

**Animal Health  
Fact Sheet**

## EARLY WEANING OF CALVES MAY BE ECONOMICAL

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Utah beef producers traditionally wean the calves from the cows “in the fall.” With the continuing changes in economics, feed resources and grazing options, producers may need to re-evaluate this weaning date. Two other options are available and should be considered when applicable. One is early weaning and the second is creep feeding the calves while leaving them on their dams. This article addresses the early weaning option.

Early weaning should be considered as a management practice in drought conditions and where forage quality is poor later in the grazing season. It should be a regular practice with fall calving and with drylot cow-calf production systems. The individual producer must consider the extra labor and feed costs, potential differences in market price, feed resources available, nutritional adequacy of feeds available to the nursing calf and the body condition of the cow herd. Leaving a calf on its mother when her milk production has drastically declined is of little benefit, especially when the feed quality or quantity is so poor that calf gains will be minimal and yet the nursing process will nutritionally retard the dam. This results in a light weight calf and a dam with low body fat reserves for winter and for providing nutrients to another developing fetus. It may also prevent some dams from becoming pregnant because of their poor body condition and poor feed supplies during the breeding season.

Beef calves can be weaned as early as 30 days of age. If the practice is expected to benefit the cows for the current breeding season, it would have to occur by 35 to 60 days. If delayed longer, there would be no beneficial effect for the current breeding season, although it could be of some benefit for the next breeding season.

In order to evaluate the problems and benefits of early weaning, a trial (funded by the Utah Department of Agriculture) was conducted with the Utah State University beef herd during the summer of 1992. We wondered about the effects on health and weight gains of the calves and the body condition of their dams; would this be a realistic procedure and economically feasible?

We found that early weaning worked well under our conditions, with few, if any, extra problems. It is a viable alternative for producers and our data indicate that it could be economically worthwhile in some situations.

The herd used for the study was grazed in divided, native meadow pastures in Cache Valley. There was adequate feed for early summer, but by late summer feed was limited. However, this limitation was mild compared to what many beef herds would experience in a serious drought situation. The calves were born in March and April and were pastured with their

dams, all together. On August 10, one-third of the calves was weaned and placed in drylot (Group 1). Another one-third (Group 2) was weaned and also placed in drylot, but after 3 days they were allowed access to an excellent planted pasture. The remaining third (Group 3) were not weaned until October 19. The final weights were taken on November 16 to allow Group 3 a 4-week period to adjust for weaning stress, in order to provide a more accurate comparison with those weaned early. Once weaned and placed in drylot, all calves were fed a total mixed ration of corn silage (35%), alfalfa hay (30%), and chopped barley (35%).

The primary disease problem after weaning in all three groups was bovine respiratory disease and 9.1% of the calves were treated individually for it. The average calf age at early weaning was almost 5 months (148.2 days). Weaning calves at 35 to 60 days, as has been done in some trials, may require more care and a higher rate of treatment.

The weight gains for the calves are listed in Table 1.

**Table 1: Calf Weight and Gain Rate (Pounds)**

Group	Number	August Weight	Gain Aug-Oct Weight	Gain Oct-Nov	Total Gain	ADG
1 (drylot)	36	361.3	102.3	41.0	143.3	1.78
2 (drylot/pst)	37	362.0	103.7	42.2	145.9	1.81
3 (nurse)	37	356.4	118.5	18.9	137.4	1.75

There was no statistically significant difference in the weight gains of the three groups of calves. This would indicate that for weight gain the method of management was not very important. The decision of when to wean should be based on feed economics and the potential benefit to the dams of early weaning.

The feed intakes for Groups 1 and 2 are listed in Table 2 for comparison. It is assumed that both groups had similar dry matter intake and that the pasture eaten would be approximately equivalent to the difference of intake between the two groups.

**Table 2. Comparison of Feed Intake**

Group	Aug-Oct (61 days)		Oct-Nov (25 days)		Average Feed/Day
	Total Lb of Feed	Lb of Feed/Day	Total Lb of Feed	Lb of Feed/Day	
1 (drylot)	935	15.3	517	20.7	16.9
2 (drylot/pst)	740	12.1	367	14.7	12.9
Difference	195	3.2	150	6.0	4.0

There was a significant effect of early weaning on cow weight gain and body condition scoring as summarized in Tables 3 and 4.

**Table 3. Change in Cow Weight and Body Condition**

					Body Condition Score	
Group	Number	Aug Weight	Oct Weight	Weight Change	Aug	Oct
1 &2 (wean)	62	1216.91	1250.0	33.1	4.9	5.4
3 (nurse)	26	1190.0	1182.1	-7.9	4.8	4.9

**Table 4. Categorization of Body Condition Scores**

Group	Body Condition Scores (%)			
	4	5	6	7
August				
1 & 2 (wean)	34	56	8	2
3 (nurse)	42	46	12	0
October				
1&2 (wean)	5	61	27	6
3 (nurse)	31	50	19	0

These data compare very closely to recent work in Nevada (Conley, et al., Proceedings, Western Section American Society of Animal Science, Vol. 44, 1993). Heifers were used in their study and the range was in severe drought conditions so there was a major impact on the body condition score of the dams. At the time of weaning of the longer nursing group, only 29% of the dams scored 4 to 5 compared to 77% of the dams of the early weaned calves. This difference in condition of the dams continued throughout the winter in spite of good pasture and the feeding of a supplement. The researchers estimated it would have cost \$100 per head more in additional supplement to bring the nursing group cows into equal condition with the cows from which calves were weaned early. They did find a 21 pound advantage for the calf group which continued nursing. However, this trial did not follow the nursing group on through the stress of weaning so it was biased in favor of those which continued nursing.

Other studies have shown a weight gain advantage of 0.5 to 1.0 pound per day for early weaned calves over calves which were left on the dam during periods of severe drought. Differences in calf weights would be expected to be greater in a serious drought situation.

Although in our USU study there was no statistical difference in calf weights between those calves weaned early and those not, there was a difference in the cost of gain between the two early weaned groups. For the calves fed strictly in drylot, the average per pound cost of gain was approximately \$0.26. The average per pound cost of gain for the combined drylot/pasture calves was approximately \$0.22. This shows some advantage in allowing calves access to pasture in addition to drylot, if pasture costs were \$8.00 per AUM or less. Between the groups of cows there was a significant weight difference. The nursing cows lost an average of 7.9 pounds and the cows in the early weaned groups gained an average of 33.1 pounds for the August to October weigh period. A total net difference of 41 pounds was realized.

There are two ways that the added weight on the cows can be evaluated economically. The weight difference could be converted to a dollar value as if the cows were sold. The rationale for utilizing this approach is that the opportunity cost of keeping the cows should be roughly equivalent to the difference in earnings if the cows were sold. The potential economic benefits of early weaning for different cow gains at various cow prices are shown in Figure 1. Using the data in Table 5, to construct a “What if...” graph depicts what could be expected if the cow weight gains or their value per pound were changed.

**Table 5. Benefit/Cost Calculations for Early Weaned Calves.**

<b>Farm Data:</b>		<b>Expense Item:</b>	<b>Units</b>	<b>Total:</b>
Calves Weaned	88	Calf Gain Per Day	\$0.26	\$2,471
Daily Calf Wt Gain	1.8	Yardage Per Day	\$0.10	\$ 950
Days on Creep Feed	60			
Value of Calf/lb	\$0.93	Total Cost		\$3,421
Total Value of Calf Gain	\$8,839	<b>Benefits From Early Weaning:</b>		
Number of Dams	88	Calf Gain (pounds)	0	\$0.00
Net Dam Gain from Early Weaning		Cow Gain (pounds)	41	\$1,624
Value of Dam/Pound	\$0.45	Calf Pasture Cost Saving/AUM	\$6	\$1,056
Total Value of Dam Gain	\$1,624	Total Benefit		\$2,680
		Benefit/Cost Ratio		.78

Figure 1 illustrates the benefit-cost ratio for a number of scenarios assuming that the cost of gain for a calf is \$0.26 per pound and yardage is \$0.10 per head per day. Note that the benefit-ratio does not exceed 1.0 (break-even) for the cows selling at less than \$0.45 cents per pound up to a gain difference of 55 pounds. When cow prices are higher, for example, \$0.55/pound, a benefit-cost ratio of 1.0 is achieved at a difference of 50 pounds. If there were an expected calf weight gain advantage from early weaning, this would heavily impact the economic benefits from early weaning.

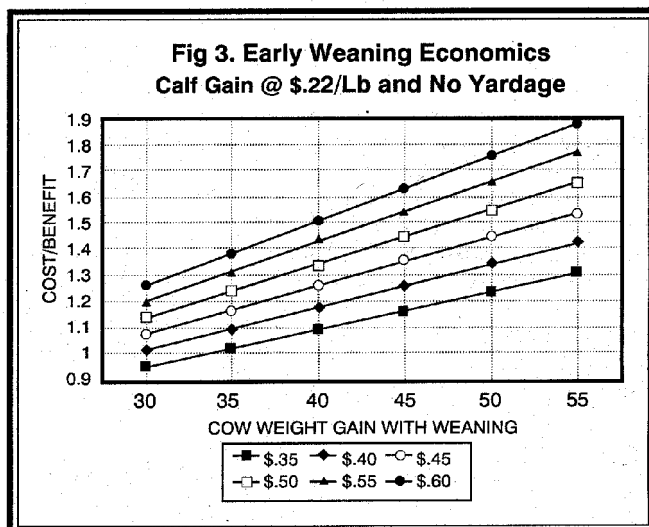
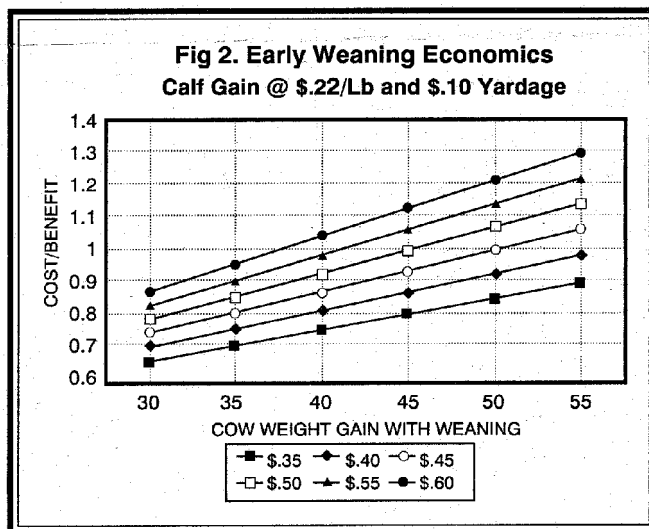
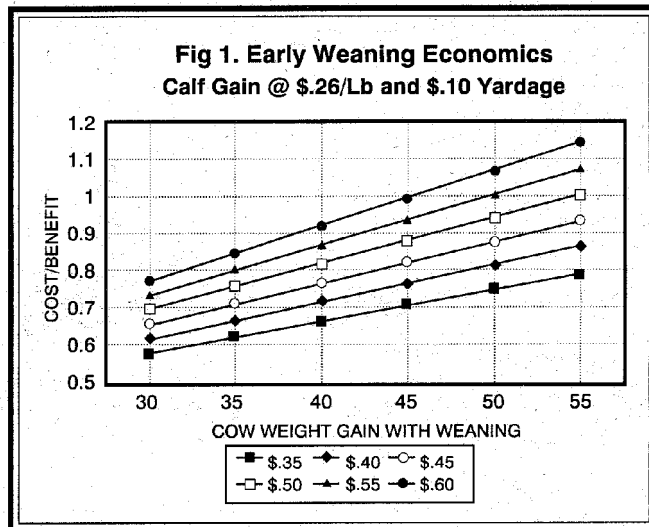
Figure 2 illustrates the benefit-cost ratio when the calves are fed on pasture along with drylot. Note that the benefit-cost ratio is higher for every increasing cow price and that the

benefit-cost ratio is greater than 1.0 in three of the six scenarios (as long as the difference in weight gain is at least 50 pounds).

When yardage costs are excluded, which would be consistent with a short-run production decision with facilities fixed, the benefit-cost ratio is greater than 1.0 under virtually every scenario, even when cows are selling for only \$0.35 per pound (Figure 3). Obviously, this benefit-cost ratio would not hold in the longer run because the facilities would have to be replaced.

A second approach to calculate the economic benefits of the cow gains, would be to identify differences in productive capacity (or added costs to achieve the same productive capacity) if the cows were taken through the next year's breeding season. Benefits such as (a) value of additional body condition during the winter due to better weight gains prior to cold weather, (b) extra calf survival rates the next year, and (c) possible improvements in breeding rates the following summer.

Our conclusions were that early weaning did not result in an increased rate of illness nor in a lack of gain. Calves need to be observed carefully and fed properly whenever they are weaned. Early weaning can have a beneficial effect on the dams. The final decision on when to wean calves should be made by each producer based on current economics and feed resources.



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