

Efficient production: animals that get behind never catch up

In recent years calf rearing has regained interest among dairy farmers. Calves that grow faster in the first weeks of life will produce significantly more milk in their first lactation. The importance of colostrum and feed intake at weaning is well understood. However, do farmers know the exact performance results?

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Limited figures about calf growth in practice are available, since record keeping is not common on commercial farms.

A recent study at the Royal Veterinary College in London on 19 farms in southern England showed extreme variation in calf growth in the first six months.

Out of a very reasonable average growth rate of 0.77kg per day, the in-between farm variability was ranging from 0.23-1.25kg per day.

Variation in daily weight gain within one herd was also large: a range of 0.45-1.13kg per day was reported on the same farm! Surprisingly, weight gain from 6-15 months was hardly related to weight gain in the first six months.

Why do we need to monitor?

Managing a dairy farm has changed from managing each dairy cow as an

individual to managing the herd as a whole.

Consequently, the management and nutrition should be adapted to the best producing animals. Lower producing animals kept in intensive systems will not be profitable.

The animals lagging behind at the start are very likely to show both lower milk production in first lactation and lower lifetime production, as shown in Table 1.

Monitoring is essential to not end up with some well-performing animals, but to have all animals well-performing in their first lactation.

Herds with little individual variation will produce more, and will respond better as a whole to management changes. Monitoring with the objective of reducing within-herd variability will thus result in a herd that is both more profitable and easier to manage.

It starts with record keeping

Low mortality rates are a first indicator of the level of calf rearing: it reflects if the basic nutritional and housing needs are met. Mortality rates tend to increase when herd size is growing.

International studies mention still-birth rates of 6-12% (including death calves < 24 hours) and mortality in the first year of 6-8%. Both the still-birth rate and mortality rate in the first six months should be below 5%.

The best farms obtain mortality rates below 1.6%.

The ultimate goal of a uniform developed group of animals at calv-

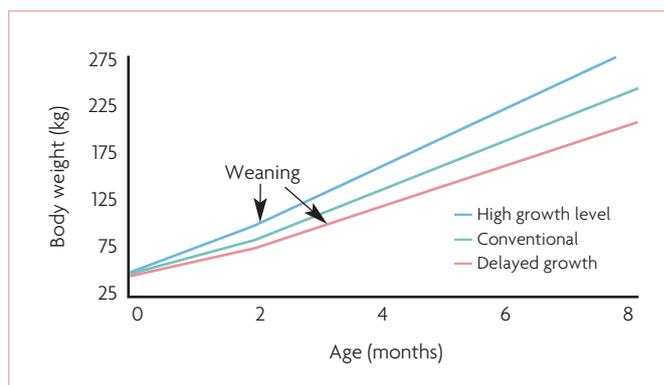


Fig. 1. Visualising results by putting the gathered data in a graph.

ing requires a more precise evaluation of heifer performance. Body weight is determined preferably three times: at birth, at six months of age and at around the moment of insemination, where the latter could be checked by the withers height as well.

Body condition should be increasing gradually during rearing to end up at 3.0-3.5 points at calving, as indicated in Table 2.

The achieved body weight at six months is critical: higher growth rates before six months of age are positively correlated to milk yield in first lactation, whereas higher growth rates after six months of age do not.

It also reflects very well the success of the whole first period: a good body weight at six months can only be achieved if growth rates were at a constant good level from the beginning.

Evaluation of the results

Weighing is preferably done at the same moment as another management practice, like vaccination or moving.

Plotting the obtained body weights directly in a graph (Fig. 1) makes it easy to determine if the target weights (or heights) are met and whether underperforming animals should be referred to a specific group of animals or season.

The outcomes can be different:

- All animals are underperforming. In this case, the feeding level is not sufficient. Check if supplied milk volumes are sufficient, feed intake at weaning and prestarter quality. The daily intake of prestarter before weaning is strongly correlated to growth during the first week after weaning.

- In case of a continuous percent-

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Table 1. Calving age related to lifetime production.

Calving age (months)	Lifetime production (kg milk)	Lactations during lifetime
22	31.230	3.1
23	38.345	3.7
24	36.154	3.2
25	32.085	3.2
26	21.465	2.3
27	19.960	2.1

Table 2. Suggested target parameters for Holstein Friesians.

Age (months)	Target weight (kg)	Withers height	Body condition (5-point scale)
Birth	38-40	80	>2
1	60-65	90	2.25
3	110-120	100	2.25
6	180-200	110	2.25
14	380-410	130	2.75
22-24	570-600	140	3.0-3.5

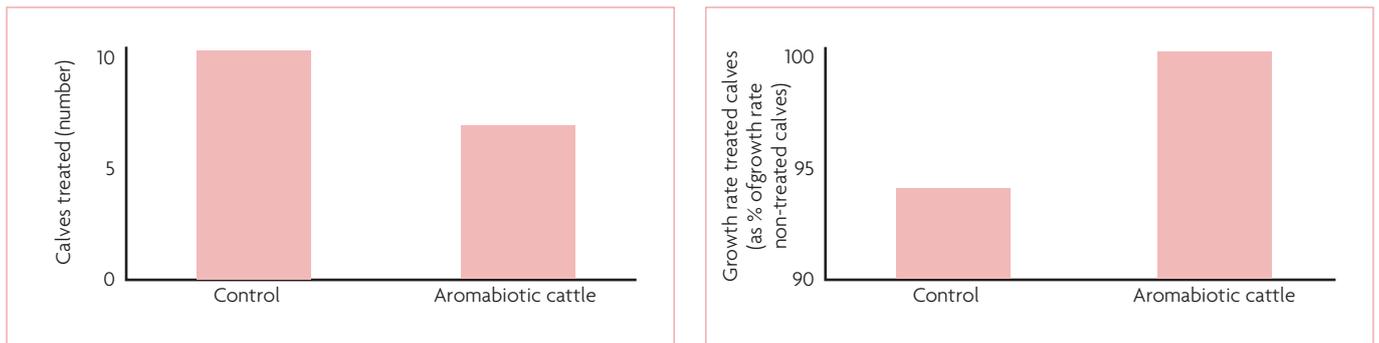


Fig. 2. Trial showing that medium chain fatty acids can reduce the number of calves treated and avoid growth retardation of treated calves.

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 age of underperforming animals over time, colostrum management and hygiene around calving should be checked. Does each animal always get what it needs?
 ● Calves born in summer perform better than calves born in winter. This outcome may be typical for tougher climates, but can be avoided by good management. The solution could be related to housing (in case more treatments are recorded or mortality rates are higher in winter) as well as nutrition (increase of feeding plane during winter required).
 ● Irregular subsequent periods of well-performing and underperforming calves. The 'irregular' character

raises the question if strict working protocols do exist and are followed-up. Another reason could be a high infection pressure and/or low immunity. A large number of causes as well as solutions is possible and may include: using all in-all out system when moving animals; quality of bedding; general hygiene; colostrum management; quality of milk replacer or prestarter.

Medium chain fatty acids to improve uniformity

Not every farm always has perfect housing conditions and feed supply for all calves. A certain level of infection pressure – or imprecise

feed supply – is always present, with some percentage of underperforming animals as a result.
 In this case, opting for more safety in the feed can be a valuable option.
 In a trial with 52 male Holstein Friesian calves for 10 weeks, starting at 14 days of age, Aromabiotic Cattle, a specific blend of medium chain fatty acids (MCFA), has reduced the number of animals lagging behind.
 While all animals in the trial were kept in the same group – and infection pressure was thus the same, the prestarter was supplied by automatic individual feeding. Half of the animals received a prestarter containing MCFA and needed fewer treatments. Treated calves in the

control group showed impaired growth (-6%), while the calves receiving MCFA did not (Fig. 2).

Conclusion

Gathering data is valuable for management decisions. Firstly by improving calf rearing management, but also a better selection of animals before calving, or even before inseminating, is possible.
 In conclusion, monitoring is needed to improve management, technical and economical results and to facilitate more advanced management decisions. Medium chain fatty acids are a valuable tool to improve herd uniformity. ■