

# Scientists Finish Review of Nutritional Needs for Dairy Cows and Heifers



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Early this fall, the much anticipated update to the nutritional needs of dairy cattle will be released. The last version of this publication was released in 2001 and each version forms the foundation for the equations used in ration balancing programs to calculate diets fed to dairy cows, calves and heifers. This revision and update has taken many years to complete and some of the changes made after this lengthy review are just now starting to trickle out and be explained to nutritionists.

Although the equations used to calculate requirements have been updated to reflect studies done over the past 20 years, the amount fed of many nutrients will remain similar except for a few anticipated changes. From the preliminary discussions, energy requirements to support the maintenance of the cow herself will increase as today's cows have less body fat and their organs comprise a greater proportion of their body. (Estimates of energy needed to support milk production and reproduction will remain the same.) Bottom line, net energy requirements for a dry cow will increase an estimated 20% which will increase the needed energy content of diets and thus will change the amounts of each feed suggested to be fed to dry cows—especially far-off dry cows. Maintenance energy requirements for high producing milking cows (i.e. 110 lbs of milk) will also increase by the same amount per pound of body weight as the dry cow. But, since the maintenance requirement is a smaller percentage of total amount of energy needed by the milking cow, this change will not impact diets much. Energy needs for milk production will still explain most of the energy needs of the milking cow.

(This increase in maintenance accounts for a 6% overall increase in NEL required.)

I anticipate the biggest change will be in how nutritionists balance milking cow diets to meet the protein related needs of cows to support milk and milk protein synthesis. The recommendation will be that rations are evaluated to see if they supply adequate amounts of 5 to 7 essential amino acids and not just one amino acid previously referred to as the “limiting amino acid” (i.e. lysine and methionine). This change will allow nutritionists to determine the best combination of feedstuffs (forages and grains) to meet the cow's nutritional needs, increase the use of lower protein diets without compromising production, and increase the data used to determine when specific amino acids, not just lysine or methionine supplementation, could improve milk production, milk protein yields, and/or reduce costs.

The one message that repeatedly comes through in the discussions with the scientists that worked on this revision is that ENERGY is still supreme!!!! Diets need to provide adequate energy and protein, but in that order. Approximately 45% of milk protein output is related to energy. Harvesting, storing and feeding excellent quality forages still are the driving force behind getting energy into cows to support the relationship between optimum performance and cost. The combination of feedstuffs used may change overtime, but tried and true principles are still important when incorporating these updates to our knowledge of the nutritional needs of dairy cows and the microbes living in the cow's rumen.