

Sugarcane Molasses & Equine Feed

A highly regarded human nutritionist of the 1930's said, to the effect, "Energy out should equal energy in." The same is essentially true for equine.

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The use of molasses in livestock feeds dates back into the 19th Century. Since then, sugarcane molasses products have been popular ingredients in equine sweet feeds. In 1945, Frank Morrison reported in the 20th edition of Feeds & Feeding that in sugar producing regions of Louisiana as much as nine pounds (approximately $\frac{3}{4}$ of a gallon) of molasses per head per day was fed to mules. That's a lot of molasses! Contemporary equine diets typically only contain 2% - 3% molasses in the total ration; some specialized diets can contain 10%, depending on the feed formulation. What is appropriate and realistic based on current knowledge? Perhaps first, a brief overview of what molasses is and how it is produced may be helpful. Essentially, molasses is syrup produced by "boiling down" juices from the processing of various products. There are types of molasses produced from sugar beets, sugarcane, citrus, sorghum, pulp wood and starch, such as corn or other grains. Sugarcane molasses is the type used most to produce equine feed products. Sugarcane, which is a grass, is grown primarily to produce sugar for human consumption. Thus, sugarcane molasses is a valuable by-product of sugar production especially in South Florida. Still the question begs "Why feed sugarcane molasses?"

Attributes of sugarcane molasses Sugarcane Molasses Sugarcane Molasses

Experience by the equine feed industry over many years has indicated that sugarcane molasses is extremely effective in reducing the inherent dustiness of grain-based feeds, which in turn can reduce respiratory disorders. Molasses also prevents separation of feed ingredients in equine diets and enhances the palatability of feed ingredients. This prevents "sorting" of feed ingredients by finicky-eater type horses. Sugarcane molasses is also effective in pelleted feeds as a natural "binding agent" and adds a pleasant aroma and increases palatability.

Nutritional attributes of sugarcane molasses

Sugarcane molasses contains nutritionally significant levels of calories, the essential minerals potassium, calcium, magnesium, sulfur, chloride, and iron, and the B vitamin biotin. The low levels of protein and very low levels of phosphorus, fiber, fat soluble vitamins, and most trace minerals

give it an "environmentally friendly" feed ingredient characteristic. The digestible energy concentration of blackstrap (straight from the sugar mill) sugarcane molasses is about 1.25 Mcal per lb. compared to Number 1 Oats at 1.36 Mcal per lb. The major contributors of digestible energy in most feedstuffs are digestible carbohydrates (including sugars). The major contributors of digestible energy in molasses are the sugars (glucose, fructose and sucrose) that occur naturally in all plants that are typically fed to equines.

Sugars, fructans, starches and other readily available carbohydrates, regardless of dietary source have at times been associated with "colic," "hyperactivity" and "insulin resistance" in horses. However, many feeds containing molasses have lower levels of starches and sugars than straight oats. And if high levels of performance (physical exertion) are required, the diet must be high in energy to prevent loss of body condition.

Seminole Victory! Sweet Feed by Jill Haight
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Managing the high dietary energy requirement

Horses are herbivores and forage is their natural primary feed. However, it is important to recall that "in nature," the horse's only strenuous exercise or performance requirement was the ability to escape danger. Through domestication and eventual genetic selection, the modern horse has various performance requirements including physical activity, profitable reproduction (ie, a foal every year) and growth. These production requirements generally cannot be effectively met by forage alone. Therefore, the feeding of more energy dense feedstuffs has evolved, is accepted and widely practiced. This is the basis of the modern equine feed industry. There are volumes of scientific studies and generations of practical applications to substantiate that the practice of feeding some amount of high energy feedstuffs works. In one of the most recent scientific studies, Kronfeld et al, (2005) based upon well controlled research trials concluded that readily available energy from high energy feedstuffs (such as grain and molasses) can be safely utilized when fed not more than about 0.2% to 0.4% of body weight at one meal. This equates to about 2 lbs to 4 lbs of a high energy "sweet feed" per meal for a 1000-pound horse. Many experienced and successful horsemen practice this by feeding at least two or three times a day.

To put different feedstuffs into perspective, consider the contribution various feedstuffs make to "readily available" carbohydrate (sugar + starch) in a "typical" equine ration. With typical hay in the diet, the hay contributes about four times more sugar and five times more readily available carbohydrate than molasses; and the oats contribute over three

times more readily available carbohydrate than the molasses. Of interest to people managing horses in a grazing system, fresh forage is higher in sugar content than hay. Sugar, per se, is rarely a problem in typical equine diets. On average, a fortified molasses based mill-mix product would be approximately 40% sugar; this would equate to a range of 2% to 5% sugar in the finished horse feed.

In conclusion, molasses contributes less sugar and starch in a typical equine feed than oats and other grains and it is a good source of calories. For most horses, the benefits of molasses as part of a total equine diet, far out weigh the risks of feeding straight oats or grains alone.