

Vilnius Workshop



Conclusions



*Innovative and practical management
approaches to **reduce nitrogen**
excretion by ruminants*

Protein Evaluation Systems

State of the Art in Europe



- Many similarities now emerging in the approach used across Europe
- Eventual replacement of *in situ* approach needed
- Prediction of variability of non-forages required
- Need better to take into account the effect of rumen environment on microbial synthesis. Reduced cell wall digestion (through fat, SARA) not considered. Effect of additives (yeasts, essential oils, buffers) needed to be predicted
- Need to consider the effect of high level of feed intake in relation to – Fermentable OM, by- pass protein, microbial efficiency and shift between faecal and urinary N excretion ?
- Requirement based rather than prediction of responses. Absence of interactions in many systems. Single protein values quote static conditions. Incorporation of AA responses into model proper was required
- Need better to consider variations of metabolic efficiency and in particular the effect of the profile of absorbed AA (beyond Lys and Met)
- To (re)consider a tolerable deficit in degradable N to according to the diet (forage) and cows
- The use of safety margins result in protein over supply!

N. America Experience



- Must represent N recycling to the GI
 - Probably largest potential gains in N efficiency
- UC-Davis model appears to predict N supply with greater accuracy
 - Use this model to “fix” the empirical models
 - Integration of organ level data
- Linear representation of MP conversion to Milk is problematic
 - Fractional conversion is **NOT** 65%
 - Variable conversion efficiencies
 - Nonlinear response surface
 - Independent energy effects
 - Wrong representation of individual nutrient effects
- Postabsorptive AA models
 - Must consider splanchnic recycling

Australian/ NZ Experience



- 2 main issues. The need to predict
 - Variability in efficiency of microbial protein production (EMCP)
 - Variability in efficiency of use of MP (k)
- Need to consider
 - Increase EMCP, promote urea recycling and reduce CP of diet
 - AA balance to increase k in marginal response phase
 - Immune response
 - Models must be modified to accommodate these responses
- Problems from a practical perspective
 - Models require detailed input, often not available for pasture, heavily focused on TMR systems
 - Do not account for mix of grazing, TMR feed pad, concentrate supply during milking
 - Ignore Pasture intake (generally through back calculation)
- Why does intake increase with increasing N content of diet beyond theoretical requirements for MP – balance of nutrients?

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It does not necessarily reflect its view and in no way anticipates the Commission's future policy in this area.



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