

Early Weaning for the Beef Herd

OSU Extension Facts

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Early weaning of calves at six to eight weeks of age is an effective way to get high rebreeding rates even in very thin cows. Although early weaning is certainly not advocated for all producers all of the time, it can provide an attractive alternative in certain situations such as drought, when large amounts of purchased forage would be necessary to maintain a cow herd through to normal weaning time or when cows are already too thin to rebreed. Studies at OSU show that early-weaned calves can be efficiently raised to a normal weaning weight with minimal labor and facilities.

Why Early Weaning Works

Lactation roughly doubles the daily energy and protein requirement for a typical beef cow. Removing the calf at six to eight weeks into lactation obviously reduces the quantity and quality of forage needed to maintain the cow herd. Reasons for improved rebreeding after early weaning involve more than nutrition, however. Research has shown that the removal of the nursing calf causes hormonal changes in the cows that stimulate estrus. Estrus activity can then be induced in cows too thin to cycle while still suckling a calf.

Age for Early Weaning

In order to maintain a 365 day calving interval, calves should be early weaned at less than 80 days of age. About 40 days of age may be a practical minimum for early weaning in beef herds. Calves at least 40 days old do not require milk replacers in the ration and are old enough to eat dry feed. Since smaller and younger calves may have difficulty competing for feed and water, the age range in any given group of early-weaned calves should be kept as narrow as possible.

Managing the Early Weaned Calf

The procedures described in this fact sheet were developed from two studies conducted at the Range Cow Research Center at Oklahoma State University. A total of 54 calves were early weaned in both studies.

The most critical time is the first two weeks after early weaning. Calves must overcome the stress of weaning and learn to eat dry feed very quickly. The first ration should be very palatable and high in protein and energy, since the total ration consumption will at first be small. Creep feeding in the pasture prior to early weaning would be helpful; however, 6-8 week old calves don't generally eat much creep while still nursing on the cow.

At the time of early weaning, all calves should be vaccinated for blackleg and malignant edema. Consult your local veterinarian for other suggested vaccinations. All calves not intended for breeding replacements should be implanted.

The calves should be placed in a small pen with some type of shelter available. The feed bunk and water source should be easily accessible and recognizable. A starter ration that has worked well is shown in Table 1. It is high in both energy and protein. Cottonseed hulls are used as the sole roughage source, since they are extremely palatable. If chopped hay is substituted for cottonseed hulls, molasses should be added to minimize dust. Avoid alfalfa pellets, because calves tend to sort them from the concentrate portion of the ration, a problem that can lead to founder if too much concentrate is eaten. Soybean meal is preferred over cottonseed meal for young calves.

Calves should be hand fed the starter ration until consumption reaches 4-5 lbs/head/day. This normally takes 10-14 days. To insure that smaller and more timid calves get a chance at feed and water, limit to 20 calves per pen during the critical first few days on the starter ration. Placing one or two older calves that are accustomed to eating and drinking in with the early-weaned calves helps

Table 1. Early Weaning Rations

Ingredient	Ration		
	Starter	Ration II	Ration III
	%	%	%
Rolled corn	64.0	56.5	50.0
Soybean meal	20.0	17.0	12.0
Cottonseed hulls	10.0	20.0	33.0
Cane molasses	5.0	5.0	3.0
Dicalcium phosphate	—	—	.5
Limestone	0.5	0.5	0.5
Potassium chloride	—	0.5	0.5
Salt	0.5	0.5	0.5
Vit A (30,000 IU/gm)	1 lb/ton	1 lb/ton	½ lb/ton

to reduce stress on the weaned calves. Observations at OSU have indicated that the newly weaned calves tend to follow the older calves to the feed bunk and waterers.

After 10-14 days on the starter ration, the early-weaned calves can be moved to a larger pen and switched to Ration II fed in a self-feeder. Ration II should be fed for about six weeks or until the first sign of scours. At this time, Ration III should be fed until normal weaning age. If coccidiosis is felt to be a potential problem, a coccistat should be fed at the start of the early weaning period.

Problems to look for during the drylot rearing of the calves are: 1) respiratory problems, especially during the first few days; 2) sorting of the ration, which can lead to founder; 3) coccidiosis and 4) scouring. Remember that early-weaned calves are started with a ration high in energy and protein and are gradually changed to a grower-type ration as their total intake increases.

Expected Calf Performance

Daily gains of commercial Hereford and Hereford x Angus calves have averaged about 1.75 lbs/day from 6-8 weeks of age to 205 days of age. These calves consumed about 9 lbs of feed during the early weaning period, with a feed conversion of 4.5 lbs of dry matter per pound of gain. Weaning weights (205 day steer equivalent) for early-weaned calves were 435 lbs, compared to 347 lbs for calves raised by their dams on summer bermuda pasture. The calves weighed an average of 155 lbs at the time of early weaning. Performance of early-weaned calves compared to pasture reared calves will depend on the growth potential of the calves, the level of milk production of the dams and the level of management.

In order to reduce feed purchases, many producers may wish to move early-weaned calves to pasture after the calves have reached an average weight of 250-300 lbs in drylot. OSU research indicates that gains of early-weaned calves run on native pasture from late July (with grain supplementation) were lower than for calves raised completely in drylot. High quality forage such as wheat pasture will likely be required to get good gains on light-weight, early-weaned calves.

All roughage fed to early-weaned calves should be mixed in desired portions in a complete ration. When free-choice hay is available, some calves may consume mostly hay which provides protein, minerals and energy. By increasing the roughage level of the complete rations as the calves get bigger and thus increasing their daily ration intake, the correct levels of protein, energy and minerals can be "metered" into the calves.

Expected Improvements in Cow Performance

Table 2 shows weight gain and rebreeding improvements for first calf Hereford heifers and mature cows that had their calves early weaned at 6-8 weeks of age. Early weaning increased conception rates of very thin first-calf heifers from 50% to 97% and shortened the days to first

Table 2. Effects of Early Weaning on Cow and Heifer Performance

	First calf heifers		Mature cows	
	Normal weaned	Early weaned	Normal weaned	Early weaned
Weight, lbs				
at early weaning	698	680	816	832
at end of breeding	746	753	922	968
at normal weaning time	788	875	920	1040
Conception rate, %	59	97	81	100
Days from calving to first estrus	90.5	73	81	46

estrus by 17 days. The mature cows were judged to be in moderate condition. All the early weaned cows rebred, while only 81% of the cows that raised calves rebred. Many of the cows cycled within three days of early weaning, indicating that extra bull power may be needed for a few days following early weaning.

As expected, heifers and cows whose calves were weaned early were heavier at normal weighing time than were those cows and heifers that raised calves. Since these cows are in better condition, they will require less supplemental feed during the following winter. This factor will need to be considered in the budgeting of an early weaning program.

An economic analysis of early weaning is shown in Table 3. A spring calving program on native range or bermuda is used in which calving begins about February 15. An 88% calf crop with 400 lb weaning weights is considered average for cows raising their calves. Rations I, II, and III are priced at \$186, \$175, and \$159/ton respectively, which includes a \$20/ton markup. The ingredient prices used to arrive at the ration costs are shown at the bottom of Table 3.

The feasibility of early weaning is evaluated under four situations:

1. There is adequate standing roughage and the cow's nutrient requirements can be met with cottonseed meal. Supplemental hay will be fed only during periods when ice and snow covers forage.
2. Standing roughage is in short supply, and grass hay will be fed along with cottonseed meal to meet the cow's nutrient requirements.
3. There is inadequate standing roughage, but the hay supply is inadequate to meet the cow's requirements. Cows will be in poor condition at breeding in the spring of 1981.
4. Same as 3, but we will early-wean at 6-8 weeks of age in the spring of 1981.

For those cows which we intend to early-wean, we will maintain sufficient condition to insure that the cows can calve and nurse for six weeks.

Note that for 1981, early weaning about breaks even with purchasing grass hay in situations where forage is

scarce. Assuming a 98% calf crop the following year from early weaned cows, along with their lower wintering cost, early weaning shows a \$48 advantage for the two-year period over purchasing hay in 1980-81. Early weaning netted a \$104 advantage over living through poor conception rates with underfed cows.

The most likely place for early weaning is in a situation where poor conception rates are expected. Depending on concentrate and hay prices, early weaning might be profitable when large amounts of hay must be purchased for the cow. Producers should substitute their own feed costs as appropriate in this budget.

Summary

Calves can be successfully weaned at 6-8 weeks of age and efficiently raised to a normal weaning weight in drylot. Early weaning will permit high conception rates and rapid rebreeding. While early weaning is certainly not recommended as standard practice, it should be useful in times of drought when purchased feed may be more efficiently fed directly to the calf than to the lactating cow. Early weaning may also offer cattlemen a chance to achieve high conception rates in cows too thin to rebreed otherwise.

Table 3. Costs and Returns Analysis for Early Weaning vs Normal Weaning of Calves Born in February of 1981: The Impact on Returns for 1981 and 1982.

	Meet Cow's Requirements				Do Not Meet Cows Requirements			
	Adequate Forage		Inadequate Forage		Inadequate Forage		Inadequate Forage Early Wean	
	CSM	Hay	CSM	Hay	CSM	Hay	CSM	Hay
1980-81, lb/hd/day								
Oct. 15-Jan. 1	2	—	2	5	2		1	
Jan. 1-Feb. 15	3	4.5	3	10	3	4.5	2	4.5
Feb. 15-May 1	4	4.5	3	15	4	4.5	1	4.5
Total lb fed	588	400	514	1955	588	400	317	400
Cost for Cow		\$ 95.38		\$147.59		\$95.38		\$58.80
Cost for Early-Weaned Calf								\$112.00
1980-81 Returns								
Ave Weaning Wt., lb.	400		400		375		434	
Calving Rate	88		88		88		88	
Weaned wt/cow, lb	352		352		330		382	
Returns, 80¢/lb	\$282.		\$282.		\$264.		\$396.	
Net (calf-feed costs)	\$186.62		\$134.41		\$168.62		\$135.20	
1981-82 Costs ¹	95.38		95.38		95.38		80.00	
1981-82 Returns								
Ave. Weaning Wt., lb.	400		400		400		400	
Calving rate, %	88		88		60		98	
Weaned wt/cow, lb	352		352		240		392	
Returns, 80¢/lb	\$282.		\$282.		\$192.		\$314.	
Net (calf-feed costs)	\$186.62		\$186.62		\$96.62		\$234.00	
2 Year Summary								
1980-82 Returns	\$373.24		\$321.03		\$265.24		\$369.20	

¹For 1981-82, assume costs are the same as in 1980-81 and that forage is adequate. Wintering costs will be slightly lower for early-weaned cows due to their added condition going into the winter. Ingredients costs: Corn, \$4.00/bu.; SBM, \$300/ton; Hulls, \$80/ton; Molasses, \$130/ton; Dical, \$13/cwt; Limestone, \$1.50/cwt; Kcl, \$5/cwt; Salt, \$2/cwt.