

Getting the Most from Automatic Dairy Calf Feeders



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The use of automatic calf feeding systems on commercial dairy farms is becoming more common around the world. These automatic systems not only help reduce manual labor needs, but also provide the farmer with plenty of data to make management decisions. This article provides key points to consider when managing automated milk feeding systems.

Facility Design and Management

When group housed calves are raised in an automated milk feeding system, providing a well ventilated, dry, and clean environment is essential to prevent respiratory diseases and diarrhea. Therefore, the pens should be sized to provide at least 40 square feet of resting area per calf. Additionally, a minimum of 2 inches of dry bedding should be regularly added when the moisture content of the pen's bedding starts to increase. An easy way to know when to add more bedding is by performing the "knee test". If you drop on your knees in the bedding area and your knees get damp, dry bedding should be added. Frequency of bedding replacement will depend on season and weather conditions. Proper ventilation is important to prevent diseases as well. In case of mechanical ventilation, air flow should not be directly pointed at the calves, but a light breeze (30-100 cfm/calf or at least 200 ft/m of wind speed) should be provided at withers height. In addition to location of air flow, it is important to pay attention to the air exchange rate. The ideal air exchange rate will vary from 4 air exchanges/hour during the winter to 60 exchanges/hour in the summer.

The number of calves drinking from the same nipple can be a critical factor affecting milk intake. Manufacturers normally recommend a maximum of 25 calves per nipple. However, when using accelerated feeding plans (feeding plans where the milk allowance is higher than 8 qt/day), farmers should aim to have a maximum of 20 calves per nipple. When higher milk allowances are used, calves take longer to drink, therefore the system is always busy and might not have enough time to alternate between feeding and cleaning cycles.

Preventing Disease Outbreaks

An 'all-in-all-out' grouping system should be used whenever possible to minimize the spread of disease between groups of calves. This form of management helps to prevent the spread of disease between groups of calves raised in the same pen. After weaning a group of animals, the pen is cleaned and disinfected in order to provide an ideal environment for the next group of calves. When calves are continuously introduced to a pen, normally, there is a big age gap between calves within that pen.

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That age gap might affect the health of the younger animals, since their immune system is not as developed as the immune system in older calves. For example, one study in Europe showed that dynamic groups in which new calves were continuously introduced and removed had lower daily gains and a higher incidence of disease than did stable groups (using an all-in-all-out system). Aggressive colostrum feeding newborn calves. Newborn calves should receive at least 10% of their birth body weight in good quality colostrum within 6 hours of birth (For example, a 70 lb calf should receive 4 quarts of colostrum within 6 hours of birth). With proper colostrum management, identification and treatment of sick calves, dry bedding, and good ventilation, minimal spreading of disease can be achieved when using group housing.

Transitioning Calves

Calves should be moved into the group pen with the automatic feeder after they have good suckling reflexes. Healthy calves that receive colostrum and are alert can be moved as soon as 24 h after birth, but normally calves are moved between 3 and 14 days of age depending on farm management and availability of training time. Special attention needs to be paid to calves that are weak or have poor vigor during the first days of life. These calves should remain in an individual pen longer until they are nursing well from a bottle. Moving calves too early into a group can be challenging for their immune system and trigger disease, as the immune system in younger calves is not as developed as in older calves. When moving calves, time the movement at the same time they are normally fed so they will be more willing to suckle from the feeder and easier to train.

Data Management

Automatic calf feeders provide producers with data if analyzed can be used to make management decisions. Most automatic feeders will record daily milk intake, drinking speed, and frequency and duration of visits. Researchers reported that calves drank less milk in the 5 days before a disease was detected and treated by the farm staff when compared to healthy calves. On the other hand, milk intake increased for 5 days after treatment administration. Similarly, drinking speed in sick calves dropped one day before treatment administration and increased up to 5 days after treatment. Frequency and duration of visits were not associated with disease incidence. Some automatic feeding systems will automatically detect these deviations in drinking behavior and notify the farmer of calves to monitor for disease. In case of disease detection and treatment, it is important to keep monitoring milk intake and drinking speed for the treated animal, since both measurements should start increasing after treatment administration.

Besides disease detection, automatic calf feeders can monitor the success of the farm's pre-weaning program. Some systems are able to measure individual body weight, therefore the producer can combine that with milk intake data and calculate individual feed efficiencies. However, it is important to note that starter intake will also affect weight gain, but the system can provide a good idea of the success in the pre-weaning phase.

In summary, automatic calf feeding systems decrease the amount of manual labor, however they require increased management skills to utilize data and the challenges which may occur with group housing. Therefore, understanding how to manage calves housed as a group and how to use data generated can result in the best use of your automatic calf feeding system.