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## Beef Cattle Drought Management: Early Weaning Calves

Drought can necessitate implementing management techniques not normally used in an average year. When forage and feed supplies are limited, reducing beef cow nutritional needs can allow producers to stretch available feed resources. One such management technique is to wean calves at a much earlier age than normal. Early weaning of calves can allow a greater use of poor quality roughages in diet for cows.

### Defining early-weaning

Calves can be weaned as early as 45 days of age, however, the rumen of 45 day old calves are just beginning to function. Early weaning at 60 to 90 days is preferable. However, depending on calving season and when drought conditions begin, early weaning may only be 1 or 2 months earlier than usual. Early weaned calves should already know how to eat creep feed when weaned at this age to prevent additional stress. It will take additional management to care for these calves, but the benefits of early weaning during drought conditions can be very beneficial to the overall farm operation.

### Advantages of Early Weaning

1. Nutritional requirements of dams of early weaned calves can be reduced by half because she is no longer lactating. Lactating cows can lose body condition due to the increased nutrient requirements associated with lactation. When drought conditions exist, this situation is usually made worse by lack of forage in drought stressed pastures. By weaning early, the cow's nutrient requirements for lactation are eliminated and cows are able to maintain or increase body condition prior to the fall and winter feeding period.
2. With reduced nutritional needs, more cows can be retained on the forage that is available.
3. Dams of early weaned calves should have adequate body condition scores (BCS) at subsequent calving, which will be beneficial at rebreeding.
4. Poorer quality roughages can be provided to dams of early weaned calves because their daily nutritional requirements have been reduced from weaning.
5. During a drought, calves may not be able to successfully compete with cows for adequate forage. By weaning early and providing a highly nutritious diet, calves can reach their growth potential and are very efficient in converting feed to gain. Early weaning, coupled with feeding a high concentrate diet, has resulted in increased quality grade a slaughter without a decrease in finish weight.

### Disadvantages of Early Weaning

1. Increased management is needed. Farmers need to pay close attention to early weaned calf health status, nutritional needs and overall management.
2. Costs will increase. Instead of pasture and their mother's milk, early weaned calves will eat high quality rations consisting of stored forages and supplemental feed.
3. Adequate facilities to drylot early weaned calves are necessary. These facilities must be able to hold small calves.
4. If the cow herd has high milk EPD values, the potential increase in weaning weight is not realized through increased milk production.

### **Before Early Weaning**

If calves must be weaned early, several management practices must be completed prior to weaning. Bull calves should be castrated a minimum of 14 days prior to early weaning. Horned calves should be dehorned at the same time bull calves are castrated.

Early weaned beef calves have variable levels of colostrum-derived antibodies at 2–4 months of age, and therefore could benefit from vaccination prior to the stress of weaning. In previous trials at Auburn University, a single dose of one of several commercially available modified-live vaccines was demonstrated to be effective in protecting early weaned calves that were approximately 3-months of age against common viral infections. Additionally, all calves should receive a minimum of one vaccination against clostridial diseases (7-way blackleg) prior to early weaning. Remember to administer all vaccines according to FDA-approved label directions. Farmers should consult herd veterinarians to create the best health plan for early weaned calves.

Calves should also know how to eat solid feeds and drink from a water trough. No matter what age calves are weaned, this is a very stressful process. Calves who do not know how to eat or drink will encounter additional stress and are more susceptible to illness.

### **At Weaning**

At weaning, deworm calves and provide fly control, if flies are an issue. Flies can reduce weights by as much as 30 lbs. if not controlled. Also, implant steer calves and non-replacement heifers with a low-dose growth promoting product. Ensure calves have access to a high quality trace mineral if not feeding a complete feed and give a vitamin A, D, E injection.

Provide calves fresh feed daily and plenty of clean water. Water troughs may need to be cleaned regularly. Observe and make sure calves are eating and drinking daily. Watch for any symptoms of illness such as not eating, not chewing their cud, listlessness, drooping heads or ears, coughing, bloat, scours or diarrhea. Consult the herd veterinarian to determine the best management strategies at the earliest signs of potential health problems.

### **Facilities**

Calves should be weaned in a small, secure, well-sheltered pen or pasture. If possible, sort calves by weight into smaller pens so that small calves and large calves are not competing for the same feed and water. Ideally, no more than 20 calves should be in each pen. This allows for good observation of each calf and minimizes competition problems.

During extremely dry conditions, dust can become a problem. Consider using sprinklers or some other method to control dust in pens if necessary. Excessive dust can lead to respiratory problems that can affect them their entire lives.

Water troughs and feed bunks should be placed along the fenceline. This allows calves to find feed and water easily since freshly weaned calves tend to walk the fenceline. If they are used to eating feed and drinking from a trough, they are more likely to eat and drink when they encounter feed and water. Make sure feed bunks and water troughs are small enough that the smallest calf can eat and drink easily.

### **Diets for Early Weaned Calves**

Calves will not eat much immediately after weaning. Because of reduced intake, the feed offered to early weaned calves must be very palatable and nutritious. Quality must be considered over price at this point. Calves need a feed that is between 65 and 75% TDN and 14 to 16% protein at this stage. If at all possible, calves should be offered a quality long stemmed hay topdressed with commercial feed or concentrate mix for the first three to five days. Once the calves are consuming these feeds readily, begin offering mixed diets. Calves can be gradually adjusted to greater levels of supplemental feed by using a step-up approach. Increase the amount of feed provided by 1 pound every 3 days until

the desired rate of supplementation is achieved. The target is often 1.0 to 1.5% of their bodyweight per day in dry matter from supplemental feed. Lightweight calves (~250 to 300 lb) should be consuming 3 to 5 pounds per head per day of the diet by 10 to 14 days after weaning. Depending on their size at weaning, consumption may be more. As calves grow and become more accustomed to the diet, they will generally eat between 2.5 to 3.5% of their body weight per day in dry matter. Do not start calves on silages and other fermented feedstuffs. The fermented odor and flavor of these feeds can cause feed aversion in freshly weaned calves. Wait until the calves are consuming the diet adequately and then begin blending in these feeds. Do not start early weaned calves on urea-based feedstuffs or chicken litter. These feeds contain nonprotein nitrogen and can harm the developing rumen.

Table 1. Example rations to be fed to early-weaned calves (minimum 60 days of age).<sup>†</sup>

Corn-based ration #1		Corn-based ration #2		Coproduct-based ration #1		Coproduct-based ration #2	
Feed ingredient‡	Pounds per ton	Feed ingredient	Pounds per ton	Feed ingredient	Pounds per ton	Feed ingredient	Pounds per ton
Cracked corn	1300	Cracked corn	1100	Soybean hulls	1200	Soybean hulls	1200
Cottonseed or soybean meal	500	Whole cottonseed	300	Corn gluten feed	600	Distillers grains	600
Cottonseed hulls	200	Cottonseed or soybean meal	300	Cottonseed or soybean meal	200	Cottonseed or soybean meal	200
		Cottonseed hulls	300				

<sup>†</sup> Start by feeding rations at 0.5% of animal body weight per day and gradually increase to 2.0% of body weight by increasing the feed by 2 pounds per day every 3 days. Provide rations with free-choice hay or other available roughage such as gin trash or whole peanut hulls.

<sup>‡</sup> Assumes nutritional value of feeds as presented in Nutrient Requirements of Beef Cattle (2016), 8<sup>th</sup> Rev. Ed. Conduct a feed analysis to determine actual nutritional value and how to adjust rations accordingly.

### Expected Calf Performance

Calves nursing dams generally gain 2.1 to 2.3 lbs./day. Early weaned calves placed on a high quality diet should be able to grow at this rate. It is advantageous to the economic well-being of the cow/calf operation to retain ownership of early weaned calves until they at least reach traditional weaning age. This allows calves to weigh more once marketed. Market prices received for light weight calves will not equal prices received if calves are allowed to grow older and put on weight. Efficiency of gain is much higher in early weaned, light calves.

Several research trials compared early weaned calves placed in feed lots at 5 months of age versus traditionally weaned calves. These studies found early weaned calves were heavier at slaughter, gained faster from weaning to 7 months of age, gained slower after 7 months of age, and had better feed efficiency than traditionally weaned calves. Carcasses from early weaned calves were heavier with similar USDA yield grades. However, early weaned carcasses had significantly more marbling than traditionally weaned calves.

## **Conclusions**

Early weaning (calves aged 45 days to 5 months) is a strategy to consider for drought conditions. It reduces the nutritional requirements of cows allowing available forage to stretch further. Increased management levels and high quality diets must be provided for calves to grow normally. However, early weaned calves are more efficient with feed resources and have heavier carcasses at slaughter with higher USDA quality grades. Cost of production is higher in intensively fed early weaned calves.

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