

TIMELY TOPICS

OSU EXTENSION - NORTHEAST DISTRICT
October 2021 – Volume 41 – Issue 10



EXTENSION

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Prussic Acid Toxicity

Barry Whitworth, DVM Area Food/Animal Quality and Health Specialist for Eastern Oklahoma

Throughout the summer as the temperature rises and the ground gets drier or when an early frost occurs, plants in the sorghum family may become toxic. A common scenario for a veterinarian is to receive a call from a frantic rancher who says that his cows are “dropping like flies” or that he has found several dead cows after turning his cattle on to new pasture. One question the veterinarian will probably ask is if the cattle have been grazing Johnson grass.

Hydrocyanic acid (HCN) which is also referred to as cyanide or prussic acid is a toxin in these plants that causes problems. The toxin is created when the harmless hydrocyanic glycosides in plants are stressed and break down. Once the hydrocyanic glycosides in the plants are damaged, they quickly convert to prussic acid which can kill an animal within minutes when consumed. When cattle ingest the plants high in hydrocyanic glycoside and break them down by chewing, the prussic acid is released in the rumen and absorbed into the blood stream. Once in the circulatory system, the toxin prevents cells in the body from taking up oxygen. The blood becomes saturated with oxygen which cannot be absorbed by the cells which is why normally dark venous blood appears bright red. The clinical signs are excitement, muscle tremors, increased respiration rate, excess salivation, staggering, convulsions, and collapse. The cattle actually die of asphyxiation.

In plants, especially in the sorghum family, prussic acid is highest in the leaves of young plants with the upper leaves containing the highest amounts. The amount of prussic acid increases when the plant is stressed such as in drought situations or following a frost. Fertilizing with large amounts of nitrogen can also increase potential for prussic acid toxicity as does nitrogen and phosphorus soil imbalances. Certain sorghum families are more prone to prussic acid toxicity than others. For example, Johnson grass has a high potential for toxicity while Pearl or Foxtail millet are low. When planting sorghums for grazing, producers may want to check the toxic potential of the particular variety.

When producers encounter animals displaying clinical signs of prussic acid toxicity, they should immediately remove all the animals that appear normal to a new pasture and contact their veterinarian. The veterinarian will treat the sick animals with two drugs (sodium nitrite and sodium thiosulfate) that reverse the toxicity. Treatment can result in a full recovery if initiated quickly.

Producers may want to take the following steps to prevent prussic acid toxicity:

- Never turn hungry cattle into a new pasture
- Take soil samples and fertilize accordingly
- Graze mature plants
- Wait until plants are cured before grazing after frost (usually at least 7 days)
- Rotate pastures to keep cattle from consuming lush regrowth
- Place 1 or 2 cows in a pasture and observe for problems before turning in all the cattle

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One last point, the drugs used to treat prussic acid toxicity can be difficult to obtain. For this reason, producers should maintain a good relationship with their veterinarian. It is a good idea to contact your veterinarian before grazing potential toxic plants to make sure that your veterinarian will have the necessary drugs on hand to treat the cattle if a problem should arise.

Plants can be tested for prussic acid, but it can be challenging. If not done properly, producers may get a false sense of security. The best practice is to visit with your local veterinarian or Local County Extension Educator before grazing forages that may contain prussic acid. A fact sheet that contains information about prussic acid is available from Oklahoma State University. The fact sheet is titled *Prussic Acid Poisoning* PSS-2904 which can be found at <http://osufacts.okstate.edu>.

Is Net Wrap Digestible?

Earl H. Ward, Area Livestock Specialist

I remember during my time spent at Washington Irving Elementary School in Durant, OK having enough athletic ability to only be in two events at the annual track meet, the sack race and tug-of-war. I don't have the athleticism to throw, run, or catch so those are the events that I was qualified for. I have never used the abilities I learned in the sack race in real life, but I have used my techniques for tug-of-war from time to time. Those skills come in handy when you are trying to pull the net wrap off of a 2 year old, frozen round bale of hay. Most of the time when that happens we all tend to leave it on or try to cut off as much as our frozen fingers will allow. So what happens to the net wrap that the cow consumes? A research report from North Dakota State University answers that very question.

The NDSU researchers looked at the disappearance of three types of regular net wrap, one type of biodegradable twine, and one sisal twine compared to the disappearance rate of grass hay. To do this they cut the bale-binding materials in 2mm pieces, put them in a permeable bag, and deposited them in the rumen of two Holstein steers. Samples were evaluated at 0, 6, 12, 24, 48, 96 (four days), 168 (seven days), and 336 (14 days) hours. After 14 days the researchers observed that none of the three types of net wrap or the biodegradable twine had disappeared from the bags. Of course the grass hay had more than 80% disappeared, but also more than 70% of the sisal twine was gone. The researchers summarized their study as:

“Whether producers remove net wrap or twine prior to grinding or shredding bales is an individual decision that largely is dictated by time, cost of the bale-processing equipment and ability to pull net wrap off frozen bales. We evaluated the dry-matter disappearance of five different types of bale-binding material. After 14 days of incubation in the rumen of Holstein steers, no disappearance was detected in the three types of net wrap or one type of biodegradable twine evaluated. Whether complications occur as a result of the accumulation of consumed net wrap likely is based on the volume of the product consumed and the ability of the plastic particles to move through the digestive tract.” – S.I. Klein and C.R. Dahlem

This study is only looking at the bale-binding materials being ground, so what happens if the bale is left wrapped in a bale feeder? Digestive compaction can occur from animals consuming net wrap and even buying the biodegradable net wrap did not prove to help reduce the risk. So as the temperatures drop and it is necessary to provide the forage to our animals in the form of a round bale, be sure to use those skills you gained in your elementary school's track meet to pull that net wrap off. That is also a great time to practice your shot-put of a frozen cow patty at the cow dog that won't get out of the gate.

<http://www.ag.ndsu.edu/cattledocs/research-reports>

African Swine Fever - Update

Barry Whitworth, DVM Area Food/Animal Quality and Health Specialist for Eastern Oklahoma

On July 28, 2021, the United States Department of Agriculture (USDA) confirmed African Swine Fever (ASF) in the Dominican Republic. The USDA is assisting the Dominican Republic with their efforts to contain and control this virus as well as offering help to Haiti which borders the Dominican Republic. The Dominican Republic is slightly over 200 miles from Puerto Rico. With Puerto Rico being a territory of the United States (US), any ASF found there would result in the World Organization for Animal Health (OIE) restricting the exportation of pork from the US. For this reason, the USDA is establishing a Foreign Animal Disease protection zone in Puerto Rico and the US Virgin Islands and is increasing efforts to keep ASF out of the continental US.

Loss of movement of pork from the US would have significant economic consequences in the US and Oklahoma. According to Kylee Deniz executive director of the Oklahoma Pork Council, Oklahoma pig farmers generate \$5.7 billion in annual revenue. Loss of exports would not only affect pig producers but beef and poultry producers as well. All swine producers whether commercial, show pig producers, or kids with one 4H show pig must protect the Oklahoma pig industry. All pig producers should have a biosecurity protocol in place as well as be familiar with the symptoms of ASF.

The African Swine Fever virus is in the Asfarviridae family. The virus infects domestic and feral swine. The virus is found in all pig secretions especially oronasal fluids of infected swine. The virulence of the virus varies considerably between strains with some strains resulting in large number of deaths and some with little sickness at all. The virus is resistant. Most common disinfectants will not destroy the virus. It will survive for long periods of time in blood, soil, and uncooked pork products.

The virus is easily transmitted by direct contact, indirect contact, and insect vectors. It may spread from pig to pig by inhaling the virus. Other ways that pigs may be directly infected are by ingesting the virus in uncooked pork products or by cannibalism. Fomites such as vehicles, footwear, clothing, equipment, and feed may serve as ways to introduce the virus to a farm. Feed and feed ingredients are especially worrisome. In simulated Trans-Atlantic and Trans-Pacific shipping models, ASF virus survived in feed ingredients (Dee et al., 2018). These experiments simulated shipping feed ingredients from Asia and Europe to the US. Lastly, the *Ornithodoros* ticks which are soft ticks are known to harbor the virus for long periods of time. These insects transmit the virus to pigs.

Once a pig is infected with the virus, clinical signs will usually appear in 5 to 21 days. Sudden death may be the only clinical sign seen. Milder cases are often confused with other pig diseases. Clinical signs often observed are high fever, loss of appetite, weakness, and recumbency. Skin lesions sometimes seen are red blotchy areas or blackened areas. Infected pigs will have trouble breathing. Ocular and nasal discharges are seen in some pigs. Digestive signs include diarrhea, vomiting, and constipation. Pigs tend to have bleeding episodes such as nose bleeds or bloody diarrhea. Pregnant animals tend to abort. Abortion may be the first sign of the disease. Even though some strains of the virus cause minor clinical signs, most strains result in large numbers of sick pigs with several of them dying.

Treatment is not an option with ASF. Any swine operation that is found to have an ASF outbreak will be forced to depopulate and go through a rigorous cleaning and disinfecting of the farm. Vaccine research is ongoing, but no USDA licensed vaccine is available in the US at this time which means producers must rely on a good biosecurity plan to protect their premises.

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The USDA is working hard to keep ASF out of the US. However, many veterinarians would agree that if ASF were to be found in the US and the virus infected the feral pig populations, it would be very difficult to eradicate the virus from the US. For this reason, all swine producers need to focus on their disease prevention strategies to protect their animals. If producers would like more information about ASF, they should review the *Foreign Animal Disease Prevention & Preparedness* at www.pork.org/FAD or contact their local veterinarian or local Oklahoma State University County Agriculture Extension Educator.

References

Dee SA, Bauermann FV, Niederwerder MC, Singrey A, Clement T, de Lima M, Long C, Patterson G, Sheahan MA, Stoian AMM, Petrovan V, Jones CK, De Jong J, Ji J, Spronk GD¹, Minion L, Christopher-Hennings J, Zimmerman JJ, Rowland RRR, Nelson E, Sundberg P, Diel DG. *Survival of viral pathogens in animal feed ingredients under transboundary shipping models*. PLoS One. 2018 Mar 20;13(3):e0194509.

The Fall Calf Run Is Upon Us

Scott Clawson, Area Ag Economics Specialist

Calf marketing season is upon us. As the calves start to come in from the countryside and gather at our small and large auctions from around the state, the calf price discussion picks up as well. If you are anything like me, you have sat there scratching your head looking at the check and breakdown of sales wondering how some of the calves sold higher and some of them sold lower than you expected. Human interaction and preference always provide some variance. But there are some predictable management strategies that we can take on to preserve the value of our calf crop.

Most producers are familiar with value added programs. Typically, they include a set of management practices that a producer can take on that are intended to provide additional value to the calf. Examples usually include cattle being weaned for 45 plus days and having a certain vaccination regimen. Other examples might include them being dehorned, castrated, and bunk broke. In the past those cattle have been noted on the market report as “value added”. In the past

couple of years, cattle have started being noted as “unweaned”. Usually, a notable discount follows those unweaned cattle when compared to cattle with no label. The table below illustrates a sample of results from Oklahoma sale reports in the first week of October. This discount can be observed in lighter and heavier calves so far this year.

Additionally, castration continues to be a well-known sought-after trait. Looking back at July through August, the

Difference in Calf Value When Unweaned is Noted

Desc.	Weight	\$/lb	\$/hd	Difference
ML #1	691	\$1.58	\$1,090.05	
Steers	685	\$1.49	\$1,022.36	-\$67.69 unweaned
ML #1-2	635	\$1.54	\$976.19	
Steers	627	\$1.41	\$887.02	-\$89.17 unweaned
ML #1-2	490	\$1.67	\$819.43	
Steers	498	\$1.51	\$751.98	-\$67.45 unweaned
ML #1	474	\$1.54	\$731.48	
Heifers	475	\$1.38	\$655.50	-\$75.98 unweaned

Data from USDA-AMS Market Reports in OK from the first week of October

castration difference becomes more significant as calf weight increases. This corresponds to the well-researched data that demonstrates that earlier we can castrate the bull calves, the less stressed that calf is. While not displayed here, historically the discount is greater than any additional gain from them staying intact.

Difference Between Steer and Bull Prices

Weight	Discount (\$/cwt)	Est. Discount (\$/hd)
400-450	-\$9.17	-\$38.97
500-550	-\$15.59	-\$81.85
600-650	-\$16.46	-\$102.88

Data collected from LMIC from USDA AMS July, August, Sept, 2021

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Markets send price signals as a nudge to producers as to what they want. In this case, it is in the form of risk. The markets are willing to pay cow-calf producers to accept that risk on the ranch as opposed to more high-risk environment. The lack of facilities is often a part of this equation especially in eastern Oklahoma where our cattle tend to be spread into several different smaller acreage locations. Yet if we look at making investments in our operations that may pay dividends for years to come, upgrading our working facilities may be a good option. These unweaned and uncastrated discounts are significant when multiplied over an entire herd over multiple years. For more information on facility design, castration methods, or marketing plans contact your local OSU Extension Educator.

Find Farm Management Resources on Your Smartphone

Brent Ladd, Extension Assistant

Producers seeking to gain new financial management skills can find educational resources at the e-Farm Management website. This site contains videos, publications, software tools and webinars for use by farmers and ranchers. Viewers will find information on financial, production, marketing, and risk management topics.

One example is the Tax Issues for Farmers: Depreciation Tools video. In this video, viewers learn how to use depreciation to manage their tax liability. The video explains depreciation and which assets that can be depreciated. Lastly, the video gives an overview of the three methods of calculating depreciation and uses an example to compare the income tax savings between these methods.

To find this video and additional resources on balance sheets, go to: <https://extension.okstate.edu/programs/farm-management-and-finance/e-farm-management-training/farm-income-statement-and-tax-issues-for-farmers/index.html>.

More information on this and other farm management topics may be found three ways: 1) contact your nearest Extension Educator 2) visit the e-farm management website (<https://extension.okstate.edu/programs/farm-management-and-finance/e-farm-management-training/index.html>) or 3) visit the OSU Ag Econ YouTube Channel (<https://www.youtube.com/user/OkStateAgEcon>).

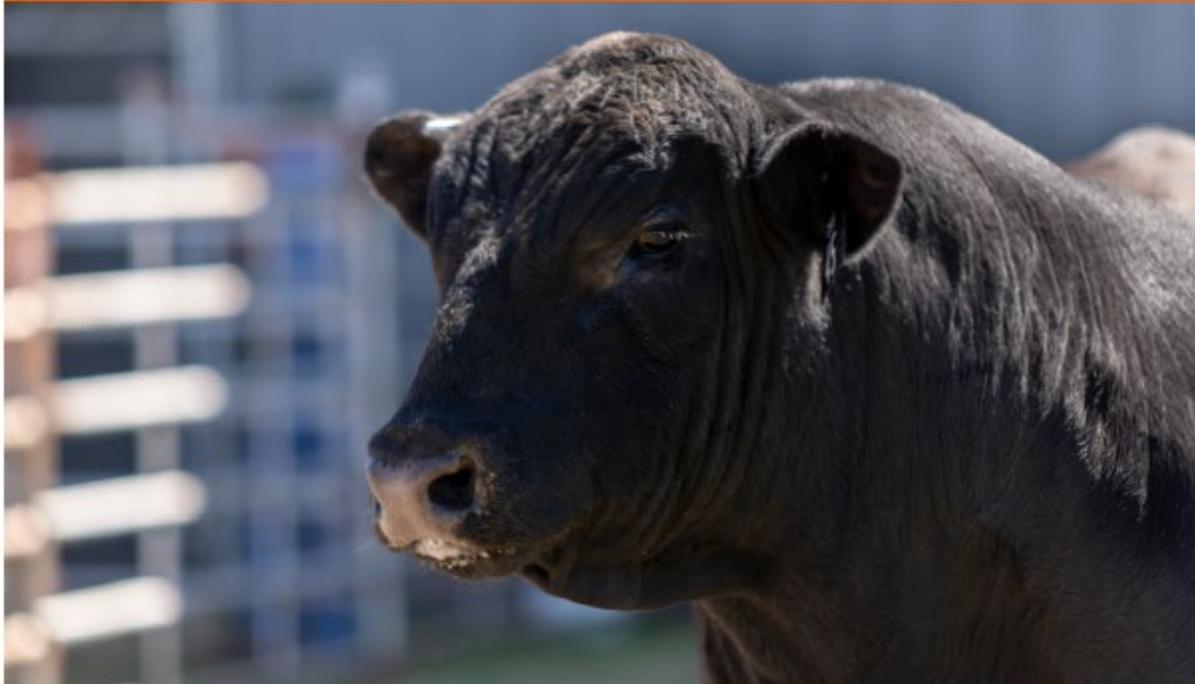
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OKLAHOMA STATE UNIVERSITY | DIVISION OF AGRICULTURAL SCIENCES AND NATURAL RESOURCES



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BULL BREEDING SOUNDNESS EXAM CLINIC

Northeast Oklahoma

Join us to learn about the importance of bull fertility and the factors that can affect a bull's performance.

Participants will have a thorough breeding soundness exam conducted on their bulls prior to breeding season.

Limited space, registration required

- ▶ **To register, call:**
Northeast Area Extension
Office, 918-686-7800
- ▶ **Cost:** \$40 per bull

DATE & LOCATION

- ▶ **Wednesday, Oct. 20th, 2021**
9:00 a.m.
- ▶ **Alexander Veterinary Services**
Dr. Mike Alexander, DVM

40301 N. 4000 Rd
Collinsville, OK 74021

CONTACT

- ▶ **Earl Ward**
Northeast Area
Livestock Specialist
earl.ward@okstate.edu
918-686-7800

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BEGINNING FARMER & RANCHER WORKSHOP



OKLAHOMA COOPERATIVE
EXTENSION SERVICE



OSU Extension, Langston University, NRCS, FSA, ONIE, and Oklahoma Farm Bureau will be hosting an educational workshop on October 28, 2021

REGISTER TO ATTEND
Register by FRIDAY, OCTOBER 22, 2021

Lunch Provided
Raffle sponsored by Oklahoma Farm Bureau

Call (918) 456-6163 OR register with this QR code:



**CHEROKEE COUNTY COMMUNITY BUILDING
908 S. COLLEGE AVE, TAHLEQUAH, OK 74464**

OCTOBER 28, 2021 TIME: 08:00 AM - 03:45 PM

For more information contact:
Cherokee County OSU Extension Office
908 S. College Ave
Tahlequah, OK 74464
(918) 456-6163



OKLAHOMA COOPERATIVE
EXTENSION SERVICE

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Value of Gain Calculation						
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OK Weighted Average Report 10/8/21						
Weight	\$/lb	Value/hd	Added		\$/lb	
			lb.	Added \$	Added	
380	\$ 1.8007	\$ 684.27				
432	\$ 1.7803	\$ 769.09	52	\$ 84.82	\$ 1.63	
476	\$ 1.6732	\$ 796.44	44	\$ 27.35	\$ 0.62	
525	\$ 1.6062	\$ 843.26	49	\$ 46.81	\$ 0.96	
575	\$ 1.5761	\$ 906.26	50	\$ 63.00	\$ 1.26	
618	\$ 1.4995	\$ 926.69	43	\$ 20.43	\$ 0.48	
675	\$ 1.5128	\$ 1,021.14	57	\$ 94.45	\$ 1.66	
720	\$ 1.5493	\$ 1,115.50	45	\$ 94.36	\$ 2.10	
775	\$ 1.5309	\$ 1,186.45	55	\$ 70.95	\$ 1.29	
816	\$ 1.5337	\$ 1,251.50	41	\$ 65.05	\$ 1.59	
873	\$ 1.5081	\$ 1,316.57	57	\$ 65.07	\$ 1.14	
914	\$ 1.4718	\$ 1,345.23	41	\$ 28.65	\$ 0.70	
Long Stocker Run		Short Stocker Run		Heavy Stocker Run		
<i>Starting</i>		<i>Starting</i>		<i>Starting</i>		
380	\$ 684.27	380	\$ 684.27	675	\$ 1,021.14	
<i>Ending</i>		<i>Ending</i>		<i>Ending</i>		
914	\$ 1,345.23	575	\$ 906.26	914	\$ 1,345.23	
<i>Total Gain</i>	<i>Δ Value</i>	<i>Total Gain</i>	<i>Δ Value</i>	<i>Total Gain</i>	<i>Δ Value</i>	
534	\$ 660.96	195	\$ 221.99	239	\$ 324.09	
VOG		VOG		VOG		
\$ 1.24		\$ 1.14		\$ 1.36		



Brian C. Pugh, Area Agronomy Specialist



Earl H. Ward, Area Livestock Specialist



Barry Whitworth, DVM, Area Food/Animal Quality and Health Specialist



Scott Clawson, Area Ag Economics Specialist

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