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Finding Optimum Return-Over Feed Cost

Central Valley Nutritional Associates (CVNA) has reported that the Formulate2 Dairy Ration Optimizer featured prominently in the preparation of a key paper presented by Dr. Roger Epley of Epley Nutrition, Ltd., Neenah, Wisconsin at the recent Tri-State Dairy Nutrition Conference. Dr. Epley's paper, "Optimizing the use of Distiller's Grains in Rations", examines the role of Distiller's Grains in dairy rations given the current interplay of ethanol production with feed markets.

"At current ingredient prices does DG fit in eastern Wisconsin rations? The answer is yes if we set a minimum for metabolizable or crude protein...However, if we want to improve the quality of metabolizable protein in the ration by setting a minimum (for) metabolizable lysine, DG is not a good choice of ingredients ...Schwab et al. (2003) demonstrated that we can produce more milk protein by increasing the quality of metabolizable protein."

"By using (the) Formulate2 Dairy Ration Optimizer (Central Valley Nutritional Associates, Visalia, CA; www.formulate2.com, version 5.0, based on NRC (2001)), we can demonstrate decreased utilization of DG by increasing the minimum level of metabolizable lysine. In this exercise metabolizable protein, rumen degradable protein and net energy for milk is set according to the NRC 2001 requirements. The dry matter intake is the NRC estimate. Table 3 shows the specifications used for these optimizations...The ratio of lysine to methionine is kept at 3:1."

"Using equations developed by Schwab et al. (2006) to estimate milk and milk protein yields, we see more milk and milk protein production as the result of improving metabolizable protein." (Proceedings of the Tri-State Dairy Nutrition Conference April 24th and 25th, 2007, pages 105-109)

In private communication with CVNA Dr. Epley stated, "There is an error in Table 4 in the paper. Under the column "No Minimum Lysine" (diet not optimized for lysine content), the "Total feed cost, \$/day" should be \$4.91 (rather than \$4.51). And, the "Net after feed cost, \$/day" should be \$8.11 (rather than \$8.51).

This gives us a 55 cent per cow daily advantage for the ration with the metabolizable lysine set at 6.3% (optimized lysine content).

Commenting on the accuracy of the NRC 2001 model and its implementation in Formulate2, Dr. Epley observed, "Also, it may be interesting to note that we actually do feed the ration with the metabolizable lysine set at 6.3% to a herd of real live cows. And, we do get close to 100 lbs. of milk with a 3.75% milk fat and 3.05% milk protein. "

Dr. Epley's paper may be viewed by clicking on the Nutrition link on the home page of the Formulate2 web site at www.formulate2.com.

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References

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