The importance of the rearing period – strong calves bring success

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Lively calves are an investment for the future and the competitiveness of any dairy farm. Therefore it is necessary to cover the long period to the first calving with a target oriented, rearing management programme. Studies show that approximately 8% of all calves are stillborn. Approximately 85% of the female calves survive the time to their first calving and only 55% of all heifers have a third lactation.

Of course, every calf being reared costs money. The costs differ in each country, but in Europe the costs incurred are between €1500-1800 on average.

Every illness holds back the growth of an animal and generates costs of around €100; additional costs are intensive labour for sick calves and feed costs of €400 for a heifer calving at 30 months instead of at 24.

To reach an early calving age, which saves costs and achieves the best results in the long term with very good fertility, high milk yields and a high lifetime performance, optimisation of health, feed and housing conditions adapted to age groups are the key factors.

GEA Farm Technologies offers solutions for each period starting from calving up to pregnancy with their Young Stock Solution. A Young Stock Solution guidebook provides a comprehensive overview of the management and practical recommendations.

Barn design

The barn design should be as comfortable and effective as possible. Whether it is a new or existing building, a well thought through barn concept creates the best basis for housing. The design of the barn, as well as the size of the groups of animals, depend on some fundamental parameters:

- Herd size (number of dairy cows, time between calving, number of heifers, loss rate).
- Planning for the future (growth scenario of the farm, culling and selection).
- Preconditions (type of building – new, existing, conversion, number and quality of labour, and legal requirements which can be country specific).

Young calves are defenceless and exposed to a high risk of infection directly after birth, therefore housing of calves should include shelter against rain, wind and snow, and should be optimal in cold and hot weather conditions.

Birds and other vermin which are vectors for many diseases should be kept out. Fresh air without draughts helps the calves stay healthy, whereas high humidity combined with high concentration of noxious odours and dust, draughts and overcrowding leads to a high risk of infection. To reduce this risk the design of housing should be synchronised with the age of the young stock.

In the first few days the calves can be kept in single housing systems like calf hutches or individual boxes.

Some operations work successfully with group housing of up to 15-20 calves immediately after the calf has received its first colostrum and got dry fur. In some parts of Europe calves are not allowed to stay in single houses. The country specific legislation has to be considered when planning a new calf facility.

Group housing offers significant labour savings and health improvements. A rule of thumb is that the more equal the age structure the bigger the group; the younger the calves, the smaller the group. Being already in groups the weaning period is much easier to handle for group housed calves.

They have already learned how to behave in a group and this early social development helps them in their later life in a free stall barn. The claw health is improved compared to single housing. Innovative feeding systems where four calves drink simultaneously offer an economic solution for 120 calves with 30 calves per group.

Colostrum management

Powerful colostrum management is the first step for a good start in life. Calves are born without having a high protection against diseases. Therefore they are dependent on the passive transfer of immunity. The calf can absorb large molecules including the immunoglobulins during the first 12-24 hours of life.

The three questions of successful colostrum management are:

- When should I feed? Feed 2-3 litres within one hour after birth and store the additional colostrum in a refrigerator or freeze it for the next feeding.
- How much should I feed? The quantity depends on the quality, but as a rule of thumb you can calculate 10% of the calf's body weight.
- What quality should I feed? The quality depends on the content of immunoglobulins and these are dependent on the condition of the mother, her feeding regime during the dry period, especially the amount of vitamins and trace elements, the age of the cow, the amount of antibodies the mother

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has and the quantity of colostrum milked out. Less colostrum (< 8 litres) means higher density of nutrients and higher colostrum quality. Colostrometers can be a useful tool for quality estimation.

Automatic feeding on demand

Automation in feeding calves is a well known procedure. Automated calf feeders provide controlled feeding and monitor the feeding behaviour of the calves. The calves decide themselves how often they want to be fed and are only limited through the maximum amount of feed per visit at the drinking station.

This fairly new feeding approach shows high daily gains of up to 1,000g/day. The physiological appropriate feeding regime keeps the calves healthy; stimulates the growth of the gastrointestinal tract, the development of the rumen, the later udder cells and the vital organs like the kidneys, heart, lungs and liver. In later life as a cow calves, high performances in milk yield, productive life, and body condition are seen.

GEA Farm Technologies offer all peripherals for managing controlled feeding with their DairyFeed J series. Automatic calf feeders offer the calf the nutrition that is in harmony with its natural physiological needs and fulfill all the previously mentioned requirements.

The device mixes, warms and distributes either milk replacer and/or fresh milk to a dedicated feed stall on demand.

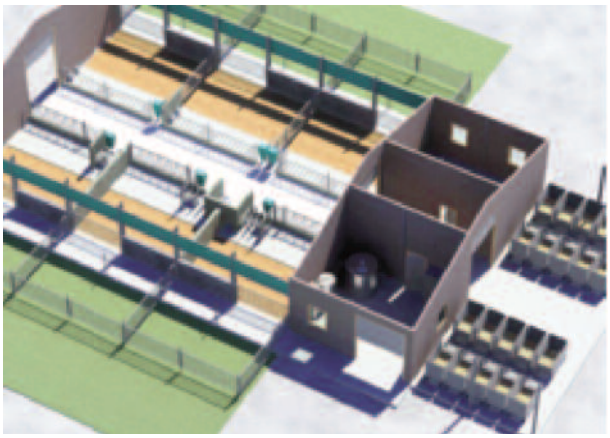
Being electronically identified, the calves are constantly monitored which helps keep them healthy and reduces veterinarian costs due to early detection of diseases.

Different feeding plans can be adjusted individually and adapted to the latest scientific research results. If a calf needs supplements, for example electrolytes, additional feeding is also possible.

The automatic feeders can be used on smaller farms with only one or two sucking stations or in professional calf raising facilities with four sucking stations at each feeder. Up to 120 heifer calves can be fed with one feeder and four calves can drink simultaneously. For smaller calves, or if calves with different ages stay in one group, a priority system can be chosen to give a special calf the first choice to drink. The automatic cleaning system ensures an optimal hygienic standard.

Connections to herd management programs like the DMS 21 are also possible. Valuable information regarding feeding is recorded per calf and the statistics can therefore be used to ensure good calf monitoring and management. Automatic concentrate feeders offer individual feeding around the clock with low labour input.

A well thought out barn concept creates the basis for healthy and effective group management for calves up to six months. The concept shown below is for a farm with up to 250 milking cows.



Heifer management

After weaning housing changes. Pens of 10-20 animals, depending on the age difference, with straw bedding train the animals for their later free stall barn life. Automatically locking feed fences simplify feeding and make selection of animals easy. In later age stages the young animals make themselves comfortable in cubicles which offer plenty of freedom of movement. Mattresses allow them to relax comfortably and saves on bedding.

Mating should start at 13-15 months to reach an economically appropriate first calving age at 22-24 months. This time frame is a reference value which can change due to different breeds or management processes like grass land farming.

The heifer should have a weight of approximately 420kg at first insemination. Appropriate management tools to monitor the activity include sensors like CowScout from GEA Farm Technologies. A high activity value can be a sign of the first heat and being inseminated at the right time leads to optimal heifer conception rates and well organised heifer management.

The whole rearing period is essential for successful performance of the dairy cow. The investment in targeted feeding management, combined with automated feeding and behaviour monitoring as well as good housing conditions, result in a high health status that will pay off in the future of the farm. ■