



## **BALANCING A FORAGE ONLY DIET**

As equine enthusiasts, we know that providing plenty of good quality forage to your horse is essential for optimal health, both physiologically and psychologically. However, if your horse is an easy-keeper, and does not require the addition of a feed to maintain weight, is he getting all the nutrition he needs from is hay or pasture alone? What if you provide a trace mineral block in his stall or pasture?

The answer to these questions is “no”! Unfortunately, no matter what the quality of hay or pasture, there are still key nutrients that they cannot provide your horse and failing to supplement them can lead to deficiencies over time. These include vitamins, minerals and quality proteins (amino acids). Horses have a range of nutrient requirements to meet their daily needs, and if your horse is not provided these nutrients in sufficient quantities, they may experience deficiency symptoms. The severity of the symptoms depends on the degree of the deficiency and the time period over which they existed.

For the adult horse not in work, certain deficiencies can present as poor coat and hoof quality, or poor muscle tone. Others may have decreased appetite, compromised immune system, and poor performance and reproductive issues. For young and growing horses, or mares in foal or lactating, these deficiencies can inhibit healthy growth and development of the foal. It can also predispose the foal to certain diseases and or cause the mare to start depleting her own nutrient stores to meet the needs of her foal.

As a horse owner, you may realize that something is missing in the diet but may not fully understand what is missing and how to feed it. There are many options when it comes to feeding your horse. The instructions are often misinterpreted, but we can help!

## **THE MOST COMMONLY NEGLECTED NUTRIENTS ARE VITAMINS AND MINERALS!**

Minerals can be subdivided into two groups: the macro-minerals, required in the diet and measured by grams per day, and the micro- minerals(trace), which are measured in mg per day. Macro -minerals include, calcium, phosphorus, sodium, potassium, magnesium, sulfur and chlorine. Trace minerals include iron, copper, zinc, manganese, selenium and cobalt. Defining the individual roles of each of these minerals is beyond the scope of this article, but the importance of each mineral in the right quantity and ratio to relating minerals is highly significant. The importance of the calcium/phosphorus ratio is well known. Specifically, the amount of a mineral in the diet can influence the absorption of another. This balance between minerals must be taken into account if you want to ensure that your horse’s diet is meeting it’s needs.

When discussing balancing minerals, we also must discuss the hay analysis. How can you determine if your horse is getting everything it needs if you don't know what your hay is providing in terms of nutrients? The nutritional content of the minerals in hay varies from one hay to another, and the nutrient that varies the most is calcium. When feeding mares and foals, it is therefore particularly important to have their hay analyzed, if only to know the percentage of calcium and phosphorus in order to make the necessary adjustments in the ration to promote the healthy bone development of the foal.

One important trace mineral to take into consideration is selenium. In many parts of Canada, our soils contain little to no selenium and as a result, our pastures, hays and grains do not provide our horses with enough, if any, dietary selenium. Why is this important? Selenium is a key trace mineral that functions mainly as an antioxidant, working in conjunction with Vitamin E. This reduces the risk of certain muscle problems such as white muscle disease and exertional rhabdomyolysis syndrome. Please refer to our Selenium Article on our website for more detailed information or speak to your Purina Equine Nutritionist to ensure appropriate quantities are calculated.

Mineral imbalances can create deficiency symptoms as well. Too much phosphorus in a diet can create a calcium deficiency. Excess zinc can present as copper deficiency. Therefore, it is important to understand that when balancing a diet, adding one mineral without understanding its interactions with other minerals is dangerous.

Finally, with regard to vitamins, it should be remembered that in theory, horses mainly require the fat-soluble vitamins A, D and E. Vitamin E functions within the immune system of the horse. One result of this function may be increased resistance to disease or stress. Vitamin E is highest in fresh forage, so if horses have limited access to green pastures, it will deplete their Vitamin E stored in adipose tissues, liver and skeletal muscles. In growing horses Vitamin E plays a key role in nerve and muscle development and function. Mares also have an increased requirement for Vitamin E due to rapid tissue synthesis by the foal in the last 2-3 months of gestation. Vitamin A is another fat-soluble vitamin that the horse is able to store in its body. Fresh green forages will contain carotene, which can be converted to Vitamin A by the horse. However, once grass is cut for hay, the levels will start to deplete. Since we are required in Canada to feed hay for many months of the year, supplemental A is important to prevent deficiency. It is also important to note that toxicity is possible with Vitamin A. Be aware of what you are feeding if you are adding vitamin supplements to already fortified products. In theory, good quality pasture can provide sufficient K and B complex. That being said, in Canada, our horses do not have access to quality pasture year-round, so supplementation could be beneficial to achieve optimum health.

Balancing the vitamins and minerals of the horse's whole food ration requires deep technical knowledge of nutrition and careful calculations that take a lot of time. A more realistic alternative to owners wishing to balance their horse's ration, is to choose a manufactured feed and or supplement specifically formulated to meet the vitamin and mineral requirements of a horse on a forage only diet.

What about that trace mineral block in the field? While they are convenient, trace mineral blocks are mostly salt (sodium chloride), and the levels of trace mineral in them are very diluted and will not meet the nutrient needs of your horse. Additionally, salt blocks will not meet your horse's sodium needs! Salt blocks are designed for cattle, who have a much rougher tongue than a horse. A horse's softer tongue

cannot lick a salt block enough to meet their daily requirements. Loose salt should be provided free choice or better yet, add it to a daily ration.

So, what options do horse owners have to meet the vitamin and mineral requirements of the easy keeping horse on a forage only diet?

RATION BALANCERS- EQUILIZER and OPTIMAL offer a low calorie, low sugar and starch option in a convenient, easy to measure pellet form that will meet the vitamin, macro and micro mineral and protein needs of horses only receiving hay or pasture.

Equilizer is formulated with the mature horse in mind receiving most of their sufficient protein from their hay or pasture.

Optimal is suited for broodmares, growing horses, performance horses that require additional amino acid supplementation to meet their elevated requirements. In some case where forage quality is very low in protein, it is also suitable for the average mature horse and senior horse.

Both products contain organic copper, manganese and zinc. This increases the absorption of these key trace minerals while both also contain organic selenium, which studies have demonstrated has increase absorption in broodmares and growing horses. Choosing a ration balancer compatible with the type of forage you have available is important. Having your Purina Equine Consultant test your hay is a good place to start and provides a lot of information.

#### SUPPLEMENTS: EZ BALANCE AND EQUI-EEZ

If the forages are very fortified and providing enough protein to the horse's diet, these two options will do a great job in balancing all the vitamins, micro and macro minerals your horse needs.

EZ BALANCE is a pelleted, low sugar and starch choice that is suitable for horses requiring a low NSC diet.

EQUI-EEZ is in a meal form that is economical and is flexible for people mixing on farm grains as well. Both products do not contribute any significant calorie or protein to the diet, and both contain organic selenium. Small feeding rates make them an excellent cost efficient alternative. Your Purina Equine Nutritional Consultant or Purina Connect can help you decide what product suits your horse's needs best.

In summary, no matter the quality of the hay provided, key nutrients are missing and must be supplemented to achieve optimum health and prevent deficiencies over time. It is important to pick a product formulated to meet the specific needs of your horse's life stage and activity level. Follow all feeding directions in order to ensure that your horse is getting all the nutrients he needs in sufficient quantities.

Updated: June 2020 RETECH TEAM- M. Mortson-Horne, K. Weir, K. Pard, O .Fauvelet, C. Cook