



Improving the Efficiency of Nitrogen (N) Utilization

Profitable milk production depends on efficient use of dietary protein. The target should be for 30% of Total N ingested to be converted to Productive N and for the Productive N/Urinary N ratio to be greater than 100%.

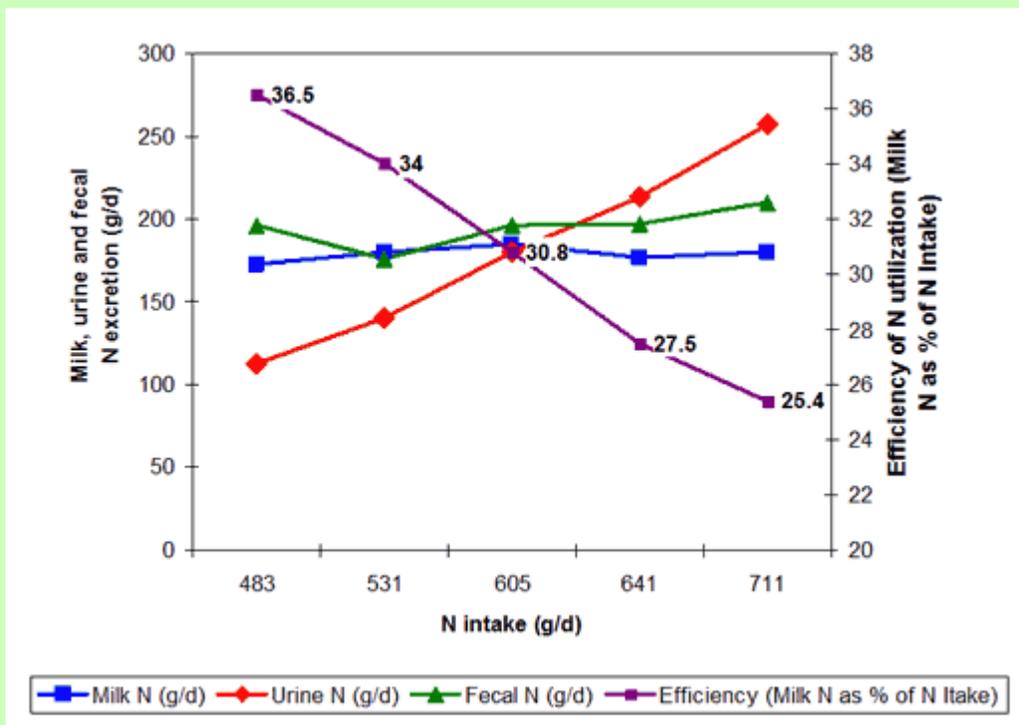
Typically only 25% of N intake is incorporated into milk protein - in other words 75% is excreted in the urine and feces. Fecal N is relatively constant, thus the extra N consumed by the cow is secreted in the urine which is the most volatile form. Olmos, Colmenero and Broderick found that as cows consume more N, the N secreted in the milk as well as the N secreted in the feces was fairly constant. On the other hand, the N excreted in the urine increased linearly in relation to the intake. The net effect was that the efficiency of N utilization decreased from 36 to 25%. Maximizing N efficiency is not only good for the environment; it is also good for the cow's energy status. It takes 7.2 Kcal of Metabolizable Energy per gram of excess N to convert to urea.

Accurately balancing the rations for Amino Acids will further improve the efficiency of N utilization by lowering N inputs while maximizing milk protein synthesis.

The new CNCPS v6 (incorporated in the AMTS, NDS and other commercial software programs) includes reports that help us monitor how efficient N utilization is in a particular situation.

Excretion		
Fecal (lbs)	107	
Urine (lbs)	47	
Total Manure (lbs)	154	
Fecal N (g)	248	
Urine N (g)	184	
Total Manure N (g)	431	
Productive N:Total N	0.36:1	Productive N/Total N > 30%
Productive N:Urinary N	1.29:1	Productive N/Urinary N > 100%
Manure N:Total N	0.64:1	

Efficiency of N Utilization (Olmos, Colmenero and Broderick, 2006)



Have Questions?

Please [contact me](#) if you have any questions or would like more information. I will personally respond to all emails.



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