination: While soil moisture is necessary for germination, soybean seeds will not germinate when soils are saturated because oxygen is limiting.

Saturated Soil During Germination: Saturated soils during soybean germination may cause uneven emergence. In a laboratory study, soybean germination was reduced by ~15% after only one hour of flood conditions (Wuebker et al., 2001). After 48 hours of flood conditions, soybean germination was reduced 33-

70% depending on when imbibition (seed taking up water) began relative to the flooding conditions. Practically, for Ohio, this means if soybean seeds were further along in the germination process when flooding occurred, the seeds will be more susceptible to flooding stress.

Saturated Soil During Vegetative Stage: Warmer temperatures will cause soybean plants to die faster. At temperatures 80 degrees and greater, submerged soybean plants will likely due in 24 to 48 hours. However, cool, cloudy days (…and we've had plenty this year) and clear nights increase the survival potential of a flooded soybean crop. Flooded plants may also exhibit poor nodulation, resulting in yellow, stunted plants.

Evaluate Stand: To quickly estimate stand, count the number of plants in 69'8" of row for 7.5-inch row spacing, 34'10" for 15-inch row spacing, or 17'5" of row for 30-inch row spacing. These counts represent 1/1000th of an acre (i.e., 120 plants in 7.5-inch row spacing = 120,000 plants/acre).

Keep in mind, the effect of plant population on yield is very small over the normal range of seeding rates. For soybeans planted in May, final populations of 100,000 to 120,000 plants/acre are generally adequate for maximum economic return. For example, in our seeding rate trials in Clark County, 100% yield (77 bu/acre) was achieved with a final plant stand of 125,000 plants/acre. However, 95% yield (73 bu/acre) was achieved with only 77,000 plants/acre. (This trial was planted the second half of May in 15-inch row width.)

Source:
Wuebker, E.F., R.E. Mullen, and K. Koehler. 2001. Flooding and temperature effects on soybean germination. Crop Sci. 41:1857-1861.

Using Corn as a Cover Crop

Author(s): Peter Thomison, Ben Brown, Sam Custer, Greg LaBarge, CPAg/CCA, Sarah Noggle, Mark Sulc, Eric Richer, CCA, Harold Watters, CPAg/CCA
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/201919/using-corn-cover-crop

Based on information from across the Corn Belt, including states where they have more experience with delayed planting of corn (University of Wisconsin - http://wisccorn.blogspot.com/2019/06/B102.html) and Iowa State University - https://crops.extension.iastate.edu/cropnews/2019/05/cover-crop-options-prevented-planting-fields), these are our best recommendations for using corn as a cover crop.

Although the yield potential of corn planted in July for grain and silage is very low, corn makes an excellent "emergency" forage when planted in July. Moreover, unlike some other forage crops, Ohio producers know how to grow it. We also are aware of limited seed supply for several alternatives that typically could be used. Farmers should consult with their insurance agent to see if harvesting as forage will affect any current or future insurance payments on prevented plant acres.

As a cover crop, corn can establish a canopy rapidly. It has a deep root system that is highly effective in scavenging nutrients. Even when planted as late as July, it can produce a significant residue.
To optimize the use of corn as a cover crop, consider the following agronomic practices.

1. It is illegal to use seed or grain with transgenic hybrid (bioengineered or GMO) to plant a corn cover crop. For more specifics, see https://www.agcelerate.com/Home (URL verified 6-25-2019).
2. Plant corn at a higher seeding rate than normal: 40,000 seeds per acre or greater and in narrow rows (22-inch row spacing or less). This will promote canopy closure and result in better erosion and weed control (OSU Agronomy Guide, 15th edition - https://stepupsoy.osu.edu/sites/hcs-

soy/files/Ohio%20Agronomy%20Guide_11APR18.pdf URL verified 6-25-2019).

3. Corn may be the only choice for a cover crop depending on herbicide applications earlier in the year.
4. If corn planted in July as a cover crop produces seed, grain produced must not be harvested.
5. Corn seeded as a cover crop on Prevented Planting acres may be hayed, grazed, or chopped on or after September 1 for 2019 - https://www.rma.usda.gov/News-Room/Press/Press-Releases/2019-News/RMA-Announces-Change-to-Haying-and-Grazing-Date (URL verified 6-25-2019).
6. Before grazing, check the herbicide label to ensure there are no restrictions on feeding forage to livestock.
7. Reduce tillage as much as possible (no-tillage preferable) to ensure soil moisture necessary for germination and to reduce erosion potential while the cover crop develops.

Monitoring Traps in Place in Coshocton County

By: David Marrison, OSU Extension

Coshocton County Extension is participating in four state-wide research projects this summer. Two of these projects are helping to develop a base line on the presence of some insect pests in agronomic and horticulture crops.

Our first monitoring project involves trapping for the **Brown Marmorated Stinkbug**. This pest is one we all can relate to as this bug loves to invade our homes when the weather turns chilly in the fall. This bug is native to Asia and was first detected in the United States in Pennsylvania in 1998. From there, it began its spread throughout the United States. Here in Ohio it was first discovered in Columbus, Ohio in 2007.

The Brown Marmorated Stinkbug causes injury by sucking sap from fruits and stems. Host plants include peaches, apples, bell peppers, eggplant, swiss chard, sweet corn, field corn, soybeans, and a variety of other vegetable and fruit crops. It can also feed on trees such as catalpa and redbud. The good news is that they are not a human health concern—minus of course, the smell they exude when you squish them or when they are bugging you during the winter in your home.

Ohio is one of 15 States that is involved in a USDA-funded research and extension project focused on better understanding and managing this stink bug on specialty crops. I am pleased that Coshocton County has joined the monitoring effort and I am very appreciative that Bob Clark of Clark's Orchard has allowed us to place three Stinkbug traps in his orchard. We will collecting from these traps all the way through this fall.

The second monitoring project OSU Extension is involved with this summer is trapping for the **Western Bean Cutworm.** This is a relatively new pest for farmers to deal with and when you hear the name, Western Bean Cutworm, it may make you think it impacts soybeans the greatest but this is not the case, it actually does more damage to corn.

The western bean cutworm has been historically found in the western Corn Belt, where it was a common pest of dry beans and a sporadic pest of corn. Starting in the year 2000, economic damage from this pest was found on corn in Iowa and Minnesota. Since then, this pest has continued to rapidly spread eastward, reaching Ohio in 2006. The easiest way to monitor the presence of this pest is by trapping the adult moths.

During late June through early August, the adult moths fly into Ohio and will lay eggs on the upper leaves of the corn plants, and once the eggs hatch, larvae begin feeding on the tassels silks or ears of the corn. Depending on the crop's growth stage, yield losses can be significant.

In our monitoring for western bean cutworm adults, 2 traps have been placed in Coshocton County. One of these traps is on the school farm at River View High School and the other at Wen Mar Farms. I appreciate both locations for allowing us to put out a trap. I will be checking these traps every Monday and we already found a moth in each of the traps this week. It will be interesting to see how many moths we catch this summer. It has historically been found in large concentrations across the Lake Erie Counties. We are pleased that Coshocton County is now part of this state wide monitoring effort.

If you are interested in learning more about the Brown Marmorated Stink Bug or the Western Bean Cutworm just call the Coshocton County Extension office at 740-622-2265 and we will be happy to send you a factsheet on them.

From the Heart

By Sarah Noggle
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/201919/heart

In trying times, where do you turn? Farmers are some of the most humble, down to earth people I know and they thrive on being able to feed the country. The stresses these farmers and farm families are enduring are hard on everyone involved. While they know that they work in a business where risks are always present due to weather, they sometimes need support and encouragement to work through their own mental and physical stress and even fatigue during these times. Most of the farmers live on the land they farm and don't have the chance to get away from these stresses. Most of us that work, work at a place that when it gets stressful, we get to leave for the day. Farmers, on the other hand, don't usually have this option. They live, sleep and breathe their occupation.

There are so many decisions that farmers are making today into what this generation knows as uncharted territory. They are worried about wet weather, how will I feed my livestock and where will my income come from? Maybe you are a farmer reading this or maybe the farm wife, the neighbor, the family member or an agribusiness person or neighbor, but one thing is for sure farmers are the heartbeat of many communities. This week in the CORN newsletter, I am asking you who are reading it to take into account some steps outside your normal routine.

1. Slow down and breathe - farmer, farm family or other - we live in such a fast-paced world. There are decisions that are being made that effect so many people. We are truly all in this together. We need to be kind and a friend at all times.
2. Take five minutes to take care of yourself. Depression and anxiety are real and you may seem like you can't even put one foot in front of the other today. Let me tell you something, you are valuable, you are needed and it will be okay. Maybe not okay in the sense that you think or the direction or path that was in your "Plan A" but you will be okay.
3. Give a smile, hello, nod or wave to another human being. Remember it takes more muscles to frown than it does to smile.
4. If you feel these families need some extra help, reach out to your local Extension Office and they will help point you in the right direction.

The CORN newsletter is full of information to help in the decision process. No, it's not all rainbows and unicorns – it is real-life decisions. Farmers, this week as you are reading the articles, remember these few things. Write down your options (the pros and cons). Talk with your local Extension Educator or call them out for a farm visit. We, at OSU Extension, are here for you. We care about you even if you have never stepped foot into our office. Our service to you is free.

Additionally, as you read through the articles, think about your options. When it comes to questions on prevent plant acres contact your insurance agent. Don't just assume they know your plans. This newsletter contains recommendations based on agronomic principals and potential considerations from an agricultural production perspective. If the management will be applied to crop insured acres you should check any impact that the management change will have on current or future insurance payments and eligibility.

Please share this information in any way possible - forward the email, tweet the post #FarmLivesMatter, share to your non-farm friends, Snapchat it to your kids, post on Instagram, print it off and drop it at church or even the local grocery store. The agriculture community is powerful and has many opinions, stresses, and directions. Some people have no clue what is going on in an agriculture world, share with them.
Lastly, I am asking the community to check on your farmer neighbors and their families. Drop into the farm to check on the farmer and family. Bring them dinner but don't just drop it off actually share some time with that family. They may come up with every excuse that the house is not clean or I am too busy. Maybe even drag them to your house for dinner. They may not want you there but they need you there as their support system. Getting a vacation from the farm is probably what many families are eliminating due to financial pressures, but human interaction is one powerful value. While a simple was to check in text message don't work in these situations. They need your empathy not your sympathy. Go old school and play the board game, shut down the social media and have a conversation. These things only cost your time. Did you ever think about giving back to those people who help feed the world?

June is Dairy Month

By: David Marrison, OSU Extension
For publication in The Beacon on June 26, 2019

Hello Coshocton County! One of the cornerstones of Coshocton County agriculture has been our dairy industry. I have always been impressed with the dedication our local dairy farmers have to their businesses. They have a spirit that transcends all reason even in the face of adversity.

The past few years have been full of adversity as milk prices continue to be at an all-time low. Over production, weakening demand, and trade wars have really impacted milk prices. And now, our rainy weather has made it difficult for quality forages to be made.

In spite of the challenges, Coshocton County still has 50 dairy farms which produce either Grade A (fluid milk) or Grade M (manufactured grade) milk. In total, almost 3,300 dairy cows are milked each day here in Coshocton County. Collectively, these cows produce almost 9 million gallons of milk each year or about 2,700 gallons of milk per cow per year.

Since 1937, June has been recognized as National Dairy Month. During the month, we pause to honor the hard work of our nation's dairy farmers and highlight the importance of dairy in our diets. Just imagine a world without ice cream, butter, cheese, or a cool refreshing glass of milk! To me it would be unbearable not to have these products around the house! In fact, as a nation, we love dairy products as the average American drinks over 23 gallons of milk per year, eats 22 pounds of ice cream, and munches away on over 33 pounds of cheese.

Do you know that Thomas Jefferson was the first "Big Cheese?" The phrase was coined when a cheese-maker gave a 1,235-pound cheese wheel to President Jefferson in 1801. Passers-by were amazed by the spectacle and dubbed it "the big cheese."

Speaking of cheese, do you realize that our very own Pearl Valley Cheese produces enough cheese that every person in Coshocton County could eat 1 pound of cheese every day of the year. That is a lot of cheese!

Do you know milk is the only major crop that is harvested daily? Do you know the average cow produces 90 glasses of milk each day and that more ice cream is produced and eaten in the United States than in any other country? Do you know that it takes 21.2 pounds of whole milk to make one pound of butter and 10 pounds of milk to make a pound of cheese? Do you know that a Holstein cow's spots are like a fingerprint or a snowflake? No two cows have exactly the same pattern of spots!

With all the alternative beverages and snacks on the market today, many are under the impression that the consumption of milk has declined during the past decade. This is not true, instead, consumption of dairy products has remained steady.

But we can do better! How about helping out our local dairy farmers by increasing your consumption of milk, cheese, yogurt, ice cream and other dairy products. Rain, shine, sleet, snow or even flooding does not slow our dairy farmers from producing high quality milk 365 days a year!

Coshocton County residents as we close the month of June, do not hesitate to ask the questions, "Got milk?" or "Where is your milk mustache?" of your neighbors. In fact, wouldn't it be nice to walk down the street and hear someone say; "Ich liebe die milch," "J'aime let lait," "Yo amo la leche," or "Ik hou van melk." Because no matter whether you say it in German, French, Spanish, or Dutch, it is okay to say, "I love milk!" Have a good and safe day!

2019 Challenge: Forage Production Options for Ohio

By: Mark Sulc, Bill Weiss, Dianne Shoemaker, Sarah Noggle
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/201919/2019-challenge-forage-production-options-ohio

Across Ohio, farmers are facing challenges unimagined just four months ago. Widespread loss of established alfalfa stands coupled with delayed or impossible planting conditions for other crops leave many farmers, their agronomists and nutritionists wondering what crops can produce reasonable amounts of quality forage yet this year. In addition, frequent and heavy rains are preventing harvest of forages that did survive the winter and are causing further deterioration of those stands.

With July 1st just around the corner, Mark Sulc, OSU Extension Forage Agronomist and Bill Weiss, OSU Extension Dairy Nutritionist, help address this forage dilemma. If one is looking for quality and quantity, what are your best options? The article starts with a quick summary of options and then dig into some of the pros and cons of these options (listed in no particular order of preference).

Options

1. Corn plant silage– Still has the highest potential yield but silage quality will decline with delayed planting and getting it harvested at the right moisture is the biggest risk.
2. Forage sorghum – Brown midrib (BMR) varieties are best for lactating cows. Conventional varieties are okay if BMR seed is not available.
3. Sorghum-sudangrass - BMR varieties are best for lactating cows. Conventional varieties are okay if BMR seed is not available.
4. Sudangrass - BMR varieties are best for lactating cows. Conventional varieties are okay if BMR seed is not available.
5. Oat or spring triticale silage – Safer option than corn silage but lower yield than corn silage. It can be mowed and allowed to wilt to correct harvest moisture. Spring Triticale is commonly planted as a hay or haylage crop and can produce high levels of dry matter under challenging conditions. It is later maturing than oats or barley and will maintain its forage quality for an extended harvest window.
6. Oat and Winter Rye mixed silage – Has the advantages of oat silage with a slightly higher yield in the fall and the potential for rye silage harvest in the spring.

7. Italian Ryegrass silage – Small fall harvest with three cuttings next year starting in April.
8. Soybean silage – If you need a replacement for alfalfa, soybean silage is a reasonable alternative. Care must be taken with spray programs that allow harvest as a forage.
9. Teff – Is a warm-season annual grass best suited for Sheep and Beef, lower yield than sorghum grasses despite multiple harvests being possible.
10. Millets – Millets are a major grain crop worldwide and best suited for beef and sheep, many will produce a single harvest.
11. Brassicas - High in energy, but very low in fiber (more like a concentrate) with high moisture content. Only for grazing by Sheep and Beef.

Note: These forage options all require adequate nitrogen fertilization to maximize yield potential. Check any potential herbicide restrictions from the previously planted crop. Work with your nutritionist to incorporate these alternative forages into properly balanced rations.

Option 1: Corn silage

The biggest risk with late-planted corn is getting moisture down to a reasonable level at harvest. With current soil moisture conditions, it will be a crap shoot when many farms will be able to plant. Corn planted into July will not make corn silage as we know it because it won't have many ears and will be low in starch. This silage will primarily be a source of fiber with potential yields about half of normal.

Harvesting corn silage at the proper moisture will be critical to a successful fermentation (drier than 30% DM up to about 40% DM). Before a frost, many of these plants will be about 20% DM. Some late-planted corn may require a frost to allow the plant to dry down. Because leaves die after frost, plants look drier than they actually are, so measuring dry matter regularly is essential. When a plant is frosted, the window of opportunity to harvest as silage - before the plant is too dry - may be limited depending on local weather conditions. Harvest timing is critical, so regularly monitor plant moisture post-frost and be ready to harvest when conditions are met. Another possible option for corn with no ear would be to mow at some point before a killing frost and wilt the crop to the proper dry matter before chopping and ensiling the crop.

This high fiber feed will probably contain about 60% NDF. Work with your nutritionist as substantial diet changes must be made. More than likely these changes will include increased feeding of corn grain. With higher corn prices looming, this is not an attractive option, but the tradeoff is feeding more expensive hay. Check with seed suppliers for any seed treatment restrictions on the use of the corn seed for silage or forage when planted this late.

Option 2-4: Forage sorghum, Sorghum-sudangrass hybrids, Sudangrasses

Brown midrib (BMR) varieties are most desirable, but the seed may not be available. If this is the case in your area, conventional varieties are your next best choice. Plant by July 15th and plan for one cutting. A mid-September cutting will optimize quality for milking cows. An early October cutting will have a much higher yield, but the higher-fiber forage will be more suited for heifers, dry cows, or beef cattle.

Sudangrass harvested at 50 days of growth is an okay feed for dairy cattle. At a 60-day harvest range, it is more challenging to feed to dairy cows for good milk production.

Challenges: If the sorghums are frosted, prussic acid formation in the plant is an issue. It can be mitigated by ensiling, but avoiding frost is the best option.

Option 5: Oat or Spring Triticale silage

Do not plant these for silage before the last week of July or overall yield will suffer. The overall potential yield is the lowest of the forage options. Yields of 1.5 to 3 tons of DM per acre (about 5 to 5.5 tons at 30 to 35% DM) of chopped oat silage are possible if planted in early August. Harvesting between late boot, or early heading, will optimize quality.

The potential feed value of oat will be similar to mid-bloom alfalfa. As a grass, inclusion rates in a lactating cow diet would have to go down, but it is a very acceptable feed.
Spring Triticale is a biotype of the hybrid cross between cereal rye and wheat (there is a winter biotype that acts like winter wheat). In our research, oat averaged slightly higher fall yields than spring triticale, but this varied with season. Spring triticale yields a higher feed value similar to early mid-bloom alfalfa. Seed cost for spring triticale will be higher than oat, but it is later maturing than oat or barley and will maintain its forage quality for an extended harvest window. Spring triticale yields a higher feed value similar to early to mid-bloom alfalfa.

These forage options all require adequate nitrogen fertilization to maximize yield potential. Check potential herbicide restrictions from the previously planted crop. Potential challenges include rust infection in damp conditions, especially with oat. Rust could impact yield and feed quality and depends on when the infection of rust occurs during the growing season.

Option 6: Oat or Spring Triticale and Cereal Rye mixed silage

Planting mixtures of oat or spring triticale and cereal rye will allow a fall harvest as well as a spring harvest. Note that the window for harvesting rye silage in the spring to optimize feed quality is usually very short. The rye harvested in early spring can yield 2.5 to 3 tons of DM per acre of dairy-quality forage when harvested at boot stage. In the fall, the oat/rye or spring triticale/rye mix should yield slightly more than oat or spring triticale alone, with the potential for the spring cereal rye harvest.

Option 7: Italian Ryegrass silage

This crop 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.

Plot work with fall harvest and three harvests the following year have shown average yields between 3 to 5 tons of dry matter from improved varieties with good winter survival and adequate moisture. It will winterkill in severe winters. Do not let a lot of growth go into the winter to avoid winter as mold growth that damages the stand. To avoid this, make a late fall cutting or graze to a height of 3 inches. This crop will shut down by mid- to late-summer the year after a fallen establishment.

As a grass, harvesting earlier optimizes quality. If planted in September and harvested in late fall, the quality will be superb (NDF 48% and Neutral Detergent Fiber digestibility (NDFd) about 80%). August plantings harvested in late fall will not be quite as high in quality. It will probably have protein in the mid-teens and NDF in the mid-50s. Next year, the crop will head out quickly at each harvest. Overall it is a medium quality forage, but with proper diet, this formulation can work for lactating cows.

Option 8: Soybeans

Soybeans planted at this time of year and harvested as silage will yield about 2 tons of dry matter per acre (dry plants to 65 to 70% moisture before chopping). Narrow rows will yield about 15% more than wide rows. Harvest between R5 and R7 stage, but no later than R7 (one pod on the stem is a mature color). Silage harvest will be easier than dry hay because of difficulty in getting the crop dry. Silage harvesting later creates issues with the high oil content of the beans, and more leaf shatter will inhibit a good

fermentation. Harvesting later than R5 to R7 creates an issue with the high oil content of the beans, and more leaf shatter will inhibit a good fermentation. Feed quality would be similar to early bloom alfalfa.

Check seed treatment labels or ask seed suppliers for any restrictions on using soybean seed for forage, as some seed treatments may not allow it. Review any herbicides applied and see labels for restrictions before use to verify that the crop can still be used for animal feed.

Adding an annual grass such as oats, spring triticale, or sudangrass could be a good option to lower the protein content for some classes of livestock and improve the mechanical handling of this crop.

Option 9: Teff

Teff is a warm-season grass that can be used for hay, silage, or pasture. The first crop should be ready in 40 to 50 days. It may produce up to 2 to 2.5 tons per acre of dry matter in multiple cuttings and can tolerate both drought-stressed and waterlogged soils.

Cornell research showed that when teff was harvested at the proper time and sufficient N was applied, crude protein was between 15 and 16% of dry matter and neutral detergent fiber (NDF) 48-hr digestibility averaged about 60%. It should be planted as soon as possible because it dies at the first frost.

Option 10: Millets

These summer annuals can be used as hay, silage, green chop, and pasture. There are varietal differences between the pearl, foxtail, proso and Japanese types. Because of evidence that Pearl Millet may cause butterfat depression in lactating dairy cows. Millet forages are better suited for beef, sheep or dairy heifer feed.

Option 11: Brassicas

Turnip, swede, rape, kale, and other brassica species and hybrids are highly productive annual crops that can be grazed 80 to 150 days after seeding. When planted by early August they can extend the grazing season in November and December. They are highly digestible and crude protein levels are high, varying from 15 to 25 percent in the herbage and 8 to 15 percent in the roots depending on the level of nitrogen fertilization and weather conditions. These species contain high moisture content, so they should be used for grazing only.

Brassicas have very low fiber and high energy and should be treated more like a concentrate than as forage in diets.

References: More detailed information on many of these options including seeding rates are available in these publications:

Supplemental Forage Options for Late Summer to Early Autumn Planting:
https://agcrops.osu.edu/newsletter/corn-newsletter/2015-22/supplemental-forage-options-late-summer-early-autumn-planting

Feeding Low Forage Diets to Dairy Cows: https://dairy.osu.edu/sites/dairy/files/imce/DIBS/DIBS33-16_Feeding_Low_Forage_Diets_to_Dairy_Cows.pdf

Fall-grown Oat Forages: https://fyi.extension.wisc.edu/forage/fall-grown-oat-forages-cultivars-planting-dates-and-expected-yields/

How Late can you Plant Corn for Silage?
https://www.canr.msu.edu/news/how_late_can_you_plant_corn_for_silage

Forage and Bedding Shortage Issues: https://dairy.osu.edu/newsletter/buckeye-dairy-news

Soybeans for Hay or Silage https://fyi.extension.wisc.edu/forage/soybeans-for-hay-or-silage/

Teff as an Emergency Forage: http://nmsp.cals.cornell.edu/publications/factsheets/factsheet24.pdf

Millets Forage Management:
https://www.extension.iastate.edu/sites/www.extension.iastate.edu/files/iowa/MilletFS55.pdf

Growing and Managing Forage Cover Crops http://mccc.msu.edu/wp-content/uploads/2016/10/OH_2015_Using-Cover-Crops-as-Forage-051815.pdf

Brassicas: http://www.forages.psu.edu/topics/species_variety_trials/species/brassica/char_adapt.html

Emergency Forages for Planting Early to Mid-Summer: https://agcrops.osu.edu/newsletter/corn-newsletter/2019-14/emergency-forages-planting-early-mid-summer

Forage Shortage & Prevent Planting Acres…think Oats

By: Allan Gahler & Stan Smith, OSU Extension
Source: http://u.osu.edu/beef/2019/06/26/forage-shortage-and-prevented-planting-acres-think-oats/

Last week, USDA released the declaration that a cover crop planted onto prevented planting acres can now be harvested as a forage after September 1st, rather than the normal date of November 1st, which provides a small glimmer of hope for some livestock producers and those equipped to harvest forages. While Ohio is also experiencing a severe shortage of forages for all classes of livestock, weed control on prevented planting acres is a major concern, and with USDA's declaration, we can now address both problems in one action – seeding cover crops that will be harvestable as a forage after September 1st.

Photo of oats that were planted August 5 and photographed three months later. Yield was in excess of 4 tons of dry matter grown.

As with everything else this season, however, patience is the key! Although an ideal situation would be cover crops that can be put out immediately and reduce the need for tillage, chopping, or spraying of weeds already present, there are unfortunately not many species of cover crop that will accomplish this and still provide significant tonnage or feed quality as a forage in September. Sorghum/Sudangrass seed is in very tight supply, soybeans as a cover may not be ideal for making hay or producing desired tonnages, and corn as a cover crop is still questionable in terms of insurance payments, and whether or not we can get it dry enough to make good silage. Teff grass, pearl millet, and Italian ryegrass may be good options if you can locate seed and get them established, but if planted now, they may be ready for harvest prior to September 1st, and quality will be sacrificed. Most other species of crops that fit the bill for making a good forage simply won't work well at all if planted right now. So, again, we wait. But once we get to late July or early August, our options begin to open up.

Our traditional cover crops of cereal rye, annual ryegrass, oats, peas, turnips, and other brassicas have been used by livestock producers for many years with good success at producing forages. There are several good articles, fact sheets, and recommendations on these crops used as an annual forage following a wheat crop, or even aerial seeded into standing soybeans and corn acres available in our library at www.u.osu.edu/beef, and on the OSU Extension forage site at www.forages.osu.edu. With over 15 years of experience with summer planted oats under our belts, preceded by and intermixed with several years of experience with cereal rye, brassicas, and grasses, we know there's still plenty of time to 'create' anywhere from one to five tons of forages in wheat stubble or prevented plant fields. From our experiences with many operations in all parts of the state, and on our own farms in Northwest Ohio and Southeastern Ohio, oats would be the species of choice to provide the lowest input, most readily available forage, with the best chance for significant tonnage

this year.

The ideal situation is planting oats into vacant fields resulting from Prevented Planting or harvested wheat on or around August 1. Existing weeds must be controlled prior to planting with a herbicide application. With just a little moisture (no pun intended), and a small amount of nitrogen, you might be surprised at the growth you can get out of oats planted in late July or August.

Oat hay is an acceptable forage for all classes of livestock, and while nutrient content will vary depending on maturity at harvest, we have repeatedly seen oats harvested at 60 days of growth with crude protein levels from 12-19%, and digestible organic matter as high as 65%. If you are looking to make dry hay, it can be a challenge in late September or October, often requiring 5-7 days after being cut, but it is certainly possible, and small amounts of rain during the dry down process will not deteriorate this forage nearly as rapidly as alfalfa and other grasses. If you do not get that window to cut them for dry hay, it may cost a little more, but having the oats wet-wrapped beats the alternative of having no hay available, and your cows, goats, and sheep will literally run you over to get to it once you start feeding it!

There are some options on oats as far as what to plant, including forage type oats that are bred specifically for forage production, bin run oats that may be harvested locally or around Ohio yet this summer, or feed oats that are likely shipped in from Canada and used in many of our livestock rations at co-ops all around the state. Depending on your goal, all three sources of seed will work. If you are feeding dairy cows or maybe even looking at horse quality hay, forage oats will be more expensive, but are likely the best option, as nutrient levels tend to be higher, given the later maturity of the plant and the lower likelihood of the plant trying to form a seedhead. Fungus issues in the form of rust are about the only major issue we see in any type of oats seeded for forage, but the varieties bred for forage production are generally less susceptible, helping keep these more palatable as hay. If you plan to use this option, contact your seed dealers ASAP to check on availability.

If you are simply looking for the cheapest and easiest source of seed, and are not as concerned about germination, seed quality, or foreign material in your seed, then locally produced oats are your best option. Be aware that many oats were planted late this year, may not yield as much as needed, and likely will have significant weed seed in them at harvest, so cleaning would be a must, or we lose sight of the original intent of covering the ground on prevented plant acres.

The final option of utilizing feed grade oats as the seed is likely the most realistic and economical option. First off, most feed oats have come from Canada, where production has not been an issue, and we have not talked to any co-op or feed mill that has any indication of a tightening supply or major cost increase. Feed oats are usually triple-cleaned to provide horse quality feed, so weed seeds should not be present, and you can likely buy these in bulk from your local co-op for $15-22/hundred weight.

Once you have obtained a source of seed that is right for you, the establishment is usually pretty simple: No-till 60-90 pounds into harvested wheat fields, or prevented plant fields anytime from late July up until early September. It appears that late July or early August may be the optimum time to plant oats when high-quality forage is the goal. "Spring" oats seldom make seed when planted after the days begin to shorten in July, but will continue to grow leaf until Thanksgiving or after in Ohio. Consider applying 40-50 units of nitrogen about 60 days before you plan to harvest them, regardless of the harvest method for optimal nitrogen use. Common scenarios for this include broadcasting urea ahead of the drill, mixing UAN 28% with roundup if a burndown is needed, or applying ammonium sulfate after germination. Conventional till planting scenarios have worked as well and could be required this year depending on weed control up until planting time, but typically drier conditions make germination and early growth slightly less productive with oats.

While many of the hardest hit portions of Northwest Ohio may not even have their own livestock or be considering grazing options, it could be relevant in some areas where fences exist around prevented plant acres, and some of these areas could also have the need for spring forages.

If your primary needs are forage for grazing, hay, or silage next spring, cereal rye appears to be the best alternative. The opportunity exists to graze it in the late summer and fall, however, the most abundant tonnage will come in the spring. In addition to planting it with the options mentioned above for oats, you may also no-till it after row crop harvest - particularly soybeans and silage corn - this fall.

If your primary needs are grazeable forages as soon as possible, consider turnips or a combination of oats and turnips. Previous summers we've seen good results locally when planting a 'grazing turnip' such as Appin in combination with oats. If some precipitation is received shortly after planting, this combination could be strip grazed as early as 5-6 weeks after planting. The oats will provide some additional fiber in this grazing mix, and the Appin turnips will continue to regrow after being topped off with early grazing.

As you review your options, realize that at times seed oats are difficult to purchase this time of year. Contact the Ohio Seed Improvement Association or visit http://www.ohseed.org for a list of growers who may have seed oats available. If you take the opportunity to try any of these extended grazings or forage production alternatives, please keep us updated on your progress and success. We hope to be able to follow along with some real-time updates through the summer and fall with the status of cover crop forage plantings, and we also have plans to seed trials at the North Central Agricultural Research station near Fremont that will evaluate seeding dates, variety of oats, and possibly the benefits of a fungicide application on oats planted for forage. Many fact sheets and articles are available on these forages at your local extension office, the OSU Beef team website, the OSU Forage team website, or at www.ohioline.osu.edu

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