

Considerations When Planning Dairy Calf and Heifer Facilities



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Facilities to house and feed dairy heifers and calves need to be designed and managed such that they allow for optimal performance. When referring to the dairy heifer herd, one wants to achieve proper heifer growth, optimal health, both current and future, all at an economical cost. Dan McFarland, an Ag Engineer with Penn State Extension, has conducted many webinars and presentations and authored many publications centered on the key factors to consider when designing facilities to manage and handle dairy heifers. Summarized in this article are some of the key points he makes in these articles and presentations.

1. Two main goals when designing and implementing a dairy heifer housing system are (1) to provide a healthy, comfortable environment for heifers year round and (2) maintain a comfortable environment for the caregivers.
2. Heifers should be grouped by size or weight. Weaned heifers should be housed separately and in small groups. Groups of heifers after weaning should be within 200 pounds of each other. Thus, heifers should be housed in at least 7 to 8 groups which includes baby calves and weaned heifers in separate groups. Baby calves and recently weaned heifers should be housed separately from older heifers because these groups have different ventilation needs within the housing. Proper ventilation throughout the year is needed to control moisture, gases, and pollutants through proper air exchange and distribution for all age groups. When designing facilities for baby calves and weaned heifers, ventilation is important to provide for drier bedding and floor surfaces but they also need a draft-free environment.
3. When sizing facilities, considerations include:
 - a. calving interval
 - b. calving uniformity
 - c. age at first calving
 - d. calf and heifer mortality
 - e. whether sexed semen is used

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For calves, ideally extra pens or hutches are needed to leave pens idle for 1 to 2 weeks between groups to help decrease pathogen loads and disease incidence. Thus, 15 to 25% more hutches or pens are needed for calves when a uniform number of calves are born throughout the year, and 30 to 50% more if calving is concentrated during certain times throughout the year.

4. The Penn State website contains over 70 different [plans for calf and heifer housing](#), which farmers can use when designing their own facilities.
5. Pens within a building need to be sized for the oldest or heaviest heifer expected to be housed in the group, essentially sized to reflect the body weight of heifers leaving this pen or group. When using a bedded pack or sloped non-bedded housing, pens for older heifers should be larger or should house fewer heifers than pens for younger groups. For example, Holstein heifers weighing between 300 and 500 pounds need a minimum of 40 sq. ft/animal excluding the scrape alley and feeding area. Generally, an additional 10 square feet per animal is needed for each 200 pound increase in body weight. Heifers under 8 months of age should have access to feed 24 hours daily. Even after 8 months of age, feedbunk space is critical and all heifers should be able to eat at one time, especially when given grain or when limit-fed forages.
6. Waterers should not be located within the feedbunk or bedded area. They should be placed on the edge of the scraped/feeding area and not in the bedded resting area. Access should be restricted to the area that can be scraped. This keeps the bedded area drier and does not restrict water access.
7. Weaned heifers represent one of the most critical stages in heifer development.
 - a. They should be housed in groups of no more than 8 heifers within 1 month of age, especially if not raised previously in group housing.
 - b. Headlocks should not be used for this group, but slant-bar, stationary feeding partitions can be used. Heifers at this age are reluctant to use self-locking headlocks because of the noise and movement caused by the moving headlock bar.
 - c. Recently weaned heifers should be provided 18 inches of feeding space per animal. The top of the bottom rail used to attach the slant-bar partitions should be no more than 14 inches above the heifer's standing surface so heifers can easily reach their feed. The feeding surface should be smooth and protected from the weather.
 - d. Weaned heifers should be well bedded in the winter and kept on dry bedding. Sloped, non-bedded pens should not be used for heifers until they are over 6 months of age.