

# Feeding Space for Heifers

- **Why is the amount of trough space an issue?**
- **What about weaned calves coming out of hutches or individual pens?**
- **Space issues for heifers between four and eight months.**
- **Space issues for bulling and pregnant heifers.**

Many dairies have more heifers on farm than they have eating and resting space. Crowding is particularly common for dairy replacements because finding the correct balance between space and stocking is difficult.

## **Why is the amount of trough space an issue?**

Profitability! Too little trough space at certain ages may result in:

- Slow growth rates and a delay in age at first calving
- High sickness or morbidity rates
- Large variation in size among heifers of similar age.

The dangerous characteristic of all of these undesirable outcomes is that they are easily overlooked in the day-to-day business of keeping the replacement enterprise running. In addition, these problems are not caused solely by overcrowding. For example, facilities with overcrowded feeding areas often have too little resting space per heifer as well.

## **What about weaned calves coming out of hutches or individual pens?**

Our goals at this age are (1) a smooth housing transition, (2) minimal illness, and (3) uninterrupted growth. The stress from making the transition from individual to group housing is unavoidable.

There are two common ways to avoid adding to that stress. One is to keep feeding the same ration in the group housing as was used in individual pens for one or more weeks after the move. Another way is to provide ample feeding space per heifer. A reasonable indicator of how well stress is being managed is the rate of treated respiratory illness.

I conclude that, when heifers have just moved into group housing, less than 45cm feeding space per calf often leads to suppressed concentrate intake. Calves that were eating 2-3kg/day may drop back to 1-1.5kg/day or less in crowded conditions. Individual eating behavior also may be quite inconsistent from day-to-day when heifers are crowded.

Suppressed and inconsistent concentrate intakes are most pronounced in the first 10-14 days after grouping. Thus, 60cm of trough space during the first week makes even more sense than 45cm.

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This age group compared with all older categories has the most to gain in terms of better health and sustained and uniform growth by having generous amounts of feeding space.

### **Heifers between four and eight months**

At four to eight months replacement heifers seem to do well in facilities with a wide variation in feeding space per heifer (Longenbach and Others). If feed is restricted to achieve about 0.8kg/day gain, heifers in this age group apparently gain uniformly within the group even when all of the heifers can't eat at the same time. This is probably partly due to the weakness of dominant: subordinate relationships at this age. If there is ad lib TMR there will be a tendency for some lack of uniformity of growth; that is, easily observable differences between the heifers with the highest and lowest rates of weight gain.

Where there are larger numbers in a pen - even with a free choice TMR - if the space is restricted, so that at most 80% of the heifers can eat at one time, it is likely that subordinate heifers will eat less. And, they will end up eating a TMR that has been picked over by more dominant animals.

Variation in growth rates among heifers in a pen with limited feeding space will be greater than if all the heifers had access to fresh TMR at the same time. Problems in heifer health do not seem to be related to moderate limitations in feeding space among heifers at this age.

### **Bulling and pregnant heifers**

Dominant: subordinate relationships appear to play a much stronger role in older versus younger heifers when feeding space doesn't allow all animals access to fresh TMR at the same time. Variation in liveweight gains may be expected to go up the more pen numbers exceed the available feeding space.

As heifer size approaches that of a mature cow, aggressive behaviors are much higher when all the heifers cannot eat at once when fresh feed is offered. In one study, displacements from the feed trough were observed. With limited space versus enough space for all cows to eat, displacements were 43% higher in the 90 minutes following feeding (DeVries and Others).

If limited space results in subordinate heifers eating mostly picked over TMR, run samples of both freshly delivered and "picked over" TMR through Penn State particle separator boxes. The results will show the degree to which limited access to fresh feed is a problem – and the solution may be to increase the feeding space or reduce the stocking rate.

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In a feed passage, the frequency with which feed is pushed up may be another factor. Dominant heifers may take their meals immediately after feed is pushed up. Subordinate ones may have to wait to eat until the feed is mostly out of reach again.

References: Longenbach, J. I., A. J. Heinrichs, and R. E. Graves, 1999. "Feed bunk length requirements for Holstein dairy heifers." Journal of Dairy Science 82:99-108. DeVries, T. J., M. A. G. von Keyserlingk, and D. M. Weary, 2004. "Effect of feeding space on the inter-cow distance, aggression, and feeding behavior of free-stall housed lactating dairy cows." Journal of Dairy Science 87:1432-1438.

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