Considerations for Successful Group Calf Housing Facilities

In the latest free DeLaval Calf College webinar, Dr. Bob James, PhD., presented the key considerations of successful group calf housing facilities with automated feeders.

According to Dr. James, a producer's ultimate goal in building an automated calf feeding facility should be "…to provide the optimum environment for the calf and the worker." To do this, it's paramount the facility has excellent air quality, good drainage and great sanitation procedures.

Before breaking ground on a new calf raising facility – or remodeling a structure you plan to retrofit – Dr. James recommends seeking the professional advice of an agricultural engineer. Your dealer, nutritionist and employees should also be consulted and supportive of your decision. Another great resource for design inspiration and benchmarking is the *DeLaval Calf Facility Layout Guide*, available through a DeLaval dealer.

Facility Design

There are a number of factors Dr. James' advises producers to consider in the design of their group calf housing facility:

- **Site location.** The facility should be upwind from the dairy center to ensure good air quality. The building's ridgeline should be oriented east-west to allow sun for warmth in the morning and shade in the afternoon. The building site should capture the prevailing winds for natural ventilation and also accommodate drainage, electrical and water supply needs. Biosecurity should be a top priority whereas farm traffic is diverted away from the facility.
- **Construction**. A hoop barn or a structure with a conventional roof and insulation will work depending on budget and climate restrictions. Durable concrete side walls no more than 3 feet tall invite air movement, help keep bedding in place and are easy to clean. Concrete sloped floors (2-3%) will help with drainage and sanitation.
- **Animal housing.** A resting area of 35 to 40 square feet per calf is recommended, along with 750 cubic feet of air space. This space requirement does not include the area needed for a feeding platform, which should be 8 feet deep, sloped away from the pack, and heated (if necessary). Pens should be sized to accommodate between 12 and 25 calves of no more than two to four weeks difference in their ages.
- **Ventilation**. Positive pressure tube ventilation systems are key to achieving good air quality in a calf raising facility. There should be at least four turns of air per hour – up to 40 turns per hour in the summer. The Dairyland Initiative has developed some excellent installation guidelines.
- **Drainage**. Floors should be sloped towards drains, including the resting area which drains from back to front. Each feeding station should have a drain under the nipple and stall. The ability to flush drains to an appropriate waste storage structure is key.
- **Sanitation.** Straw or sand can be used for bedding, but beware of bedding machines which can throw up a lot of dust. Remove bedding when necessary and after each group of calves leaves the facility. Flush with water and use foamers, rather than high pressure washers to clean and

sanitize. The areas around the feeders which are exposed to the calves should be cleaned and sanitized daily.

- **Water supply.** Be sure to test your farm's water quality before construction and every six months thereafter. (See the chart.)
- **Starter feed**. Make an area available for feeding hay or calf starter grain in the pen.
- **Feeding Station Design.** The area around an automated calf feeder must be planned for so that it meets these basic requirements for optimal performance:
    - **Nipple height.** The nipple should be located 20 to 32 inches above the feeding platform; it should also be 6 inches higher than the mixer bowl so that liquid doesn't collect in the line.
    - **Hose length**. Hoses should be no longer than eight feet, however, shorter is better.
    - **Pumps**. Peristaltic pumps allow for a distance of up to 20 feet between the feeding station and the automatic feeder. They also make it possible to feed up to four calves at a time off the same system.
    - **Housing**. The requirements for feeder station housing will vary depending on factors like climate, moisture and dust. A good housing system keeps the feeder separate from the animals, is easy to keep clean and meets minimum space requirements of 5 feet by 5 feet for powder-only machines or 8 feet by 5 feet for combi machines with a small milk tank.

Management Areas

How you and your team work in and around this building is important. Good accessibility and organization will help you be efficient. Here's what to think about:

- **Central kitchen.** This area acts as a hub often housing the mechanicals, chemicals, bulk milk (if applicable), a large sink and a refrigerator. It should be dry and air conditioned to help preserve milk replacer and have a floor drain. An internet connection is a great idea, especially if your autofeeder is cloud-based, like the DeLaval calf feeder CF1000S.
- **Accessibility.** Drovers alleys and wide doors to accommodate equipment for cleaning are recommended for ease of operation.
- **Storage.** Ensure that the storage areas for calf starter and milk replacer powder are convenient. If using waste milk, you'll need a place to store it as well as room for a pasteurizer.

Dr. James concluded his presentation with some clear recommendations: ask for help, make a budget, select an adequate site, commit to your nutrition plan and make sure your personnel – including your herdsman, veterinarian and nutritionist – rally behind your decision.

The entire Oct. 12 webinar (Facilities for Group Housing Systems) is available for playback on the DeLaval website. Register now for the eighth and final presentation of the free Calf College webinar series which will cover Managing the Calf Feeder System.