

PROTEIN PREFERENCES FOR NEGATIVE DCAD DIETS

By Vicky Ham
Ruminant Technical Service Manager

While DCAD focuses on the balance of dietary cations (sodium and potassium) and anions (chloride and sulphur), protein nutrition also plays a vital role during this phase. To maximize effectiveness, protein feeds must be chosen not only for their nutritional value but also for their impact on the overall mineral balance.

Transition cows require adequate amounts of metabolizable protein, including both rumen degradable protein (RDP) to support microbial activity, and rumen undegradable protein (RUP) to meet the cow's direct amino acid requirements. A diet consisting of 14 to 15% crude protein to achieve 1200g of metabolizable protein will support immune function, colostrum production and overall protein status in the transition cow to prepare her for the onset of lactation.

When operating a negative DCAD diet, the choice of protein source can have varying consequences on the starting point for diet acidification.

The list below describes suitable protein feeds and their typical DCAD values for consideration when formulating transition cow diets.

1. Rapeseed Meal (37.5% CP, -6.4 DCAD)

Rapeseed meal is an excellent protein source for transition cows on a negative DCAD diet. It contains a balanced amino acid profile, good levels of both RDP and RUP, and importantly, lower potassium content than many other protein feeds. This makes it compatible with the acidogenic requirements of the diet.

2. Maize Gluten (21% CP, 9 DCAD) and Maize Distillers (29% CP, 2 DCAD)

These by-products are rich in RUP and contain moderate levels of sulphur, which can help lower the DCAD value of the diet. They also contribute to energy supply, which is essential during the energy-deficient prepartum period. Their potassium content is generally lower than that of traditional forages, making them suitable for negative DCAD diets when used carefully.

3. Brewers Grains (24% CP, -15.6 DCAD)

As a moist by-product of the brewery industry, brewers grains offer an excellent low-potassium, good palatability protein feed suitable for negative DCAD diets. However, consistency and availability can be challenging with dry matter content varying between loads. Equally, storage is also a concern for moist feeds as they need to be clamped to seal out oxygen and avoid spoilage, which if not done correctly will lead to high wastage.

4. Bio-Chlor (49% CP, -402 DCAD)

Bio-Chlor achieves both the negative DCAD and metabolizable protein targets in a single formulation. The unique protein source is highly digestible and spares crude protein degradation in the rumen, leading to higher bypass protein. The multifunctional feed should save space in the overall ration compared to straight anionic salts and another protein feed.

But what about soya bean meal? Traditionally, soya has always been considered a 'superior' protein because of its high bypass protein content,



Vicky Ham is the Ruminant Technical Service Manager covering Europe for Arm & Hammer Animal Nutrition. Prior to joining Arm & Hammer, Vicky spent several years working as an on-farm dairy nutrition advisor across the Southwest of England and beyond. Her special areas of interest are in dry cow management, mineral nutrition and milk fatty acid composition.

although this can vary significantly based on how the soya bean meal is manufactured. But for negative DCAD diets, soya bean meal has a high DCAD value at 38.4, meaning that more acidogenic product will need to be fed, which could affect dry matter intakes. Use of soya is also under pressure for sustainability reasons but dairy farmer's needn't worry, there are several viable high-quality protein feeds that can provide the necessary RUP and DUP to meet transition cow needs. ■

**All CP % are on a dry matter basis and all DCAD values are meq/100g of dry matter.*

NEXT IN THE SERIES: We'll talk about benefits of formulating for negative DCAD in CNCPS.



DON'T MISS A POST!

Follow [#DryCowKnowHow](#) to read every article in the series!