

EFFECT OF ADDITIVES ON THE PALATABILITY OF A FORAGE BY SHEEP

S.G. GHERARDI and J.L. BLACK

Weston (1985) postulated that the palatability of a forage may affect digesta load within the rumen and hence voluntary feed intake by sheep. Because forages of different palatability can also vary in other characteristics that affect rumen function and feed intake, it is desirable to test this hypothesis by changing the palatability of a single feed. A quantitative assessment of the palatability to sheep of several chemicals added to wheaten hay is described to identify treatments for examining the postulate.

To improve palatability, solutions with increasing amounts of butyric acid (BA) or monosodium glutamate (MSG) were sprayed onto wheaten hay chopped to 20 mm lengths; 11% water was added to the air dried hay. Preference for the treated hay relative to that sprayed with water only was assessed by offering simultaneously the two forages in separate containers for four 1 min periods to four Merino sheep. Preference for the treated hay was expressed as a percentage of the total intake coming from that forage (Fig. 1). The preference for hay containing 0.25% BA and 1.0% MSG was then tested with five lengths of the same hay sprayed with water only to obtain a quantitative measure of its palatability (Δ IR) by the method of Colebrook et al. (1985) where PIR is potential intake rate of the test material and AIR is the intake rate of the standard hay with an equivalent preference (50%). Fig. 2 shows that this treatment was highly palatable and resulted in a Δ IR of 5.6 g/min.

Solutions of malonic acid, glycine, aconitic acid, quinine sulphate and acetic acid did not alter the preference for 6 mm hay. However, palatability was decreased when magnesium oxide (MO) was added to this hay sprayed with 10% water and 1% casein (Fig. 1). Wheaten hay containing 4.1% MO was highly unpalatable with a Δ IR of -4.6 g/min (Fig. 2).

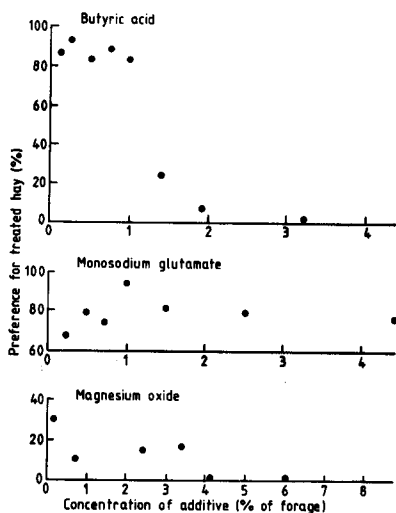


Fig. 1. Preference for hay treated with several chemicals.

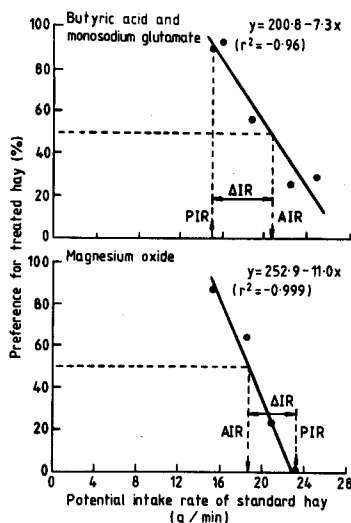


Fig. 2. Preference for treated hay relative to a standard hay of different lengths.

COLEBROOK, W., BLACK, J. and KENNEY, P. (1985). *Proc. Nutr. Soc. Aust.* 10:99
 WESTON, R.H. (1985). *Proc. Nutr. Soc. Aust.* 10:55.

CSIRO, Div. Animal Production, P.O. Box 239, Blacktown, New South Wales 2148