

SEASONAL ANALYSIS OF THE MINERAL CONTENT OF PASTURE USED FOR GRAZING THOROUGHBRED BREEDING STOCK IN THE UK

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Reasons for study:

Minerals are an essential component of correct nutrition, particularly in the young growing horse. Spring-summer pasture contributes 60-100% (depending on breeding status) of the daily dry matter intake of thoroughbred breeding stock. Despite this fact the mineral content of UK pasture used specifically for thoroughbred breeding stock is unknown.

Aim:

To test the hypothesis that there are differences between the concentration of minerals in spring (March-June) and summer (July-September) grazing.

Methods:

A standardised method was used to collect monthly pasture samples (n=200 (spring), n=60 (summer)). All samples were delivered directly to the laboratory within three hours, where they were frozen at -18°C prior to analysis.

Minerals were determined by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Statistical analysis was performed using Minitab¹³.

The distribution of the data was tested using the Anderson Darley Test of normality. The differences between the mineral content of spring and summer pastures were tested using either T-tests or the non-parametric equivalent Mann-Whitney.



Results:

The seasonal variation in the mineral content of pasture was significantly different ($p < 0.05$). These data are presented below (Table 1).

Table 1 The calcium (Ca), phosphorus (P), magnesium (Mg), potassium (K), copper (Cu) and zinc (Zn) contents of spring and summer thoroughbred grazed pastures in the UK

Season	Mineral					
	Cu mg/kg	P g/kg	Ca g/kg	Mg g/kg	Zn mg/kg	K g/kg
SP mean±sd	7.57±2.35 ^a	3.60±0.70 ^a	6.20±1.30 ^a	1.38±0.30 ^a	28.27 ±8.25	26.60±6.90 ^a
SU mean±sd	6.37±2.53 ^b	3.10±0.80 ^b	7.30±2.00 ^b	1.62±0.40 ^b	27.76 ±8.10	20.40±5.60 ^b

Note: different superscripts = significant differences between rows ($p < 0.05$)

Clinical significance:

With the exception of potassium and magnesium neither spring nor summer grazing will provide adequate mineral nutrition for rapidly growing thoroughbreds, particularly at weaning. Summer pasture provided significantly less copper, zinc and phosphorus compared to spring pasture. This is of clinical importance especially for the development of late born foals, which are weaned in the summer. These deficiencies must be corrected by supplementary feeding. Furthermore, the discrepancies between these data and typical reference values established using dairy pasture should be investigated.

