Seasonal variation of pasture quality on commercial equine farms in New Zealand

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Robyn Lesley Hirst

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Abstract

The equine production system in New Zealand is largely pasture-based and as a result broodmares, foals and young horses acquire a significant percentage of their nutrition primarily from pasture. The reliance on pasture as the main nutrient source in New Zealand is in distinct contrast to the more intensive equine production systems found in other countries such as in Europe and North America. However, there is increasing scientific evidence that raising horses primarily on pasture may provide the optimal environment for the development of a sound and durable athlete.

In addition, the supply of a balanced nutritional ration for the broodmare is important as inadequate nutrition can lead to reduced fertility. The requirement to produce a live healthy foal every year is crucial to maintaining the production cycle as mares which fail to conceive within a 25-day window post-partum eventually have to forgo a mating season which is costly to the business which relies on the sale of a young horse each year.

The compositional data gathered during this study showed that equine breeding farm pastures were rarely deficient in energy, protein or fibre. The low energy content of pasture in summer and in some cases autumn was caused by high dead matter content and reproductive stem content. The presence of reproductive stem content and dead matter in the sward is linked to poor pasture utilisation, but can also be present during prolonged periods of climatic pressure (lack of rainfall). Lower nutritional quality of pasture is likely to be the main limitation to animal performance, especially in regions where summer temperature is high, rainfall is low, forage availability is reduced and the stocking density is high. During the breeding season commercial equine breeding farms experience a period of high stocking density which can be detrimental pasture quality and availability.

Consideration of the recommended nutritional requirements of horses were made on the basis that there was sufficient dry matter (DM) available for the bloodstock to consume. The pasture management study found that there is an opportunity within the equine production system for improved pasture utilisation and production to allow for the provision of adequate nutrition to valuable bloodstock.

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Abbreviations

ADF	Acid detergent fibre
ADG	Average daily gain
Ash	Mineral
BW	Bodyweight
CP	Crude protein
DCAD	Dietary cation-anion difference
DE	Digestible energy
DM	Dry matter
DMI	Dry matter intake
DOD	Developmental orthopaedic disease
DW	Dry weight
FV	Feeding value
FW	Fresh weight
GE	Gross energy
GR	Growth rate
ME	Metabolisable energy
Mo	Month (s)
NDF	Neutral detergent fibre
NIRS	Near infra-red reflectance spectroscopy
NRC	National Research Council
NV	Nutritive value
NZ	New Zealand
OMD	Organic matter digestibility
RSU	Revised stock unit
SB	Standardbred
SD	Standard deviation
SEM	Standard error of the mean
Sol CHO	Soluble carbohydrate
SSS	Soluble starch and sugars
SU	Stock unit
TB	Thoroughbred
VFI	Voluntary feed intake

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