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December 2015

TEXAS A&M AGRILIFE EXTENSION

SCURRY COUNTY AG NEWS & NOTES

Southern Mesa Ag. Conference • January 19, 2016 • Lamesa, TX

8:00 – 8:50 Successful Yields in Cotton & Peanuts when controlling weed issue……..Peter Dotray

8:55 – 9:45 How to have a successful production by controlling peanut & cotton diseases…Jason Woodward

9:45 – 10:05 Break/Booth Visitation/Giveaway

10:05 – 10:55 Being successful using Chemigation with limited irrigation water…… Dana Porter

11:00 – 11:50 Having a Successful production in Sorghum when controlling sugarcane aphids…..Tommy Doederlein

12:00-1:00 Lunch

1:00 – 2:00 2016 Law's & Regs from TDA……Steven Boston

2:05 – 2:55 Having a Successful production when controlling nematodes….Terry Wheeler

3:00 – 3:20 Break/Booth visitation/Giveaway

3:25 – 3:55 Mid-season wheat management when applying Nitrogen as a top-dress……Calvin Trostle

4:00 - 4:30 Production levels on sorghum hybrid compared to non-hybrid verities…… Calvin Trostle

4:35 – 5:20 Cotton Market Outlook and Insurance Implications"……John Robinson

This is a Tentative Agenda Only • CEUs Pending • Updates to Come

COUNTDOWN TO CALVING

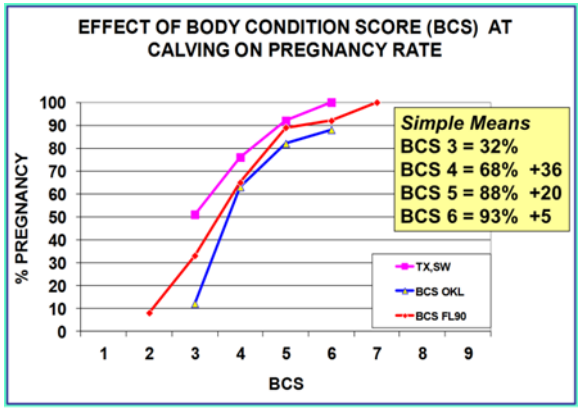
The start of calving season is 6 to 12 weeks away for most "spring-calving" operations. For the pregnant cows and heifers in the herd, the focus should be on managing the plane of nutrition during this critical period in the production year to maintain reproductive efficiency in ensuing years and improve calf health.

Reproductive efficiency

Body condition at calving is a key factor driving the duration of the postpartum interval and hence *if and when* the cow becomes pregnant during the 2016 breeding season. So nutritional management over the next 6 to 12 weeks is going to going to affect ranch income 22 months from now in the fall of 2017. Nutritional management can influence the number of cows currently in the herd that will calve in the "spring" of 2017 and the date when the calves are born in 2017 which will affect weaning weight.

Body Condition, as rated by Body Condition Score 1-9 (http://animalscience.tamu.edu/wp-content/uploads/sites/14/2012/04/beef-bc-scoring.pdf), is an indicator of the energy reserves the cow/heifer has stored in her body. Daily nutrient requirements increase following calving and peak about 60 days postpartum. The energy reserves can be mobilized to help meet the higher requirements.

Studies from across the USA (see chart below: purple-Texas and southwest US data, red-Florida data, blue-Oklahoma data) have demonstrated that mature cows should be in a body condition score 5 or higher at calving. This does not mean all cows in the herd will be a BCS 5, there will some 4's and some 6's, but the majority should be a 5. As the chart shows, as BCS drops below 5 at calving, subsequent pregnancy rates decline severely. Above BCS 5 at calving, subsequent pregnancy rates increase but at a much lower rate. Hence for mature cows, the target BCS at calving is a BCS 5.



Mature cows

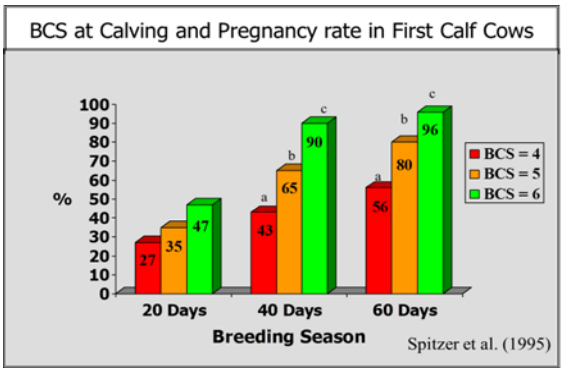
First calf heifers need to be in a higher body condition at calving than mature cows because they have more demands for nutrients. Unlike the mature cow, after calving the heifer must produce milk, repair her reproductive tract AND continue to grow. Target BCS for first calf heifers is a 5.5 to 6. Some producers become concerned that maintaining the heifers in higher BCS will result in heavier birthweights and calving difficulties. This simply is not the case unless the condition is taken to the extreme. Calving the heifers in thinner condition increases the risk of weaker heifers that have dystocia, weaker calves that are susceptible to illness, and delayed return to heat, delayed breeding and lower pregnancy rates.

Lower body condition at calving delays return to heat and WHEN the first calf heifer will conceive the next calf. The chart on the right below illustrates observed pregnancy rates during different lengths of breeding seasons for first calf heifers that calved in different body conditions. First note that regardless of the length of breeding season, heifers that calved in better condition achieved higher pregnancy rates. Second, note most of the heifers that calved in BCS 6 were pregnant by 40 days. They were set up to calve early (and hence have more rest post-calving and heavier calves in subsequent years) for the rest of their productive lives. On the other hand, after 60 days of the breeding season only 56% of the heifers that calved in BCS 4 were pregnant. Even if the breeding season was extended to 120 days and pregnancy rates eventually equaled those of the higher condition heifers, lifetime productivity of these heifers will likely be lower because they will be calving relatively late, be at greater risk for not conceiving, and will be weaning younger, lighter calves in the fall.

The table on the left below shows projected days from calving to first heat in first calf heifers as affected by body condition at calving and condition change postpartum. Using the left hand column (0 change postpartum) as the index, note that as BCS at calving declined from 5.5 to 3, days to first heat increased about 28 days for each drop of 1 BCS. Also note that in the thinner BCS heifers, it would be difficult, no impossible, to "feed your way out" of the delayed heats. As an example, the heifers that calved in a BCS 4 could gain 2 condition scores (about 160-170 lb of weight) in 90 days (1.78 to 1.89 lb/d) and still be 22 days behind the heifers that calved in BCS 5.5.

Predicted number of *days from calving to first heat* - Effects of BCS at calving and BCS change after calving in young beef cows (from Lalman et al., 1997)

BCS at calving	BCS change after calving to day 90				
	0	0.5	1	1.5	2
3	160	150	143	139	139
4	131	121	115	111	111
5	103	93	86	83	82
5.5	89	79	72	69	66



Calf Health

Cow and heifer nutrition over the next several weeks can affect calf health and survivability from the day it is born through its productive life. During the last three months of pregnancy, most of the physical growth of the fetus occurs. Also, essential nutrients the newborn calf will need during the first hours to months of its life are stored. If the dam is on a marginal plane of nutrition in late gestation, development of the fetus may be influenced. In addition, the neonatal calf can be weak and fail nurse adequately during the first 24 hrs of life. The result is malnutrition but also failure to consume adequate colostrum which impedes development of the immune system and increases lifetime risks of morbidity and mortality compared to calves that stand and nurse adequately. Milk is not good source of trace minerals. So, for several weeks after birth the calf relies on trace minerals, such a copper and zinc, that were consumed by the dam and stored by the fetus while in utero.

Added Challenge

From a precipitation standpoint, the region is benefiting from the El Nino conditions. But the added moisture along with forecast for cooler than average temperatures will provide an extra variable for managing cow nutrition – cold stress. Cattle have what is called thermoneutral zone – while windchill temperatures and heat index are within this zone, cattle do not have to utilize energy to maintain body temperature. The bounds to this zone are called the Upper (UCT) and Lower Criticial Temperatures (LCT).

When the windchill temperature is below the LCT, cattle must burn calories to maintain their body temperature; this represents an increase in the energy required for maintenance. The LCT for cattle with a dry winter hair coat is 18 to 32 deg F windchill, depending on thickness of the coat and body condition. For each degree that the windchill temperature is below the LCT, maintenance energy requirements increase 1-2%. If the haircoat is wet, all insulatory properties are lost and the LCT is about 59 deg F windchill and maintenance requirements are 2% higher for each degree below 59 deg F. So if the windchill temperature is 30 deg F, a cow with a dry, heavy winter haircoat has normal maintenance requirements. However, if the cow's haircoat is wet, she is 29 deg below (59 deg – 30 deg) the LCT and maintenance requirements are 58% higher than normal. Extended periods of wet cold weather, such as was experienced over the Thanksgiving weekend can result in weight and condition losses.

Estimated Lower Critical Temperatures for Beef Cattle

Coat Description	Critical Temperature (°F)
Summer	59
Wet	59
Fall	45
Winter	32
Heavy winter	18

These are WindChill Temperatures, not ambient

It is not always possible to supply added feed to offset the cold conditions, This is one reason why it is important to have cows in good flesh so they have some stored energy they can afford to mobilize under these conditions. With El Nino conditions prevailing into the spring, more of these days will occur & will call for increased supplemental feeding to maintain cow condition.

From Now to Calving

-Evaluate body condition now. Determine whether cows and first calf heifers need to maintain or gain condition between now and calving.

-If increased body condition is needed, do not wait. Change the supplemental feeding program immediately to provide the additional nutrients and additional time to change condition. Changing body condition requires weight gain which requires higher energy consumption.

-Continue to monitor body condition and adjust supplemental feed as needed.

-Ensure the cows and heifers are consuming an adequate amount of crude protein in the total diet. Undersupplying protein can lead to weak/dummy calf syndrome.

-Ensure the cows and heifers have access to and are consuming a balanced, complete mineral supplement that contains macro- and trace minerals. This may in the form of a block or loose mineral supplement or it may be from fortified protein and energy supplements.

-During periods of inclimate weather be prepared to increase supplemental feed (or hay) for the cowherd to offset the increased energy requirements.

MINERAL SUPPLEMENTS FOR STOCKERS GRAZING SMALL GRAINS PASTURE

Gazing out across a field of green wheat or rye or triticale forage, one might assume the nutritional needs of stocker cattle are being adequately supplied by the forage. However, concentrations of macro- and trace minerals can range from deficient to adequate in these forages. Mineral deficiencies can retard growth and impair immune function. Calcium is involved in smooth muscle contraction and a calcium deficiency may play a role in the incidence and severity of bloat on small grains pasture.

Mineral concentrations in small grains forages and recommendations for supplements

Mineral concentrations in fresh forage samples submitted to the Dairy One Lab over a 13 year period are shown in table 1. The data include average concentrations and the standard deviations (s.d.; illustrates the variation around the average) for observed values. For comparative purposes, the recommended dietary concentrations of these elements for growing calves are shown in table 2.

Relative to calf requirements, the calcium concentration in small grains forages ranges (ave. concentration +/- 1 s.d.) from adequate to marginal to very deficient. Phosphorus can be slightly deficient to adequate. Magnesium concentrations are marginal to adequate for stocker calves. Copper and zinc, two trace minerals of concern, also range from very deficient to adequate.

Based on these comparisons, calcium is of primary concern in a small grains mineral supplement and supplement concentrations (more than 12%) will be in excess of those normally included in range or warm-season pasture supplements. Phosphorus may be of some concern but the concentrations required in a supplement (less than 5%) would be about half or less of that normally included in range or warm-season pasture supplement. A low concentration of magnesium (less than 4%) may be included but the role of supplemental magnesium in preventing metabolic disorders in stocker calves has not been definitively demonstrated. Trace elements are also needed in the supplements and the concentrations will be similar to those in range and warm-season pasture supplements. Salt is also required and is included in adequate amounts in complete mineral supplements.

Research has demonstrated that stocker cattle grazing small grains pastures will respond efficiently to a complete mineral supplement. "Complete" meaning a supplement containing salt, macro-minerals and trace minerals in appropriate concentrations. In addition to supplying necessary mineral elements to stockers, mineral supplements are a means of delivering ionophores (Rumensin, Bovatec) that can further enhance weight gain. Supplements containing ionophores are referred to as medicated mineral supplements.

Stocker performance-Non-medicated mineral supplements compared to no supplement or salt only On wheat pasture in northwestern Oklahoma, supplementing a complete non-medicated mineral supplement was compared to no supplement (no salt or other feeds) during the winter grazing period and the subsequent graze-out period (Gunter and Combs, 2010). During the winter period, providing a complete mineral supplement increased gains 0.51 lb/hd/d (43 lb/hd total) with a daily supplement consumption of 0.16 lb/hd. In the graze-out period, the complete mineral supplement increased gains 0.57 lb/hd/d (48 lb/hd total) with a daily supplement consumption of 0.37 lb/hd. If the value of added gain on a stocker calf is $1.00/lb, then the supplement was adding $0.51 to 0.57/hd/d value to the stockers compared to no supplement. *Based on this added value and the reported supplement consumption rates, the breakeven purchase cost for the mineral supplement was over $3000/ton.*

Over 4 winter wheat pasture grazing seasons in north-central Oklahoma, stockers consuming a complete non-medicated mineral supplement gained an average of 0.24 lb/hd/d (or 24 lb/hd total over 110 d) more than stockers grazing with no supplements (no salt or other feeds; Horn et al., 2002; Fieser et al., 2007). Stockers consumed an average of 0.46 lb/hd/d of the non-medicated mineral supplement. If the value of added gain is $1.00/lb, then the mineral supplement increased calf value $0.24/hd/d compared to the unsupplemented calves. *Based on this added value and the reported supplement consumption rates, the breakeven purchase price for the non-medicated mineral supplement was about $1040/ton.*

In another trial in south-central Oklahoma, stocker calves grazing rye pasture in the winter were offered white salt or a complete non-medicated mineral supplement (Reuter, 2013). The stockers on the complete mineral supplement consumed 0.23 lb/d of the supplement and gained 0.19 lb/d faster (16 lb/hd total) than those receiving only white salt (0.09 lb/d salt consumption). *Based on the reported daily consumption rates, value of added gain at $1.00/lb, and white salt at $160/ton, the breakeven purchase price for the complete non-medicated mineral supplement was over $1600/ton.*

Stocker performance - Medicated mineral supplement compared to no supplement, non-medicated mineral supplement, or salt only The 4 year winter wheat pasture grazing work in north-central Oklahoma (Horn et al., 2002; Fieser et al., 2007) also compared a medicated mineral supplement containing Rumensin (@ 1600 gm/ton mineral) to the same non-medicated mineral supplement (no Rumensin) and to no supplement. Stockers consuming the medicated mineral supplement with Rumensin gained 0.23 lb/hd/d more (or 25 lb/hd total in 110 d) than those calves consuming the non-medicated mineral supplement. The stockers consuming the medicated mineral supplement gained 0.46 lb/d more (or 51 lb/hd total in 110 d) than the stockers receiving no supplement. Average consumption of the medicated mineral supplement was 0.15 lb/hd/d as compared to 0.46 lb/hd/d for the non-medicated supplement. Rumensin reduces palatability of the supplement which results in lower daily consumption.

Compared to no supplement, the breakeven purchase price of the medicated mineral supplement at the reported daily consumption rates would be over $6000/ton if value of added weight on the stocker calf is $1.00/lb.

The south-central Oklahoma study on rye pasture (Reuter, 2013) also compared a medicated mineral supplement containing Rumensin to the same non-medicated mineral supplement (no Rumensin) and to a salt only supplement. The calves receiving the medicated mineral consumed 0.19 lb/d supplement and gained 0.19 lb/d more (16 lb/hd total) than the calves on the non-medicated mineral supplement (intake = 0.23 lb/d) and 0.38 lb/d more (32 lb/hd total) than the calves receiving salt only (intake = 0.09 lb/d). *Based on the differences between medicated mineral supplement and salt only, and assuming added gain is worth $1.00/lb and white salt is $160/ton, the breakeven purchase price for the complete medicated mineral supplement would be over $4000/ton.*

Bottomline

Forage analyses shows that mineral concentrations in small grains pasture can range from adequate to severely deficient. Research has demonstrated that stocker cattle grazing small grains forages will respond efficiently and economically to both non-medicated and medicated mineral supplements.

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