



#ScienceHearted

Transition Nutrition



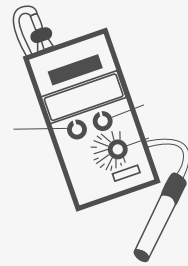
An Overview and Recommendations.

Objective.

The objective of prepartum transition nutrition is for a cow to have a healthy calf and successfully join the milking herd free of health concerns. One tool for achieving this goal is to moderately acidify the blood of prepartum transition cows. Too much acidification leads to reduced or more variable dry matter intake (DMI). See the ARM & HAMMER™ Urine pH Monitoring how-to sheet for detailed guidelines on managing urine pH to indicate effectiveness of DCAD balancing in the ration.

Prepartum Transition Diets: The Basics.

- 1** If all cows have a urine pH level less than or equal to 6.8, optimal pH levels have been achieved. Reducing urine pH to low levels (<6.0) will reduce DMI and increase variability due to the excessive acidosis created.¹ Due to lack of published research, a slightly lower urine pH threshold (6.5) is suggested for Jersey cattle at this time.
- 2** Formulate the diet for a DCAD of -8 meq/100g dry matter (DM) if you have tight control of mineral content in feedstuffs. For more variable mineral content, formulate for -12 meq/100g DM for a margin of safety to account for variability.
- 3** Keep dietary magnesium at or above 0.45% of the DM to see the most success.
- 4** For long anionic transition periods (>42 days), use high-calcium diets. For shorter transition periods, use low-calcium diets if possible.
- 5** Studies show animals perform best with a minimum of 21 days on the prefresh diet. Target 28 days in the transition pen to ensure all cows see the requisite 21 days.



Monitor Efficiently to Determine Success

- 1 **DMI:** If cows don't consume the ration formulated for the proper DCAD, they will not become acidified. Formulations that assume DMI is at the high end for the entire transition group can lead to errors including poor acidification, variation and undernutrition for other nutrients.
- 2 **Forage mineral concentrations:** Concentrations calculated from NIR methods often lead to poor estimation of DCAD, causing breakdowns in the transition program. Determine concentrations by chemical methods.
- 3 **Urine pH:** Monitor urine pH to determine if cows are consuming the expected DCAD. Lower is not necessarily best—transition success is very attainable when urine pH is 6.5 rather than 5.5, and DMI will be higher at 6.5 as well.
- 4 **Bypass blood calcium monitoring:** Recent research indicates that monitoring blood calcium at calving can be a misleading indicator of success, resulting in loss of time and money.
- 5 **Manage variation to best ensure success:**
 - ✓ Ration ✓ Mixing ✓ Stocking density
 - ✓ Cow comfort ✓ Water quality and quantity ✓ Days in close-up pen
 - ✓ Urine pH ✓ Forage and feed analyses

PREPARTUM TRANSITION RECOMMENDATIONS	
NEI (Mcal/lb.)	0.68 - 0.70
Metabolizable Protein grams/day	Holstein Cows: 1,200 - 1,300 g/day Holstein First Calf Heifers*: 1,300 - 1,400 g/day Jerseys: 150 - 200 g/day below Holstein targets above
NFC, %	34 - 36
Ca, g/d	<85** or >180***
Ca, %	<0.85** or >1.80***
P, %	0.3 - 0.35
Mg, %	0.45
K, %	<1.3 if possible, even if formulating for negative DCAD
Vitamin A IU/d	100,000
Vitamin D IU/d	30,000
Vitamin E IU/d	2,000
DCAD meq/100 g DM	-8 to -12

* If fed as one group, feed 1,300 g/d
 ** For transition cows fed negative DCAD for a target of less than 42 days. If single ration fed for a target of more than 42 days, feed higher Ca (at least 180 g/d or 1.8%)
 *** If Ca cannot be kept at <85 g/d, feed >180 g/d as intakes between these levels increases risk for milk fever
 1 Lopera C, et al. Effect of level of dietary cation—anion difference and duration of prepartum feeding on calcium and measures of acid—base status in transition cows. *Journal of Animal Science* 2016;94(Suppl. 5):748-749.



To learn more about transition nutrition, contact your nutritionist, veterinarian or ARM & HAMMER representative, or visit AHfoodchain.com.