Increasing Cow Longevity and Production by Improving Pre-Weaning Calf Management

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Increased longevity of dairy cattle is key to a sustainable dairy industry. Improving production and welfare can increase cow longevity, which lessens the environmental and economic impact of raising replacement animals.

Key Points

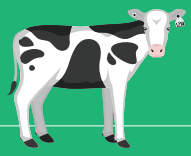
Early life calf management practices can impact adult cow longevity and production

Feeding colostrum 1-2 hours after birth, weaning calves at a higher weight, and reduced incidence of calf disease impact adult cow **production.**

Calving season, feeding 2 or more litres of colostrum at first feeding, and feeding colostrum replacer or colostrum from the calf's dam rather than pooled colostrum, impact adult cow **longevity.**

WHAT IS LONGEVITY?

In general, the term "longevity" encompasses the length of time that a cow remains in the herd. **Improved cow longevity increases farm profitability** by reducing the cost of raising replacement animals, maximizing production and reducing premature and involuntary culling rates.



WHAT IS THE IMPORTANCE OF EARLY LIFE CALF MANAGEMENT?

Calves are the future of the lactating herd.

Research has shown that targeting calf-specific management factors has led to healthier calves, which can translate to adult cows with increased production and longevity. But what about incorporating a calf's genetic potential with positive management trends?

WHAT ROLE DOES GENETICS PLAY?

A calf's genetic potential is the ability of an animal to express the phenotype of interest (e.g., size, production, fertility) that was inherited by their parents.

Genetic potential is a critical factor impacting longevity and production because it can be heavily influenced by the environment, for better or for worse, starting as young as a calf.

Over the years, genetic selection in dairy cows has shifted towards prioritizing a balance between production, health and reproduction, and longevity traits. However, a larger focus on early life management factors could also help play a role in improving adult cow performance and longevity.

The association between early life rearing practices and adult cow production and longevity, while accounting for genetic potential, was investigated by researchers from the University of Prince Edward Island. This was done through collecting and examining data on pre-weaning calf care practices, genomics, production, and longevity.

Calf Management Impacts on Production

Researchers investigated the impact of calf management factors on adult cow milk, fat, and protein production in the first lactation. Genetic potential was included in analyses and greatly improve estimations presented.

Colostrum Management

Colostrum management practices are some of the most impactful, as colostrum dictates the health and survival of calves. Specifically, high quality colostrum can lead to decreased morbidity and mortality among calves. **Feeding calves colostrum 1-2 hours after birth had a positive impact on the production of those animals later in life.** It is likely that feeding calves 2 hours or more after birth impacts the efficiency of immunoglobulin transfer, which can impact potential disease risk and gut development.

Weaning Weight

For every 1 kg increase in weaning weight, milk, protein, and fat yields in the first lactation were increased by **25.50 kg, 0.82 kg, and 1.01 kg respectively.**

Disease and Antibiotic Treatment

Calves that experienced disease produced lower milk fat yields as adult cattle. Calves that were diseased and not treated with antibiotics had lower milk fat yields in their first lactation than calves that were diseased and treated with antibiotics. Diseased and untreated calves also showed decreased first lactation milk fat yields when compared to both healthy and untreated calves, and when compared to healthy and treated calves.

Compared to diseased calves that received no treatment:

Healthy calves no treatment
+80.5 kg
milk fat

Healthy calves treated with antibiotics
+63.2 kg
milk fat

Diseased calves treated with antibiotics
+75.7 kg
milk fat

Researchers collected data from over **200** cows on **8** dairy herds in New Brunswick

Calf Management Impacts on Longevity

Researchers investigated the impact of calf management factors on the probability of an animal's survival in the herd, as well as if any practices were associated with removal from the herd in early (<120 days in milk) or late (>120 days in milk) lactation. Genetic potential was excluded from these analyses due to it being insignificant in the model.

Calving Season

Calves born in the summer were **more likely to be removed from the herd** as adult cows when compared to calves born in the winter. Further research is needed to better understand the impact of calving season on longevity.

Colostrum Management

Feeding 2 or more litres of colostrum at first feeding, as well as feeding colostrum replacer or colostrum from the calf's dam (rather than feeding fresh, pooled colostrum) was associated with increased longevity. Increased colostrum intake along with high quality colostrum is associated with increased rates of passive transfer of immunity, which equips calves to be healthier as adult cows. **Calves that received more colostrum earlier in life are thus less likely to develop adverse health events and be prematurely culled from the herd as adult cattle,** especially around parturition.

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