

AGRI-FACTS

Practical Information for Alberta's Agriculture Industry

Revised January 2005

Agdex 460/50-3

Feeding the Stallion

Many consider the stallion to be the star of the breeding farm. Nationwide, millions of dollars are spent promoting and advertising stallions to attract suitable mare owners. In turn, mare owners spend thousands of dollars on stud fees and shell out hundreds of dollars in veterinary care to prepare their mares for natural coverage or costly A.I. (artificial insemination) shipments.

The stallion is expected to be in top health, physically fit and able to perform on demand when a mare arrives at the breeding shed or when semen is artificially collected. Nutrition certainly plays a key role in maintaining the health and condition of the stallion, before, during, and after the breeding season.

Ideal body condition for stallions

Routine evaluation of your stallion's body condition can be an effective tool for determining if you are underfeeding or overfeeding your stallion. An extremely thin stallion (condition score 3 or less) may not have the energy stores needed to make it through an active breeding season without compromising performance. Similarly, the stallion should **not** be allowed to become fat (condition score of 8 or 9).

The *prima donna* treatment of stallions often leads to them being over-fed. Extra weight creates additional stress on big, stout horses, which can aggravate arthritis and increase the risk of developing laminitis or causing a heart attack. Obese stallions are also anecdotally observed to have lowered libido.

Ideally, stallions should be maintained in a moderate body condition (condition score of 5 or 6) year round. A moderate body condition will provide enough fat cover over the ribs, making them hard to see, but still easy to palpate. The withers will appear rounded and the shoulders and neck will blend smoothly into the body.

Some stallions may lose weight during a breeding season while others are able to maintain themselves in good condition. For stallions that tend to lose condition, a higher degree of body fatness (condition score of 6 or 7) should be established *before* the breeding season to ensure stallions do not become too thin during the season.

The stallion's body condition and body weight should be monitored on a weekly basis during breeding season and adjustments made to the diet accordingly. For more information on body condition scoring your stallion, see the Alberta Agriculture factsheet "Body Condition Scoring Your Horse" (Agdex 460/20-1).

Stallions should be maintained in a moderate body condition

Feeding stallions

In general, mounting and breeding a mare or a dummy can be thought of as "work" performed by the stallion. Therefore, the nutritional requirements of stallions are similar to those needed by performance horses.

The nutrient affected most by work is *energy*, or the caloric content of the diet. Thus, providing adequate dietary energy is of the utmost concern with the stallion. Although the actual amount of energy expended by the stallion during the act of mating is quite small, the additional physical activity (pacing) and psychological response (nervousness) to breeding can substantially increase dietary energy needs.

Other nutrient requirements also increase during the breeding season since they are needed in proportion to energy intake. As with performance horses, the increased protein, vitamin and mineral needs can often be met by adjusting the diet to provide extra energy.

Table 1 shows the average nutrient composition of common horse feeds grown in Alberta. **Quality forages should be the basis of feeding programs for all horses.** Feeding high quality hays or providing access to good quality pasture will provide most of the nutrients needed by stallions.

Table 1. Average nutrient composition of feeds grown in Alberta*

| | Digestible Energy Mcal/lb (Mcal/kg) | Protein % | Fibre (ADF) % | Calcium % | Phosphorus % |
|--|---|-----------|---------------|-----------|--------------|
| Alfalfa hay | 1.11 (2.45) | 18.1 | 31.9 | 1.76 | 0.22 |
| Mix alfalfa/grass hay | 1.09 (2.39) | 14.8 | 30.7 | 1.58 | 0.18 |
| Grass hay Timothy, Orchard grass, Brome, Prairie wool, etc. | 0.88 (1.93) | 8.5 | 38.0 | 0.48 | 0.14 |
| Oats | 1.60 (3.53) | 11.5 | 14.0 | 0.09 | 0.35 |
| Barley | 1.69 (3.73) | 12.3 | 7.0 | 0.07 | 0.38 |
| Wheat | 1.77 (3.90) | 15.8 | 3.9 | 0.06 | 0.39 |
| Oil | 4.09 (9.00) | – | – | – | – |

* Values are presented on a 100% dry matter basis.

During the breeding season, the addition of more energy-dense feeds, like grains, to the ration is usually necessary to ensure the stallion's higher energy requirements are met. Vegetable oil can also be used to provide extra energy in the diet and can reduce the reliance on large amounts of grain.

Additional mineral and vitamin needs can be met by providing a suitable vitamin/mineral supplement (such as a livestock mineral with a 1:1 ratio of calcium and phosphorus containing 18 per cent calcium and 18 per cent phosphorus). In addition, trace-mineralized salt should be provided "free choice" at all times.

Can nutrition enhance a stallion's fertility?

If the stallion is already receiving a properly balanced diet, adding extra feed or supplements to the diet will **not** enhance fertility. As many owners know, even the most fit, healthy, and properly fed stallions can have fertility problems.

Vitamin C and E supplements are occasionally used by some breeding farms to enhance the stallion's reproductive performance or fertility. However, numerous studies have shown that giving large doses of vitamins C or E is of **no** benefit for this purpose. If additional vitamins are desired, provide a balanced supplement that contains additional quantities of all vitamins, without excessive amounts of any, to maintaining optimum health and reproductive ability.

Extra nutrition may not make a stallion more fertile, but poor nutrition and improper body condition can result in heart attacks, poor libido, and lower conception rates. Stallions should be fed a balanced diet and should not be allowed to become too thin or too fat.

Pre-breeding season

Unless the stallion is being ridden or shown regularly, his nutrient requirements in the off-season are similar to those of the idle horse at maintenance (Table 2). Stallions that are exercised regularly will have higher nutrient requirements and should be fed according to their level of work (Table 2, see "light" and "moderate work").

Table 2. Minimum nutrient concentrations needed in diets of stallions*

| | Digestible Energy Mcal/lb (Mcal/kg) | Crude Protein % | Calcium % | Phosphorus % | Vitamin A IU/lb (IU/kg) |
|---------------------------------|---|-----------------|-----------|--------------|-------------------------------|
| Idle horse at maintenance | 0.90 (2.00) | 8.0 | 0.30 | 0.20 | 830 (1,830) |
| Off-season | 0.90 (2.00) | 8.0 | 0.30 | 0.20 | 830 (1,830) |
| Breeding season (light work) | 1.10 (2.40) | 10.0 | 0.35 | 0.25 | 1,200 (2,640) |
| Breeding season (moderate work) | 1.20 (2.65) | 10.5 | 0.35 | 0.25 | 1,200 (2,640) |

* Values are presented on a 100% dry matter basis; table values are the concentrations needed in the **total** diet.

The stallion should be in good body condition going into the breeding season. If the stallion is already in good condition in the off-season, he should be fed to maintain that condition. Feeding a high quality grass hay or alfalfa/grass mix hay may be sufficient to meet the off-season energy and protein requirements of a stallion already in good condition (Table 3).

| Feed | Ration 1 | Ration 2 | Ration 3 |
|----------------------------|----------------------------|-------------------------------|-------------------------------|
| Alfalfa/grass hay | 20 - 22 lbs (9 - 10 kg) | 16 - 18 lbs (7.2 - 8.2 kg) | – |
| Grass hay | – | – | 22 - 25 lbs (10 - 11.2 kg) |
| Oats | – | 3 lbs (1.4 kg) | – |
| 18:18 mineral ^a | 1 oz (28 g) | 1 oz (28 g) | 1 oz (28 g) |
| TM salt ^b | free choice | free choice | free choice |

^a 1:1 livestock mineral (18% calcium, 18% phosphorus)

^b Trace-mineralized salt (with iodine)

On average, stallions will require from 1.5 to 2 per cent of their body weight in high quality hay (1.5 to 2 pounds of hay per 100 pounds of body weight or 1.5 to 2 kg/100 kg body weight). You also have the option of feeding a small amount of grain and reducing the amount of hay fed (Table 3). Grain may also be necessary if the quality of hay is poor. A suitable vitamin/mineral supplement (e.g. 1:1 livestock mineral) will help meet micronutrient needs, and a trace-mineralized salt should be available “free choice.”

If you anticipate the stallion may lose weight, he should enter the breeding season in a slightly higher body condition so that he does not become too thin during the season. Take advantage of the months leading up to the breeding season to improve the stallion’s body condition. Adding an additional 3 to 4 pounds (1.4 to 1.8 kg) of grain to one of the diets in Table 3 can improve the stallion’s body condition by one level in three months.

Breeding season

The amount of use a stallion receives during the season, as well as his psychological response to breeding, contribute to the amount of energy he expends during the breeding season. Some stallions will service over 200 mares per season, while others will cover just a few.

The stallion’s behaviour during breeding season is also quite variable – some get nervous, pace, and fret, while others remain calm and quiet. These factors ultimately affect the amount of energy required in the diet.

Because of the variability in behaviour and number of matings, each stallion’s diet should be *individualized*. Unfortunately, we often tend to overfeed our stallions. **The proper amount of feed is that which is necessary to maintain a moderate body condition.** Table 4 contains ration suggestions for stallions during the breeding season.

| Feed | Ration 1 | Ration 2 | Ration 3 |
|------------------------------|-------------------|--------------------|---------------------|
| Alfalfa/grass hay | 20 lbs (9 kg) | – | – |
| Grass hay | – | 18 lbs (8.2 kg) | 18 lbs (8.2 kg) |
| Oats | 4 lbs (1.8 kg) | 6 lbs (2.75 kg) | 4.5 lbs (2.0 kg) |
| Vegetable oil | – | – | 1 cup |
| 18:18 mineral ^{a,b} | 1 oz (28 g) | 1 oz (28 g) | 1 oz (28 g) |
| TM salt ^c | free choice | free choice | free choice |

^a 1:1 livestock mineral (18% calcium, 18% phosphorus).

^b Please note: if you feed a commercial grain mix at the level recommended on the feed bag (typically 5 lbs or 2.2 kg) or more, you will not need an extra vitamin/mineral supplement. However, if you feed less than the recommended level on the feed bag or combine the commercial mix with plain oats, you will need a vitamin/mineral supplement, such as the 18:18 mineral.

^c Trace-mineralized salt (with iodine).

The stallion should be fed high quality hay at a *minimum* level of 1.0 per cent of body weight (1 pound hay per 100 pounds of body weight or 1 kg/100 kg body weight). Note, this amount is the minimum level of forage needed; the more hay, the better. Depending on the time of year, good quality pasture may furnish some or all of the forage the stallion needs. Allowing at least a few hours of grazing each day will not only contribute to meeting his nutritional needs, it will also promote greater mental health.

Stallions expected to cover a significant number of mares will also require energy-dense grains, fed at levels up to a *maximum* of 0.75 pounds grain per 100 pounds of body weight per day (0.75 kg/100 kg body weight). The increase in grain should take place over 7 to 10 days to avoid digestive upsets, especially if the stallion was not receiving grain before the breeding season.

Never feed more than 5 pounds (2.2 kg) of grain at a single feeding. Grain rations should be reduced if the stallion becomes too high-spirited to handle or if its body condition increases above moderate.

Top-dressing the grain mix with one or two cups of vegetable oil is another effective way to provide extra energy. Substituting a portion of the grain ration with oil may help reduce the risk of colic and laminitis associated with high grain diets (1 cup of oil can replace 1.5 pounds of oats or 235 ml oil = 0.7 kg oats).

Post-breeding season

Stallions finishing the breeding season in good condition can be tapered down to a maintenance, off-season diet by increasing the hay portion of the diet and decreasing the grain portion (Table 3). Again, use body condition to gauge if you are meeting the stallion's energy requirements, and adjust the diet accordingly.

If a stallion experienced significant weight loss during the breeding season, he should be fed to regain a body condition score of 5 or 6. Weight gains should be made gradually (0.5 to 1.0 pounds or 0.25 to 0.45 kg per day). Depending on the amount of weight loss, it may take 5 to 10 pounds (2.25 to 4.5 kg) of grain per day and several months to recover the weight lost.

Conclusion

The most important aspect of stallion nutrition management is feeding a balanced diet and realizing that there are huge variations in energy intake required to maintain proper body condition from one stallion to another. A balanced ration of good quality hay and grain fed to maintain optimum body condition is the key to successful stallion nutrition management.

Originally prepared by:

Dr. Lori K. Warren