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**The effect of solid feed diet on the oral and cross-sucking
behaviour of pre-weaned dairy calves**

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Abstract

In the dairy industry calves are most frequently artificially reared in groups, which create a greater opportunity for solid feed consumption and non-nutritive oral behaviour. This study aimed to compare the effect of differing solid feed diets on the pre- and post- weaning feed intake, growth rate and oral behaviour of calves reared artificially in groups. This experiment was a randomised block design with the treatments diets allocated at random, in blocks. The research was completed at Massey University's dairy calf unit #4 and involved 108 Friesian and Jersey x Friesian dairy calves that were allocated to one of three treatment diets: lower forage (LF) alfalfa total mixed ration (TMR); a higher forage alfalfa (HF) TMR; and perennial ryegrass hay along with a pelleted starter (HPS). Calves were reared in 36 groups of three calves per group and monitored until 12 weeks of age. Calves fed HPS had the greatest dry matter intake (LF: 0.80 (0.012), HF: 0.95 (0.012), HPS: 1.70 (0.011) kg/DM/d), live weight at 40 d of age (LF: 60.3 (1.41), HF: 63.8 (1.41), HPS: 67.1 (1.38) kg) compared with TMRs. These calves also spent the most time eating (LF: 129.1 (0.14), HF: 163.7 (0.14), HPS: 154.1 (0.14) mins/d), and spent the least amount of time engaged in non-nutritive pen sucking (LF: 13.4 (0.16), HF: 11.2 (0.17), HPS: 10.3 (0.16) mins/d). It was concluded that, while cross-sucking was not entirely eliminated, providing perennial ryegrass hay along with a pelleted starter resulted in the least non-nutritive sucking behaviour, along with the greatest feed intake and growth rates compared with low and high forage alfalfa based total mixed rations.

Key words: Calves, Growth, Intake, Behaviour, Sucking

Glossary of frequently used abbreviations

ADF:	Acid detergent fibre
AR:	Artificially reared
CP:	Crude protein
BW:	Body weight
d:	day(s)
DE:	Digestible energy
DM:	Dry matter
DMI:	Dry matter intake
g:	gram
h (s):	hour (s)
hd:	head
HF:	High fibre
HW:	Hip width
kg:	kilogrammes
L:	Litre(s)
LF:	Low fibre
LWT:	Live weight
ME:	Metabolizable energy
Min (s):	Minute
MR:	Milk replacer
NDF:	Neutral detergent fibre

NZ: New Zealand
PH+S: Pasture hay and starter diet
TDN: Total digestible nutrients
TMR: Total mixed ration
WM: Whole milk

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