

Digestible energy content for Berkshire triticale varies depending on season and site

J.M. Pluske¹, J.R. Pluske² and J.C. Kim³

¹SciEcons Consulting, Subiaco, WA 6008. ²Murdoch University, Murdoch, WA 6150. ³Department of Agriculture and Food Western Australia, South Perth, WA 6151.

A major aim associated with the development of Berkshire, a triticale variety propagated with funding from the Pork CRC, was to produce a feed grain with a high level of digestible energy (DE) and hence an ingredient that offered cost efficiencies in diet formulations. Berkshire has now been registered as a Plant Breeders' Rights (PBR) variety and has been grown in New South Wales, Victoria, South Australia and Western Australia. However, little has been documented in regard to the variation in DE content of Berkshire across these growing regions.

Kim *et al.* (2005) concluded that the DE content of Western Australian wheats fed to weaner pigs varied according to the variety and growing region. It could therefore be hypothesised that the DE content of Berkshire would also vary depending on growing conditions. As a corollary to a larger plant-breeding project (see Kim *et al.*, 2011), and using NIR AusScan, data pertaining to the faecal DE content of Berkshire were analysed from 239 samples grown at 35 different sites in New South Wales, South Australia, Victoria and Western Australia during the 2009/10 season.

The DE value ranged from 13.22 MJ/kg to 14.34 MJ/kg. A single factor analysis of variance (ANOVA) indicated a significant difference in the DE values between each of the States ($P < 0.01$), except for Victoria and Western Australia (Figure 1). Removing the three outliers from the Victorian data set did not alter this result. There was also a difference ($P < 0.01$) in the DE recorded between sites within each State. For example, in Western Australia the mean DE content for the most northern trial site, Northampton, was 13.84 MJ/kg whilst that of the most southern site, Coomalbidup, was 13.64 MJ/kg.

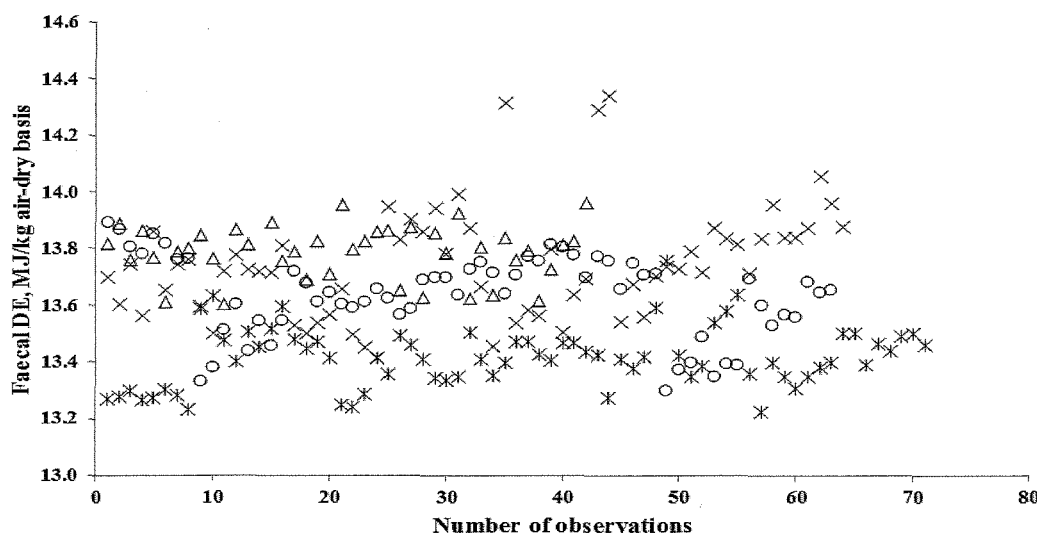


Figure 1. The faecal DE content (MJ/kg) for Berkshire grown in the 2009/10 season at various trial sites in: New South Wales (O); South Australia (*); Victoria (x); and Western Australia (Δ).

In Australia, these data are the first known to demonstrate that the DE content of triticale is variable according to site. Season and subsequently yield may also be important factors in determining DE content. Data taken from samples grown at Dandaragan in WA, for example, indicated that the mean DE content for the 2009/10 season was 13.43 MJ/kg whilst that for the 2010/11 season was 13.73 MJ/kg. Further research would be required to explain this variation. This paper reinforces the need for objective energy content testing to maximise efficiencies in feed formulation and production.

KIM, J.C., PLUSKE, J.R., MULLAN, B.P., KING, R., WILSON, R.H., MULLAN, D., WALMSLEY, T. and PLUSKE, J.M. (2011). In "Manipulating Pig Production XIII", p.68, ed. R.J. van Bameveld. (Australasian Pig Science Association: Werribee).
 KIM, J.C., SIMMINS, P.H., MULLAN, B.P. and PLUSKE, J.R. (2005). *Animal Feed Science and Technology*. **122**:257-287.

Supported in part by Pork CRC Limited Australia.