

A good growth before weaning positively influences milk production

In recent decades, there has been more and more attention for nutrition and management in the rearing period of dairy cattle. Results from international research groups show positive effects on the growth and development in early life of calves when nutrient intake before weaning is increased. In the research of SFR, positive results of intensive calf milk(replacer) programs on the growth of calves were found. However, there is large variation in growth between individual animals. Factors in early life may have an effect on production performance in later life. Several studies have shown that maintaining a growth of more than 500 grams per day in the period before weaning has a positive effect on production in the 1st lactation.

Long-term information is limited, as this type of research is costly to carry out and therefore usually remains limited in the number of animals. SFR has years of experience in doing research with calves. The data (weight and growth) from these studies are easy to compare because they have the same management for calves and cows over different years. SFR has created a dataset to evaluate the relationship between the calf and production in later life.

The effect of birth weight and growth before weaning on milk production results in 1st, 2nd and 3rd lactation has been investigated. A dataset has been created with data from heifer calves born from 2016 to 2019. This includes the information about the calf, including birth weight and the growth from birth to weaning. Subsequently, production data of these animals as dairy cows were extracted from the management system. This resulted in a dataset including information of 161 dairy cows. For analysis, the data was divided into groups of calves with a low, medium, and high birth weight and also in low, medium and high growth before weaning.

There were no differences in 1st lactation milk production between the birth weight groups. Differences were found for growth before weaning. Calves that had a growth of more than 750 g/d (high) in the first two weeks of life achieved a higher 305 days of milk, milk fat, milk protein and fat and protein corrected milk (FPCM) production in the 1st lactation. Calves with a growth of 500-750 g/d (average) or less than 500 g/d (low) had a lower production in the 1st lactation. Calves with low growth in the first 9 weeks of life achieved lower milk fat and protein contents and lower milk fat production (kg) in the 1st lactation than calves that achieved more than 650 g/d growth before weaning.

If we look at the relationship between the variation in growth in the first 2 to 9 weeks of life, this explained 2,5-3,5% of the differences in milk fat production and 1-2% of FPCM production in the 1st lactation. This is consistent with findings from other meta-analyses. This means that other factors of the animal, and management during rearing or lactation have a major influence on the variation in milk production. Think of genetics, nutrition or, for example, illness during rearing or lactation. A good growth before weaning can make a positive contribution to good production in later life, but due to the influence of other factors, this is certainly no guarantee.

This study also looked at the influence of growth before weaning on fertility parameters. There is still insufficient data available to draw strong conclusions from this. The research did show that calves, with a growth before weaning lower than 650 g/d, had a higher calving age as heifer (~2 weeks). Low-growth animals before weaning seemed to need more inseminations to reach successful pregnancy. This is consistent with results from literature, where similar trends or numerical differences were found. However, the dataset is still too small to draw strong conclusions about fertility. In the future, SFR will further develop the dataset so that we can continue to follow these trends.

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Note to editors

Would you like to know more about the research facilities for young cattle at SFR? [You can download the brochure here.](#)

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