

DAIRY NEWSLETTER

Benefits of Step Down Weaning in Dairy Calves

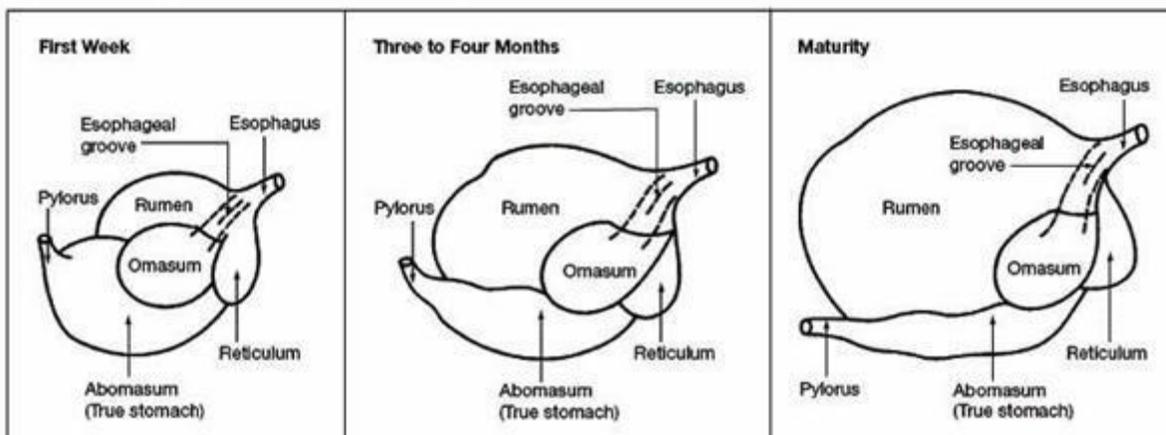
Weaning is a crucial transition period for dairy calves that has long term effects on their lifetime productivity. Minimizing stress and promoting gut adaptation during this time greatly benefits the calf's overall development and growth.

There are currently two popular methods for weaning calves; milk can either be completely removed from the diet abruptly or calves can go through a step down method where total milk volume is reduced (often by half) for a period of time before it is completely removed from the diet. Recent research has shown that a step down weaning program has many benefits in terms of intake, overall gain, and gut development.

When abruptly weaned calves were compared to step down weaned calves it was observed that the step down weaned calves underwent a less severe drop in intake once milk was removed from the diet and a less severe depression in post-weaning growth. As a result, the gradually weaned calves had a significantly higher average daily gain (0.83kg/d) compared to the abruptly weaned calves (0.22kg/d). As it is currently estimated that 1kg of pre-weaning ADG is equivalent to 1,500kg of milk in the first lactation this increased gain translates into a higher production potential.

It is also thought that step down weaning promotes healthy gut development. At birth a calf has the same four stomachs as an adult cow. However, in a young calf the abomasum is the true functional stomach while the first three stomachs (the reticulum, omasum and rumen) are underdeveloped. As the calf grows there is a shift in the capacity and function of the stomachs as the rumen, reticulum and omasum develop. At birth the abomasum constitutes 60% of the stomach capacity and the rumen only 25%, but by four weeks of age the abomasum constitutes only 30% of the stomach capacity and the rumen/reticulum 60%.

Figure 1. Development of bovine stomach compartments from birth to maturity.





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As the rumen and reticulum grow they become the predominant digestive center. Consequently, promoting healthy rumen development early in life is key to calf nutrition. With step down weaning it has been found that the pre-weaning composition of the rumen in terms of fluid and bacterial population on the day of weaning was much more similar to the post weaning rumen composition than that of abruptly weaned calves. As such, the rumen of gradually weaned calves is better adapted to the post-weaning diet so they suffer less of a transition slump than the abruptly weaned calves.

For more information or for recommendations on how best to implement a step down weaning program on your farm consult your herd health veterinarian.

References:

- Steele, M.A., J.H Doelman, I.N Leal, F. Soberon, M. Carson and J.A Metcalf. 2017. "Abrupt weaning reduces postweaning growth and is associated with alterations in gastrointestinal markers of development in dairy calves fed an elevated plane of nutrition during the preweaning period" J.Dairy Sci.
- Penn state extension "feeding the newborn dairy calf" publication. 2003
- Soberon, F., E. Raffrenato, R.W. Everett and M.E. Van Amburgh. 2012. "Prewaning milk replacer intake and effects on long-term productivity of dairy calves." J. Dairy Sci. 95:783-793.

A Message of Farwell

As many of you know, I originally hail from out west and it is with a mixture of both excitement and sadness that I inform you all that I will be moving back to Alberta in June. Working here has been a wonderful experience but the promise of the mountains and proximity to family have called me back home. So to my colleagues, co-workers and all of you-it has been a true pleasure. Thank you all for making my time here in Ontario so great!

Sincerely,

Morgan Findlay

Welcome Robyn

It is with great pleasure that we introduce to everyone our newest bovine veterinarian. Dr. Robyn Elgie is a 2010 OVC graduate and comes to us from a practice based out of Ingersoll. Robyn grew up in downtown Bryanston. She has two sons, Angus 2.5 and Griffin 0.5 whom she is currently on maternity leave with. Robyn's husband Adam works for Syngenta, a large agricultural company on the crop side. They live between the Perth County metropolis of Rannoch and Fullarton. Robyn will be starting with us on July 3, 2017.