

## **Nutritional management for reproductive success**

### ***The importance of body condition***

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Now that the spring calving season is in full swing, or maybe even finished for some, the breeding season will be here before we know it. While we tend to prioritize finding that next bull, or planning matings between cows and AI sires, your nutritional management program should also be a priority. This will be the first of a series of articles focusing on why nutrition should be at the forefront of planning for reproductive success.

Let's face it - reproduction is a lowly heritable trait. But this doesn't mean that we can't progress toward greater reproductive efficiency through selection - because we can. Instead, it means that the environment tends to affect reproduction to a greater extent than an animal's genetics. It just so happens that nutrition makes up the majority of that environmental component. And while there are many nutritional factors that influence reproduction, protein and energy are at the forefront. Cattle partition, or prioritize the use of these nutrients. In other words, there's a hierarchy of prioritization in which these nutrients are utilized by the animal. When requirements for a need that receives greater priority are not met, the animal diverts nutrients away from other needs that are less important for the animal's own survival. Because the animal prioritizes its own survival over the generation of another, reproduction resides at the bottom of that long list. So when we don't meet a cow's protein and energy needs, reproduction is the first trait that she sacrifices.

In order to avoid this act of preservation of species, she needs to be in a nutritional state that will signal to her body that she is ready to support another calf. When that happens, she resumes normal estrous cyclicity. This generally (with an exception that will be discussed later) requires the cow to either be consuming enough protein and energy to meet her needs, or if she isn't, to have enough condition to fill the void. We've known for quite some time that body condition score (BCS), when evaluated at the time of calving, is inversely related to the postpartum interval to return to estrus, and ultimately the amount of time that it takes for her to breed back. That means that as BCS at calving decreases, the amount of time that it takes for her to start cycling again and conceive increases. So a cow that calves at a BCS of less than 5 is far less likely to breed back within the amount of time required for her to calve annually when compared to a cow that calves at a BCS of 5 or greater.

To that end, consider body condition to be a form of insurance for a cow's reproductive efficiency. If we aren't meeting her needs, her "excess" condition will help to fill the void and ensure her productivity. But if that condition doesn't exist, she has no reserve to pull from, and reproduction suffers. Evaluating body condition at set points throughout the year will allow for adjustments to be made to your feeding program with ample time to actually make a difference.

As a general rule of thumb, evaluating BCS around the time of calving, and again around the time of weaning provides you with that opportunity. If BCS is less than 5 to 6 at the time of calving, and your forage resources are “fixed,” consider supplemental feeds that provide a sufficient amount of protein and energy to fill the void left by your forages. And keep in mind that cattle require a certain amount of these nutrients, rather than a percent, so even if a supplement contains a high amount of these nutrients, they must be fed and consumed at a level great enough to actually make a difference. If your forage resources aren’t “fixed,” consider purchasing a more nutrient-dense forage, or utilizing pasture resources that are higher in quality, or that have a greater abundance of forage. And while some of these nutrient values are often unknown, a forage analysis can be worth far more than its weight in gold when identifying the most appropriate forage and supplement options.

Irrespective of BCS, plane of nutrition also affects reproductive efficiency. When a cow’s nutritional status is increasing, it signals to her body that times are getting better, and she can start thinking about producing another calf. Additionally, ionophores such as Bovatec (Lasalocid) and Rumensin (Monensin) are quite effective at stimulating estrous cyclicity. Grains or feeds that contain a high amount of starch, such as corn or corn-based feeds, generally have a similar effect. The one thing that these all have in common is that they cause a shift in ruminal fermentation – favoring production of a greater amount of propionate. In a nutshell, an increase in propionate causes a hormonal cascade that induces ovarian function, thus stimulating the cow to return to estrus. So even when body condition isn’t ideal, feeding an ionophore and/or supplementing with a small amount of corn or a corn-based feed will help to improve reproductive efficiency. However the key word here is help. There is no replacement for sending a cow into the breeding season in ideal condition.

Ultimately, we have a lot invested in that cow by the time the breeding season rolls around. This is true regardless of whether she’s 3 years old or if she’s been in the herd for more than a decade. And this remains true regardless of whether we’re using natural service sires, artificial insemination, or embryo transfer to put a calf on the ground. So to help ensure that investment isn’t a wash for the year, and that all of your planning and efforts are as successful as possible, equip your cows with the tools (i.e. condition) that they need to be successful.

And stay tuned – first calf heifers are up next. Happy feeding!