

METHODS OF ESTIMATING IN VIVO DIGESTIBILITY OF **FEEDSTUFFS** IN DAIRY COWS

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The traditional method for determining apparent *in vivo* digestibility in dairy cows has involved the separate total collection of faeces and urine. This can be stressful to the animals, particularly if the procedure is carried out repeatedly because the urine separator must be glued around the vulva. It has been suggested that collection of urine and faeces together may provide reasonable estimates of digestion coefficients (Lindgren 1981). This paper reports the results of two experiments which compared estimates of digestibility from the two methods.

Four cows were used in two crossover experiments in which faeces and urine were either collected separately or together. In one experiment, the cows were fed high quality, low dry matter content pasture (subterranean clover and annual ryegrass), while in the other they were fed a mixed diet of maize silage and lucerne, which had a high dry matter content. Excreta was collected for six days while cows were housed in metabolism crates. With the combined collection technique, a 24 h diurnal collection of faeces and urine separately was needed to estimate the dry matter contents of both components so that relative contributions of each to the excreta could be calculated.

Table 1 Digestion coefficients, averaged across feed types

	Digestion coefficient		s.e.d. (P=0.05)
	Separate collection	Combined collection	
Dry matter	71.6 a	73.9 b	0.32
Organic matter	73.0 a	75.1 a	0.69
Nitrogen	69.7 a	72.4 a	0.96

Means in rows followed by a common letter do not differ ($P < 0.05$).

Digestibility coefficients obtained from each method are presented in Table 1. There was a general trend towards higher digestion coefficients when faeces and urine were collected together, although this was only significant for dry matter. The difference between methods was due to insufficient mixing of the faeces/urine mixture which resulted in collection of samples of abnormally high water content which were not representative of the total excreta. In a short subsequent investigation, the dry matter content of excreta after prolonged mixing was 3 percent higher than under normal mixing conditions. This is sufficient to remove the differences in digestion coefficients shown in Table 1. It is suggested the combined collection technique for estimating the *in vivo* digestibility of feedstuffs in dairy cows can adequately replace the separate collection of faeces and urine provided the excreta is adequately mixed for subsampling.

LINDGREN, E. (1981). Swed. J. Agric. Res. 11:177.

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