

LMF COMPLETE FEEDS

Taco and California Complete

LMF Feeds manufactures two complete feeds – TACO and California Complete. TACO is available in Washington, Oregon, Idaho, Montana, Wyoming and Utah. California Complete is available in Southern Oregon, Nevada and California. Both of these products combine high quality forage with a small amount of grain and are fortified with balanced levels of vitamins and minerals. Since both products are pelleted, there is very little waste and horses love the taste. TACO and California Complete can be used as a value-added forage source to replace high-priced hay.



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A BALANCED DIET - AT ALL COST

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For those people who own horses, properly feeding them is an important responsibility. A nutritionally balanced diet will allow horses to perform, reproduce, grow and maintain their health. However, with the current grain market and good quality hay in short supply, it can make feeding horses an expensive and perplexing proposition. In the last year, the price of corn, barley and wheat has increased an average of 55%. The cost of oats has increased nearly 20% compared to last year. With the price of grains increasing, the cost of commercial grain concentrates has followed suit. The hay market has shown a similar trend. Rainy weather during hay harvest has damaged hay in many parts of the country making quality horse hay difficult to find. Further, the price of fuel has increased both the production and delivery costs for hay. These factors add up to increased hay costs. How do horse owners balance their horses' diets under a barrage of economic pressure?

With the exception of fresh, clean water, forage in the form of hay or pasture is the most important dietary ingredient we provide to horses. During the winter season, temperatures typically fall below that necessary for pasture grass to grow. Pastures that are depleted of natural forage become exercise areas and force the horse to replace pasture grass in



their diet with stored forage in the form of hay. A horse requires a minimum of 1.5% of the body weight in dry forage per day. This means a 1000 lb horse would require a minimum of 15 lbs of hay per day. Horses can consume up to 3% of their body weight in hay (30 lbs for a 1000 lb horse) if the hay is of good quality.

Horses require good quality hay because their digestive tract is "one-way" in direction. Horses normally are not capable of vomiting, and they become sick if fed moldy or dusty hay. Hay quality can be determined in many ways. Stage of maturity, leafiness, color, foreign material, odor and condition are physical parameters that can be judged to determine quality. Physical quality can be determined by observation and comparison of hay samples. *Table 1* indicates what to look for in judging these physical parameters.

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31 year old, Rougal, still looks good and feels great!



31-year-old Rougal, a registered quarter horse still enjoys going for little rides. Rougal's owner, Marsha Gallagher of Boise, ID said, "Rougal was raised on a cattle ranch in Idaho and was the favorite of the cowboys when it came to doing a dangerous or complicated job. Rougal brought in cattle and worked at many brandings along with his everyday ranch work." Marsha has ridden him many, many miles on the ranch, trails, and through the Eagle Caps in Oregon. Rougal and Marsha competed in Team Penning and Rougal was in the Hypotherapy Program at the Elks Rehab Hospital in Boise, Idaho. Rougal's greatest achievement has been winning the trust of his owner to a point that she knew that anyone could ride him and be safe. Marsha says, "I am totally convinced that it is the LMF Feed that is giving him such a great quality of life now. He looks great and feels great!" Rougal is fed *LMF Senior*.

Rougal (pictured at 30 years, 3 months old) and pal, Jessica.

Table 1. Physical Characteristics of High-Quality Hay
Stage of Maturity - Early cut hay is more palatable and digestible. Look for short plants with few or no seed heads.
Leafiness - High quality hays have a high percentage of leaves (blades) to stems. Look for abundant leaves or blades, small, thin stems.
Color - Bright green color indicates proper curing, high vitamin content and good palatability. Loss of color indicates weather damage. Look for bright green color.
Foreign Material - Hay should not contain weeds or foreign material such as dirt, wire, sticks. Look for grass or Alfalfa bales with no weeds.
Odor/Condition/Mold - Odors such as musty or rotten odors indicate low quality hay that was not properly cured or stored. Look for: Clean, fresh smelling hay free of visible mold or excessive dust.



When high quality hay is in short supply, horse owners often must settle for marginal hay. Marginal hay is hay that was cut late, meaning it is very mature resulting in poor digestibility. Marginal hay may also have lost leaves and its green color indicating weather damage. These hays will have a lower nutrient content and lower calorie content, meaning more hay is necessary to meet the nutrient requirements of the horse. If more hay is not fed, or if horses will not eat enough hay, horses will become thin and have poor coat condition. Hay that is moldy, musty or contaminated with weeds, sticks, wire, paper or other foreign material is considered poor hay and it should never be fed to horses. If marginal hay must be fed, the remainder of the diet must be adjusted to account for the lesser quality hay. There are several methods to account for marginal hay. The first is to replace a portion of the hay with a pelleted and/or cubed hay product or a forage extender product. These products typically contain high quality fiber that horses can readily

digest. Feeding 1/3 of the total hay requirement as a forage pellet, cube or forage extender product will drastically improve the nutrients provided by the forage portion of the diet. If you account for the increased digestibility and less waste when feeding these products, their cost is often justified. A common concern with these products is if they provide horses with enough fiber. Since we are only replacing 1/3 of the hay portion of the diet with these products, fiber and length of fiber are not a concern. It is important to remember that hay pellets and/or cubes and forage extender products are not heavily fortified with vitamins and minerals. Therefore, they help account for marginal forage but they do not replace the grain concentrate or the supplement portion of the diet.

Another method to account for marginal hay is to feed "complete" products. A complete product is one that contains the forage, grain, vitamin and mineral portions of the diet. The word "complete" indicates they can be the only ingredient fed to the horse with the exceptions of water and salt. As you would expect, properly feeding a "complete" would entail a large feed intake. These intakes typically range from 12.5 - 20 lbs of "complete" per 1000 lb horse per day. Complete feeds can be used with marginal hays, but just like hay pellet and/or cubes and forage extenders they require that fortified grain concentrates and supplements still be provided to the horse. If plenty of marginal hay is available, a third method for making up the nutrients not in adequate supply in the forage would be to feed unfortified grains such as oats, corn or barley. Grain can never replace the forage component of the diet, but it can provide nutrients that are not in adequate supply in marginal forage. These grains would help satisfy the calorie requirements of the horses but would not provide adequate protein, vitamins or minerals since these nutrients are not added to the grains. The final option for making up for marginal hay is to feed a fortified grain concentrate. These products are fortified with protein, vitamins and minerals and they will allow the horse to achieve a nutritionally balanced diet. Selection of which fortified grain concentrate to be fed would depend on the nutrient content of your hay. For example, if you normally feed a 12% protein grain concentrate when good quality hay or pasture is available, you may need to feed a grain concentrate with a higher protein, vitamin and mineral content to account for the marginal hay. The higher nutrient profile grains are typically more expensive since they have more nutrition, but these products would need to be fed to achieve nutrient balance.

In conclusion, always make sure the horse first has an adequate amount of forage available. If that forage is in limited supply, feeding a forage pellet and/or cube, forage extender product or complete feed would be appropriate to provide additional fiber. If the forage is of marginal quality but in adequate supply, the nutrient deficits of the marginal hay can be made up by feeding unfortified grains (oats, corn, barley) and adding supplements. An easier method to balance the diet is to select a grain concentrate fortified with protein, vitamins and minerals to properly balance the diet. This will eliminate much of the expense and potential supplementing errors. Finally if you have a question on what to feed your horse, contact your feed manufacturer for advice.

Research Update

A new feeding standard

Dr. Stephen Duren
Performance Horse Nutrition

The National Research Council (NRC) publishes guidelines for feeding many different types of animals including beef cattle, chickens, dairy cattle, swine and horses. The NRC published the latest version of the Nutrient Requirements of Horses - 5th revised edition in 1989. The requirements in that publication indicate the minimum amounts needed to sustain normal health, production and performance of horses. This publication was considered for the past 18 years to be the starting point for the formulation of all types of horse diets. The NRC has now completed a new version of the Nutrient Requirements of Horses that will be published in early 2007. The NRC committee has reviewed the available equine nutrition research studies since 1989 and addressed a number of current issues in this new publication. The committee has promised a "greatly expanded" guide to feeding horses complete with a computer software program to calculate nutrient requirements. Once these requirements are published, the nutrient content of horse feeds formulated by Performance Horse Nutrition will be reviewed and updated.



Question & Answer with Dr. Stephen Duren

What are the benefits and drawbacks of feeding wheat bran mash to horses?

A wheat bran mash can consist of several ingredients. The ingredients most often included are wheat bran and water. Many people provide wheat bran to their horse for its supposed laxative effect. Unfortunately, wheat bran is ineffective as a laxative for horses, even when fed in large quantities. Horses are natural fiber digesters (after all they eat hay) and the amount of fiber in wheat bran will not cause a laxative

effect. The potential drawback of wheat bran is the large amount of phosphorus and small amount of calcium it contains. A diet that contains more phosphorus than calcium will cause problems with calcium metabolism. In a worst-case scenario, horses that take in large amounts of phosphorus with little or no calcium may develop "big head disease". Horses with this disease have enlarged heads due to fibrous connective tissue replacing calcium in the skull. This disease is also called "miller's disease" because horses eating grain by-products of the wheat milling industry often had this syndrome. Small amounts of wheat bran or the occasional wheat bran mash will not disrupt calcium metabolism. From time to time, veterinarians recommend wheat bran be fed to horses following surgery or foaling or to horses that have lost their appetites.

The other ingredient in a bran mash is water. The premise of adding water to the feed is to increase the amount of water a horse is consuming. For this reason, wheat bran mashes are often fed during the winter when horses may not drink adequately. However, the quantity of water in even the soupiest wheat bran mash is trivial compared to the total water requirement of the horse. The other argument for feeding wheat bran mash in the winter is based on the fact that mash is made with hot water. Some believe that a hot bran mash will help keep the horse warm during a cold winter night. The amount of hot water in a wheat bran mash certainly will not change the core body temperature of a horse. However, feeding a hot bran mash will often give the horse owner a warm, fuzzy feeling.

What are some methods to slow the aggressive eater?

Many horses gobble their feed. This condition is often referred to as bolting. Horses that bolt run the risk of choking. The act of chewing adds saliva to the feed, which lubricates it and enables it to be swallowed. If horses do not chew their feed properly and adequate saliva is not added, the dry feed material can become lodged in the esophagus. Occasionally, horses can clear the obstruction from the esophagus, but most will require veterinary intervention to resolve the problem. A practical solution to slow the aggressive eater is to place large rocks in the horse's feeder. This will force the horse to eat around the rocks, thus slowing the rate of intake. The rocks must be large enough to prevent the horse from swallowing them. Another solution may be to offer the horse the hay portion of its diet prior to the grain allotment. This will serve to fill the stomach prior to grain feeding. Continuous grazing is the natural feeding behavior of horses, and most horses provided with that opportunity will be content to eat their feed slowly. Providing a steady supply of grass hay will help satisfy a horse that does not have access to pasture, but the type of hay fed should be chosen carefully. Free access to alfalfa hay will certainly make the horse happy, but depending on its activity level (or lack of activity) it may make the horse fat. Feeding smaller amounts of high-calorie alfalfa hay may leave the horse feeling hungry and encourage bolting.

