K-STATE Kansas State University Research and Extension

Beef Tips

May 2011 Department of Animal Sciences & Industry www.asi.ksu.edu/beeftips

Upcoming Events

K-State Cattle Feeders College
May 5, 2011— Larned, KS
May 6, 2011— Sublette, KS
620-275-9164

Beef Improvement Federation
June 1—4, 2011
Bozeman, MT
www.beefimprovement.org

K-State Beef Conference
August 16, 2011
www.KSUBeef.org

Applied Reproductive Strategies in Beef Cattle
August 31—September 1, 2011
Joplin, MO
www.beefrepro.info

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Sericea lespedeza: not just a Southeast Kansas problem

Arturo Pacheco, Research Associate KSU Cow/Calf Unit

Producers all across the state are busy preparing for the summer grazing season. You have likely worked your calves or received your stockers, and have repaired fences around your summer grass. You have probably finished up your burning and are just waiting on some warm days to get the warm-season grass growing. Additionally, you may also be starting to worry about how much more sericea lespedeza you will have this year or how much closer it is getting to your ranch.

Producers in the western part of the state may think sericea lespedeza is a southeastern-Kansas problem; however, this invasive perennial legume can be found in all but nineteen states in the US. Affecting over 620,000 acres in Kansas, sericea has been reported as far west as Meade county. In the southeastern US it is regularly planted as a forage crop but this is on level ground that can be farmed and easily managed. When properly managed, sericea lespedeza can be used as a viable feedstuff for grazing livestock.

Unfortunately in Kansas where much of our agricultural land is very rugged, this invasive species can be difficult to keep in a stage of growth that is palatable to cattle and quickly becomes an expensive nuisance. When allowed to grow and spread unchecked, it can completely shade out native forage plants.

Sericea lespedeza has high levels of protein; it also has high levels of condensed tannins. Condensed tannins bind with dietary protein in the gut and render it unavailable to ruminal microbes. Tannin levels in sericea lespedeza increase with maturity and under drought conditions, thus the plant is only palatable to cattle while the plant is young and tannin levels are low. Cattle that consume mature sericea experience a build-up of tannin-protein complexes in the rumen that triggers a negative post-ingestive feed back which can be likened to a belly ache, suppressing forage DMI substantially. Cattle quickly recognize they get this belly ache after consuming the mature plant and develop an aversion to it. The timing of these events coincides with the stages of plant growth where budding, flowering, and seed formation are taking place, thereby increasing the amount of sericea seed that will enter the seed bank for next year's growing season.

It is generally recommended that for sericea to be utilized by cattle it should be aggressively grazed in the early growing season under management-intensive grazing or intensive early stocking. It seems that cows will more readily consume the sericea in its early growth stages than will stockers.

Previously, it was believed that sun curing sericea lespedeza decreased condensed tannin levels to a degree that it would again be palatable. Current K-State research has shown this to be untrue. Cows fed a diet of prairie hay contaminated with sericea lespedeza had much lower forage intakes compared to cows fed uncontaminated prairie hay, presumably the result of the belly ache associated with tannin build up in the rumen.

Further study found that if cows were supplemented with something to prevent the belly ache caused by consuming sericea lespedeza, cattle would readily consume contaminated hay at normal intake levels. In this case corn steep liquor, a cheap and readily available byproduct of corn syrup production was used. When corn steep liquor was offered along with

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You can't manage what you can't measure.

Tally Time: Beware of "creeping stocking rates"

Justin Waggoner, beef systems specialist

The number of cow-calf pairs placed on a pasture is often determined based on previous experience and/or conventional wisdom. One of the factors that easily can be overlooked in establishing stocking rates is cow weight.

Range scientists typically use a 1,000 pound cow with calf as the base definition of one animal unit and cattlemen often use 1,200 pounds to describe the mature body weight of their cows. However, the average mature weight of cows in the U.S. has changed in the last 20 years. If we use feedlot exit weights as a base and the relationship between hot carcass weight and mature dam weight, the estimated mature weight of the 1990 U.S. cowherd was 1,228 pounds compared to 1,386 pounds in 2010 (Table 1). Therefore, using 1,200 pounds for a cow in 1990 was accurate, but today using a weight of 1,350 or 1,400 pounds would be more appropriate.

If the total number of animals per unit of land, per month has not been adjusted, then the pounds of animal per unit of land may have increased by about 150 to 200 pounds per animal. This scenario can be referred to as "creeping stocking rate." For example, a particular pasture supporting 200 cow-calf pairs in 1990, with the cows weighing about 1,200 pounds each, equals a total stocking number of 240,000 pounds. If the number of pairs turned out every spring has not been changed, the actual stocking number today would be 270,000 pounds, an increase of 12.5 percent! This could have serious implications on long-term forage quality and quantity. To get a comparable stocking rate today versus 1990, using 1,350 pound cows, only about 178 pairs should be placed on the pasture.

As many producers make plans for the upcoming grazing season, they should weigh a few cows and give this some thought. It may lead to some difficult decisions, but the long-term sustainability of the forage base may depend on it.

Table 1. Steer and mature cow weights in 1990 and 2010.

Year	Steer Mkt. Wt. (Lbs.[1])	Hot Carcass Wt., (Lbs.[2])	Mature Cow Wt., (Lbs.[3])	Animal Unit Equivalents[4]
1990	1187	736	1228	1.1
2010	1340	831	1386	1.3

[1] K-State Focus on Feedlots 1990-2010
[2] Hot carcass weight = steer market weight x 0.62
[3] Mature cow weight = hot carcass weight / 0.599 (Nephawe et al., 2004)
[4] Animal unit equivalent = (Body weight - 100) / 1000

Lespedeza …. *continued from page 1*

contaminated hay, it bound the tannins and prevented the negative effects of tannin consumption.

Control of sericea lespedeza will take an integrated approach. Such a program may include burning, (which encourages seed germination, kills young plants and removes old growth), mowing (where practical), intensive early stocking, grazing the plant while tannin concentrations are low, herbicide application, and strategic supplementation of cattle with tannin-mitigating compounds. Control of sericea lespedeza will take time and unfortunately we likely won't eradicate it completely; however, we can keep it at manageable levels if we take an integrated approach to control. The future of forage-based beef production in Kansas may depend on it.

For further details on the research mentioned above see the March 2011 Beef Tips or a more in-depth report is available in the 2011 Cattlemen's Day publication at http://www.ksre.ksu.edu/library/lvstk2/SRP1047.pdf in the article: Voluntary Intake of Prairie Hay Contaminated with Sericea Lespedeza (Lespedeza Cuneata) by Beef Cows.

The publication "Sericea Lespedeza: History Characteristics and Identification" can be found at http://www.ksre.ksu.edu/library/crpsl2/mf2408.pdf.

Trigger dates help managers adapt to yearly rainfall variation

Dwayne Rice, NRCS rangeland management specialist, Lincoln, KS

Too many times we get to the end of the summer grazing season and are surprised by the amount of grass left or not left in the pasture. Typically, stocking rates are set at the end of winter based on tradition, rule-of-thumb, averages for the county, or a gut feeling of what the weather conditions will be like during the growing/grazing season. The cattle or other grazing animals are turned out for the summer grazing season and adjustments are only made to the stocking rate when the entire herd is out of grass.

Trying to guess the amount of forage a particular pasture will produce, especially during a drought, is difficult at best and often results in undergrazed or overgrazed pastures. A flexible grazing plan is necessary to make timely adjustments needed for optimum harvest efficiency.

Implementing a grazing plan that uses trigger dates to help improve or maintain your pastures requires three evaluation times to assist the manager in determining a course of action. Take the following steps to begin the process.

- **First**, estimate the current average carrying capacity of your entire operation excluding any annual forage crops or residues. Annual crops and crop residue are not reliable sources of forage during a drought. Average carrying capacity can be estimated by using historic records, range and pasture evaluations by a qualified technician, and the potential production of the soils in the pastures.

- **Second**, determine how you want the pasture or ranch to look 5 to 10 years from now. This is a very important step so spend the time and don't take it lightly. Record these descriptions using as much detail as possible. Describe the grasses, other plants in the pasture, the creeks and bottomlands, the uplands, as well as any trees and other attributes that you feel are important to the way you want the pasture or ranch to look. **This step may be the most important** determination of your commitment and desire to act in a timely, planned, calculated, and positive direction rather than reacting in the typical knee-jerk response in the heat of the drought.

- **Third**, divide your livestock into at least three distinct groups using your estimated average carrying capacity as the limit to the herd size. The first group or A herd is the 50 percent of the herd that you absolutely don't want to sell. The A herd may be your most profitable or productive cows with the best genetics. It could also be the smallest set of steers with the most potential for rapid gains. The second group or B herd is the next 25 percent of the herd and may be a less productive set of cows than the A herd. The B herd could be the yearling heifers or the group of steers that just need a few more weeks. The C herd is the remaining 25 percent of the herd that could be down the road tomorrow if forage gets short and will be required to carry the other herds through the season or year. The C herd will be removed from the pasture at the first sign of poor forage production to provide room for the other herds on the list. As a general rule the A and B herds should be from 60 percent to no more than 80 percent of the estimated average carrying capacity of the entire livestock operation and relatively proportional to the frequency, duration, and length of drought risk for your area.

The following Trigger Dates are designed for the South Central Mixed Grass Prairie Region in Kansas and have worked quite well as an indicator of forage production for the last 18 years. Trigger dates and associated precipitation rates should be adjusted to correspond to your location.

- **Trigger Date 1 - April 1**.

There should be at least 800 to 1000 pounds of residue per acre left in the pasture. This residue is important to protect the soil surface from erosion and improve rainfall infiltration through the soil surface. Effective moisture is more important than rainfall. If the rain that falls doesn't make it through that dimes width of soil at the very surface it won't be available to the plants. If there has been less than 4 inches of rain since November 1 then reduce the planned stocking rate by at least 10 percent by weight from the estimated average carrying capacity.

- **Trigger Date 2 - June 15**.

About 50 percent of the grass production for the year has been grown and 75 percent of the average rainfall is received between November 1 and June 15. If the recorded rainfall (Nov. 1 - June 15) is 60-80 percent of the historic average then reduce the stocking rate 30 percent by weight. If the recorded rainfall is less than 60 percent of the average, then reduce the stocking rate 40-50 percent by weight. Reductions in stocking rates should be completed by July 1.

continued...see Trigger Dates on page 4

"Determine how you want the pasture or ranch to look 5 to 10 years from now."

Trigger Dates …. *continued from page 3*

- **Trigger Date 3 - July 15**.

This date may be the most important date for planning and stocking purposes throughout the year. About 75 percent of the grass production for the year has been grown by this date; in a drought it may be greater than 75 percent. Even if it starts raining tomorrow most of the growth after this date, especially in a drought year, will be reproductive tissue, stem and seed head, not forage. A good measurement of the available forage in the pasture at this point in the growing season divided by the daily or monthly forage requirements of the herd is a good indicator of how much time you have to make a long term management decision. Remember the importance of leaving some standing residue or mulch on the soil surface to improve infiltration.

The positive effects of good management are magnified before and during a drought. The negative effects of poor management are intensified before and during a drought. Overgrazing affects the forage production potential of a pasture for at least two years. Trigger dates may be used as a tool to manage your stocking rates during the year and minimize the long-term negative impacts of overgrazing your pastures.

Forage production is a relationship between several factors including soils, plant species composition, desirable plant vigor, rainfall amount and distribution, timing and intensity of grazing, and surface mulch. We have the most control over the timing and intensity of the grazing pressure through our stocking rates. Maintaining flexibility from season to season and throughout a dry season allows a manager to meet the planned objectives for ecological sustainability and optimize their economic income potential.

"Remember the importance of leaving some standing residue or mulch on the soil surface to improve infiltration."

Summary of trigger dates, criteria and actions developed for the South Central Prairie Region of Kansas

Date	Criteria	Action
April 1	< 4" precipitation Nov. 1 - April 1	decrease stocking rate 10% by wt
June 15	60 -80% of historical Nov. 1 - June 15 precipitation	decrease stocking rate by 30% by July 1
	< 60% of historical Nov. 1 - June 15 precipitation	decrease stocking rate by 40 to 50% by July 1
July 15	(current available forage - desired residue) /daily forage requirement = days of use remaining	