Animal Enhancement Activity – ANM26 – Managing calving to coincide with forage availability

Enhancement Description
This enhancement uses a controlled breeding season to match livestock nutrient requirements to available pasture forage and reduce supplemental feeding. This enhancement is applicable to all grazing livestock.

Land Use Applicability
Pastureland and rangeland

Benefits
Managing calving to coincide with the production of palatable, high quality pasture matches forage availability to the peak nutrient needs of beef cows and allows nursing calves to use pasture for much of their growth. The result is improved animal health for lactation and reproduction, lower calf death losses and more efficient use of labor and resources. Matching livestock feed requirements to when forage is most abundant and of the highest quality reduces dependency on supplemental feed, and it saves energy associated with hay production and harvest.

Criteria
Based on forage type and season of growth, use Land Grant University and/or state developed recommendations for controlled breeding and calving seasons (single and/or split) to plan the start and end dates for calving that will match the operation's herd requirements with forage availability. This enhancement recognizes that time is needed to adjust the controlled breeding and calving season for the operation. The desired start and end dates for calving are based on:

1. Calving (within a herd) taking place within a 90-day or less time period
2. Calving occurring four to six weeks prior to initial availability of good quality pasture

Additionally,

3. Cow – calf pairs are on or are moved to pasture as soon as possible after birth, e.g., they are not left in dry lots or small calving pastures for extended time periods
4. 50% of breeding females are transitioned by the third year of the contract
5. 75% of breeding females are transitioned by the end of the contract period

Documentation Requirements
Document annually by herd the:

1. Percentage of breeding females with a projected calving date that falls within the established calving period
2. Number of calf births occurring between the desired start and end dates
3. Dominant forage type grazed
4. Acres of available pasture

CSP Animal Enhancement Activity

ANM26 – Managing Calving to Coincide with Forage Availability

New Mexico Supplemental Criteria (Cattle Timeline)

ISSUE:

Ranches are contracted to perform this enhancement (activity) and the criteria as written offers little guidance to field staff to judge if it is being implemented in a timely manner. The enhancement needs to be flexible enough to optimize mother cow nutrition and alternatively weaned calf nutrition based on the availability of good forage. Both scenarios have scientific literature to support their positive effects.

BACKGROUND:

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News Article:

Ken Olson: Managing calving to coincide with forage availability. An article appearing in Tri-State Livestock news on Monday, January 24, 2011

http://www.tsln.com/article/20110124/TSLN01/110129951/1031&ParentProfile=1001

The question becomes: Do we match this peak in nutrient supply to the peak in demand by the cows or by the calves? Matching nutrient supply from forage with nutrient requirements of the calf points to late-winter to early-spring calving. This is because calves that are older and more functional ruminants will be more capable than younger calves at using grazed forage at its peak nutrient quality in early summer. The intent is that calves will be older and heavier at weaning. However, there are disadvantages as well.

The major disadvantage in this scenario is that it is difficult to manage cow body condition score (BCS) during late-pregnancy and early-lactation when calving occurs months before green grass will be available. If cows lose body condition during this period, reproductive performance will be reduced. Extensive use of harvested feeds will likely be required to maintain cow body condition, which will increase annual cow costs. Another disadvantage is increased morbidity and mortality of newborn calves due to cold, wintry weather. Cows in lower body condition produce poorer colostrum and calves are cold-stressed, both of which increase potential for scours.

Matching nutrient supply from forage with nutrient requirements of the cow tends toward late-spring calving. The advantage is that this matches peak nutrient demand of the lactating female with peak nutrient quality of grazed forage. The major disadvantage is that calves are younger and possibly lighter at weaning.

USDA ARS scientists at the Ft. Keogh Research Station near Miles City, MT conducted a study to compare cattle performance and economic response to February, April, and June calving seasons. February- and April-born calves had similar birth weights, while June-born calves were heavier at birth. This suggests better cow nutrition during late gestation for summer-born calves. These birth weights in June were in the normal range and did not cause an increase in dystocia. Weaning weights were reduced as calving season was delayed from February to June, but the difference between February- and April-born calves was minimal (484-, 471-, and 438-lbs. for February, April and June, respectively). (Note: Lighter weight calves bring in more dollars per pound then heavier calves at sale time.)

Another important response was that death rate – for February calves it was 3.5 percent, but it was only 1.5 percent for April- and June-born calves. The cows were fed to maintain similar BCS, with the response of interest being the amount of feed required to meet this goal. As expected, the amount of feed required was greater for earlier calving. Despite feeding these higher levels, cows that calved in February and April still lost body condition in late pregnancy, while June-calving cows did not lose body condition. Pregnancy rate did not differ among calving season groups.

If one applies current feed prices to the amount of feed required to maintain a dry, pregnant cow in March and April (i.e. May calving) or a lactating cow in the same period (i.e. March calving), the savings in feed cost because of later calving is about $15 per cow for that period of time. Additionally, the difference in gross income from calf sales based on the differences in weaning weights and calf crop percentage from the Miles City data indicates that April- or May-born calves actually average $3 more per cow than February- or March-born calves. This is due primarily to higher death loss in the winter-born calves. The net effect is $18 more profit from late-spring calves than winter-born calves.

The obvious conclusion that I want to draw is that late-spring calving has advantages over winter- or early-spring calving. First, the perceived improvement in pounds of weaned calves from earlier calving is not likely to materialize. Second, late-winter feed costs for lactating cows are dramatically higher than for dry, pregnant cows, increasing feed costs to support the cow herd.

LITERATURE

Adams, DC, RT Clark, TJ Klopfenstein, and JD Volesky. 1996. **Matching the cow with the forage resources.** Rangelands 18(2): 57-62.

http://www.cnr.uidaho.edu/range456/readings/Adams_etal_Matching_the_Cow_with_Forage_Resources(Rangelands1996).pdf

ADJUSTING NUTRIENT REQUIREMENTS OF BEEF CATTLE FOR ANIMAL AND ENVIRONMENTAL VARIATIONS 1 D. G. Fox, C. J. Sniffen and J. D. O'Connor Cornell University, Ithaca, NY 14853 J. Anim. Sci. 1988. 66:1475-1495.

University of Florida IFAS Extension Beef Cattle Gestation Table (attached)

PROPOSED SOLUTION: Offer scenarios based on favoring calf, or cow nutrient needs and cool and warm season pasture options;

Cool season Dominated Rangeland; Optimize Calving Dates to Provide optimum nutrient forage for the benefit of the Calf.

Cool season forage growth is well underway in most years in MLRA 36, 48, 49 and 52 by April 15. The enhancement (Activity) calls for Calves on the ground 4 to 6 weeks before that date so March 1st to March 15 will be the target dates for Calves to be born. Looking back along the cattle reproduction cycle (9 ½ months) Cows would need to be exposed for an adequate period to assure maximum impregnation and that the first and last calves all are born within a 90 day window of time. Exposure would need to end June 15 to June 30 to produce calves within the specified window. It is anticipated that Pregnancy checking and culling open cows will be important tools to succeed with this effort. Cows should be checked no sooner than 45 days after breeding. If exposure ends June 30 then palpation can happen after August 8th.

Cool season Dominated Rangeland; Optimize Calving Dates to Provide optimum nutrient forage for the benefit of Mother Cows.

Cool season forage growth is well underway in most years in MLRA 36, 48, 49 and 52 by April 15. The science calls for good quality forage to be available to mother cows during their last trimester of pregnancy and during lactation. For a cow to be in the last trimester of pregnancy around April 15 she would have been exposed for an adequate period to assure maximum impregnation and that the first and last calves all are born within a 90 day window of time. Exposure would need to end around October 8th. Calving dates would then be expected around July 17. It is anticipated that Pregnancy checking and culling open cows will be important tools to succeed with this effort. Cows should be checked no sooner than 45 days after breeding. If exposure ends October 8 then palpation can happen after November 22nd.

Warm season Dominated Rangeland; Optimize Calving Dates to Provide optimum nutrient forage for the benefit of the Calf.

For the rest of NM warm season forage growth is well underway in most years by July 15. The enhancement (Activity) calls for Calves on the ground 4 to 6 weeks before that date so June 3 to June 17 will be the target dates for Calves to be born. Looking back along the cattle reproduction cycle (9 ½ months) Cows would need to be exposed for an adequate period to assure maximum impregnation and that the first and last calves all are born within a 90 day window of time. Exposure would need to end August 19 to September 2 to be calving within the specified window. It is anticipated that Pregnancy checking and culling open cows will be

important tools to succeed with this effort. Cows should be checked no sooner than 45 days after breeding. If exposure ends September 2 then palpation can happen after October 17th.

Warm season Dominated Rangeland; Optimize Calving Dates to Provide optimum nutrient forage for the benefit of Mother Cows.

For the rest of NM warm season forage growth is well underway in most years by July 15. The science calls for good quality forage to be available to mother cows during their last trimester of pregnancy and during lactation. For a cow to be in the last trimester of pregnancy round July 15 she would have been exposed for an adequate period to assure maximum impregnation and that the first and last calves all are born within a 90 day window of time. Exposure would need to end around January 10. Calving dates would then be expected around October 17. It is anticipated that Pregnancy checking and culling open cows will be important tools to succeed with this effort. Cows should be checked no sooner than 45 days after breeding. If exposure ends January 10 then palpation can happen after February 24. This scenario is unlikely to be practical in NM as calves would be starting to eat forage 4 to 6 weeks later around November 17. Forage is well past its peak at that time.

Irrigated Pasture Option: Timing of irrigation and fertilization can be used to control pasture quality and timing to a degree. Known dates of first onset of quality pasture can be used to determine breeding dates and calving dates to meet this enhancement (activity). Operators need to be aware of the disease hazards of calving onto wet pasture. Calving onto higher and dryer calving pastures then moving quickly to good forage can minimize this hazard.

Calving (within a herd) taking place within a 90-day or less time period. This is can be answered by simply looking at the start and end dates for calving as provided by the operator and assuring they occur within a 90 day window. Optimally this will be clustered around a window occurring 4 to 6 weeks prior to best forage availability as outlined in the above scenarios.