



Bioparametrics silage ME prediction – a new approach

The prediction of silage ME is a complicated one because the actual ME absorbed from a silage(s) is heavily dependent on a long list of animal, environmental and feeding factors such as the type of animal being fed and what other dietary components make up the ration. Nevertheless we still need to have some idea of the ME content of silage so that we can formulate rations that meet both the energy and protein requirements of that animal.

The ME content of silages has historically been predicted by incubating silages in rumen fluid or detergent and enzyme media and measuring the disappearance of organic matter over a 72 hour period, otherwise known as the D-value. Following on from this, NIR equations have also been developed that predict these silage D-value's and therefore allow the ME content to be predicted both quickly and more cheaply than would otherwise have been possible.

The downside of predicting ME using this approach is that incubating silages for 72 hours may over estimate the ME that is actually available to the animal, especially in high yielding dairy cows where the silage may only be in the rumen for 24 hours or even less if there is insufficient active fibre in the ration. The effect of incubation time on the predicted yield of ME from silage is illustrated in Fig.1. This shows that the predicted ME yield after 72 hours of incubation can be significantly higher than that predicted after 36 hours. Although not usually an issue with high quality grass or maize silage, this difference is especially pronounced in mature grass silages and cereal wholecrops where the rate of fermentation of the straw is very slow and predictions at 36 hours and 72 hours can differ by up to 1.5 MJ/kgDM.

To provide a more realistic estimate of the potential ME content of silage, the Bioparametrics analysis system reports ME values that are predicted, not from a D-value at 72 hours, but by measuring the extent of carbohydrate and protein fermentation after 36 hours and the concentration of oil and fermentation acids contained in the silage. As a consequence you may see some differences in the ME values reported by Bioparametrics compared to other UK laboratories but this new approach should give you a more accurate measure of the ME content of silage and enable you to improve the performance of your rations.

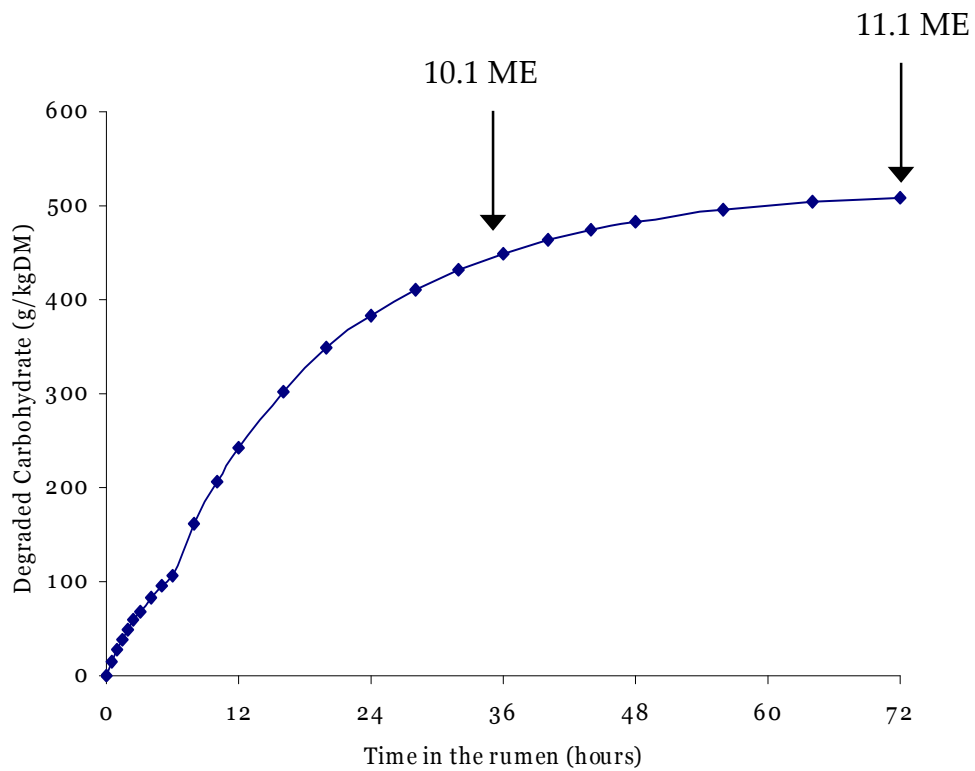


Fig.1. The effect of incubation time on the extent of carbohydrate degradation and ME prediction

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