



New FAA calculations bring greater accuracy to forage analysis

The Forage Analytical Assurance (FAA) Group – the quality control “governing body” for NIRS* wet silage analysis laboratories in the UK – has improved the accuracy of the equation its members use to determine the energy of silages. As a result farmers and nutritionists may see differences in their analysis this season especially for crops with high digestibilities. “The new equation reduces the energy of very high ME silages so the need to manually “correct or tweak” rations by farmers and their nutritionists has gone” says FAA member Dr John Allen.

Farmers who normally make silages whose energy is above 10.2 MJ ME/kg DM will have a lower energy prediction than previously although the effect only becomes significant after an ME of around 10.8. Silages with a previously low prediction (i.e. below about 9.6 MJ ME/kg DM) will see their energy levels increase. Average silages between these levels should not be affected.

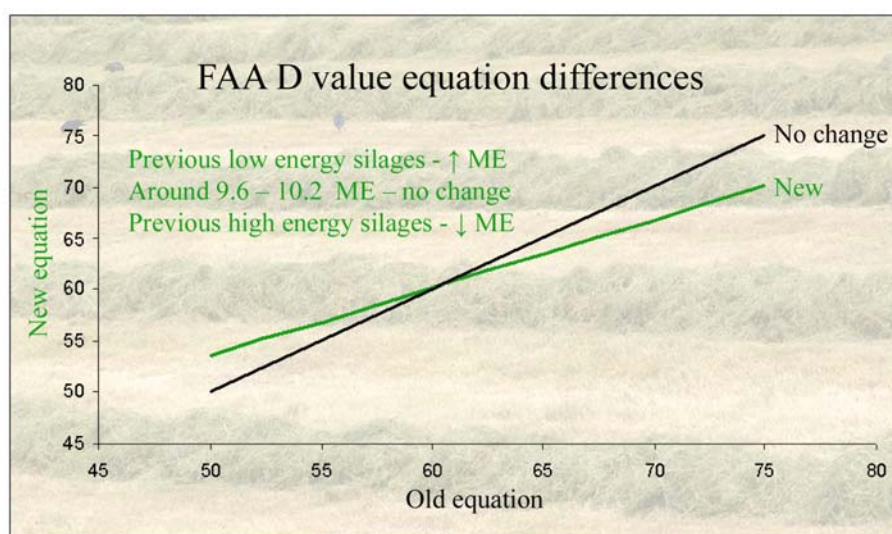
The original equation was generated in 2000, when the Agricultural Research Institute of Northern Ireland (ARINI) used 136 silages, wet scanned them on its master NIRS instrument and determined their digestibilities.

Since 2000, however, more high dry matter silages are being made, and it became increasingly clear to the FAA, its member laboratories and nutritionists that a reassessment of the equations was necessary.

In 2003/04 an additional 20 high dry matter silages were analysed and their digestibilities (DOMD's) determined. These silages ranged from 28% to 72% DM and had D values between 50 and 71. The ARINI 136 and FAA 20 samples were then combined to generate a new, more accurate, equation covering a wider range of dry matters. During the early part of 2006 the new equation was tested against 22,000 commercial scans collected during 2004 and 2005 to check the theory translated into practice.

“The results indicated that the new equation reduced DOMD by 3.5 units on average but importantly the slope was flatter so that low DOMD silages were predicted to have higher values, and high DOMDs lower values,” said Dr Allen (Figure 1). He advises all farmers to bear this in mind when rationing their animals and to check that their nutritionist is aware of the changes.

Figure 1



“The new equation is based on solid science using practical silages and real animals. For the majority of users prediction values will not change significantly, but the ME of higher quality silages will be lower. This reflects the generally held view that grass silages with ME values over 11 often do not perform as expected, which has led to many nutritionists making ad hoc corrections,” he added.

The new equations will be adopted this season by FAA’s member companies – which consist of AFBINI, CBAL, Bioparametrics, Central Laboratories, Davidsons, Eurofins, FBA Labs (Ireland), Frank Wright, NRM, NWF Agriculture, Masseys, Promar Labs, Rumenco, SAC, Thompsons & Moore Park (Ireland). Collectively they analyse around 70,000 silage samples each year for individual farmer customers and most feed companies.

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NIRS

*NIRS = Near Infrared Reflectance Spectroscopy. This is the preferred method of analysing wet silages. It is fast, accurate and relatively cheap allowing the rapid sample turnaround needed for the formulation of accurate and relevant rations.