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**The Noble County Courthouse & Fairgrounds are closed to the public practicing social distancing. We continue to be available during normal business hours providing aid by phone or email. We continue to meet the needs of OSU University and Noble County OCES. Feel free to contact the office during normal business hours. Thank you for understanding.**

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## Agriculture News and Updates: May 2020



**NOBLE COUNTY  
EXTENSION**

### Home Gardening Resources – Keith Reed, Horticulture Educator, Payne Co.

It's no surprise that we're seeing a significant increase in folks interested in home gardening. To help respond to this need, Oklahoma Gardening has adjusted its programming for this season and will be doing several segments designed to assist beginning gardeners. In addition to broadcasting over the weekend on OETA, you can find all the shows archived on their YouTube channel at [www.youtube.com/oklahomagardening](http://www.youtube.com/oklahomagardening).

### Be Cautious with Moldy Feed and Hay – Earl H. Ward, Area Livestock Specialist

It is inevitable this time of year for a few producers to call who have moldy feed or hay and wondering if they can feed it. We must remember that all the feed ingredients used in feeds have a shelf life. Many of these ingredients are grains used to make bread and we all know how fast bread can mold when exposed to the elements.

Animals can be affected in two different ways with mold. The first is called mycoses which is a disease state caused by the mold itself and the other is mycotoxicosis which is the disease state caused by a toxin produced by the mold. Mycosis can be in both animals and humans that are breathing in the mold spores and develop respiratory distress or have an allergic reaction to the mold. This is rarely a systemic disease but can cause abortions and blood poisoning in cattle. The mycotoxicosis is typically the concern of most producers. More than 400 mycotoxins have been identified, but only a few are regularly found in grains and seeds used for animal feed. Aflatoxin, Vomitoxin, and Zearalenone are a few that cause issues in livestock.

The mold spores have shown to decrease the palatability of feedstuffs which results in decreased dry matter intake causing a decrease in nutrient uptake. On top of a depressed appetite it has been shown to decrease energy digestibility by about 5%. Mycotoxin in feeds have also shown to decrease milk production by up to 15%.

Hopefully this information has led you to be cautious about feeding a moldy feed to your animals. Not all mold is harmful, but it is hard to determine if the mold is an issue or not until after the damage is done. Feeds can be tested for mold and mycotoxins. Testing for a mold count is moderately inexpensive at \$25-\$30 per test, but this does not tell the producer if that mold is going to cause a problem. Testing for mycotoxins may cost more at

approximately \$40 per toxin or \$260 for a full screen of mycotoxin. Depending on the amount of feed still in storage, this may be a small investment to avoid a disaster.

Once a test has been done and results are back, we can determine to either continue to feed it or perhaps blend this moldy feed with fresh feed to reduce the amount of mycotoxins ingested. If a producer finds themselves with a moldy feedstuff, then it is suggested to discontinue feeding it to any pregnant animals and try to refrain from feeding it to any animal until testing could be done. If you have questions, please contact your county’s OSU Extension Educator.

**Find Farm Management Resources from the Field – Brent Ladd, Extension Assistant**

Producers can find information on farm financial management, production, marketing, and risk management topics through their smartphone by visiting the e-Farm Management website. This site contains videos, decision tools, and publications for farmers and ranchers to strengthen their farm management skills.

In the Types of Tillage video, viewers learn about the two main categories of tillage. The video examines the purposes of and distinguishes between primary and secondary tillage. Finally, viewers learn about ways to decide which type of tillage to use based on their end production goals.

To view this video and find additional information on grain production visit: <http://agecon.okstate.edu/efarmmanagement/grain.asp>.

More information on this and other farm management topics may be found: 1) by contacting your nearest Extension Educator (<https://extension.okstate.edu/county/index.html>) 2) on the e-farm management website (<http://agecon.okstate.edu/efarmmanagement/index.asp>) or 3) on the OSU Ag Econ YouTube Channel (<https://www.youtube.com/user/OkStateAgEcon>).

**Helpful AGECE Links – Scott Clawson, Area Ag Economics Specialist**

Building a Balance Sheet	<a href="http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1805/AGEC-752web2017.pdf">http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1805/AGEC-752web2017.pdf</a>
Building a Cash Flow	<a href="http://oces.okstate.edu/nedistrict/uploaded_files/scotts-documents/BuildingFarmRanchCashFlow.2.20.pdf">http://oces.okstate.edu/nedistrict/uploaded_files/scotts-documents/BuildingFarmRanchCashFlow.2.20.pdf</a>
	<a href="http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1782/AGEC-751web2017.pdf">http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1782/AGEC-751web2017.pdf</a>
Analyze Financial Documents	<a href="http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1814/AGEC-790web2017.pdf">http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1814/AGEC-790web2017.pdf</a>
Cattle Price and Basis	<a href="https://beefbasis.com/">https://beefbasis.com/</a>
Livestock Risk Protection	<a href="http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-11571/L-472.pdf">http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-11571/L-472.pdf</a>

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

This year an Oklahoma cattle producer in Payne county found 7 dead cows and 1 dead deer in close proximity to a pond. The owner suspected something was wrong with the water. An analysis of the water was performed. According to Oklahoma State University Payne County Ag Educator Nathan Anderson, “the analysis revealed that it was positive for blue-green algae and was above the lethal threshold.” This year there has been reports of similar unexplained deaths by ponds. This would not be much of a surprise if these had occurred in late summer, but this incidence took place in early spring. This should be a warning to livestock producers to inspect ponds for blue-green algae accumulation when conditions are right no matter what time of the year it is.

Blue-green algae is not really an algae but a bacterium which is referred to as cyanobacterium. The most common species found in the Midwest are *Microcystis*, *Oscillatoria*, and *Anabaena* (Morgan, 2011). The bacterium is found in most bodies of water. However, they become a problem during times of rapid growth which is fueled by high nitrogen and phosphorus content and warm sunny weather. The overgrowth of the bacterium lead to the death of the organism which then floats to the top and forms a “scum” on top of the water. These “scum” layers can be moved about the

pond by wind movement. Sometimes this causes certain areas in the pond to be concentrated with the toxic levels of the dead bacterium. Rain or wind disturbance can break up the “scum” and reduce the chance of toxicity, but this is not always the case.

All livestock, pets, wild animals, and humans are susceptible to blue-green algae toxicity. The amount of water consumed needed to cause toxicity depends on the species of animal, concentration of the toxins in the water, and how much water is ingested. Ingestion of 1 quart of highly concentrated water is lethal to cattle (Meehan & Mostrum,2015).

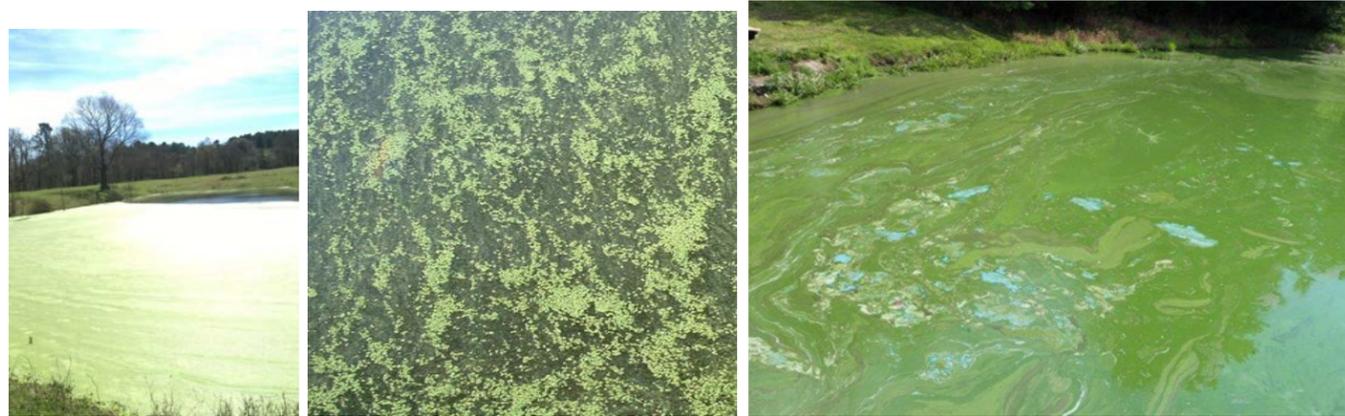
Most producers do not recognize a problem with blue-green algae until they find dead livestock in the pond or in close proximity to a body of water. Most cattle that ingest contaminated water will die, but occasionally producers may find sick cattle. The clinical signs of blue-green algae toxicity will depend on the type of toxin ingested. The two types of toxins associated with blue-green algae are a neurotoxin (affect the nervous system) or a hepatotoxin (affect the liver). If seen early, cattle affected by the neurotoxin will show muscle tremors, reluctance to move, and breathing problems. This will lead to convulsions and death. If cattle consume water with liver toxin bacteria, they will have weakness, pale mucous membranes, gastroenteritis, nervous signs, and death. Animals that survive will lose weight and become poor doers. These survivors may also develop photosensitization. Animals with photosensitization are prone to sunburns on light colored skin areas.

Typically, diagnosis is based upon exposure to blue-green algae along with clinical signs or sudden death. If a producer suspects blue-green algae is the cause of death in his/her cattle, he/she should immediately collect a pint of water where large amounts of the algae exist. The reason for quickly obtaining a sample is the toxin could be dispersed by the wind. Then the producer should contact a veterinarian to conduct a necropsy. A necropsy will rule out other causes of death. A veterinarian will most likely take tissue samples for more testing and rumen contents may be taken to examine for presence of blue-green algae. The water sample will need to be submitted for analysis. More information for guidance about necropsy or water sampling may be found at the Oklahoma Animal Disease Diagnostic Laboratory at (405) 744-6623 or <https://cvhs.okstate.edu/oaddl>.

Since there is no known antidote, treatment is usually unrewarding. For this reason, producers need to focus on conditions that favor the development of blue-green algae. The algae blooms with sunshine and warm weather. Excessive blooms are associated with ponds located in areas that catch runoff water high in nutrients. Producers should be inspecting ponds anytime these conditions are present. They should be prepared to provide alternative water sources in times of crisis.

Blue-green algae toxicity is not a new problem for Oklahoma livestock producers but having problems with cyanobacterium early in the spring is new. When weather conditions are right for algae build up, producers need to be constantly observing their ponds for any signs of the blue “scum” on the water. If found, producers need to take action to reduce the problem. An excellent fact sheet is available from Oklahoma State University Extension Service on blue-green algae and how to best manage the problem. The fact sheet can be found at <https://extension.okstate.edu/fact->

[sheets/toxic-blue-green-algal-blooms.html](https://www.oregonstate.edu/extension/catalog/items/show/1000). If a producer has questions about blue-green algae, they should contact their local veterinarian or an Oklahoma State University County Extension Educator.



## Non-Herbicide Management Options

### 1. Physical Management Options

Floating, Blue-Green algae cannot be mechanically or physically controlled, except by replacing the pond water. Exchange of water from a well or other source that does not have an algae bloom will dilute the algae in the pond. This is not a practical option for most pond owners unless their ponds are very small and they have wells close by.

Non-toxic dyes or colorants prevent or reduce aquatic plant growth by limiting sunlight penetration, similar to fertilization. **However, dyes do not enhance the natural food chain and will suppress the natural food chain of the pond.**

Some examples of non-toxic dyes and other products include but are not limited to:

- [Aquashade](#)
- [Blue Springs](#)
- [Crystal Blue](#)

### 2. Biological Management Options

While many microscopic animals (zooplankton) eat Blue-Green algae, there are no practical ways to increase their populations, so no biological control is possible.

## Herbicide Control Options

**Always read the product label for directions and precautions, as the label is the law. Read the label for specific water use restrictions.**

The active ingredients that have been successful in treating Blue-Green algae include:

- Copper Complexes (Rated: Excellent)
- Alkylamine salts of Endothall (Rated: Good)
- Sodium Carbonate Peroxy-Hydrate (Rated: Good)

*These rating are based upon the U.S. Army Corps of Engineers aquatic herbicide trials.*

1) Copper Complexes

*Copper Sulfate* or “blue stone” is probably the most commonly used algal treatments because of its availability and low cost. Copper sulfate comes in several forms depending on how finely it is ground. Smaller crystals will dissolve easier than larger crystals. In very hard water it is difficult to use copper sulfate because it binds with the calcium, precipitates out of solution, and renders the copper ineffective as an algaecide.

**All copper compounds can be toxic to fish if used above labeled rates and can be toxic in soft or acidic waters even at label rates.** Before using copper it is best to test the pond water’s alkalinity and adjust copper treatments to alkalinity concentrations. For additional information on using copper sulfate see the [SRAC #410 Calculating Treatments for Ponds and Tanks](#).

Common trade or product names include but are not limited to:

- [Cutrine Plus](#)
- [K-Tea](#)
- [Captain](#)
- [Clearigate](#)

2) Alkylamine salts of Endothall (Rated: Good)

Alkylamine salts of endothall come in both liquid and granular forms. It is a contact herbicide.

Common trade and product names include but are not limited to:

- [Hydrothol 191](#)

**Hydrothol can be toxic to fish.**

## Precautions

**One danger with any chemical control method is the chance of an oxygen depletion after the treatment caused by the decomposition of the dead plant material.** Oxygen depletion can kill fish in the pond. If the pond is heavily infested with weeds, it may be possible (depending on the herbicide chosen) to treat the pond in sections and let each section decompose for about two weeks before treating another section. Aeration, particularly at night, for several days after treatment may help control the oxygen depletion.

One common problem in using aquatic herbicides is determining area and/or volume of the pond or area to be treated. To assist you with these determinations see [SRAC #103 Calculating Area and Volume of Ponds and Tanks](#).

Many aquatically registered herbicides have water use restrictions (See [General Water Use Restrictions](#)).

**Always read and follow all label directions.** Check label for specific water use restrictions.

## Questions?

If you need assistance, [contact your local county extension educator or hire a professional](#).

**References**

Morgan SE. Water quality for cattle. *Veterinary Clinics of North America Food Animal Practice*. 2011;27(2):285

Meehan MA, Mostrum M. Cyanobacteria Poisoning (Blue-green Algae). Fact Sheet at

<https://www.ag.ndsu.edu/publications/livestock/cyanobacteria-poisoning-blue-green-algae/v1136-cyanobacteria.pdf>

**How Ethanol Plant Closures affect the Oklahoma Cattle Industry**

**Dana Zook, Extension Livestock Specialist, Enid OK**

A perfect storm of low gas prices and an unstable economy have led to severe reduction of ethanol production. For cattle producers, this means a reduction or even loss of ethanol byproducts as a feed or supplement for the time being. The main byproducts affected include wet and dried distiller’s grains (DDGS). The lesser known distillers steep and solubles byproducts are used in protein and mineral tubs which could lead to an increase in price of these products as well.

Nutritionally, DDGS provided the cattle industry with a perfect nutritional package of both high protein and energy. In a recent article about ethanol byproducts, I explained that the process of ethanol production starts with the extraction of starch from corn. Removing the starch concentrates protein, fat, and fiber threefold leading to the byproduct called distillers grains. Corn is approximately 9% protein in its true form and the threefold concentration will make distillers grains 25 to 30% protein. The energy value is where DDGS shines; providing high energy through a digestible fiber source that is not laden with starch like corn.

In Oklahoma, DDGS had only just become widely available within the last year. In the last feed season, some Cow-calf producers had switched over to the new DDGS cubes supplements and now the protein source in that cube will be adjusted to fill the void of DDGS. Unfortunately, this adjustment will not come without cost, at least for the time being. Local suppliers report a recent \$30-50/ton hike in all cubed products.

Producers using blended or mixed rations will see the most change. A reduction or loss of DDGS is unfortunate but substitutions can be made to recover the nutritional void. Corn gluten, a wet milling byproduct, can be widely utilized to fill a portion or the entire nutritional deficiency. Wheat midds and soybean hulls are relatively similar in energy but midds will provide more protein. For this reason, wheat midds can be substituted for all or a portion of the soybean hulls to help boost the total ration protein slightly. In dairy rations or high protein supplements (25-38% CP), soybean meal can be added. In general, protein is the most costly part of the ration, so the greater the need for this nutrient, the higher the cost. Hopefully most adjustments can be made with little effect on price. However, in the short-term producers should expect some increase in price as the supply of products are readjusted to fill the void of DDGS.

So where do we go from here? For Oklahoma, this shortfall came at time when producers should be tapering off supplements as grass greens up and graze out options remain, making the transition a little easier. For grow yards and feedlots, ethanol byproduct availability has been narrowing in the past months and so they had already been making the switch to alternative feedstuffs before the rapid decrease in production. It is my hope that by the time producers want to book supplements for next fall and winter, we will have the DDGS products back to at least some suppliers in the state. Time will tell.

For questions about byproduct feeds or assistance with livestock nutrition, contact your local Oklahoma Cooperative Extension Educator.

# Needle Selection for Vaccinating Cattle

## ROUTE OF ADMINISTRATION

INJECTABLE VISCOSITY	SUBCUTANEOUS (SQ) <i>(½ to ¾ inch needle)</i>			INTRAVENOUS (IV) <i>(1 ½ inch needle)</i>			INTRAMUSCULAR (IM) <i>(1 to 1 ½ inch needle)</i>		
	CATTLE WEIGHT			CATTLE WEIGHT			CATTLE WEIGHT		
	<300	300-700	>700	<300	300-700	>700	<300	300-700	>700
<b>THIN</b> Example: <i>Most vaccines</i>	18 gauge	18-16 gauge	16 gauge	18-16 gauge	18-16 gauge	16-14 gauge	20-18 gauge	18-16 gauge	18-16 gauge
<b>THICK</b> Example: <i>Thick antibodies</i>	18-16 gauge	18-16 gauge	16 gauge	18-16 gauge	18-16 gauge	16-14 gauge	18-16 gauge	18-16 gauge	16 gauge

**Select the needle based on cattle size (use the smallest without bending)**  
The smaller the gauge number, the larger the needle diameter. For example, a 16 gauge is larger than an 18 gauge.