

AGRICULTURAL GUIDE

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Horse feeding

Feeding Horses



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In balancing rations, the goals of horsemen are to furnish horses a daily supply of nutrients in the correct amounts and to use feedstuffs that are palatable, easily obtained and economical.

Horses are, by nature, consumers of forage. Under natural conditions, they spend several hours a day grazing. Basing rations on adequate amounts of good quality roughage will minimize digestive disturbances such as colic. We can supplement hay or pasture with the correct amount of the right concentrates to meet requirements for energy, protein, minerals and vitamins.

Determining correct nutrient levels

Feeding horses is both an art and a science. There is considerable individual variation in their nutrient requirements, but a table of these requirements forms a useful basis for formulating rations.

All horses require nutrients for maintenance of body weight and to support digestive and metabolic functions. They need additional nutrients for growth, work, reproduction or lactation in some cases.

Tables of nutrient requirements for horses are expressed in two ways:

1. Daily nutrient requirements.
2. Nutrient concentration in the feed. This may be expressed on an as-fed basis or on a dry-matter basis.

Most horses receive their daily ration in two parts: roughage (hay or pasture) and concentrates. The concentrate portion contains grain and may include a protein supplement, minerals and vitamins. It may also include bran, cane molasses and/or dehydrated alfalfa.

Our problem, then, is as follows:

1. To decide how much and what kind of roughage to feed.

2. To decide about the correct concentrate mixture and the amount of it we need to supply the nutrients not present in adequate amounts in the roughage.

Roughage for horses

Adequate amounts of roughage in the ration decrease the risk of colic and laminitis. Roughage also helps maintain the correct calcium-to-phosphorus ratio, because grain is low in calcium, and because roughages—especially legumes—are high in calcium. Rations should always contain more calcium than phosphorus. Calcium:phosphorus ratios between 1.1:1 and 2:1 are within an acceptable range. Even higher calcium levels can be tolerated; but when phosphorus levels are higher than calcium, severe skeletal abnormalities may result. Adequate hay in the ration of horses kept in stalls also is beneficial because they eat it over a longer time span than grain. It aids in preventing vices such as wood chewing, which horses do when bored or when they lack roughage.

A good rule of thumb is to feed at least 1 pound of hay per day for every 100 pounds body weight of the horse. A 1,000-pound horse would be fed about 10 pounds of hay per day. Mature, idle horses in good condition, fed excellent hay in increased quantities (about 2 pounds per 100 pounds of body weight) may do well without grain added to their ration. Growing or working horses, mares during late pregnancy and mares during lactation need grain and other concentrates in addition to the roughage.

Alfalfa, red clover and lespedeza are examples of legume hays you can feed to horses. Brome, orchard-grass and timothy are examples of non-legumes (grasses). Fescue hay infected with endophyte fungus causes reproductive problems in mares if fed during late pregnancy. It is also low in energy and horses don't like it very much. If harvested before it gets too mature, however, it usually works for mature geldings or open mares providing they have adequate supplementation.

Daily nutrient needs, 1,100 lb mature weight (as-fed-basis)*

Class	Total Feed, Lbs	DE Mcal	CP		Ca		P	
			%	Lbs	%	Gms	%	Gms
Mature horses at maintenance	18.00	16.40	8.60	1.54	0.30	26	0.20	16
Mares, last 90 days of gest.	18.00	18.40	11.10	1.85	0.50	38	0.40	34
Lact. mare, 1st 3 months	25.00	28.27	14.00	3.30	0.50	56	0.40	34
Lact. mare 4 mos. to weaning	23.00	24.31	12.25	2.70	0.45	46	0.30	30
Creep feed (supplemental)	—	—	18.00	—	0.90	37	0.60	22
Foal (3 mos.)	12.00	13.66	18.00	1.85	0.90	37	0.60	22
Weanling (6 mos.)	14.00	15.60	16.00	1.95	0.70	38	0.50	28
Yearling (12 mos.)	16.00	16.81	13.30	1.85	0.60	34	0.40	24
Long Yearling (18 mos.)	17.00	17.00	11.10	1.75	0.45	28	0.33	19
2-yr-old (Lt. training)	18.00	16.45	10.00	1.55	0.45	28	0.33	19
Mature working horses:								
Lt. work	20.00	24.00	8.60	1.55	0.30	26	0.20	16
Moderate work	30.00	36.00	8.60	1.55	0.30	26	0.20	16
Intense work	36.00	43.20	8.60	1.55	0.30	26	0.20	16

*Adapted from 1973 and 1978 "NRC Nutrient Requirements for Horses."

Concentrates for horses

Historically, oats have been the first choice of horsemen. Oats are medium in energy, require little or no processing and contain more protein than most grains. They are variable in energy content, however. You should avoid oats with a light weight-per-bushel because of their low energy and high fiber content. The best oats usually come from the north central states such as Minnesota, North and South Dakota and northern Iowa.

Corn is fine for feeding horses but is highly concentrated in energy so you must take care not to overfeed it. Wheat and grain sorghum (milo) are less suitable for feeding horses. Wheat is especially dangerous because it causes colic by impacting in the gastrointestinal tract.

A 50:50 ratio of corn and oats combines the safety of oats with the economy of corn. It is often recommended for horses.

Some horse feeding—management recommendations

1. Feed only quality feeds.
2. Feed balanced rations.
3. Feed half the weight of the ration as quality hay.
4. Feed higher protein and mineral rations to growing horses and lactating mares.
5. Feed legume hay to young, growing horses, lactating mares and out-of-condition horses.
6. Use non-legume hays for adult horses.
7. Regulate hay-to-grain ratio to control condition in adult horses.
8. Feed salt separately, free-choice.
9. Feed calcium and phosphorus free-choice.
10. Keep teeth functional. Horses 5 years and older should be checked annually by a veterinarian to see if their teeth need floating (filing).

Ration No. 1. Foal creep ration - UMC

CP = 18%	Ca = 0.88	P = 0.60%
Ingredients	½ Ton	1 Ton
Oats, crimped or crushed	440.00	880.00
Corn, coarsley cracked	220.00	440.00
Soybean meal, 44 percent	240.00	480.00
Molasses, liquid	70.00	140.00
Dicalcium phosphate	15.00	30.00
Limestone	10.00	20.00
Salt, trace mineral	5.00	10.00
Vitamins A,E,D, to supply 4,000 I.U./pound	1.00*	2.00*
Total, pounds	1,001.00	2,002.00

*A premix containing 4,000,000 I.U. of vitamin A, 1,000,000 I.U. of vitamin D, and 1,000 I.U. of vitamin E is desirable.

Please note

1. Feed this grain ration free choice with good legume hay to foals from two weeks of age to weaning or to early weaned foals from 3 to 8 months of age.
2. **Do not** continue weaned (or older) foals on this feed because it is too high in protein and calcium unless fed with non-legume hay up to a year of age at which time (or sooner) it should be replaced with UMC Ration No. 2 for weanlings.
3. Be sure preparation of the ration does not result in dust or "fines."

Ration No. 2. Weanling horse ration - UMC

CP,% = 16.31	Ca,% = 0.75	P,% = 0.55
Ingredients	½ Ton	1 Ton
Oats, crimped or crushed	440.00	880.00
Corn, coarsely cracked	270.00	540.00
Soybean meal, 44 percent	190.00	380.00
Molasses, liquid	75.00	150.00
Dicalcium phosphate	10.00	20.00
Limestone	5.00	10.00
Salt, trace mineral	5.00	10.00
Vitamins A,E,D, to supply 4,000 I.U./pound	1.00*	2.00*
Total, pounds	1,001.00	2,002.00

*A premix containing 4,000,000 I.U. of vitamin A, 1,000,000 I.U. of vitamin D, and 1,000 I.U. of vitamin E is desirable.

Please note

1. Feed this grain ration to weanlings. Add good legume or at least half legume hay in the amount of 1 to 1½ pounds of grain per 100 pounds of body weight. Feed hay free-choice.
2. **Do not** stuff weanlings with 15-20 pounds of any grain feed.
3. If you "cut" this ration by feeding half oats or half corn with it, the level of calcium will be too low unless excellent alfalfa hay is fed free-choice.
4. Change to UMC Ration No. 3 by 14-16 months of age for better growth and economy.

11. See that stabled horses get exercise. Horses will eat better, digest food better and be less likely to colic.
12. Feed according to the individuality of horse. Some horses are hard keepers and need more feed per-unit of body weight.
13. Feed by weight, not volume. A gallon of different grains may vary 100 percent in nutrient yield.
14. Minimize fines in a prepared ration. If a ration is ground fine, horses will be reluctant to eat it and the chances of colic will increase.
15. Offer plenty of good water, no colder than 45 degrees F. Free-choice water is best. Horses should be watered at least twice daily.
16. Change feeds gradually. When changing from a low-density (low-grain), high-fiber ration to one of increased density, change gradually over a period of a week or more.

17. Start on feed slowly. Horses on pasture should be started on dry feed gradually. Start this on pasture if practical and gradually increase the feed to the desired amount in a week to 10 days.
18. Do not feed grain until tired or hot horses have cooled and rested, preferably one or two hours. Instead, feed hay while they rest in their blankets or are out of drafts.
19. Feed before work. Hungry horses should finish eating at least an hour before hard work.
20. Feed all confined horses at least twice daily. If horses are working hard and consuming a lot of grain, three times is mandatory.
21. When feeding hay, give half the hay allowance at night, while horses have more time to eat and digest it.

Ration No. 3. Yearling, 2-year-old, late pregnancy, and lactating mare ration - UMC

CP,% = 14.3	Ca, = 0.61	P,% = 0.43
Ingredients	½ Ton	1 Ton
Oats, crimped or crushed	440.00	880.00
Corn, coarsely cracked	340.00	680.00
Soybean meal, 44 percent	130.00	260.00
Molasses, liquid	70.00	140.00
Dicalcium phosphate	5.00	10.00
Limestone	10.00	20.00
Salt, trace mineral	5.00	10.00
Vitamins A,E,D, to supply 4,000 I.U./pound	1.00*	2.00*
Total, pounds	1,001.00	2,002.00

*A premix containing 4,000,000 I.U. of vitamin A, 1,000,000 I.U. of vitamin D, and 1,000 I.U. of vitamin E is desirable.

Please note

1. Feed this ration at the beginning of the yearling year with good legume or at least half legume hay or good pasture. Regulate intake to control the desired degree of condition. Four to eight pounds daily should suffice.
2. As growing horses approach 18 months of age, non-legume hay is sufficient with adequate grain to maintain condition.
3. Feed mares in late pregnancy and early lactation 6-10 pounds of grain as needed to regulate condition and sustain good milk production. If no pasture is available, feed good mixed hay free-choice.
4. If mares are obese in late pregnancy they need no grain but may be maintained on quality legume or mixed or non-legume hay.

Ration No. 4. Adult horse, early pregnancy, and late 2-year-old ration - UMC

CP,% = 11.0	Ca,% = 0.43	P,% = 0.36
Ingredients	½ Ton	1 Ton
Oats, crimped or crushed	500.00	1,000.00
Corn, coarsely cracked	390.00	780.00
Soybean meal, 44 percent	30.00	60.00
Molasses, liquid	65.00	130.00
Dicalcium Phosphate	3.00	6.00
Limestone	7.00	14.00
Salt, trace mineral	5.00	10.00
Vitamins A,E,D, to supply 4,000 I.U./pound	1.00*	2.00*
Total, pounds	1,001.00	2,002.00

*A premix containing 4,000,000 I.U. of vitamin A, 1,000,000 I.U. of vitamin D, and 1,000 I.U. of vitamin E is desirable.

Please note

1. This ration is designed for adult and 2-year-old idle and working horses and for mares until the last three months of pregnancy. It may be fed with either legume or non-legume hay, but non-legume hay will result in fewer digestive upsets with hard working horses consuming large amounts of grain.
2. This ration is too low in protein, calcium, and phosphorus for weanlings and lactating mares and is marginal in these nutrients for mares in late pregnancy. (See Rations 2 and 3).