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GROWTH, VOLUNTARY FEED INTAKE AND DIGESTIBILITY IN THOROUGHBRED WEANLINGS

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ABSTRACT

This thesis describes two studies evaluating the suitability of an ensiled lucerne and cracked maize feed for consumption by Thoroughbred weanling horses (eight to twelve months of age).

A growth study was conducted to compare the effect of a fibre-based (ensiled lucerne and cracked maize) or concentrate-based supplementary feed (commercial weanling concentrate) on the growth and occurrence of gastric ulceration of Thoroughbred weanling fillies managed under commercial conditions in New Zealand at moderate followed by high feeding levels. During the trial there was an outbreak of strangles (*Streptococcus equi* var. *equi*) in both groups of horses. Three of the fibre-supplemented and two of the concentrate-supplemented weanlings displayed clinical signs of strangles during the moderate and high supplementary feeding periods, respectively. These weanlings were isolated from their groups for the duration that they displayed clinical signs of strangles.

During the growth trial the weekly body weight gain, wither height and average daily gain (ADG) were not affected by dietary treatment or feeding level. Weekly body weight gain, body condition score and ADG were significantly lower in the weanlings that were infected with *S. equi* var. *equi* while they were isolated in comparison to the remainder of their group. No association was found between gastric ulceration and dietary treatment.

At the completion of the growth study, a separate voluntary feed intake (VFI) and apparent digestibility study of the ensiled lucerne and cracked maize feed was conducted over a 21 day period using six of the Thoroughbred weanling horses. During this study the duration of total faecal collection required for consistent apparent digestibility measures of dry matter, crude protein and gross energy was determined.

The VFI of the ensiled lucerne and cracked maize feed by the weanling horses (94.57 ± 1.43 g DM/kg BW^{0.75}) was at the lower end of the range reported by other studies of VFI in young horses fed grass or lucerne hay alone, or in combination with concentrate rations (92.3-134 g DM/kg BW^{0.75}). The feed contained 53.96% (± 0.72) DM, and 13.22%

(± 0.10), CP and 12.47 MJ/kg DM (± 0.01) GE on a DM basis. The apparent dry matter ($70.55 \pm 0.40\%$), crude protein ($62.39 \pm 0.60\%$) and gross energy ($68.51 \pm 0.43\%$) digestibility of the feed was similar to other studies of young horses fed lucerne hay and lucerne hay and concentrate diets. There was no significant difference in the duration of total faecal collection on all of the apparent digestibility measures.

The results of this thesis suggest that the ensiled lucerne and cracked maize feed is a suitable alternative to concentrate-based supplementary feeds that are typically fed to grazing weanlings, and that normal growth rates can be achieved by weanlings supplemented with this feed. Additionally, the apparent dry matter, crude protein and gross energy digestibilities of this feed can be accurately measured over a 12 hour total faecal collection.

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LIST OF ABBREVIATIONS

ADG	Average daily gain
BCS	Body condition score
BW	Body weight
CP	Crude protein
DE	Digestible energy
DM	Dry matter
DOD	Developmental orthopaedic disease
EGUC	Equine Gastric Ulcer Council
FF	Fat and fibre rich diet
GE	Gross energy
HCl	Hydrochloric acid
NRC	National Research Council
OC	Osteochondrosis
SS	Sugar and starch rich diet
VFA	Volatile fatty acids
VFI	Voluntary feed intake

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