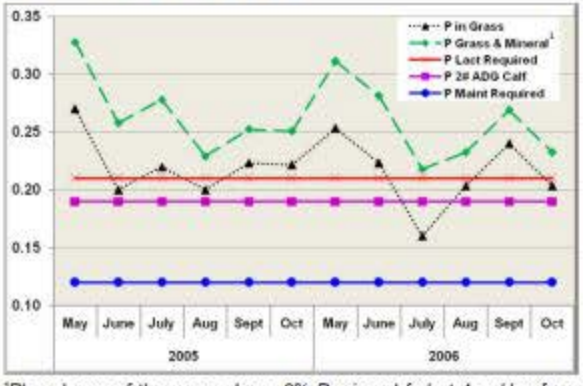
Chart 1. Phosphorus (P) levels of grass compared to lactating / gestating cows and calf requirements



[1]Phosphorus of the grass plus a 6% P mineral fed at 4 oz/day from May to July and a 3% P mineral fed at 4 oz/day from August to October.

Dr. Jim Russell and Mathew Haan; Iowa State University

Researchers at Iowa State University reported P content of grass from May through October met requirements of lactating cows in many cases, and minimal supplemental P is needed. Calves gaining 2.0 pounds per day did not need any supplemental P (Chart 1). They also noted that cows selected forages 25% higher in P than manually clipped grass samples (Table 1).

Table 1. Comparison of Phosphorus concentrations of available and selected forage in rotationally stocked cool-season grass pastures.

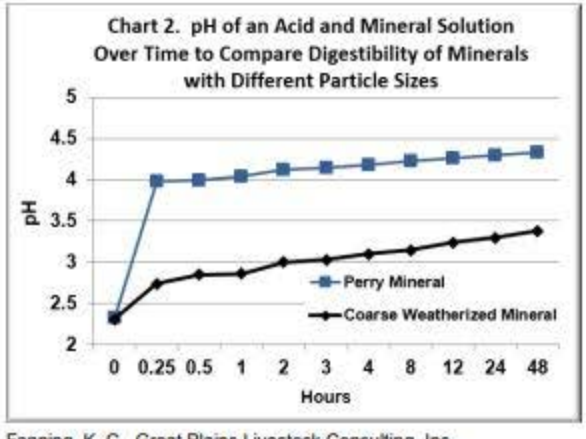
	Phosphorus, %	
	Available Forage[1]	*Selected Forage*
May	0.47	0.62
July	0.39	0.49
September	0.38	0.65

[1]Available Forage = hand clipped to approximately 2 cm above ground level, Selected Forage = collected from a ruminally cannulated steer following a two hour grazing period.

Mineral Digestibility

Mineral is expensive, so higher digestibility means you get return for your money. The swine and poultry industry fine grinds corn to improve its digestibility. The beef industry doesn't use fine ground corn because it is digested too rapidly and causes digestive upsets. **It only makes sense to feed a mineral that is a finer particle and not coarse rocks.** Chart 2 shows a coarse mineral of a major competitor compared with our finer ground mineral with added oil. The finer ground mineral raised the pH of the acid much faster and higher than the coarse mineral resulting in improved digestibility.

Chart 2.



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Mineral Options

- CTC for control of susceptible diseases
- High magnesium for grass tetany
- Ionophore for improved feed efficiency and coccidiosis control
- Fly control
- Vasodilator for heat stress

Trace Minerals

Zinc
Required: growth, conception, spermatogenesis, tissue synthesis, wound healing, Vitamin A metabolism, immunity, and hemoglobin & enzyme production
Deficiency: poor feed efficiency and intake

Iron
Required: growth, immunity & hemoglobin oxygen transport
High mortality in severe deficiency

Manganese
Required: growth, rumen cellulytic bacteria, reproduction (conception, estrus, ovulation), protein synthesis, enzyme systems, immunity, & hormonal systems
Subject to interference by inorganic minerals

Copper
Required: growth, ovulation, spermatogenesis, pigmentation of hair / skin, immunity, & enzyme / collagen synthesis
Subject to interference by inorganic minerals

Iodine
Required: metabolic regulation
Component of thyroid hormones (Goiter in deficiency)

Cobalt
Required: growth, & Vitamin B12 synthesis by rumen bugs
Deficiency: feed intake depression & Wasting Disease

Selenium
Required: growth, and immunity
Deficiency: retained placentas, White Muscle Disease & Mulberry Heart

Minerals can bind with other minerals or compete for absorption causing deficiencies. For example, Zn and Cu compete for the same absorption site therefore they should be kept in a proper ratio, Zn and Cu should be increased or a protected form should be used when Mo, Fe, or S levels are high.

Mineral Interactions