METABOLISM OF COPPER IN AN EQUINE TIMOTHY HAY RATION

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Studies of rations provided for yearling horses reared on farms in Kentucky and Ohio (Knight et al 1985) have provided researchers with analyses of contemporary horse rations. Although the Ohio State workers determined mineral intakes by yearlings the metabolism of copper requires further study.

Gallagher, Hintz and Schryver (1984) reported the digestibility of calcium and phosphorus in Timothy hay, a widely used roughage in U.S. equine rations. This report provides additional information on the digestibility of copper. Results from this study are presented in Table 1.

TABLE 1. The daily dry matter, copper intake and apparent digestibility of Timothy hay fed to ponies

		Mean	SEM
Intake DM	(kg/d)	3.2	0.12
Intake Cu	(mg/d)	20.2	0.82
Cu apparent digestibility	%	49.9	3.62

The animals maintained body weight. The apparent digestibility of copper was 49.9% which is similar to the value of 48.9% reported by Cymbaluk et al (1981). The Timothy hay contained 6.3 mg of copper/kg dry matter which compares with 6.9 mg/kg reported by Cymbaluk et al (1981). The 6.3mg copper/kg was adequate for maintenance of these mature ponies. However Timothy hay would not provide adequate amounts of copper for growing horses

It was observed by Knight et al (1985) that horses fed a ration of Timothy/lucerne hay and concentrates (35.8mg copper/kg) had fewer skeletal problems in contrast with a higher incidence of skeletal problems in yearlings when the diet provided consisted of oats and lucerne hay (7.8mg Copper/kg). In Australia, determination of the levels of copper in the rations of performance horses is warranted since Caple (1989) indicated that copper deficiency is implicated in osteochondrosis, a common disease in young race horses fed rations designed to boost growth rate and racing potential.

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