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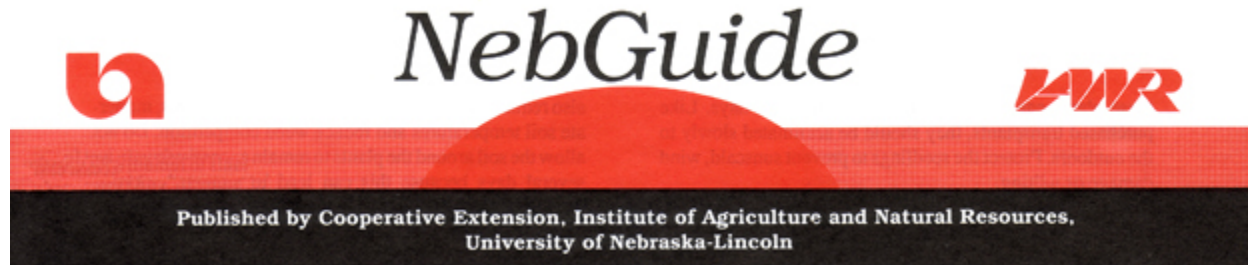
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Managing Two-Year-Old Beef Heifers (*Calving - Rebreeding*)

This NebGuide discusses the nutrition and management practices recommended for beef heifers during precalving, calving, and early lactation periods.

Gene H. Deutscher, Extension Beef Specialist

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Proper development of replacement heifers has a great influence on the success of calving and rebreeding them as two-year-olds. NebGuide G80-493, *Developing Replacement Beef Heifers (Weaning-Breeding)*, points out that proper selection, adequate nutrition, and judgment in sire selection are all important management factors for developing heifers into high producing cows.

With good management before breeding, a high percentage of heifers should be bred early in a short breeding season. Heifers should be pregnancy checked and the open ones culled. Thereafter, the biggest concern for bred heifers is to provide adequate nutrition for normal growth and development. Growth during the summer will depend primarily on pasture conditions, but during the winter it will be controlled mainly by the producer.

Precalving Period

Management during the last third of pregnancy is very critical for the growing heifer and developing calf. The heifer must continue to grow structurally and gain body weight during this 90-day period; and the weight of the fetus and fetal fluids and membranes will increase about .90 lb per day. Therefore, the heifer needs to gain about 1 to 1.4 lbs per day (scale weight) to sustain her growth and that of the fetus. However, a heifer should not gain excessive weight and become fat as this may increase the likelihood of calving difficulty. The heifer will lose from 100 to 125 lbs at calving in the weight of the calf, fetal membranes, and fluids.

If the heifer is on a deficient nutritional level, she will draw nutrients from her body tissues to provide for the developing calf. The calf may lack vigor at birth and need help nursing; and the heifers may be short of colostrum. In extreme cases, the calf may be born dead or die shortly after birth. Milk production will usually be decreased, which will reduce growth rate and weaning weight of the calf. Also, the heifer will tend to rebreed late or may fail to rebreed. Therefore, producers cannot afford to underfeed bred heifers.

A Wyoming study showed that heifers fed a low energy diet starting 100 days before calving, lost body weight, had greater death loss of calves, cycled later after calving and had lighter calf weaning weights compared to heifers fed on an adequate energy diet (*Table I*). All heifers received adequate feed after calving. These results confirm the importance of adequate nutrition for bred heifers.

Table I. Effects of nutrition 100 days before calving on calving difficult, rebreeding, and calf production¹.

<i>Item</i>	<i>Pre-calving Energy Level</i>	
	<i>Regular- 8.8 lbs TDN</i>	<i>Low- 5.7 lbs TDN</i>
Heifer weight change before calving, lbs ²	79	-13
Calf birth weight, lbs	67	63
Calving difficulty (%)	27	28
Calf losses (%)	3	10
Heifers cycling by start of breeding (%)	74	56
Calf weaning weight, lbs	353	325
¹ L. R. Corah, et al., Univ. of Wyoming. 1975. <i>J. Anim. Sci.</i> 41:819.		
² Includes weight of fetus, fetal membranes, and fluids.		

Some producers feel that reducing energy and/or protein intake prior to calving will reduce calf birth weights and, subsequently, calving difficulty and calf losses. Research has not shown this to be true. Restricting feed to heifers may reduce calf birth weights, but does not reduce calving difficulty. It may decrease the percent of cows cycling and conceiving during the breeding season; and it may reduce the weaning weight of the calves. Therefore, the practice of reducing feed to heifers in average or thin condition prior to calving is not advisable. However, feeding excess protein or energy to heifers should also be avoided.

Nutrient requirements for bred heifers are given in *Table II*. Some examples of rations for these cattle are shown in *Table III*. These requirements and rations do not include extra energy needed during extremely cold, windy weather. Provide cattle with all the roughage they will consume during severe cold periods.

Table II. Nutrient requirements of bred heifers and young lactating cows.¹								
	<i>Daily requirements</i>							
<i>Heifer Weight (lbs)</i>	<i>Gain (lbs)</i>	<i>Dry Matter Intake (lbs)</i>	<i>Total Protein (lbs)</i>	<i>ME (Mcal/lb)</i>	<i>TDN (lbs)</i>	<i>Ca (lb)</i>	<i>P (lb)</i>	<i>Vitamin A (IU, Thousand)</i>
<i>Bred yearling heifers -- last trimester of pregnancy</i>								
850	0.9	18-20	1.4	15.7	9.6	.046	.035	22
	1.4	18-20	1.6	17.8	10.8	.055	.037	23
900	0.9	18-20	1.5	16.3	9.9	.048	.037	23
	1.4	19-21	1.6	18.5	11.3	.057	.040	24
950	0.9	19-21	1.5	16.9	10.3	.051	.040	24
	1.4	20-22	1.7	19.1	11.7	.057	.042	25
<i>Young lactating cows -- first 3 to 4 months postpartum, average milking ability</i>								
800	0.5	18-20	1.9	18.4	11.2	.059	.042	31
900	0.5	19-21	2.0	19.8	12.0	.062	.044	34
1,000	0.5	21-23	2.1	21.1	12.9	.064	.048	37
¹ Adapted from National Research Council, <i>Nutrient Requirements of Beef Cattle</i> , 1984. Requirements do not include extra energy needed during extremely cold weather.								

Calving Period

Calving is a critical time for two-year-old heifers. Since calving difficulty is a major concern, separate heifers from the older cows during the calving season and check them frequently (about every 3 to 4 hours) for needed assistance. Heifers will normally deliver a live calf within two hours after the water sac appears. If delivery is not completed within this time period, examine the heifer. A prolonged delivery causes considerable stress on the heifer and increases the probability of losing the calf, increasing postpartum interval, and lowering rebreeding rate.

Table III. Rations for bred heifers and young lactating cows ¹ .								
	Rations (lb/day) for 850-lb bred heifers to gain 9 lb/day							
Ingredient ²	A	B	C	D	E	F	G	H
Prairie hay, 5-6% CP	20	15			6			
Alfalfa hay, 16% CP		5		10				3
Cornstalk grazing (after ears consumed)			20	10				
Cornstalks, chopped					14			
Winter range, 3% CP						15		
Corn silage, 35% DM							40	35
Protein Supp., 32% CP	1.5		1.5		1.5		1	
Shelled corn					3.5			
Ca-P mineral + salt mixture	free choice							
	Rations (lb/day) for 800-lb lactating heifers with average milking ability to gain 0.5 lb/day							
Ingredient ²								
Prairie hay, 5-6% CP	10		15		10			
Alfalfa hay, 16% CP	10	20				7		
Winter range, 3% CP				15				
Corn silage, 35% DM					25	35	40	
Shelled corn	2	2	3.5	4				
Protein Supp., 32% CP			2.5	4	2		3	
Ca-P mineral + salt mixture	free choice							

¹These rations do not include extra energy needed for extremely cold weather.
²Feeds are of average quality.

Newborn calves should be mothered up, dried off and nursing within one to two hours after birth. The first milk, colostrum, is high in antibodies and nutrients that are needed by the calf for protection against infections and scours. If calves do not nurse within a few hours after birth, they should be given colostrum that was stored for this purpose. More information on calving is given in NebGuide G81-539, *Assisting the Beef Cow at Calving Time*.

Early Lactation and Rebreeding

The nutrient requirements of heifers after calving are greatly increased. Nutrition during this period is extremely important because the heifer must provide milk for her calf, continue to grow in size, and prepare her reproductive system for rebreeding. Nutrients are needed for maintenance, lactation, and growth before reproduction. If heifers are underfed, they will be slow in cycling and may fail to rebreed

for their second calf. Therefore, proper nutrition is necessary for early re-breeding. For every cycle a heifer misses, the producer loses about 30 lbs of calf weaning weight the following year. Thus, heifers must be fed well so they will rebreed and calve as early as possible.

Results of a Nebraska study on the effects of post-calving nutrition on rebreeding and calf production are shown in *Table IV*. Heifers on irrigated pasture gained weight from calving to the breeding season compared to a small weight loss for those maintained in drylot. Heifers on irrigated pasture returned to heat earlier and a higher percent conceived during the first 21 days and in 63 days of the breeding season. This study indicates that lactating heifers gaining weight prior to breeding have a higher percent conception early in the breeding season than those not gaining weight.

The daily nutrient requirements for lactating heifers of various weights with average milking ability are shown in *Table II*. Rations that can be used to fulfill these requirements are given in *Table III*. Heavier milking crossbred heifers (dairy and some Continental breeds) require higher feed levels. Heifers should be fed good quality hay free choice, plus supplemental protein and energy as needed. Energy and protein levels must be ample and a moderate to high phosphorus (7 to 10%) mineral mix available free choice. When corn silage is the main roughage, use a mineral with moderate calcium levels. Supplementing Vitamin A is also a good practice both before and after calving to guard against deficiencies.

In a spring calving program, grass is usually adequate several weeks before the breeding season begins. Do not turn heifers on pasture until the grass is 6 to 8 inches tall, or they may not consume enough dry feed to prevent weight loss, which may be detrimental to early cycling and rebreeding. If you must turn heifers on pasture early, then feeding grain or low protein-high energy cubes is recommended. In some operations, holding the heifers in a feeding area until sufficient grass is available to sustain adequate weight gains is most desirable.

Other management practices for two-year-old heifers should include a health and vaccination program, proper bull selection and breeding soundness exam, and pregnancy checking. Heifers that are open or poor producers should be culled. Transferring open heifers into a fall calving program perpetuates poor reproductive performance and is not economical.

A total management program is necessary to develop heifers into efficient high producing cows.

Table IV. Effects of post-calving nutrition on rebreeding and calf production of two-year-old Hereford heifers.¹

<i>Item</i>	<i>Post-calving Group²</i>	
	<i>Drylot-Range³</i>	<i>Irrigated pasture⁴</i>
No. heifers	78	81
Wt. after calving, April 20, lbs	757	765
Wt. change to May 28, lbs	-5	17
Calving to first heat (days)	71	54
Cycling by start of breeding (%)	55	89
Conceived first 21 days (%)	55	71
Conceived in 63 days (%)	94	99
Calf weaning wt., lbs	328	339
Oct. cow wt., lbs	857	893

¹D. C. Clanton, Univ. of Nebraska North Platte Station. *Range-Beef Cow Symposium Proceedings*, 1973.

²Heifers gained over .7 lb per day precalving. From calving to April 20, when allotted to treatment groups, heifers received 2 lbs of 20% protein supplement plus full feed of grass hay.

³Heifers continued to receive hay and protein until May 28 when placed on native pasture.

⁴Heifers were on irrigated pasture from April 20 to July 18 and then moved to native pasture.

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