Hello Northeast Ohio Counties!

The 2020 harvest season has officially begun. We have seen several of you already in the field getting your crops off.

Check out this week's newsletter for Ashtabula’s Fall Weed Survey Video.

Have a great week and Stay safe!

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Decent Harvest Weather Likely to Continue into October

By: Aaron Wilson
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2020-33/decent-harvest-weather-likely-continue-october

Weather Summary

Ohio’s weather has been dominated by high pressure of late, bringing with it a pattern of warm, sunny days and cool nights for the last couple of weeks. During this time, little to no rain has fallen across the state. As daylight hours are growing shorter, evaporation is not as strong as it is during the summer. Therefore, drought conditions are not rapidly expanding across Ohio. However, persistent dryness is evident across areas of northwest, southwest, and far northeast Ohio, where soils remain dry. The latest U.S. Drought Monitor indicates about 18% of Ohio is still experiencing abnormally dry to moderate drought conditions (Fig. 1). For more information on recent climate conditions and impacts, check out the latest Hydro-Climate Assessment from the State Climate Office of Ohio.

Figure 1: U.S. Drought Monitor for Ohio as reported on Thursday September 22, 2020.
Forecast

The first in a series of cold fronts is crossing Ohio on this Monday evening, with light to moderate rain showers. Behind this front, cooler temperatures will settle into the region for Tuesday and Wednesday with highs mainly in the 60s and lows in the 40s. A secondary cold front will move through late Wednesday, which will drop temperatures below average for this time of the year. Highs for Thursday through Sunday are expected to be in the mid-50s to mid-60s with lows in the mid-30s to low-40s. There could be a few spotty afternoon showers around during this period as well, especially across northern Ohio, but we are not expecting heavy rainfall totals. The Weather Prediction Center is currently forecasting 0.25-0.75” of rain across most of Ohio for the next 7 days, with slightly greater totals in the northeast (Fig. 2). Though widespread freeze conditions (32°F or colder) are not expected, scattered frosts are possible for the end of the week and over the weekend, especially in low-lying areas.

The latest NOAA/NWS/Climate Prediction Center outlook for the 8-14 day period (October 6 - 12) and the 16-Day Rainfall Outlook from NOAA/NWS/Ohio River Forecast Center show near average temperatures and below average precipitation are likely (Fig. 3). Normal highs during the period are in the mid-60s to low-70s, lows in the mid-40s to low-50s, with about 0.75” of rainfall per week.
Livestock owners feeding forage need to keep in mind the potential for some forage toxicities and other problems that can develop this fall. High nitrates and prussic acid poisoning are the main potential concerns. These are primarily an issue with annual forages and several weed species, but nitrates can be an issue even in drought stressed perennial forages. There is also an increased risk of bloat when grazing legumes after a frost.

**Nitrate Toxicity**
Drought stressed forages can accumulate toxic nitrate levels. This can occur in many different forage species, including both annuals and perennials. Several areas in Ohio

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**Precautions for Feeding Frost and Drought-Stressed Forages**
By: Mark Sulc
have been dry of late. Corn, oat and other small grains, sudangrass, and sorghum
sudangrass, and many weed species including johnsongrass can accumulate toxic
levels of nitrates. Even alfalfa can accumulate toxic nitrate levels under severe drought
stress.

Before feeding or grazing drought stressed forage, send in a forage sample to be tested
for nitrates. Most labs now offer nitrate tests, so it is likely that you can get a forage
nitrate test by your favorite lab. Several labs are listed at the end of this article that do
nitrate testing. This list is for your convenience and no labs are intentionally omitted.
Check your chosen lab’s website or call them and follow their specific instructions about
how to collect and handle the sample. The cost is well worth it against the risk of losing
animals.

See the following references for more details:
Nitrates in Cattle Sheep and Goats (University of Wisconsin Extension)

Nitrates and Prussic Acid in Forages (Texas Cooperative Extension)
http://forages.tamu.edu/PDF/Nitrate.pdf

**Nitrate accumulation in frosted forages.** Freezing damage slows down metabolism in
all plants, and this might result in nitrate accumulation in plants that are still growing,
especially grasses like oats and other small grains, millet, and sudangrass. This build-
up usually is not hazardous to grazing animals, but greenchop or hay cut right after a
freeze can be more dangerous. When in doubt, test the forage for nitrates before
grazing or feeding it.

**Prussic Acid Toxicity**
Several forage and weed species contain compounds called cyanogenic glucosides that
are converted quickly to prussic acid (i.e. hydrogen cyanide) in freeze-damaged plant
tissues, or under drought conditions. Some labs provide prussic acid testing of forages.
Sampling and shipping guidelines should be carefully followed because prussic acid is a
gas and can dissipate during shipping leading to a false sense of security when no
prussic acid is found in the sample.

**Drought stress can affect prussic acid poisoning risk.** Drought-stunted plants can
contain or produce prussic acid and can possess toxic levels at maturity. Prussic acid
poisoning can be associated with new regrowth following a drought-ending rain. Rain
after drought plus young stages of plant maturity can combine to cause toxic levels of
prussic acid in forage.
Plant age affects toxicity. Young, rapidly growing plants of species that contain cyanogenic glucosides will have the highest levels of prussic acid. Pure stands of indiangrass can have lethal levels of cyanide if they are grazed when the plants are less than 8 inches tall.

Species with prussic acid poisoning potential. Forage species that can contain prussic acid are listed below in decreasing order of risk of toxicity:

- Grain sorghum = high to very high toxic potential
- Indiangrass = high toxic potential
- Sorghum-sudangrass hybrids and forage sorghums = intermediate to high potential
- Sudangrass hybrids = intermediate potential
- Sudangrass varieties = low to intermediate in cyanide poisoning potential
- Piper sudangrass = low prussic acid poisoning potential
- Pearl millet and foxtail millet = rarely cause toxicity

Species not usually planted for agronomic use can also develop toxic levels of prussic acid, including the following:

- Johnsongrass
- Shattercane
- Chokecherry
- Black cherry
- Elderberry

It is always a good idea to check areas where wild cherry trees grow after a storm and pick up and discard any fallen limbs to prevent animals from grazing on the leaves and twigs.

Frost affects toxicity. Cyanogenic glucosides are converted quickly to prussic acid (i.e. hydrogen cyanide) in freeze-damaged plant tissues. Prussic acid poisoning potential is most common after the first autumn frost. New growth from frosted plants is palatable but can be dangerously high in prussic acid.

Fertility can affect poisoning risk. Plants growing under high nitrogen levels or in soils deficient in phosphorus or potassium will be more likely to have high prussic acid poisoning potential.

Fresh forage has more risk. After frost damage, cyanide levels will likely be higher in fresh forage as compared with silage or hay. This is because cyanide is a gas and dissipates as the forage is wilted and dried for making silage or dry hay.

Prussic Acid Toxicity Symptoms
Animals can die within minutes if they consume forage with high concentrations of prussic acid. Prussic acid interferes with oxygen transfer in the blood stream of the
animal, causing it to die of asphyxiation. Before death, symptoms include excess salivation, difficult breathing, staggering, convulsions, and collapse. Ruminants are more susceptible to prussic acid poisoning than horses or swine because cud chewing and rumen bacteria help release the cyanide from plant tissue.

**Grazing Precautions Against Nitrate & Prussic Acid Poisoning**
The following guidelines will help you avoid danger to your livestock this fall when feeding species with nitrates or prussic acid poisoning potential:

- Under drought conditions, allow animals to graze only the upper one-third to one-half of the plant or the leaves of coarse-stemmed forages if the nitrate levels in these plant parts is safe. Monitor animals closely and remove them quickly when the upper portion of plants is grazed off.
- Generally, forage nitrate levels drop significantly 3 to 5 days after sufficient rainfall, but it is always safer to send in a sample for testing before grazing or feeding forage soon after drought stress periods.
- Making hay does not reduce nitrate levels in the forage, but the hay can be tested and diluted sufficiently with other feeds to make it safe for animals.
- Ensiling forage converts nitrates to volatile nitrous oxides, or “silo gases”. These gases are highly toxic to humans. Safety practices include removing tarps from a portion of the silo a day or two before removing the silage from the bunker.
- Do not graze on nights when frost is likely. High levels of toxic prussic acid are produced within hours after a frost, even if it was a light frost.
- Do not graze after a killing frost until plants are dry, which usually takes 5 to 7 days.
- After a non-killing frost, do not allow animals to graze for two weeks because the plants usually contain high concentrations of prussic acid.
- New growth may appear at the base of the plant after a non-killing frost. If this occurs, wait for a killing freeze, then wait another 10 to 14 days before grazing the new growth.
- Do not allow hungry or stressed animals to graze young growth of species with prussic acid potential. To reduce the risk, feed ground cereal grains to animals before turning them out to graze.
- Use heavy stocking rates (4-6 head of cattle/acre) and rotational grazing to reduce the risk of animals selectively grazing leaves that can contain high levels of prussic acid.
- Never graze immature growth or short regrowth following a harvest or grazing (at any time of the year). Graze or greenchop sudangrass only after it is 15 to 18 inches tall. Sorghum-sudangrass should be 24 to 30 inches tall before grazing.
- Do not graze wilted plants or plants with young tillers.

**Greenchop**
Green-chopping will not reduce the level of nitrates and is not likely to greatly reduce the level of prussic acid present. However, green-chopping frost-damaged plants will
lower the risk compared with grazing directly, because animals are less likely to selectively graze damaged tissue. Stems in the forage dilute the high prussic acid content that can occur in leaves. However, the forage can still be toxic, so feed greenchop with great caution after a frost. If feeding greenchopped forage of species containing cyanogenic glucosides, feed it within a few hours of greenchopping, and do not leave greenchopped forage in wagons or feedbunks overnight.

Hay and Silage
Prussic acid content in the plant decreases dramatically during the hay drying process and the forage should be safe once baled as dry hay. The forage can be mowed any time after a frost if you are making hay. It is rare for dry hay to contain toxic levels of prussic acid. However, if the hay was not properly cured and dried before baling, it should be tested for prussic acid content before feeding to livestock. Forage with prussic acid potential that is stored as silage is generally safe to feed. To be extra cautious, wait 5 to 7 days after a frost before chopping for silage. If the plants appear to be drying down quickly after a killing frost, it is safe to ensile sooner. Delay feeding silage for 8 weeks after ensiling. If the forage likely contained high levels of cyanide at the time of chopping, hazardous levels of cyanide might remain and the silage should be analyzed before feeding.

Species That Can Cause Bloat After Frost
Forage legumes such as alfalfa and clovers have an increased risk of bloat when grazed one or two days after a hard frost. The bloat risk is highest when grazing pure legume stands and least when grazing stands having mostly grass. The safest management is to wait a few days after a killing frost before grazing pure legume stands – wait until the forage begins to dry from the frost damage. It is also a good idea to make sure animals have some dry hay before being introduced to lush fall pastures that contain significant amounts of legumes. You can also swath your legume-rich pasture ahead of grazing and let animals graze dry hay in the swath. Bloat protectants like poloxalene can be fed as blocks or mixed with grain. While this an expensive supplement, it does work well when animals eat a uniform amount each day.

Frost and Equine Toxicity Problems
(source: Bruce Anderson, University of Nebraska)
Minnesota specialists report that fall pasture, especially frost damaged pasture, can have high concentrations of nonstructural carbohydrates, like sugars. This can lead to various health problems for horses, such as founder and colic. They recommend pulling horses off of pasture for about one week following the first killing frost. High concentrations of nonstructural carbohydrates are most likely in leafy regrowth of cool-season grasses such as brome, timothy, and bluegrass but native warm-season grasses also may occasionally have similar risks. Another unexpected risk can come from dead maple leaves that fall or are blown into horse pastures. Red blood cells can be damaged in horses that eat 1.5 to 3 pounds of...
dried maple leaves per one thousand pounds of bodyweight. This problem apparently does not occur with fresh green leaves or with any other animal type. Fortunately, the toxicity does not appear to remain in the leaves the following spring.

**Where to Test Forages for Nitrates (there probably are others not listed)**

**Brookside Laboratories, Inc.**
New Bremen, Ohio
www.blinc.com/
419-977-2766

**Cumberland Valley Analytical Services**
Waynesboro, PA
www.foragelab.com/
800-282-7522

**Dairyland Labs**
www.dairylandlabs.com
Wisconsin & Minnesota
608-323-2123

**Dairy One**
dairyone.com
Ithaca, NY
800-344-2697

**Holmes Lab**
holmeslab.com
Millersburg, Ohio
330-893-2933 or 330-893-1326

**Rock River Lab**
www.rockriverlab.com
Wooster, OH
330-462-6041

**Spectrum Analytic**
www.spectrumanalytic.com
Washington Court House, Ohio
800-321-1562

**Sure-Tech**
www.winfieldunited.com/research-and-innovation/suretech-laboratories
Demand for Local Beef Remains Strong
By: Garth Ruff
Source: https://u.osu.edu/beef/2020/09/23/demand-for-local-beef-remains-strong/

Growing Demand
While 2020 has certainly been a challenging year for agriculture and especially those in the livestock business. However, direct to consumer meat sales have been a bright spot as a result of increased demand. Although a small percentage in the grand scheme of things, direct marketing of farm products has become a more popular route of merchandising livestock. For those with an established direct to consumer meats sales business, COVID-19 and the resulting reduction in national packing capacity, and limited meat supplies in the retail case, created the perfect storm for expansion of niche market opportunities.

The increased demand and volume of local beef, pork and other meats has also led to record throughput and demand for services at the small meat processors across the country. As I visit with the local meat processors across Ohio, many of them are taking harvest reservations well into mid-2021 and several processors have already set some beef appointments into 2022.

Follow the Rules
As new producers venture into direct marketing there are some things to keep in mind, particularly when it comes to food safety and the regulations that pertain to selling meat.

While some regulations may vary from state to state, generally in order to sell meat, it has to come from an animal that harvested in an inspected meat processing facility. A meat processor in Ohio will either fall under federal inspection by the United States Department of Agriculture (USDA), or state inspection by the Ohio Department of Agriculture (ODA). The biggest difference between the two inspection agencies is that USDA inspected product can enter interstate commerce, meaning it can be sold across state lines.

In Ohio there are also custom exempt meat processing plants. Custom exempt plants process meat for the producer’s own use, the meat cannot be resold. These products will be labeled “Not for Sale”.

Indianapolis, Indiana
800-266-7176
When it comes to the storage and distribution of meat products, be aware that additional licenses may be required to ensure safe handling practices. For more information on Ohio license requirements, “Selling Food from the Farm: When do you need a license?” under the Ag Law tab at [https://farmoffice.osu.edu](https://farmoffice.osu.edu)

**Understand Product Pricing**
Regardless of how much you charge for a carcass or a cut of meat you must know two things: 1) your breakeven price; 2) how much money (profit) you want to make.

To determine a breakeven price, one must know their cost of production the below are potential factors that should be considered as production expenses on a per head basis. Don’t under sell the value of practices that make your product unique. Keep in mind that most locally processed beef is not graded, be careful in how you advertise the quality of your product. Ungraded beef should not be promoted as “Choice”, “Prime”, or “Certified Angus Beef”.

**Cost of Production**
Cost of Animal – If the animal was purchased, what did it cost? If home raised, what did it cost to keep a cow for a year?
+ Feed – Value or cost of feedstuffs and mineral that were either produced and purchased.
+ Veterinary – Any vaccinations, dewormer, other medications, veterinary bills.
+ Bedding and Supplies
+ Transport – Fuel, wear and tear on truck and trailer.
+ Advertising – Cost of acquiring a customer.
+ Value of Your Time – Value of time invested on average per head.
= Breakeven cost per head

Once you have calculated a breakeven cost add you desired profit per head and divide that total by the hanging carcass weight to determine a price per pound.

(Breakeven + Profit) / Carcass weight = price per pound.

Profit margin can be flat rate per head or a percentage of the cost of production. Determine a margin that suits your enterprise and your customer.

Often, the customer will want an idea of how much meat they will be paying for. Carcass weight can be estimated prior to harvest by estimating dressing percentage. Dressing percentage = (Carcass Weight/Live Weight) *100.
Grain fed, non-dairy type, steers and heifers will dress around 62% and closer to 59% for a dairy steer. Dressing percentage can vary depending on gut fill, muscling, fatness and cleanliness of the hide.

To determine prices for individual, retail beef cuts, the formula to calculate cost of production is similar, however the cost of harvesting, processing, packaging, and labeling the product must be accounted for. Time spent marketing and advertising can be considerably higher when marketing individual cuts.

When calculating the average price per pound of individual cuts, one must consider cutting yield. Cutting yield = (Pounds of retail product/carcass weight) *100. Cutting yield will be influenced by boneless vs. bone in product, muscling, amount of fat needed to be trimmed, and amount of fat in ground beef.

Summary
Direct marketing of beef to the local consumer can be a way to add value to your fed cattle enterprise, when done correctly. Continue to work with and develop a relationship with your local meat processor as we move into the coming year. Produce a beef product that has a quality eating experience and you will be sure to have return customers.

Choosing the Right Cover Crop to Protect the Soil
By: Eric Hamilton
Source: https://www.agronomy.org/news/choosing-right-cover-crop-protect-soil

Farmers around the world are keen to protect their most important asset: their soil. The soil supports and enriches their crops. But the relatively thin layer of topsoil can readily wash away into streams, carrying unwanted nutrients with it.

Cover crops are inedible plants grown during the off-season. Their roots help keep soil in place, preventing erosion. Cover crops can even absorb excess nutrients like nitrogen to keep them from polluting streams. Farmers are increasingly interested in using cover crops to help their farms. But with a dizzying array of plants to choose from and complex crop rotations, making the right choice is no easy feat.

“I believe cover crops are a very important tool for both retaining soil and keeping nutrients on
Northeast Ohio Agriculture

Aerial drone image showing two months of cover crop growth in Monmouth, Illinois in November, 2016. Credit: Dennis Bowman
the farm,” says María Villamil, a researcher at the University of Illinois and a member of the American Society of Agronomy. “In the Midwest, we are very lucky to have high fertility soils, making us big providers of food worldwide. The protection of our soils is critical.”

To help farmers in Illinois choose the right cover crop, Villamil and her team decided to test several potential cover crops. They planted different cover crops between the common Midwestern rotation of corn and soybeans. The researchers worked closely with farmers to choose which cover crops to test.

“They wanted to test different cover crops, especially ones that don’t generate extra work in the spring and others that will not compete with the corn for resources,” says Villamil.

Farmers preferred growing cereal rye as a cover crop before soybeans were planted. The rye captured the nitrogen remaining in the soil after the previous year’s corn crop season. But, when farmers were planning to grow corn, they preferred using a vetch cover crop. Vetch is a legume crop, which means it can provide nitrogen for the corn to use later in the season. Vetch also uses less water than cereal rye, which means the corn crop will not need to work as hard to compete for limited water resources.

Villamil’s team set up experimental plots at six locations around the state. Toward the end of the growing season for corn or soybeans, researchers walked through the crop fields to spread cover crop seeds among the plants. This mimics seeding by airplane. Aerial seeding has been a popular idea to plant cover crops in a timely manner over existing crops in fields. The cover crops they tested included spring oats, red clover, annual ryegrass and radishes, among others.

Then the researchers tracked how well the cover crops grew, how soil properties changed over time, and the yield of future food crops.

Surprisingly, the cover crops didn’t have a big effect on the soil. “There was not much improvement of the soil properties with using a cover crop, except for maybe the rotation using the annual ryegrass,” says Villamil.
The biggest reason most of the cover crops didn’t affect the soil very much is that most of them died over the winter. That’s largely because of the weather. Midwestern states like Illinois are subject to potentially harsh winters, especially in the northern part of the state. The broadcast seeding the researchers did also meant that the seeds simply sat on top of the soil. That meant the cover crops had a harder time germinating than if the seeds had been buried in the ground.

But cover crops that die over winter can be a good thing. Dead cover crops mean farmers will have less work killing them in the spring. But they’re also less effective at protecting the soil or absorbing nutrients.

Annual ryegrass and cereal rye, both grasses, largely survived the winter, as did hairy vetch, a legume like soybeans. The grasses slightly reduced future corn yields. That’s probably because they compete with corn for water in the spring.

“The yields of soybeans were not affected at all. Soybeans grow very well with cover crops, so we need to take advantage of that,” says Villamil.

The team also tested how tilling the fields affected the soil and yields, but saw only modest effects.

“The lesson is that wringing benefits from cover crops requires a bigger commitment to using them to protect the soil,” says Villamil. “That means choosing cover crops that can survive the winter, grow a lot in the spring, and hold onto soil that whole time. Some cover crops might slightly decrease future crop yields, but in the long-term, protecting our soil is worth it.”

“If we want to see benefits from cover crops, we need to focus on managing our cropping systems for cover crops, giving them room to grow, and using them strategically following corn crops, or silage corn or even wheat, if we are lucky to have this crop in the rotation” she says. “Our main goal when using cover crops should be protecting the soil and leaving the soil nutrients in place.”

Learn more about this work in Agronomy Journal, a publication of the American Society of Agronomy. This research was supported by the Illinois Nutrient Research and Education Council.

Interseeding of cover crops (shown) into corn and soybean is a common method used by growers to apply seeds at the optimal time. In this study, researchers simulated aerial seeding using a handheld spreader and walking between the cash crop rows. Credit: Gevan Behnke
2020 Ashtabula County Fall Soybean Weed Survey
By: Andrew Holden

Soybean harvest is starting here in NE Ohio which means it is time for the annual fall soybean weed survey. Last week I was able to survey 79 fields and roughly 2400 acres of soybeans for this year’s report. While we have reached harvest season I encourage all growers to make note of the weeds present in their fields this fall so that they can have a plan ready to control them this spring. If you have any questions regarding weed control or identification I encourage you to call your local extension office for information. One great resource is the OSU Extension Weed Control Guide, which can be purchased at your extension office or online here:
https://extenisonpubs.osu.edu/2020-weed-control-guide-for-ohio-indiana-and-illinois/
Watch the video below to see the process and results of this years weed survey!

Link: https://youtu.be/J6dQBnXgjHQ