

Feeding Space for Heifers

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

Many dairies have more heifers on the farm than they have eating and resting space for these dairy replacements. Crowding especially for heifers is common. Finding the correct balance between space and stocking rates is difficult.

Why is the amount of feeder space an issue?

Profitability of the heifer enterprise. Too little feeding space at certain ages may result in:

- Slow growth rates
- High sickness or morbidity rates
- Large variation 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 feeder overcrowding. For example, facilities with overcrowded feeders often have too little resting space per heifer as well.

What about transition 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 eighteen inches per calf often leads to suppressed grain intake. Calves that were eating four to six pounds of grain daily may drop back to one-half or less in crowded conditions. Individual eating behavior may be quite inconsistent as well when heifers are crowded.

Suppressed and inconsistent grain intakes are most pronounced in the first ten to fourteen days after grouping. Thus, twenty-four inches of feeder space during the first week makes even more sense than eighteen inches.

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This age group compared to all older categories has the most to gain in terms of better health and sustained and uniform growth by having generous amounts of feeder 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 1.8 pounds per day gain, heifers in this age group apparently gain uniformly within the group even when all the heifers cannot eat at the same time. This is probably partly due to the weakness of dominant: subordinate relationships at this age. If there is free choice 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 gain.

If there are larger numbers in a pen even with a free choice TMR if the space is restricted so that only eighty percent or fewer of the heifers can eat at one time it is likely that there will be negative eating trends. That is, undereating by the subordinate heifers and their access limited to TMR that has been picked over by the more dominant animals. Variation in growth rates among heifers in a pen with limitations in feeder 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 feeder space among heifers at this age.

Breeding age and pregnant heifers

Dominant: subordinate relationships appear to play a much stronger role in older versus younger heifers when feed bunk space falls below the point where all the animals have access to fresh TMR at the same time. Among both breeding age and pregnant heifers variation in live weight gains can be expected to go up as 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 than if all can eat at once. In one study, displacements from the feeder were observed. With limited space versus enough space for all cows to eat, displacements were forty-three percent higher in the ninety minutes following feeding (DeVries and Others).

When space limits access to feed by all animals when fresh feed is delivered, the subordinate heifers may end up eating mostly picked over TMR. One way to see if this is a problem is to 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.

In a flat feed alley, the frequency with which feed is pushed up may be a factor, also. 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.

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In summary, where feeder space is limited for breeding age and pregnant animals the dominant heifers apparently both overeat the best of the TMR. The subordinate heifers tend to under eat the picked over TMR.

Testing TMR for quality (particle separator) may be an important step in identifying the presence or absence of sorting. If sorting is a problem one of the solutions to even out this eating behavior among heifers is to have enough space for all them to eat at one time.

Another solution is to push up feed more often.

Probably the least profitable solution is to just live with the variation in growth rates and breed a significant proportion of the heifers later than the optimum age.

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.