

Nutritional management for reproductive success

The first-calf heifer conundrum

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First-calf heifers. Let's face it – we all struggle with them at least to some degree. And it's an issue that we face not just here in Tennessee, but across the entire country. If one comes up open, we're faced with one of two choices. The first (and recommended) is to sell her, which will generally result in an overall loss on that female. The second would be to keep her, and try again next year. Will she get pregnant after a year off? Maybe. But how many of us can operate a profitable bed and breakfast where our guests don't pay? Most of us can't – myself included. So if neither of these are viable options, what is? Being proactive at preventing the issue. But before we address ways of doing that, there are few fundamental concepts that are important to understand.

So why are they so dang hard to get bred back? Or, come preg-check time, why is it that the majority of the open cows are coming three-year olds? Ironically, there's a fairly simple answer to the relatively complex issue. Nutrition. So why would this affect the first-timers and not the rest of the herd? Frankly, it's because first-calf heifers are different. They differ from mature cows, and they differ from developing replacement heifers. Because of this, they require different management.

But why are they different? For whatever reason, we generally want to think of a heifer as being mature once she gives birth to her first calf. Sounds logical, right? Unfortunately it isn't true. The root of the issue is the fact that those three-year olds are still growing. And while this age tends to differ a bit depending on growth rate during development and mature frame size, beef females aren't done growing until they round the corner toward their 4th birthday. For example, let's say that you have a group of heifers that were managed to achieve 65 % of their body weight at the beginning of the breeding season, and further developed to achieve 90 % of their mature body weight at the beginning of the calving season. Due to the fact that they're still growing, those same heifers will require roughly 10 to 15 % more energy and protein than the mature cows in the herd when standardized for their differences in body weight. If they were developed to achieve higher body weights at those points in time, the difference will be smaller. Conversely, if they were developed to achieve lower body weights, the difference will be greater.

Okay, so where does reproduction come into play? Cattle partition energy and protein, meaning that they devote those nutrients toward needs that are more essential to their own survival, as well as the survival of the calf that's running by their side. These needs include things like maintenance, lactation, and the growth that I just mentioned. Reproduction finds itself alone at the bottom of that list. When their other needs aren't met, reproduction is the first thing to go. From a physiological standpoint, that means that they won't start cycling again until their other

needs are being met, and there is enough excess to support it. So if we're only feeding them to meet the needs of the mature cowherd, we're probably coming up 10 to 15 % short on energy and protein. If that happens, it takes longer for them to start cycling again. So one of two things happen: either they don't get bred during the breeding season, or they get bred later in the breeding season – once their nutrient demands decrease, and they're in a better nutritional state.

Fortunately though, it doesn't have to play out in the scenario that results in an open cow. There are a number of nutritional management practices that we can employ to keep reproduction off of the chopping block. First and foremost, providing first-calf heifers with either more or better quality feedstuffs than what we normally provide to the mature cowherd is the most effective means of doing so. But, doing that without overfeeding the remainder of the herd requires separating first-calf heifers, and managing them for what they are – still growing. That means that we need to provide them with either 10 to 15 % more feed than the cows (assuming that we're providing the cows with what they need), or provide them with a feed that contains enough additional energy and protein to make up the difference.

Body condition scoring can be a good first step toward designing a feeding plan that will send first-calf heifers into their second breeding season ready to go to work. The general target is to have first-calf heifers enter their second breeding season at a body condition score that is equal to or greater than the mature cows in the herd. Ideally, this should be a 5 or greater, which will help to ensure that they start cycling soon enough to conceive during the breeding season. But even if body condition score isn't ideal, sending them into the calving season on an increasing plane of nutrition will also yield positive results. So in order to set them up to be successful, make every effort possible to manage first-calf heifers on an increasing plane of nutrition, with a target of a body condition score of 5 or greater at the beginning of the breeding season.

In addition to these steps, there are a few other management practices that also enhance reproductive performance. These include feeding a grain such as corn, or a grain-based feed, and/or feeding an ionophore, such as Rumensin or Bovatec. These all shift rumen fermentation to produce a greater amount of byproducts that indirectly stimulate reproductive activity. And while they have each been shown to boost reproductive performance, it is important to note that they are not a fix-all-cure. There is no substitute to sending cattle into the breeding season with the condition that they need to tell their body that they're ready to support another calf.

Will any or all of these things cost something? Absolutely. But in the grand scheme of things, they can be very worthwhile investments, especially considering the cost of an open three-year old. Stay tuned – because next time I'll focus on the nutritional aspects of heifer development, and how we can set them up to be successful, or alternatively, for failure.