

Photo by Mike Dixon.

## Recipe for transition cow success

Tim Brown for *Progressive Dairy*

When it comes to perfecting the pre-fresh diet for transition cows, it's all about getting the recipe right. But recipes are more than just the nutritional ingredients. A recipe includes all of the ingredients plus the steps to prepare it, evaluation of the final product and the results delivered.

If you think about it, we've probably all been subjected to subpar recipe results – the cake that didn't rise, the steak that was too well done or the salad that only included lettuce because all of the cheese, tomatoes and other good stuff were already gone from the bowl when it was passed to you. Each of these

examples is the result of something that went wrong in the recipe – baking powder instead of baking soda, improper cooking time, or ingredients that were not well mixed or were easily sorted by those who had access first.

Your transition cow program is a recipe, too. Transition success requires more than just the right negative dietary cation anion difference (DCAD) diet. In addition to a well-blended, balanced, consistent ration, your cows also need equal access to eat, a comfy place to lie down and minimal social stress. The recipe for transition cow success may start with a well-formulated

negative DCAD diet, but it takes all of the necessary ingredients working together to see positive results and get your cows off to a good start. In my recipe for transition cow success, all parts are equally important to achieve the intended result – cows having a healthy transition into lactation.

### Ingredient list

Decades of scientific research has repeatedly demonstrated that cows that are metabolically acidified by a negative DCAD diet fed 21 days before calving have healthier transitions. The meta-analysis by Santos et al. (2019) showed that

metabolically acidified cows have reduced incidence of milk fever, subclinical hypocalcemia, retained placenta and metritis. In addition, metabolically acidified multiparous cows also produced more milk and fat-corrected milk. In this study, the researchers concluded that negative DCAD diets work, but that manipulating the dietary calcium content had little or no effect on the health and performance of metabolically acidified cows. The key to seeing beneficial results was achieving metabolic acidification in pre-fresh cows with an average urine pH of 6 to 7.

Research is ongoing. Based on

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what we know now from decades of research and on-farm use, my current pre-fresh ration recommendations include:

- Always get an accurate laboratory analysis of the mineral content of your feedstuffs. Don't rely on book values.

- Start with a calculated negative DCAD of -50 to -150 milliequivalent per kilogram (mEq/kg) of dry matter (DM). Test urine pH and adjust anions in the diet if needed to reach the urine pH target of 6 to 7.

- Use a bioavailable source of magnesium, such as magnesium sulfate or magnesium chloride. Ensure a minimum of 0.4% magnesium (Mg) in the diet.

- Strive for dietary calcium of 80 to 100 grams per day.

- Feed a diet with a relatively low energy density – 0.59 to 0.63 megacalories of net energy lactation per pound of dry matter (Mcal of NEL/lb DM).

- Select a palatable, consistent anionic supplement.

Ingredients are just one part of the recipe. Those individual nutrients must be properly prepared and delivered in order to achieve beneficial results. Many low-energy diets use chopped straw to provide rumen fill and help minimize energy content of the ration. New research from the University of Guelph shows that chop length and proper moisture content are essential to achieve a good consistency of mix, minimize sorting, improve feed intake and feeding behavior, and for the health and performance of cows during the transition period.

Listed below are the procedural steps and cow management needed to realize expected results from your transition recipe.

- Use a short chop length for straw in the pre-fresh diet. The University of Guelph researchers saw improvements with a chop length of 1 inch compared to 4 inches.

- Increase the moisture content of high-straw dry cow diets. University of Guelph researchers added about 10 percentage points of moisture to create a 45.4% DM for the ration.

- Strive for a well-blended, uniform consistency.

- Provide a minimum of 30 inches of bunk space per cow. All cows in the pen should be able to eat at once. No matter how good a job you do on mixing, moisture content and consistency of ration, cows will still sort, and those that cannot access the bunk at the start of feeding will not receive the same ration or enough anions to become metabolically acidified.

- Minimize social stress. All cows in the pre-fresh pen need the opportunity to eat and to lie down at the same time. There are always boss cows, and when first-calf heifers are housed with multiparous cows, some will be timid. A lower stocking density and more bunk space allow cows the opportunity to eat and rest as a group.

- Test urine pH. An average group urine pH of 6-7 verifies that beneficial metabolic acidification has occurred and that your recipe is not over-acidifying cows.

### The results

While the benefits of feeding a negative DCAD diet are time tested and scientifically proven, some producers don't see the results they had hoped for when implementing the program. That's because something interfered with, or otherwise prevented, their recipe from delivering the intended results.

Yes, feeding a moderate negative DCAD diet is paramount for transition cow success. But that recipe can only deliver healthy transition cows when everything else that affects the whole process is done correctly, too. Equal access to feed, equal access to a clean dry place to rest, combined with a negative DCAD diet that is well-balanced, consistent and delivers necessary anions in every bite are keys to both a beautiful presentation and achieving transition cow success. 🐄

*References omitted but are available upon request.*

*This article originally appeared in the PD Extra newsletter.*

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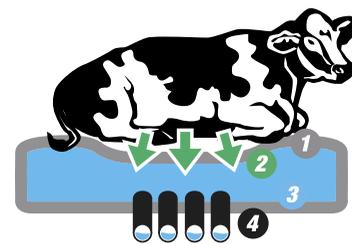
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