



CATTLEMAN'S CORNER



Division of Agriculture Sciences and Natural Resources * Oklahoma State University

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STOCKPILED BERMUDAGRASS CAN REDUCE WINTER FEED COSTS

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Harvested forage costs are a large part of the production costs associated with cow-calf enterprises. A 15 year-old OSU trial had the objective to economically evaluate stockpiled bermudagrass. The research found that this practice can reduce cow-wintering costs. Forage accumulation during the late summer and fall is variable from year to year depending on moisture, temperatures, date of first frost and fertility.

The OSU research has found that 50 to 100 pounds per acre of actual nitrogen fertilizer applied in the late summer has produced 1000 – 2000 pounds of forage per acre. In some ideal situations even more forage has been produced.

Studies between 1997 and 2000 found stockpiled bermudagrass protein concentrations were quite impressive, even after frost. In November, the range of protein content of the standing forage was 13.1% to 15.2%. The protein held up in December and ranged from 12.5% to 14.7% and declined to 10.9% to 11.6% in January.

To make best use of the stockpiled forage, supplementation with 2 pounds of 14% to 25% protein feed beginning in early December is recommended. [Read about these studies in the 2001 OSU Animal Science Research Report.](#) Some information about the forage quality is reported in the [1999 OSU Animal Science Research Report.](#)

Planning for the stockpiling of Bermuda must begin now.

The following is a list of recommendations for stockpiling bermudagrass pastures for best results and reducing winter feed bills:

1. Remove existing forage by haying, clipping, or grazing by late August
2. Apply 50 to 100 pounds of actual nitrogen fertilizer per acre.
3. Defer grazing until at least late October or early November.
4. Control access to forage by rotational or strip grazing to cut waste and extend grazing.
5. If cool season forage is available for use in the winter, use the stockpiled bermudagrass first.
6. Supplementation (2 pounds of 14 – 25% protein) should begin in early December.
7. Provide free-choice mineral (6%- 9% phosphorus and Vitamin A) with a trace-mineral package

TIME OF DAY OF HARVEST AND IMPACT ON NITRATE CONCENTRATION

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Forage sorghums are used by cattle producers for summer grazing or harvested for hay. Forage sorghums can be very productive and high quality, but can also accumulate toxic levels of nitrate when stressed. In the past, the assumption was made that the plant continues soil nitrate uptake during nighttime hours, followed by accelerated conversion of the nitrate to protein during daylight hours. Therefore past recommendations have been to wait until afternoon to cut forage sorghum for hay if anticipated nitrate levels are marginally high. You have heard the old adage: “*Never assume anything....*”

To evaluate the significance of the change in nitrate concentration in forage sorghums during the day, Oklahoma State University Extension County and Area Educators collected samples at two hour intervals from 8 AM to 6 PM. Five cooperator's fields (“farm”) were divided into quadrants. Three random samples, consisting of ten stems each, were taken from each quadrant at the specified interval. The samples were analyzed at the Oklahoma State University Soil, Water, and Forage Analytical Laboratory to determine the level of nitrates, in parts per million (ppm).

As expected, differences between “farms” were substantial and significant. The mean concentration of nitrate for individual farms varied from only 412 ppm to 8935 ppm. The mean nitrate concentrations across all farms were 3857, 3768, 4962, 4140, 4560, and 4077 ppm for samples at 8 AM, 10 AM, noon, 2 PM, 4 PM, and 6 PM, respectively. Remember, most laboratories consider nitrate concentrations at, or above 10,000 ppm potentially lethal. **There was much more variation between farms**

than between harvest times. Time of day of harvest did not impact nitrate concentration or proportion of dangerous samples of forage sorghum hay. Don't be misled and believe that cutting the hay late in the day will solve all of the potential dangers of nitrate toxicity. [Source: Levalley and co-workers. 2008 Oklahoma State University Animal Science Research Report.](#)

NOW IS THE TIME TO ADD VALUE TO YOUR CALVES
Gant Mourer, Oklahoma State University Beef Value Enhancement Specialist

October and November calf-weaning days may seem to be quite a long time in the future. However, now is the time to contact the value-added calf program that best fits your calves. The Oklahoma Cooperative Extension Service at Oklahoma State University in cooperation with the Oklahoma Cattlemen's Association recognized the increased interest and participation in value-enhancement marketing strategies for cow-calf producers. However, many producers are unaware and unfamiliar with value-added programs available to them.

Enrollments often must be done well in advance of weaning and many of the programs require that calves be weaned at least 45 days prior to the sale date. In the situation where a pharmaceutical company is sponsoring the value-added calf sale, the cow calf rancher will need to obtain the proper vaccinations recommended for the specific program and be certain that they are given to calves according to the program requirements.

An OSU Fact Sheet ANSI-3288; "Marketing Opportunities Available to Oklahoma Beef Cattle Producers" (<http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-8886/ANSI-3288web2013.pdf>) discusses the details of becoming involved with a value-added calf program and lists over 30 of the current value-enhancement programs that are available to Oklahoma producers. The list also gives contact information for the individual programs so that ranchers can make the initial inquiry about enrolling their calves this year. Value-added calf programs are continuing to grow in popularity with calf buyers and sellers alike. For more information about value-added calf programs in Oklahoma contact Gant Mourer at gantm@okstate.edu.

BLUE-GREEN ALGAE CAN THREATEN LIVESTOCK
Dr. Josh Payne, State Extension Poultry Specialist, Oklahoma State University

Cyanobacteria (blue-green algae) are microscopic organisms that can be found in all types of water including farm ponds. Being photosynthetic, they utilize sunlight to support life. For most of the year, the concentrations are low and the organism is homogeneously suspended in the water. However, during hot, dry summertime conditions organisms can rapidly multiply resulting in high concentrations called blooms. The blooms may range in color from blue to bright green, brown or red and may resemble paint floating on the water or pea soup. Blooms are more common in warm, slow moving water that is nutrient enriched. Storm events followed by prolonged periods of hot temperatures can often trigger a bloom.

Some cyanobacteria can produce toxins that can be harmful to livestock affecting the nervous system and liver. Toxins affecting the nervous system can cause muscle tremors, difficulty breathing, convulsions and death while toxins affecting the liver can cause weakness, pale mucous membranes, bloody diarrhea and death. The wind can actually blow the algae bloom to one side of the water source, thus concentrating it. Dead animals may be observed near these concentrated areas.



The Oklahoma Animal Disease Diagnostic Laboratory can help identify the algae by sending them a pint container of the suspect water. The sample should be submitted in an unbreakable container such as a plastic water bottle. It should not be frozen but if it is shipped, provisions should be taken to keep it cool and out of sunlight. Since the blooms will deteriorate, a fresh sample is best. The fee for this test is \$12.00. The lab can be contacted at 405-744-6623 for more information.

Prevention and monitoring are key to reduce livestock exposure to blue green algae. Below are some tips to consider:

- Check livestock ponds for algae blooms in hot weather.
- Fence off downwind drinking areas if blue green algae is present.
- Pump water from deep within the pond to a nearby livestock tank.
- Use other water sources, if available, when temperatures rise to high levels and algae blooms are observed.
- Reduce nutrient inputs to ponds from runoff by applying fertilizer at least 100 ft away from the pond edge. Vegetative buffers on the upslope of ponds work well to trap sediment and nutrients.
- Restrict livestock from having full access to water sources by fencing and installing limited access watering points or freeze proof tanks, thus limiting manure nutrient inputs.
- Chemical treatment of the pond may kill the blue-green algae but any toxins contained in the cells will be released all at once. Therefore, it is best to reduce exposure and let the bloom dissipate on its own.

OKLAHOMA HAY AND PASTURE SITUATION

Derrell S. Peel, Oklahoma State University

U.S. hay stocks on May 1, the beginning of the hay crop year, were estimated at 24.5 million tons, up 27.9 percent from last year and 73.2 percent above the 2013 drought lows. The 2015 level was the highest May 1 hay stock level since 2005. U.S. hay supplies are projected to be slightly higher this year with lower prices anticipated for both alfalfa and other hay. The Oklahoma May 1 hay stocks level was 1.44 million tons, up 31 percent from one year ago and the highest level since 2008. In Oklahoma, as well as nationally, hay stocks have recovered dramatically from the drought reduced levels in recent years.

The wettest May on record and more rain in June has impacted Oklahoma hay quantity and quality. The floods in May and June resulted in damage or destruction of some stored hay and some new hay production. Low lying alfalfa fields were flooded long enough to kill the alfalfa in some cases and some grass hay fields near rivers were covered with silt and sand. In many cases hay production was nearly impossible during this period resulting in reduced production and poor quality for hay that was excessively mature when it was finally harvested. In particular, wheat that was intended for hay was delayed to the point that the quality was very low as the wheat moved toward maturity before harvesting.

More rain and flash flooding are forecast in Oklahoma this week which will further add to the difficulties in harvesting hay. The delays in hay harvest may reduce both the quantity and quality of hay production this year. With flooding losses pulling down the May 1 Oklahoma hay stocks estimate and reduced production this year, overall hay supplies in Oklahoma will likely be smaller than previously projected. At this point no significant hay shortages are anticipated but producers in some regions are concerned. The most likely scenario is ample supplies of medium to low quality hay that will be difficult to utilize effectively and will increase cattle nutritional management requirements this winter.

Despite the continuing severe drought in the west, pasture and range conditions are significantly better this year compared to this time last year. Across the U.S. 65 percent of pastures were rated good to excellent compared to 58 percent last year while 9 percent were rated poor to very poor compared to 15 percent at this time last year. The latest pasture and range conditions in Oklahoma were rated at 67 percent good to excellent compared to 39 percent at this time last year. Nine percent of Oklahoma pastures are currently rated poor or very poor compared to 24 percent one year ago. Continued rainfall means that good pasture and range conditions are expected to persist this summer. This is a year when it is easy to grow forage but challenging to harvest hay. Grazing management will be key to maintaining forage quantity and quality, not only for the summer but to plan ahead for fall and winter. Carefully planned grazing management and pasture fertility can go a long way to utilizing forage effectively this summer and stockpiling pasture for later use.

With better forage conditions comes the opportunity for Oklahoma cattle producers to implement more aggressive cattle production and marketing plans. Feeder cattle prices are currently 10 to 20 percent above this time last year. Cull cow prices are holding slightly above year ago levels as beef cow slaughter continues 18 percent below last year for the year to date. Replacement female values continue strong for open replacement heifers, bred heifers, bred cows and cow-calf pairs. Managing forage resources for continued recovery and long term productivity along with realistic forage production estimates should be the basis for any changes or expansion of cattle production.

CLOSELY MONITOR MEDICATED MINERAL INTAKE

Glenn Selk, Oklahoma State University Emeritus Animal Scientist

Medicated minerals are available and frequently used to help prevent the blood-borne disease, anaplasmosis. A consistent and appropriate intake of the mineral is critical to a successful anaplasmosis prevention program. Cow calf operators will want to monitor mineral consumption closely to be certain that the label-recommended amounts are being consumed by the cattle. In the near future, a “Veterinary Feed Directive” (VFD) will be necessary for most antibiotic feeding in mineral supplements. Contact and work with your local large animal veterinarian about the appropriate VFD for your operation. For more information and access to the full VFD rule, visit the FDA/CVM website at fda.gov/AnimalVeterinary.

The most popular means of anaplasmosis prevention is the use of mineral mixes that contain chlortetracycline (CTC). When fed at a rate of 0.5 mg/lb. of body weight CTC will reduce the risk of anaplasmosis infections. ([November, 2013 Veterinary Entomology vol. 6, issue 4](#)) It is important to note, however, that CTC is added to minerals for several different reasons, and these other uses require different levels of drug in the mineral. Make sure that the product you choose states on the label that it is formulated at a rate for the prevention of anaplasmosis, and gives the specific amount of daily consumption needed to supply that level. The next step is to monitor your herd to make sure that the product is being consumed at the appropriate rate. If not, you may need to look at other products or change your management practices in order to correct consumption deficits. Recovered animals will be carriers of the disease and a source of infection for susceptible individuals. Clear them of the organism with high levels of antibiotics administered parentally, isolate them from susceptible animals, or cull them from the herd.

Placement of mineral feeders and blocks can aid in achieving optimum mineral intake. Place them in areas where cattle spend a lot of time. Minerals should be placed in loafing areas, near water sources, in shady areas, or any other location that tends to be a popular place for the herd to congregate. A rule of thumb is to provide one mineral feeding station for every 30 to 50 cows. Check feeders at least once a week and keep a clean, fresh supply of minerals present at all times. A good feeder should keep minerals dry, be portable and hold up to abuse and corrosion. Open tubs are not adequate in high rainfall areas.

Summer often becomes a busy time of year for ranchers (especially during haying season). Don't forget to check the mineral feeders or blocks to be certain that they are supplying the minerals that your cows need. If you have questions about anaplasmosis prevention or suspect that an animal in your herd has anaplasmosis, call your veterinarian for help with treatment.

UNDERSTAND AND AVOID HEAT STRESS IN CATTLE

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Understanding and avoiding heat stress in cattle can be a valuable management tool for summertime in Oklahoma. Most areas of Oklahoma have 10 or more days each year above 100 degrees and 70 or more days with high temperatures above 90 degrees Fahrenheit. (Source: 1997 Oklahoma Climatological Survey). This means that most cow calf operations will be working cattle on days when heat stress to cattle is likely. Cattle have an upper critical temperature approximately 20 degrees cooler than humans. When humans are uncomfortable at 80 degrees and feel hot at 90 degrees, cattle may well be in the danger zone for extreme heat stress. Humidity is an additional stressor that intensifies the heat by making body heat dissipation more difficult. See the graphic below that illustrates the level of heat stress that cattle endure at varying temperature and humidity readings.

Temperature Humidity Index (THI)													
		Relative Humidity											
		30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%
T	100°	84	85	86	87	88	90	91	92	93	94	95	97
E	98°	83	84	85	86	87	88	89	90	91	93	94	95
M	96°	81	82	83	85	86	87	88	89	90	91	92	93
P	94°	80	81	82	83	84	85	86	87	88	89	90	91
E	92°	79	80	81	82	83	84	85	85	86	87	88	89
R	90°	78	79	79	80	81	82	83	84	85	86	86	87
A	88°	76	77	78	79	80	81	81	82	83	84	85	86
T	86°	75	76	77	78	78	79	80	81	81	82	83	84
U	84°	74	75	75	76	77	78	78	79	80	80	81	82
R	82°	73	73	74	75	75	76	77	77	78	79	79	80
E	80°	72	72	73	73	74	75	75	76	76	77	78	78
	78°	70	71	71	72	73	73	74	74	75	75	76	76
	76°	69	70	70	71	71	72	72	73	73	74	72	75

THI = Tdbf - (0.55 - (0.55 x (RH / 100))) x (Tdbf - 58)

Normal <74	Alert 75-78	Danger 79-83	Emergency >84
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The temperature humidity index is calculated to help producers know when to avoid putting cattle in situations of undue stress and danger. It is extremely helpful in making decisions as to when to "work" cattle such as weaning fall born calves. The weaning process can be stressful enough in pleasant weather, but combined with a high temperature-humidity index can be fatal.

In most Southern Plains situations, the spring AI breeding season has been concluded. If however, a few cows are still to be bred artificially, time the breeding to be done in the early morning. Research has clearly shown that heat stress during and after insemination can be detrimental to reproductive success.

If summer time calls for cattle to be gathered and put through a working chute for immunizations, implanting, dehorning, artificial insemination or other operations, then a few common sense rules should be followed.

- 1) During hot weather, cattle should be worked before 8:00 am, if possible. Certainly all cattle working must be complete by about 10:00 am. While it may seem to make sense to work cattle after sun down, they need at least 6 hours of night cooling before enough heat is dissipated to cool down from an extremely hot day.
- 2) Cattle that must be handled during hot weather should spend less than 30 minutes in the working facility. Drylot pens and corrals loaded with cattle will have very little if any air movement. Cattle will gain heat constantly while they are in these areas. Therefore a time limit of one-half hour in the confined cattle working area should limit the heat gain and therefore the heat stress.
- 3) Make every effort to see that cool, fresh, water is available to cattle in close confined areas for any length of time. During hot weather conditions cattle will drink more than 1% of their body weight per hour. Producers need to be certain that the water supply lines are capable of keeping up with demand, if working cattle during hot weather.

WHAT TO DO WITH THE BULL AFTER THE BREEDING SEASON?

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

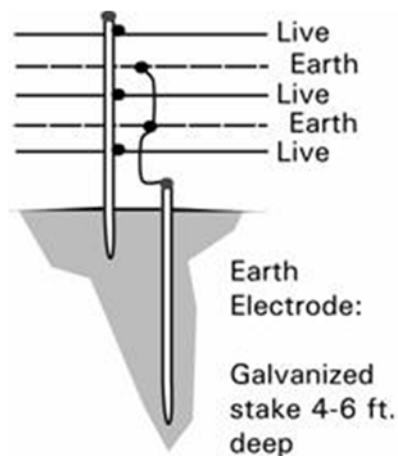
Maintaining a 60 to 75 day breeding and calving season can be one of the most important management tools for cow calf producers. A uniform, heavier, and more valuable calf crop is one key reason for keeping the breeding season short. Plus, more efficient cow supplementation and cow herd health programs are a product of a short breeding season.

However, many small producers lose all of these money-making advantages, just because they do not have a pen or trap that will hold the bull away from cows and heifers for 9 to 10 months of the year. In an effort to learn what others do to overcome this obstacle, we had an email conversation with a Clemson University beef cattle specialist who passed along the method of fencing that they use to separate bulls from their cows.

They use a minimum of 2 acres per bull for their bull pasture. Well fertilized introduced pastures (such as bermudagrass) in Eastern Oklahoma (with adequate rainfall) can stand this stocking density. However, native grass situations will require more acreages per bull unless the producer wants to feed a great deal of hay and supplement during much of the year.

They use a five strand, high tensile fence with the strands spaced at 10 inches apart. High tensile wire is a heavy gauge, smooth wire that can be made as a permanent system with in-line wire stretchers. The first strand is 10 inches above the ground. The end result is a fence that is 50 inches tall.

The fence, of course, must be electrically charged. A GOOD high voltage, low amperage fence energizer or charger provides the energy source. The Clemson design uses the 2nd, 3rd, and 5th wire as charged wires, with the first and the 4th wire attached to grounds. See diagram below. The grounds will be most effective if they are set deep into the soil. This will allow for good "grounding" even when summer droughts cause top soil to become quite dry. Different designs may fit different situations. Some designs electrify the first wire (from the bottom) and make the second wire a ground. Talking to a commercial representative from a reputable fencing supply company can be very helpful.



"PREG" CHECK AND CULL "OPEN" REPLACEMENT HEIFERS

Glenn Selk, Oklahoma State University Emeritus Extension Animal Scientist

Many Oklahoma ranchers choose to breed the replacement heifers about a month ahead of the mature cows in the herd. In addition, they like to use a shortened 45 to 60-day breeding season for the replacement heifers. The next logical step is to determine which of these heifers failed to conceive in their first breeding season. This is more important today than ever before.

The bulls were removed from the replacement heifers about 60 days ago, this would be an ideal time to call and make arrangements with your local large animal veterinarian to have those heifers evaluated for pregnancy. After two months of gestation, experienced palpators should have no difficulty identifying which heifers are pregnant and which heifers are not pregnant (open). Those heifers that are determined to be "open" after this breeding season, should be strong candidates for culling. Culling these heifers immediately after pregnancy checking serves three very economically valuable purposes.

- 1) Identifying and culling open heifers early will **remove sub-fertile females from the herd.** Lifetime cow studies from Montana indicated that properly developed heifers that were exposed to fertile bulls, but DID NOT become pregnant were often sub-fertile compared to the heifers that did conceive. In fact, when the heifers that failed to breed in the first breeding season were followed throughout their lifetimes, they averaged a 55% yearly calf crop. Despite the fact that reproduction is not a highly heritable trait, it also makes sense to remove this genetic material from the herd so as to not proliferate females that are difficult to get bred.
- 2) Culling open heifers early **will reduce summer forage and winter costs.** If the rancher waits until next spring to find out which heifers do not calve, the pasture use and winter feed expense will still be lost and there will be no calf to eventually help pay the bills. This is money that can better be spent in properly feeding cows that are pregnant and will be producing a salable product the following fall.
- 3) Identifying the open heifers shortly after (60 days) the breeding season is over will **allow for marketing the heifers while still young** enough to go to a feedlot and be fed for the choice beef market. "B" maturity carcasses (those estimated to be 30 months of age or older) are very unlikely to be graded Choice and cannot be graded Select. As a result, the heifers that are close to two years of age will suffer a price discount. If we wait until next spring to identify which two year-olds did not get bred, then we will be culling a female that will be marketed at a noticeable discount compared to the price/pound that she would have brought this summer as a much younger animal. In today's market an 850 pound non-pregnant heifer will bring about \$1.90/lb. or \$1615 per head. If current prices hold, next spring a two-year old 1000 pound cow may bring \$1.15/lb. or \$1150 per head. This calculates to a **\$465 per head loss plus the expense of keeping her through the winter.**

Certainly the percentage of open heifers will vary from ranch to ranch. Do not be overly concerned, if after a good heifer development program and adequate breeding season, that you find that 10% of the heifers still are not bred. Resist the temptation to keep these open heifers and "roll them over" to a fall-calving herd. These are the very heifers that you want to identify early and remove from the herd. It just makes good economic business sense to identify and cull non-pregnant replacement heifers as soon as possible.

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