



Milk Replacer Research Amino acids and crude protein in conventional milk replacers

The calf has a requirement for amino acids (AA). We should focus the nutrition of the calf on amino acids, like with other species (piglets, poults), rather than the old system of crude protein (CP).

When we formulated milk replacers (MR) with different CP and AA concentrations, the importance of AA was clearly seen (Figure 1). The calves fed the two MR with added AA grew as fast as the calves fed the 22% CP MR without AA. Use of the submodel in the dairy NRC (2001) will calculate 22% CP as the CP requirement of a 20% fat MR fed at 1 lb daily. The NRC does not consider AA requirements. These data match the factorial approach used to calculate CP requirements of calves fed conventional MR, showing that calf gains increased linearly between 18 and 22% CP when no AA were fed.

Additionally, a 20% CP MR was fed without and with added amino acids. Added AA reduced the plasma urea nitrogen concentration in the blood indicating that the added AA improved the balance of AA in the calf (Figure 2). This also indicates that there will be less nitrogen excreted via the urine and feces.

If formulated correctly, as we have shown, added AA allows for lower feed costs and reduced feed cost per unit gain.

