

# Early Weaning Beef Calves

Weaning is a major event in cow-calf management. Beef cattle producers have a variety of options when it comes to deciding when to wean their calves. Because early weaning impacts both animal performance and operational profitability, it is important to know the potential results of using early-weaning strategies.

## Traditional Weaning Ages

The USDA's National Animal Health Monitoring System (NAHMS) reported in a 1996 survey that the average weaning age of beef calves in the United States was 221 days, or a little over 7 months of age. Less than 9 percent of the operations surveyed reported that they weaned calves at 170 days of age or younger. More than three-quarters of these producers reported weaning calves between 170 and 259 days

of age, or roughly between 5½ and 8½ months. While separating calves from dams prior to the traditional weaning age of 205 days may be considered early weaning, early weaning is generally accepted as calves weaned at 5 months of age or younger.

There are notable advantages to using early-weaning strategies in cow-calf operations. In the NAHMS survey, producers were asked to identify the most important factor in determining when to wean calves. The survey responses revealed a lack of flexibility in selection of weaning time to address environmental or market conditions. Relatively few producers indicated that cow condition, forage availability, or market price drove the decision of when to wean calves (Figure 1). Yet these are important considerations when deciding whether or not to wean calves early.

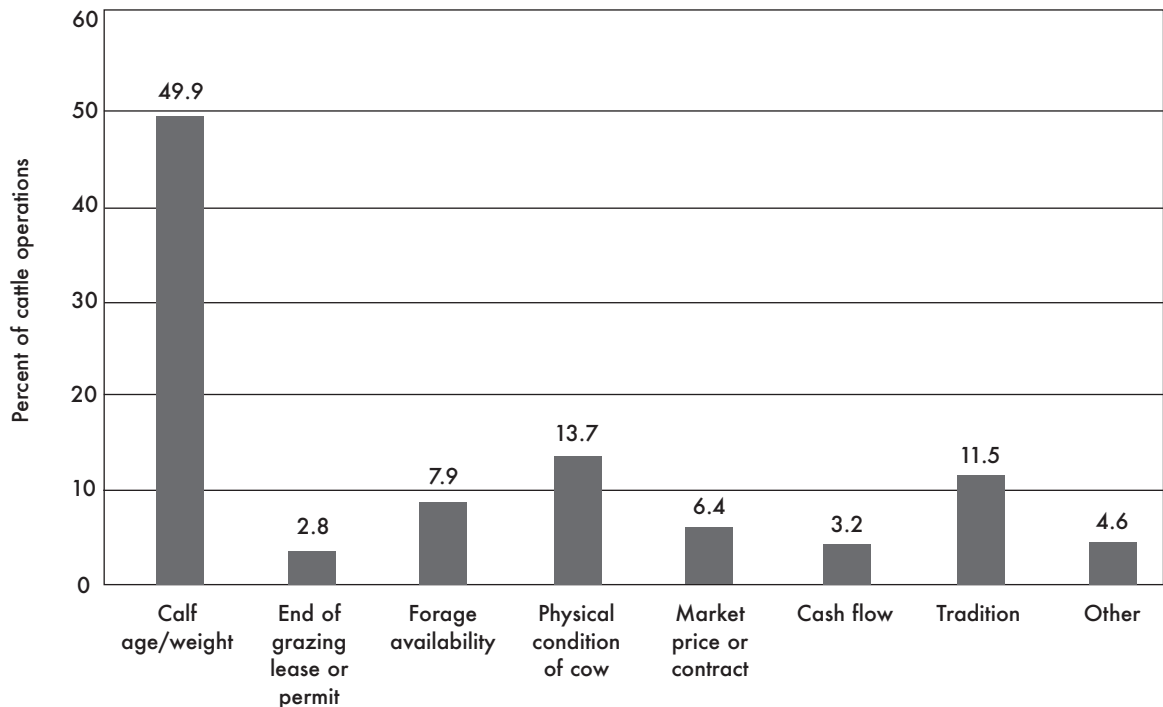


Figure 1. Percent of operations by most important factor for determining when to wean calves. Source: USDA, 2009.



Calves can be weaned successfully as early as 2 months of age. However, this requires intensive calf management and is not practical under most ranch conditions. At 2 months of age, calves are still functionally preruminants that rely primarily on milk for their nutrient supplies and consume only small quantities of forage. However, they do not require milk replacers and can eat dry feed at around 40 days of age. By 3 to 4 months of age, calves generally consume significant amounts of forage.

Waiting until calves are 4 to 5 months old is usually preferable to earlier time frames for weaning. A well-recognized weaning target in many operations is 205 days (7 months) of age. Weaning weights typically are adjusted to 205 days of age in cattle performance testing and evaluation programs to compare calf preweaning growth performance adjusted to a common endpoint.

Many breed associations have defined weaning age windows for calves to be eligible to have adjusted weaning weight calculated and recorded with the breed association. These acceptable weaning age windows vary from one breed to another. For example, the American Angus Association currently allows adjusted weaning records on calves weaned from 120 and 280 days of age, while the American International Charolais Association requires calf ages to fall from 140 to 270 days for adjusted 205-day weights to be calculated and accepted. These weaning age windows extend well beyond the traditional 5½- to 8½-month weaning age window, so early weaning is possible even in seedstock herds. It is important to keep up with current weaning age guidelines if participating in breed association registries and record programs.

## Production Implications

Early weaning often is used to improve cow condition for rebreeding, particularly when forage is limiting. When the nutrient demands of lactation are removed by early weaning, cows gain body weight and condition. Early weaning thin cows results in a significant reduction in the amount of total digestible nutrients needed to support body weight gain. Total digestible nutrients, often referred to as TDN, is an indicator of dietary energy. Early weaning also can effectively initiate postpartum estrus in these cows. Early weaning improves pregnancy rates in cows and often lowers culling rates. Early weaning may be most beneficial in years when pasture production is inadequate to support herd nutritional needs. Early weaning of cows can increase calf weaning weights in the following year.

Feeding early-weaned calves a concentrate-based diet from weaning time until the time they would be conventionally weaned typically results in weights that are equal to or greater than the weights of calves nursing their dams up to conventional weaning age. Operations developing heifers for cull cow replace-

ments may want to consider less aggressive preweaning nutritional management strategies to prevent negative impacts on long-term productivity.

When choosing the most appropriate early-weaning diet, take into account whether or not calf ownership will be retained through the feeding period, feed cost, and feed availability. Early-weaned calves maintained on the ranch before shipping may better tolerate the stressors associated with transportation and feedlot entry. Steers weaned at approximately 5 months of age versus 7 months of age tend to have lower feedlot feed intake and better feed conversion. Early-weaned calves also typically gain less in the feedlots, have lower carcass weights, and produce similar Yield Grades compared to calves weaned at traditional ages.

Early-weaned calves placed on finishing diets exhibit accelerated growth rates and fat deposition early in the feeding period. Early-weaned calves fed a high-concentrate diet are very efficient in converting feed to gain early in the feeding period. Early weaning can improve feedlot feed efficiency, Quality Grade, and beef tenderness as measured by Warner-Bratzler shear force values. The percentage of cattle grading Average Choice or higher can increase by 40 percent with early weaning at 5 months of age versus conventional weaning at 7 months of age. Early weaning can be a means to produce high quality cattle at a younger age than traditional weaning. Evaluate calf genetics to identify frame sizes, growth potential, and maturity rates that are best suited to early weaning on high-concentrate diets.

## Management Requirements for Early Weaning

Most early-weaning strategies involve weaning calves that are at least 90 days old because weaning younger calves requires additional labor and management. In situations where calves are weaned at less than 3 months of age, intensive management may be necessary. Monitor calves daily for signs of respiratory disease, digestive disturbances, scours, and coccidiosis.

To both lower the risk of health problems and promote calf growth, implement proper vaccination programs in consultation with a veterinarian. Alert the veterinarian that the vaccination program will be used in an early-weaning program so that recommended vaccination schedule adjustments can be made.

Castrate and dehorn calves during handling for preweaning vaccinations to allow them to cope with this stress while still nursing their dams. Weaning techniques such as fenceline weaning, fitting calves with antinursing devices, and weaning in locations familiar to calves can be particularly valuable for reducing calf stress in early-weaning programs.

The first 2 weeks after weaning are a critical time for calves to get over weaning stress and learn to con-

sume feed. One of the greatest challenges with early weaning calves is getting them to eat and drink. These relatively young, lightweight calves are highly stressed from weaning and may display wide variations in eating and drinking behavior.

It is critical to get young calves accustomed to a feed bunk and water trough as quickly as possible to reduce the risk of illness. Creep feeding for at least 3 weeks prior to early weaning can help ease the transition onto weaning diets by getting calves accustomed to concentrate feeds prior to weaning. Maintain access to good-quality, clean water at all times.

Provide a highly palatable, dust-free, nutrient-dense diet including a complete mineral and vitamin supplement to early-weaned calves. Use natural protein sources instead of nonprotein nitrogen (urea) in the feed. Do not start calves on fermented feeds such as silage that can turn calves off from feed. Slowly blend in these feeds later after calves begin consuming adequate amounts of grain-based feeds.

Because feed intake is initially low after weaning, the diet must be nutrient-dense to supply enough nutrients to weaned calves. Calves can fill up on hay and not consume adequate amounts of grain mix when long-stem hay is offered separately. When using hay as the primary roughage source for weaned calves, limit feed hay or chop hay and include it in a total mixed ration to help assure adequate consumption of the grain portion of the total feed offered.

Once calves are over the stress of weaning and are eating at least 1.5 percent of their body weight as the starter ration each day, they are ready to receive a grain-based growing ration in a drylot or to graze high-quality pasture with some grain supplementation. Monitor feed intake levels closely. Early-weaned calves need to consume 2.75 percent to 3.25 percent of their body weight in high-quality dry feed daily. Feed intake fluctuation or depressed appetite can indicate calf health problems.

### Early-Weaning Economics

Mixed results on the economics of early weaning have been reported, with drought conditions often making early weaning compare more profitably to traditional weaning. In general, early weaning and backgrounding are associated with increased labor and feed costs. These increased costs may be justified during drought conditions or when cows and heifers are thin and run the risk of low rebreeding rates. Consider the differences in calf weights and values at marketing, cow culling rates, and weaning percentage and weights in the subsequent calf crop.

The best way to assess potential profitability of early weaning versus traditional weaning is to develop a partial budget comparing the two practices for the specific cow-calf operation. Partial budgeting consists of totaling additional returns and reduced costs of switching to early weaning. Then, subtract the reduced returns and additional costs associated with early weaning (Table 1).

**Table 1. Example partial budget for changing from traditional weaning to early weaning.**

<b>Additional Returns</b>	<b>Amount</b>	<b>Additional Costs</b>	<b>Amount</b>
Increased calf sales from increased cow conception rate next year	A	Increased labor costs	I
Increased calf weaning weights next year	B		
Increased sales of heifers not needed as replacements	C	Increased calf feed costs	J
Increased quality grade premiums (for retained calf ownership using grid marketing)	D		
<b>Reduced Costs</b>	<b>Amount</b>	<b>Reduced Returns</b>	<b>Amount</b>
Decreased cow feed costs	E	Decreased market cow sales	K
Decreased replacement female costs	F	Decreased carcass weights and values (for retained calf ownership)	L
Decreased feedlot feed costs (for retained calf ownership)	G		
Total additional returns and reduced costs	A + B + C + D + E + F + G = H	Total additional costs and reduced returns	I + J + K + L = M

**Net returns from changing from traditional weaning to early weaning**

**H - M**

The production efficiency benefits from early weaning must lead to economic rewards for the individual operation for early weaning to be profitable. A breakeven rate of gain can be calculated for early-weaning programs based on partial budgeting data. The success of early-weaning programs will depend on forage and feeding programs, when and how calves are marketed, and individual ranch management. For more information on early weaning beef calves, contact an office of the Mississippi State University Extension Service.

## References

- Arthington, J. D., J. W. Spears, and D. C. Miller. 2005. The effect of early weaning on feedlot performance and measures of stress in beef calves. *J. Anim. Sci.* 83:933-939.
- Meyer, D. L., M. S. Kerley, E. L. Walker, D. H. Keisler, V. L. Pierce, T. B. Schmidt, C. A. Stahl, M. L. Linville and E. P. Berg. 2005. Growth rate, body composition, and meat tenderness in early vs. traditionally weaned beef calves. *J. Anim. Sci.* 83:2752-2761.
- Myers, S. E., D. B. Faulkner, F. A. Ireland, L. L. Berger, and D. F. Parrett. 1999. Production systems comparing early weaning to normal weaning with or without creep feeding for beef steers. *J. Anim. Sci.* 77:300-310.
- NAHMS. 2009. Reference of Beef Cow-Calf Management Practices in the United States, 2007-08. National Animal Health Monitoring System. Veterinary Services, Animal and Plant Health Inspection Service. United States Department of Agriculture.
- Odhiambo, J. F., J. D. Rhinehart, R. Helmondollar, J. Y. Pritchard, P. I. Osborne, E. E. Felton, and R. A. Dailey. 2009. Effect of weaning regimen on energy profiles and reproductive performance of beef cows. *J. Anim. Sci.* 2009:jas.2008-1138v1-20081138.
- Peterson, G. A., T. B. Turner, K. M. Irvin, M. E. Davis, H. W. Newland, and W. R. Harvey. 1987. Cow and calf performance and economic considerations of early weaning of fall-born beef calves. *J. Anim. Sci.* 64:15-22
- Price, E. O., J. E. Harris, R. E. Borgwardt, M. L. Sween, and J. M. Connor. 2003. Fenceline contact of beef calves with their dams at weaning reduces the negative effects of separation on behavior and growth rate. *J. Anim. Sci.* 81:116-121.
- Schultz, C. L., D. G. Ely, D. K. Aaron, B. T. Burden, and J. Wyles. 2005. Comparison of an early and normal weaning management system on cow and calf performance while grazing endophyte-infected tall fescue pastures. *J. Anim. Sci.* 83:478-485.

---

*Copyright 2009 by Mississippi State University. All rights reserved. This publication may be copied and distributed without alteration for nonprofit educational purposes provided that credit is given to the Mississippi State University Extension Service.*

By **Dr. Jane A. Parish**, Associate Extension/Research Professor, Animal and Dairy Sciences; **Dr. Justin D. Rhinehart**, Assistant Extension Professor, Animal and Dairy Sciences; and **Dr. Holly T. Boland**, Assistant Research/Extension Professor, Prairie Research Unit

*Discrimination based upon race, color, religion, sex, national origin, age, disability, or veteran's status is a violation of federal and state law and MSU policy and will not be tolerated. Discrimination based upon sexual orientation or group affiliation is a violation of MSU policy and will not be tolerated.*

**Publication 2555**

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. MELISSA J. MIXON, Interim Director (POD-05-09)



**MISSISSIPPI STATE**  
UNIVERSITY

**EXTENSION SERVICE**

**msucare.com**