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WHEN THE RESULT COUNTS

FEED FOR THOUGHT

PROTEIN: PART 2

WHAT ARE THE SIGNS, SYMPTOMS, AND TREATMENTS OF A SURPLUS OF PROTEIN IN THE DIET?

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As with many other things in the field of nutrition, there is such thing as too much protein in a horse's diet. In ration calculations and feed analysis, we refer to protein as crude protein (CP), which is essentially any and all protein in the diet without regard for the make-up or digestibility of the protein. The crude protein requirement of an average-sized horse in medium work is around 700g, which is more than met by 15 pounds, or 3 large flakes, of high quality grass hay with a crude protein level of 8.5% coupled with 4.5 pounds of performance horse grain, such as Cavalor® Perfomix (11% CP) (NRC, 2007). If a horse was fed instead a diet of 15 pounds of alfalfa (17.8% CP) and 1 pound of a high protein ration balancer (30% CP), that horse would be ingesting nearly double their daily crude protein requirement.

When a horse is fed more protein than he or she requires, then the excess protein must be processed by the liver. The liver outputs a water-soluble, protein by-product called urea that may be excreted by the kidneys in the urine. As protein ingestion increases, so does the amount of urea that must be excreted. Since urea must be dissolved in water to be excreted, the water requirement of the horse also goes up (Meyer, 1987). If the horse is not able or willing to consume a sufficient amount of water to account for the increased water loss with urea excretion, then this can lead to dehydration. Prolonged dehydration can then cause stress on the kidneys and make them less able to cope with a high protein diet. This can cause small amounts of damage to the liver and kidneys over time, which would affect the overall health and performance of the animal (Graham-Thiers et al., 1999). An early sign of compromised liver or kidney function is stocking up in the legs when no injury in present.

Another side effect of a high protein diet is, perhaps surprisingly so, a respiratory one. When a horse consumes a large amount of protein and then subsequently excretes a large amount of urea, that urea can easily be converted to ammonia. Ammonia is a toxic gas commonly used in household cleaners and a known respiratory irritant. Relatively low amounts of ammonia particulates in stalls have been associated with decreased performance and upper respiratory illness in horses (Pratt et al., 2000). The stalls of horses being fed high-protein diets are often easily identified since the smell of ammonia is obvious, even in cases when the stall is cleaned twice daily.

Fortunately, it is relatively easy to ensure that your horse isn't ingesting too much protein. Most rations should be based on a low- or moderate-protein hay such as grain hays or grass hays. Alfalfa is a fantastic source of vitamin A, amino acids, and minerals, but it should never be the main forage source in your horse's diet. Feeding just 1 or 2 flakes a day allows one to maximize the benefits of alfalfa while avoiding an excessive amount of protein in the diet. If you are still concerned about having too much protein in your horse's diet, consider using a low protein grain such as Cavalor® Pianissimo. If your horse is currently or once was on a high-protein diet and you are concerned about their liver and kidney health, Cavalor® Hepato-Liq is a great 25-day treatment. This product helps protect and support an overtaxed liver and kidneys and is best given after the competition season or during coat changes.

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