MODIFIED NYLON BAG TECHNIQUE IN EQUINE NUTRITION

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There is a distinct lack of information on feeds used by the Australian horse industry. Virtually none of the published feed values have been derived in metabolic studies with horses. High costs restrict the use of traditional *in vivo* methods and no reliable in *vitro* technique is currently available (Trevor-Jones, Sriskandarajah and Woog, 1991).

Nylon bag techniques involving surgery and fistulation are commonly used in nutritional research. The authors have modified a technique used by Dr A. Jorgensen at the Danish National Institute of Science to study digestibility in pigs for use in horses. This modification involves an oral (non invasive) administration of small samples encased in fine nylon mesh with the aid of a standard 'ball gun', traditionally used in medication of large animals. Thus large numbers of samples (30 plus per horse) can be handled in one run. Some results achieved with isoprotein diets and various digestibility techniques are presented in Tables 1 and 2.

TABLE 1 Composition of experimental diets

Diet	1	2	3
Crude protein	17.9	17.9	17.9
ADF (%)	33.09	22.09	16.59
ME (MJ/kg)	9.5	11.1	11.8
Composition	100 % Clover	50%C + 50 %GM	25%C + 75%GM

C= Subterranean clover; GM= grain mix 21% lupin + 79% barley.

TABLE 2 Comparison of *in vivo* and *in vitro* digestibility techniques

Technique		Diet 1	Diet 2	Diet 3
Organic MatterDigestibility	%	66.3	72.8	78.1
(Horses)	± SE	1.26	1.40	1.06
Organic Matter Digestibility	%	76.4	82.2	81.2
(Sheep)	± SE	0.49	1.02	0.77
OMD (Rumen Liquor)	%	71.9	81.2	84.4
(Tilley and Terry, 1963)	± SE	0.96	0.69	0.70
OMD (Pepsin-Cellulase)	%	74.5	65.5	59.0
(Clarke *et al.* 1982)	± SE	1.20	0.62	3.28
OMD (Cellulase-Amylog.)	%	72.2	81.5	83.2
(Dowman and Collins,1982)	± SE	0.36	0.67	1.54

Nearly 80% (37) of original samples were recovered undamaged in faeces within 72 hours of ingestion. Results were quite consistent and confirm limited capability for utilisation of fibre by equines.

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