



# Blood Builders for Horses – Worth the Money?

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Performance horse owners are always looking for that extra edge over the competition. As someone trained in equine nutrition, I can appreciate how a feeding program may be that difference in two horses with similar training, conditioning, and ability. This is especially true in events where the horse is racing against the clock or trying to outrun the competition. It is also true for horses that perform intensive work efforts in front of a judge, where running out of steam results in a poor score or placing.

From time to time I am asked about energy or “blood builder” supplements for horses. Several products are available on the market, and usually I sense the person asking the question either hopes I’ll validate their choice of product or they are looking for something new to try. Let’s take a look at four common components of these supplements and what the research says about their relationship to horse performance.

**Iron** About 80% of the iron in the horse’s body is associated with some form of oxygen transport or storage in the blood or muscle. According to the most recent edition of the National Research Council’s Nutrient Requirements for Horses (NRC), the typical 1,100 lb. horse requires 400-500 mg of iron per day depending on their workload and associated increases in dry matter (DM) intake. Forages commonly contain 100-250 mg/kg DM with grains usually containing less than 100 mg/kg DM. So even by conservative estimates, a 1,100 lb. horse consuming 11 lbs. of hay on a DM basis (the minimum recommended amount), the horse could be expected to consume 500-2500 mg of iron from just this one source.

It’s not surprising then to learn that iron deficiency in horses is rare. Studies on oxygen carrying capacity of blood through iron supplementation showed no improvement. The NRC states common feedstuffs should meet iron requirements, suggesting

that iron supplementation is unnecessary.

**Copper Copper** is essential for a number of different enzymes including those associated with iron mobilization and maintaining integrity of mitochondria, the powerhouse of the cell. Though there have been a number of studies on general copper requirements and copper absorption, little research has been done to examine whether copper supplementation improves performance. The NRC does list a copper requirement ranging from 100 to 125 mg per day for the 1,100 lb. horse depending on workload, but this is tied to changes in dry matter intake associated with increased workload rather than indicators of performance.

As with many trace minerals, copper content of feedstuffs is extremely variable. Most commercial concentrates are formulated to contain a sufficient amount of copper to meet the animal's needs, provided that the manufacturer's feeding instructions are followed. As an example, a commercial feed containing 50 ppm copper fed at 5 lbs. per day will provide 113 mg copper.

**Zinc** Another trace mineral with a role in the function of dozens of enzymes, zinc is another mineral included in energy supplements. Little research has been done examining zinc requirements in exercising horses, but it is commonly assumed that the recommendation of 40 mg/kg DM intake is more than sufficient. This translates to a recommended intake of 400-500 mg per day for the 1,100 lb. horse at work. A commercial feed containing 150 ppm zinc fed at 5 lbs. per day will provide 340 mg. Remember, this is in addition to whatever zinc is contained

in the grains and forages consumed by the horse.

**B-Vitamins** For most B-complex vitamins, the microbial population in the hind gut of healthy horses can produce a sufficient amount of vitamins to meet the horse's needs. Folate deficiency has not been described in horses, and requirements have not been determined. Similarly, a specific requirement for vitamin B12 has not been identified. Some have suggested B12 supplementation can help stimulate appetite in horses on high-grain diets, but evidence is lacking.

The NRC does list specific requirements for thiamin and riboflavin. Requirements increase with workload, though again it is tied to increases in dry matter intake rather than a specific improvement in performance. Thiamin is found in relatively high concentrations in cereal grains, and deficiency in horses fed typical feedstuffs has not been reported. Riboflavin deficiency has not been reported in horses and, in addition to what is produced in the hind gut, horses appear to have more than sufficient intake of riboflavin from forages.

**Bottom Line** Performance horses consuming a diet of good quality forage and an appropriate commercial concentrate fed according to manufacturer's directions rarely need supplementation with so-called "blood builder" products. For those who prefer to feed straight oats or mix their own concentrates, commercially formulated balancers and trace mineral mixes are a good option to ensure all mineral and vitamin needs are met.

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