

CALVING EASE

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FEED BUNK SPACE FOR HEIFERS

How Much Space is Enough?

For transition-age calves (six to nine weeks old just coming from individual pens or hutches), our goal is to get them to eat and drink from group facilities. Substantial reductions in grain intake are common in this situation for three to five days after moving into group housing. This seems to be true even when feeder space in excess of 18 inches per animal is provided.

After the first five days in a group setting all the heifers will usually come up to the feeder when fresh grain is fed. This behavior is so common that we use it as a diagnostic tool for illness. This is a great time to observe for calves that are not feeling well, drinking poorly or eating too little.

Our observations suggest that at this transition stage less than 12 inches per heifer at the grain feeder results in dominant heifers eating first at feeding time. The less aggressive ones either eat later and/or eat smaller meals. This transition group is definitely where plenty of feeder space will help establish desirable feeding habits. More uniform growth is also a benefit.

Providing constant access to grain may not be the answer to the shortage of feeder space. Even when starter grain or grower pellets are fed free-choice in transition pens with very limited feeder space per heifer, there is still a tendency for animals to eat as a group. This is more often the true where daily refilling of feeders occurs. This is in contrast to large, gravity-fed pellet feeders. Less aggressive animals tend to eat fewer meals of shorter duration. In situations where less than 6 inches per heifer are provided wide variations emerge in growth rates.

When this nutritional stress is combined with too little space to lie down (less than 25 square feet per heifer) overall stress levels often go high enough to push less dominant heifers into what we call “stress-induced” pneumonia.

Since we usually limit the amount of hay fed at this age in order to encourage adequate grain intake, space at the hay feeder is less critical.

For three to six month-old heifers our goal is making an effective transition to roughage as the primary feed component. The youngest animals may need more space at the time they are learning to eat primarily roughages than do animals already accustomed to these feeds. This grain-to-roughage transition may be done with dry hay or with at total mixed

ration (TMR) using ensiled feeds.

How much is enough space may depend on how our animals at this age are grouped. Recently reported research by Longenbach and others from Penn State University suggests that previously recommended standards (15 inches per heifer) may be greater than needed to get adequate growth rates. When we group animals rather uniformly by size, 12 inches per heifer may be adequate to achieve relatively equal growth rates in the range of 1.8 to 2.1 pounds per day. If we are willing to put up with a minority of animals that have to be held back because of lower growth rates, this research suggests that even 6 to 7 inches per animal with TMR feeding in loose housing will result in adequate gains for the majority. Research results clearly point out that more uniform gains were achieved with 12 inches per animal.

For animals over six months our goal is sustaining an adequate rate of growth so that our heifers will calve at the desired age and size. The Penn State research demonstrated that heifers fed a TMR in a loose housing system needed at least 12 inches per animal between 11.5 and 15.5 months of age. For older heifers 18 inches per animals is desired.

One way to describe growth is to look all the animals in a pen together and measure total gain. For example, the Penn State experimental animals between 11.5 and 15.5 months gained 1.9, 2.0 and 2.1 pounds daily (pens had 6, 12 and 18 inches of feed bunk space per heifer respectively). Or, these same heifers increased in hip width about 2/3 inch per month in all three pens.

Or, we can look at how uniformly animals gain within pens. The researchers observed for the larger heifers, "The variation in live weight gains significantly increased as feed bunk length (per heifer) decreased." They also observed animal feeding behavior. The research showed that, "As feed bunk length decreased the dominant and subordinate relationships became more defined and stronger in the group." With limited feed bunk access, uniformity of growth with pens depends heavily on stocking individual pens with similar size heifers.

Summary

Severe shortage of feed bunk space will result in lower and less uniform rates of growth. Liberal allocation of space may achieve good growth while allowing for substantial variation in size of heifers within pens. Restricted feed bunk space requires careful management of both stocking rates and uniformity of animal size within pens in order to achieve uniformly good growth rates.

Reference: Longenbach, J. L., A. J. Heinrichs and R. E. Graves, "Feed Bunk Length Requirements for Holstein Dairy Heifers." *Journal of Dairy Science* 82:99-109 (1999).

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