

Roger Mills Ag Newsletter



Simple Biosecurity Steps within Livestock Operations

Dana Zook, Extension Livestock Specialist

Biosecurity is a big scientific word that is more present in our lives these days due to COVID-19. A recent producer question brought biosecurity back down to earth as a daily topic within the beef industry. The question dealt with the necessary biosecurity steps of introducing newly purchased pregnant heifers into his current herd. That got me thinking about the general guidelines of biosecurity within the beef industry and how being bio secure is not often second nature to many producers. It's a fact, it is easier in the near term to ignore biosecurity and proceed with our plans but a few simple steps can prevent the spread of disease in the future.

Let's start at the beginning by addressing the definition of biosecurity. According to the Oklahoma Beef Quality Assurance Manual, biosecurity is a practice designed to prevent the spread of disease by minimizing the movement of biologic organisms onto and within your operation. Due to the complexity of our industry, this can be challenging. When new stock is purchased, what should be done to preserve biosecurity on our operation?

To build the ground work for biosecurity, producers should develop and maintain a good relationship with a local licensed veterinarian. Besides being trained to perform medical interventions on livestock, they are also a good source of advice when it comes to vaccinations and local biosecurity concerns.

Your consulting veterinarian should be on the "first call list" when planning to purchase new livestock. They could perform a health

exam and depending on the source of the new livestock, they could provide advice on additional vaccines or treatments that might be needed. In a situation where producers plan to purchase livestock, vaccination records should be obtained in advance in order to plan for necessary vaccinations.

A key step in biosecurity is separation and quarantine. Newly purchased livestock should be kept separate with no contact from the rest of the herd for at least 21 days. This period of separation will give the owner time to observe the animals for any sign of abnormal health issues or behaviors. During this time, new stock should be brought up to current status on the health program that is used for the rest of the herd. Work with your vet to determine the best treatment for any sick animals that may show up during this time.

Here are some examples where separation or quarantine of livestock would be beneficial to preserve biosecurity on a farm or ranching operation:

- A newly purchased breeding bull
- A group of bred heifers
- Any animal that has been to a show or exhibition
- A purchased steer that you intend to finish out for slaughter
- A group of heavy bred cows from a local livestock market

In all of these examples, the livestock in question may have been exposed to other animals with a disease status that is inferior to their own. **Continued on page 8**

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Keep in mind, whenever animals are comingled or have the opportunity to touch noses, biosecurity may have been compromised and separation procedures should be instituted. With luck, the 21 day separation will not present any illness that needs to be addressed and they can be comingled with the rest of the herd.

This article is very beef focused but the ideas presented can apply whether you have any livestock species; sheep, goats, chickens, and show stock. Operations big and small should take steps to preserve the biosecurity status of their animals.

If you have other questions about biosecurity, contact your local Oklahoma Cooperative Extension Educator or local Livestock Veterinarian for more information.



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Effect of Dam Age on Heifer Progeny Performance & Longevity

Britt Hicks, Ph.D., Area Extension Livestock Specialist

Selection and development of heifers can have long-term impacts on production and profitability. Developing females to replace cull cows is costly and one of the most expensive management decisions for cow-calf producers. Research shows it takes 5 calves to pay for the development costs and annual maintenance of a replacement heifer. Thus, reducing heifer investment costs while maintaining reproductive performance is important for profitability. Research has clearly demonstrated that heifers that calf early in their first calving season have increased longevity and wean more calves, compared with heifers that calf later in the calving season. Producers selecting replacement females place emphasis on both reproduction and growth value. Mature beef cows typically wean heavier calves compared with younger cows which may increase the percentage of heifers to reach puberty by breeding. However, younger cows are thought to be genetically superior to older cows due to the rate of genetic progress. Little information is known regarding the optimal dam age for selecting replacement females. University of Nebraska researchers conducted a study evaluating the effect of dam age on female progeny performance and herd longevity. They hypothesized that heifer progeny from moderate (4 to 6 years old) and mature (≥ 7 years old) cows would have increased growth during development, reproductive performance, and longevity in the cow herd.

In this study, cow and calf performance

data were collected from 2005 through 2017 at the University of Nebraska, Gudmundsen Sandhills Laboratory near Whitman, NE. Cow and calf performance data were obtained from both March and May calving herds to determine the impact of dam age on subsequent heifer progeny performance and longevity. The cows used in this study (1,059 head) were Red Angus x Simmental ranging from 2 to 11 years of age. The cows were classified by age groups as young (2 to 3 years old), moderate (4 to 6 years old), and old (≥ 7 years old). Heifer calves were weighed at birth and weaning each year. Weaning weights were adjusted for a 205-day weaning weight with no adjustments for sex of calf or age of dam. Each year, all heifers were managed together within their respective breeding group. In each year, heifers were weighed at pre-breeding and at pregnancy diagnosis. Heifers were synchronized with a single prostaglandin F2 alpha (Lutalyse, Zoetis, Parsippany, NJ) injection 5 days after bull placement for a 45-day breeding season. Calving distribution in 21-day intervals was calculated with the start of the calving season coinciding with the first day two or more heifers calved.

Heifer calves born to young cows had lighter 205-day weights (438 vs. 454 lb) than heifer calves born to moderate and old cows. The increase in 205-day weights might be expected since milk production has been shown to increase with cow age, plateauing between 6 and 10 years of age. Although pre-weaning weight differences occurred, heifer pre-breeding and pregnancy determination weights did not differ among dam age groups.

Female progeny born to moderate and old cows had a greater percentage reach puberty before breeding compared with heifers born to young cows (69.6, 74.1, and 51.6%, respectively). However, dam age did not influence heifer progeny pregnancy rates. In the subsequent calving season, there were no differences among age groups for percentage of heifers who calved within the first 21 days of calving. However, the average number of calf crops from progeny within dam age was different among all groups, with heifer progeny from young dams having more calves (3.1) than moderate (2.8) and old (2.2). This finding suggests as dam age increases, retention and productivity of female progeny decrease.

These researchers concluded that results from this study suggest that age of dam will impact heifer progeny growth and reproductive performance. Heifer progeny from moderate and older dams tended to have increased performance up to first calving. However, heifer progeny from young dams had increased calf crops and productivity compared with their older counterparts. Thus, depending on production goals, age of dam may need to be considered for selecting replacement females with the goal of increased productivity and long-term profitability.



Understanding wet hay

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Frequent spring rains in Oklahoma have allowed cool season forages to grow in abundance. Even when the fields and meadows dry enough to cut standing forages, harvesting and baling cool season crops such as fescue and wheat hay can be a challenge during a wet spring. The timing of the rains can make it difficult for cattlemen that are trying hard to put quality hay in the bale for next winter's feed supply. All producers that harvest hay occasionally will put up hay that "gets wet" from time to time. Therefore, ranchers and hay farmers need to understand the impact of "wet hay" in the tightly wound bales.

Extra moisture in hay can cause heat inside the hay bale or hay stack. Heat produced by the bale comes from two sources: **First**) biochemical reactions from plants themselves as hay cures. (This heating is minor and rarely causes the hay temperature to exceed 110 degrees F. Very little if any damage occurs if the hay never exceeds 110 F.); **Second**) Most heat in hay is caused by the metabolic activity of microorganisms. They exist in all hay and thrive when extra moisture is abundant. When the activity of these microbes increases, hay temperature rises. Hay with a little extra moisture may not exceed 120 degrees F., whereas, wetter hay can quickly exceed 150 degrees. If the hay rises above 170 degrees, chemical reactions can begin to occur that produce enough heat to quickly raise the temperature above 400 degrees and the wet hay can begin to burn and cause fires. Be wary of the fire danger of wet hay and store it away from buildings and other "good" hay just in case this would occur.

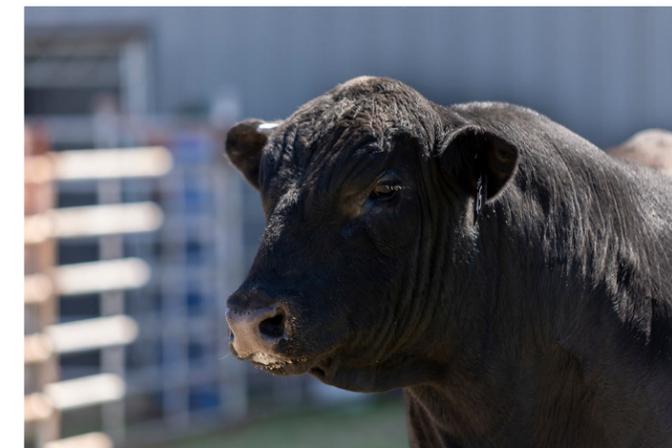
Below is a table with moisture guidelines at time of baling. (Adapted from "Preventing hay fires" Martinson, University of Minnesota)

Moisture ranges (%)	Comments
Less than 10	Too dry. Hay may be brittle and dusty
10 - 15	Recommended moisture range. Minimal risk of fire
16 - 20	Could mold. Slight risk of fire hazard
21 - 25	Will likely mold. Moderate risk of fire hazard
Greater than 25	Severe heat damage likely. High risk of fire hazard

Several commercially produced hay temperature probes are available. Also, homemade probes can be constructed and will help monitor the heating in the hay bales. Information from the University of Kentucky (Overhults) discusses both commercial and homemade probes. Go the website: https://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1115&context=ky_alfalfa Heat damage causes hay to be less digestible, especially the protein. Heat damaged hay often turns a brownish color and has a caramel odor. Cattle often readily eat this hay, but because of the heat damage, its nutritional value might be quite low. Some ranchers have reported that "the cows ate the hay like there was no tomorrow, but they did very poorly on the hay".

Testing wet hay may be very important. Determining the internal temperature of large bales or stacks of hay should be done carefully. Make certain that checking the temperature in suspicious hay is done safely. Read the E-Extension Fact Sheet "Preventing Fires in Baled Hay and Straw" (<http://www.extension.org/pages/66577/preventing-fires-in-baled-hay-and-straw#.VV-WALco7L8>).

Testing the protein and energy content of stored wet hay will allow for more appropriate supplementation next winter when that hay is fed. Moldy hay could be a source of mycotoxins that could present several health problems for cattle. Many animal disease diagnostic laboratories can examine feedstuffs for mycotoxins or can recommend laboratories that do such testing.



Alfalfa Insect Update

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I've gotten a couple calls regarding increased moth activity in alfalfa fields and if there is need for concern. An increase in moth and butterfly activity is normal this time of year and simply means a presence of caterpillars. Activity of foliage feeding caterpillars begins in May and continues through October. The foliage-feeder complex in alfalfa includes the corn earworm, green cloverworm, yellow-striped armyworm, fall armyworm, alfalfa caterpillar, webworms, and several other species which complete 4-6 generations each year, approximately one generation in each crop of alfalfa. Adults of these species lay eggs in foliage beginning soon after each harvest, and caterpillars tend to increase both in number and size as each crop of alfalfa grows. The species present at a given time may be highly variable.

In most instances, when moisture and growing conditions are sufficient, mere caterpillar presence is not of significant concern. However, when crop conditions are not ideal due to dry weather, uneven growth, and lack of natural enemies, large numbers of these caterpillars may completely defoliate alfalfa consuming the leaves and limiting feed value.

Sampling and Control. The most effective sampling approach for these caterpillars is sweeping with a standard 15-inch diameter net. A set of 20 sweeps should be made in each 5-10 acre field area. If numbers exceed 5-6 larvae/sweep, insecticide should be applied or, if the time for harvest is near, alfalfa may be cut to remove the habitat for the caterpillars. Additional information on control of foliage-feeding caterpillars can be found in OSU Extension Facts No. 7150.

Common foliage feeding caterpillars found in alfalfa:



Alfalfa Caterpillar



Adult Butterfly



Yellow-striped armyworm



Adult Moth



Green cloverworm



Adult Moth



Corn earworm



Adult Moth

Wheat Marketing: Selling at Harvest vs. Storing

Trent Milacek, West Area Ag Econ Specialist

Lower grain prices and concerning issues regarding trade have thrust farmers into a difficult marketing situation. Should I consider selling at harvest in a down market or wait and hope for a more lucrative situation later in the year?

Some producers are highly leveraged, others plan to expand their operations, and a few may be nearing retirement. How does this affect their marketing decisions? Debt obligations will account for some mandatory selling of wheat, and new land or machinery purchases could earmark several thousand bushels across Oklahoma. These individuals are probably less concerned with long-term price outlooks, because their need for funds in the operation determine when they sell. This is not necessarily a bad thing.

Marketing does not require that a producer predict price. First, what is their cost of production? Knowing how many dollars per bushel is required to cover the cost of production will at least help prevent them from selling wheat at a loss. Second, what is the historical basis? Basis information is generally easy to obtain and is a good indicator of the local demand for a crop.

Kansas State University maintains a website called agmanager.info that provides valuable information on basis. Their crop basis tool tells us that the 5-year average basis for wheat at Medford, OK is approximately -45 cents/bushel near the first of July. Currently, the basis is -20 cents/bushel. When the basis is stronger than the historical average, the local market is actively seeking grain. While basis is just one part of the equation where Cash Price = Futures Price + Basis, it is fairly predictable and easy to spot increased demand in the local market. Periods of increased demand are generally good selling opportunities.

A farmer asks, "What will the wheat price be in December?" Large stocks of grain in the world make it difficult to predict rallies in prices. For the past few years rallies have come after harvest, but were short lived and difficult to capture. Storage is a silent enemy that is likened to paying interest to own wheat. The past has proven that it can be lucrative to store wheat beyond harvest, but generally farmers who store wheat through December of the current marketing year receive a lower actual price than farmers who sold before that time.

Another way to look at this is to compare storing wheat to paying off loans. Will storing wheat make more money than your highest interest rate loan is costing you? Today a 1,000 bushels of wheat will be worth roughly \$4.50/bushel for a total of \$4,500 dollars. Assuming a 3.5 cent/bushel monthly storage cost, storing 1,000 bushels of wheat until December 31st will result in 6 months of storage at \$210. Borrowing \$4,500 dollars at 4.5 percent interest for 6 months will cost \$100. If the wheat is sold on December 31st it will have to bring \$4.31/bushel to overcome the opportunity cost of capital (interest on \$4,500) and the 21 cents/bushel storage cost to be worth more than selling at harvest. Keep in mind that on average the basis will decrease another 10 cents/bushel between July 1 and Dec. 31st. If that happens, then the futures price will have to increase another 10 cents to make up for the loss in basis.

New Paraquat Labeling and Mandated EPA Training

- New Paraquat label that was approved in 2016 will go into effect this fall.
- The course and quiz will take about 60 minutes, found at USParaquatTraining.com
- Certificate of completion will be good for 3 years.
- New "Closed-system" containers on containers that are 120 gallons or less.



<http://agriculture.okstate.edu/cowboy-journal/issues>

Native Grass Haying

Josh Bushong, Area Extension Agronomy Specialist

Early July is the optimum time of year to be haying native grass pastures for hay. There are some basic production practices to maximize production potential of these hay meadows. Since native hay meadows are a long-term investment, they should be managed in such a way to sustain long-term productivity.

The most important management practice is cutting date. In most years, the optimum cutting date will be between July 1 and 10. Harvesting native hay at this time will achieve a good balance of forage yield and forage quality while also allowing the native stand to recover the rest of the year to sustain production for following years.

The main key to managing any perennial hay field is to maintain a balance between forage yield and forage quality. Time of cutting will be the primary production practice that will determine the forage yield and quality. The maximum forage yield and maximum forage quality hardly ever occur at the same time. Hay tonnage will typically peak in late August, while crude protein and digestibility are usually highest in May.

The second most important management practice is proper cutting height. Cutting height can easily be overlooked, but can be highly detrimental to the life of the stand. Native grasslands should never be cut shorter than 4 inches. Growing points on these grasses are elevated during this time of year. If the growing point is cut off, then production will be greatly reduced the following year.

Cutting height is also important because most of the native grass species need time to re-grow to build root carbohydrate reserves. To sustain a native hay meadow it is recommended to only harvest it for hay once a

year. Native grass species grow rapidly through May and June, but will exhibit slow re-growth in July after harvesting a hay crop. In addition to the slow growth, the re-growth is often less palatable as well. Native species have adapted through natural selection for these traits to ensure grazing animals will not exhaust the root carbohydrates prior to winter dormancy.

Field research conducted by Oklahoma State University has shown that forage tonnage can be increased with an application of fertilizer, however it is rarely economical to do so. When adequate moisture is available during spring and early summer, 30-80 pounds of actual nitrogen fertilizer can increase hay yield and crude protein. Herbicide applications are rarely warranted on native grasslands. If managed properly, there should be a mix of native forbs and legumes that benefit the grass production.

Some small plot studies conducted by OSU has shown an increase in grass production is possible when broadleaf weeds (forbs) are controlled with an herbicide application. However, increases varied depending on growing conditions and thickness of grass stand. Previous mismanagement of the pasture often leads to more weeds. Herbicides such as 2,4-D and/or dicamba are effective when applications are made to small weeds. As weeds get bigger, more costly herbicides are often needed.

Good management practices include harvesting prior to mid-July, leave at least 4 inches of stubble, harvest only once during the growing season, and manage the re-grown forage in the dormant season with either fire or grazing.

For more information about harvesting native grasslands for hay, contact your local Oklahoma State University Cooperative Extension Office. Information can also be found from the OSU factsheet **"NREM-2891 Native Hay Meadow Management"**.

GARDEN TIPS FOR JUNE!

David Hillock, Consumer Horticulturist

General Landscape

Find someone to water plants in the house and garden while on vacation. Harvesting vegetables and mowing the lawn are a must and imply that someone is home.

Mulch ornamentals, vegetables, and annuals to reduce soil crusting, and to regulate temperatures and moisture during hot summer months. Mulching will reduce about 70 percent of the summer yard maintenance.

Remain alert for insect damage. Add spider mite to the list. Foliage of most plants becomes pale and speckled; juniper foliage turns a pale yellowish color. Shake a branch over white paper and watch for tiny specks that crawl. Watch for first generation fall webworm. ([EPP7306](#))

Turfgrass

Fertilize warm-season grasses at 1 lb. N per 1,000 square feet. Don't fertilize fescue and other cool-season grasses during the summer.

Dollar spot disease of lawns can first become visible in mid-May. Make certain fertilizer applications have been adequate before applying a fungicide. ([EPP-7658](#))

Seeding of warm-season grasses should be completed by the end of June (through July for improved varieties such as Riviera and Yukon) to reduce winterkill losses. ([HLA-6419](#))

Brown patch disease of cool-season grasses can be a problem. ([HLA-6420](#))

White grubs will soon be emerging as adult June Beetles. Watch for high populations that can indicate potential damage from later life cycle stages as grubs in the summer.

Tomato Blossom Drop or Poor Fruit Set

David Hillock

Poor fruit set or blossom drop occurs on tomatoes for any of several reasons. Tomatoes do not set fruit well when the night temperature is below about 60°F or above about 70°F or when the day temperature is consistently above about 92°F. When these conditions occur, flowers will drop or fruit will be misshapen. Hormone-type "blossom-set" sprays can reduce spring bloom drop from low temperatures. "Blossomset" sprays have very little effect upon the set of tomatoes during high temperature conditions. Avoid excessive nitrogen fertilization.

Dry soils can also lead to blossom drop; blossoms dry and fall when the plants don't receive enough water. Too much shade can result in only a few blossoms when the plants receive less than six hours of sunlight a day. Excessive nitrogen in the soil often promotes leaf growth at the expense of blossom and fruit formation.

To avoid or correct these problems take these measures.

1. Plant early-, mid-, and late-season varieties at the appropriate time of year.
2. Water tomatoes regularly, never allowing the soil to dry out; mulch with straw, black plastic or other material to reduce moisture loss.
3. Plant tomatoes in an area that receives at least six hours of sunlight each day. If the yard is too shady, plant the tomatoes in a container and set them on a sunny porch or patio.
4. Reduce nitrogen applications if necessary. Be sure to follow the fertilizer application recommendations.

Extension Experience –

Insights into Oklahoma Agriculture

The Northwest Area Extension Staff would like to announce the creation of our new podcast *Extension Experience*. The *Extension Experience* podcast is brought to you by Josh Bushong, Trent Milacek, and Dana Zook. Each week we provide perspective on Agriculture topics and offer insight from our experience working with Extension Educators and Producers across Oklahoma.

The *Extension Experience* podcast is available on [Spotify](#), [Google Podcasts](#), and [Apple Podcast](#) platforms. You can also access the episodes on spotlight <http://spotlight.okstate.edu/experience/>.

We hope you consider listening to

Extension Experience.

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