The nutritive value of frosted wheat for sheep

E. C. RichardsonAC, A. G. KaiserB and J. W. PiltzB

A Wagga Wagga Agricultural Institute, NSW Agriculture and Quality Wheat CRC, PMB, Wagga Wagga, NSW 2650, Australia.
B Wagga Wagga Agricultural Institute, NSW Agriculture, PMB, Wagga Wagga, NSW 2650, Australia.
C Author for correspondence; e-mail: emma.richardson@agric.nsw.gov.au

Abstract

effect of frosting on the nutritive value of wheat grain was determined in a digestibility experiment with sheep. Thirty-six Merino wethers were maintained on diets of lucerne chaff (30%) and whole wheat grain (70%) which was sourced from either severely frosted (SF), lightly frosted (LF) or unfrosted (UF) crops. The experiment was conducted in a repeated balance study with 8 replications per treatment diet for each of the 7 treatment diets, new animals were assigned to the chaff control (treatment diet 8). The diets were offered at the liveweight maintenance level of feeding and the digestibility of the wheat component was calculated by adjusting for the digestibility of the lucerne component. Frosting had a relatively small effect on the nutritive value of wheat grain for sheep. Dry matter digestibility for UF, LF and SF wheats did not differ significantly (0.886, 0.854 and 0.839, respectively), although the SF wheat had a lower digestibility than the UF wheat at \( P<0.10 \). The organic matter digestibility, digestible organic matter in the dry matter and estimated metabolisable energy (ME) content were all significantly \( (P<0.05) \) lower for SF compared with UF wheat grain (0.856 v. 0.908, 0.859 v. 0.915 and 13.5 v. 14.3 MJ/kg DM respectively).

This study demonstrated that wheat from the severely frosted wheat crop had a lower estimated ME content of about 1 MJ/kg DM (equivalent to about 6% less ME) than wheat from the unfrosted crop fed in this study. However, the resultant ME of all samples fed fell within the normal observed ME range for wheat.

Full Text