

Regional HA/H-B/C-3
Nutrition Block 2
December 19th
Feeding Right

Rules for Feeding:

- Horses require 1.5-3% (most 1.5-2.5%) of their body weight in food every day
- Feed according to work, growth, pregnancy or nursing. Breeding (Pregnant mares in last 3 months gestation and young horses require 2.5-3% of body weight in food)
- Feed according to horse's own metabolism i.e. easy or hard keeper
- Feed Forage first use concentrates only if horse cannot be maintained on forage alone
- Feed **AT LEAST** 1 % of body weight as forage to maintain good gut function (Must have @ least 10% of their food ration in weight as roughage).
- Feed by weight not volume
- Feed Concentrates split into 2 times a day, not all at once
- Feed no more than 0.5% of body weight as concentrates at any one feeding
- Add concentrates slowly to diet over 7-10 days -give bacteria in Caecum time to adjust
- Whole oats are the most digestible of the grains, being mostly digested and absorbed before reaching the hindgut, leading to less digestive disturbances. (The fiber seen in the stool after feeding whole oats is the indigestible hull and is of no significance). Other starches e.g. Corn and Barley are not as digestible and have to be "processed" that is, crushed, steamed or rolled so the hard kernel can be broken down and the nutrients extracted. Not all grains are created equal. Don't substitute a pound of corn for a pound

of oats - but look at their nutritive value and substitute accordingly.

- Decrease concentrates if horse decreases work
- Consider increasing the fat in your horse's diet to increase calories before grain (decrease colic, laminitis, tying up and ulcers). Fat provides approximately 2.5 x's more energy per pound than does grain
- Fats and oils (including rice bran) can be fed up to 10% of the total ration but as vegetable (such as corn) oil they usually do not tolerate more than about 1 cup per day but can have up to 2 cups a day if tolerated. (2 cups = 1 lb) A horse which is not fully digesting his oil ration will have soft greasy stools. (Of the vegetable oils, corn oil appears to be the most palatable to the horse.)
- Introduce fats slowly over 7-10 days. Start with $\frac{1}{4}$ cup and increase every 3 to 4 days. It takes at least 3 weeks for a horse's metabolism to fully adjust to the fat in his diet.
- Average horse even a performance horse does not need more than 8-10% of their ration as protein. Pregnant (last 3 months of gestation) or lactating mares, or growing youngsters may require more protein. Excess protein will be converted to energy (expensive source of energy), excreted in the urine, leading to increased amount of ammonia smelling urine and can put a strain on the kidneys of the older horse and the excess urine produced can lead to dehydration in the exercised horse at high temperatures. The excess Ca in alfalfa can lead to "thumps" synchronous diaphragmatic flutter in the heavily exercised horse and the excess magnesium has been associated with enteroliths (stones in the intestine).
- Calcium : Phosphate ratio \geq 1:1 but not more than 3:1 if possible. Avoid inverted ratio - i.e. more phosphate in diet than Calcium

- Always have plenty of fresh clean water available at all times. A normal horse drinks 6-10 gallons/day. (The value increases in lactating mares even up to 30 gal/day and sweating horses and hard worked horses, also with heat).
- Horses require at least 2 ounces of salt per day. (Can use trace mineralized salt if don't feed a mineral supplement).
- Feed on a regular schedule.
- Horses maintained on forage alone may require a vitamin supplement as vitamins tend to decrease when hay is stored for a prolonged period of time.
- Be aware of pecking order if more than one horse in pen, feed enough and enough "piles" so shy feeder can go somewhere
- Let horses eat in a natural position from troughs with large bottoms, placed at normal head height or lower.
- Pay attention to horse's droppings -watch for decrease in number or diarrhea
- Examine teeth regularly at least once per year. Maintain parasite control in pen/pasture, regular worming
- Assess horse every 3-4 weeks to be sure weight is fine
- If your horse was thin and you are feeding to gain weight, scale back his rations as he approaches his ideal weight. Your goal becomes to maintain rather than gain weight.

Seasonal Tips for Feeding;

- In winter: be sure plenty of water, not frozen and monitor what horse drinks. In cold weather, especially if there is a cold snap, they may not feel thirsty. Inadequate water intake can lead to impaction colic. Be sure salt block available or feed free salt to encourage drinking. Ideally, the temperature of the available water should be between 45 degrees and 65 degrees Fahrenheit.

- Increase feeds by 10-15% in winter especially if horse lives in cold climate and/or if horse lives outdoors. The horse with the thinner coat, who does not gain weight prior to winter, may need even more calories, and the younger horse may need the most calories. *(All warm-blooded animals have a critical temperature. This is the temperature below which the animal must produce additional heat to maintain normal body temperature. Mature horses in good flesh have a critical temperature around 30° F during early winter. After developing a winter coat and gaining 100 pounds, the critical temperature drops to 15° F. It is estimated that young horses, horses in thinner condition and those that have not developed a winter coat, may have a critical temperature around 40° F. When wet, windy conditions are present, the critical temperatures will be higher as well. In order to produce extra body heat, an increase in feed energy is required. Horses will require an estimated 15 - 20% more calories for each 10° F the ambient temperature falls below critical temperature. However, thin horses or horses with short hair may need even greater increases in dietary intake to maintain normal body temperature.)*
- Feed additional hay in winter to provide extra calories and also help maintain body temperature due to the internal heat produced during digestion of fiber.
- In summer: be sure that adequate water is available. For a horse that must be trained or shown during the heat of the day, they should be offered water regularly. A hot horse must not be allowed to drink large quantities of cold water and then stand but a horse cannot cool down properly if it is dehydrated. The rule "six sips and walk" provides a good guideline.
- Horses working very hard and sweating may need additional electrolyte supplementation. However, **DO NOT GIVE ELECTROLYTES TO A DEHYDRATED HORSE.** Rehydrate the horse first. *(There are many commercial electrolyte supplements available, or a home-made mix of 3 parts salt (sodium*

*chloride) and one part lite salt (potassium chloride) is an option. Remember though, for the vast majority of working horses, the sodium and chloride requirements can be met with a couple ounces of plain salt per day and the potassium, calcium and magnesium requirements will be met by a well balanced quality feed and hay. Therefore, additional electrolyte supplementation is needed **only** at those times when a horse will be sweating large amounts for an extended time frame.)*

- Under extreme heat, especially when humidity is high, the body's cooling mechanism whereby the horse can cool himself through sweating may not work well enough to dissipate the heat generated. This can lead to heat stress which is hard on the body and can impair performance. (A simple calculation of **Ambient Temperature (° F) + Relative Humidity (%) - Wind Speed (mph)** will indicate heat stress risk level. For example, ambient temperature of 98°F with a 55% relative humidity and wind at 5 mph; $98 + 55 - 5 = 148$. If the calculation equals 130 or less, then the horse's own cooling mechanisms will work effectively. Between 140 and 170, the horse has partial cooling capacity and may need some assistance cooling down. When the result is greater than 180, the horse has a significantly impaired ability to cool and is at high risk for heat stress or even heat stroke.)
- In hot humid climates can consider changing diet from high fiber feeds to lower fiber feeds and increasing the fat and decreasing the grain. Lower fiber feeds (soft to the touch and fine in texture) and fat produce less heat during digestion. Consider increasing the number of feeds. For example, rather than giving the requirement in 2 feeds, increase to 3 or 4 -that way less internal heat production at any one meal.
- Reevaluate feeding program to maintain adequate calorie (energy intake) for increase work.

- In spring: For some horses, the source of forage changes from hay to fresh grass. Minimize the risk of laminitis or colic as horses are exposed to fresh pastures by increasing the grazing time slowly. A suggested schedule is: thirty minutes of grazing once or twice a day on the first day of grazing; then increase grazing time by 5-10 minutes per day until the horses are grazing 4-6 hours per day total. At this point, they have adapted to the green grass.
- Feeding hay immediately before turn-out may help keep horses from overeating, since they are less likely to overeat on an already full stomach.
- Horses that are kept on pasture year-round usually adjust to the new grass as it grows because the grass grows slowly enough.
- Re-evaluate energy requirements for increase in work that should start with spring and into summer.
- In fall: The temperature begins to drop so increase feed to provide warmth and help horse to gain weight for oncoming winter.
- Be sure horse drinks, especially if cold weather.

Energy Expenditure related to Work*
Reported for 1 hour of work
In Megacalories/1000 pounds of body weight

- Walking 0.2 megacalories/1000 lbs of bdy wt
- Slow Trotting 2.3 megacalories/1000 lbs of body wt
With some cantering
- Fast trotting, 5.7 megacalories/1000 lbs of body wt
Cantering, some jumping
- Cantering, galloping, 10.5 megacalories/1000 lbs of body wt

Jumping

- Strenuous effort 17.7 megacalories/1000 lbs of body wt
(polo, racing)

**Even when your horse is just hanging around in the pasture, he is burning calories. The basic work of life - pumping blood, breathing, metabolizing food, repairing damaged cells burns energy. The number of calories burned in this fashion is called his baseline energy requirements for maintenance. This will be influenced by your horse's age, size, weight, and rate of metabolism. The above chart (from 1978 Research Council Nutrient Requirements of Horses) describes how many megacalories (1 megacalorie = 1000 kilocalories - or 1000 Calories, the big C you are used to looking at on food labels) burns over and above his maintenance requirement based on his work (energy expenditure for work).*