

THE EFFECT OF ROUGHAGE QUALITY ON THE INTAKE AND PRODUCTION
OF EARLY WEANED CALVES

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The addition of low quality roughage to concentrate diets for early weaned calves improved intake and liveweight gain (Kellaway et al. 1973; Thomas and Hinks 1983). It is unclear if improved performance was due to roughage per se or whether roughage quality was an important factor.

Forty-eight Hereford and Hereford-cross calves (mean weight 150 kg) were divided by weight and sex into groups of four and fed ad lib. whole wheat or dairy pellets (14% CP) alone or with hammermilled (25 mm screen) roughage (lucerne hay or wheat straw) in the ratio 80:20. Feed intake, liveweight gain, feed conversion ratio (FCR) and days to finish were measured. Finish was defined as a minimum fat cover of 4 mm, measured by scanoprobe at the 12/13th rib.

TABLE 1 Effect of roughage quality on calf performance

	DM Intake (kg/hd/d)	LWG (kg/hd/d)	FCR (kg DM/kg LWG)	Days to Finish
Wheat	4.35 ^{a#}	0.80 ^a	5.61 ^b	94.3 ^b
Wheat and straw	6.44 ^b	0.94 ^{ab}	6.87 ^b	92.8 ^b
Wheat and lucerne	71.4 ^b	1.20 ^{bc}	5.95 ^b	85.3 ^{ab}
Pellets	4.53 ^a	0.98 ^{ab}	4.60 ^a	92.8 ^b
Pellets and straw	6.88 ^b	1.21 ^{bc}	5.86 ^b	89.0 ^b
Pellets and lucerne	6.88 ^b	1.49 ^c	4.64 ^b	71.8 ^a
S.E. of Means	0.240	0.076	0.388	3.71
Sig. of diff.	***	***	**	***

P<0.01; *P<0.005.

#Means within columns with different superscripts differ (P<0.05).

The addition of roughage to whole wheat or pellets increased intake and liveweight gain and decreased days to finish; there was further improvement concurrent with the addition of better quality roughage. There was no improvement in FCR with the addition of roughage. Improved roughage quality increased the protein content of the diet above that of diets with straw - (%CP: wheat/straw - 11.3; wheat/lucerne - 14.5; pellets/straw - 12.6; pellets/lucerne - 17.0), possibly resulting in improved diet digestibility. It appears that roughage per se, rather than roughage quality exerts the greatest influence on calf performance. Omission of roughage from a high concentrate diet results in lower DM intake and thus lower weight gain.

REFERENCES

- Kellaway, R.C., Grant, T., and Chudleigh, J.W. (1973). Aust. J. Expt. Agric. Anim. Husb. 13: 225.
 Thomas, D.B., and Hinks, C.E. (1983). Anim. Prod. 36: 299.

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