

Rations for Horses

Proper feeding of the horse is important to both horse and owner. Adequate nutrition is essential to the health and well-being of the horse. A properly fed horse is more likely to be content, to look better, and to perform more to the owner's satisfaction and pleasure. Also, feed costs represent about one-half of the annual expenses for a horse.

The following are rations suggested for use by pleasure horse owners. The daily ration should consist of forage (hay or pasture) plus a concentrate (grain) mixture, as needed, depending on the size, condition, and function of the horse (column A). Total daily consumption of these ingredients (air-dry basis) will range between 2 and 3 percent of the body weight (column B).

Forage can be grass, grass-legume mixture, or legume and may average low (10 percent) to high (17 percent) in crude protein content. Six suggested concentrate (grain) mixtures are shown in column C with three to be fed with a low-protein forage (mixtures 1, 2, and 3) and three to be fed with a high-protein forage (mixtures 4, 5, and 6). Each set of three concentrate mixtures are of similar nutrient composition when used as directed. Note footnotes to column C (page 3) for additional information.

In addition to providing adequate feed, owners should make sure that horses are healthy and free from internal parasites, that feeds are high quality and mold-free, and that changes in feed are made gradually. See general feeding rules on page 6.

Table 1. Suggested rations for pleasure horses.

| A. Kind of horse | B. Daily allowance | C. Suggested concentrate (grain) mixtures ^{1,2,3} fed with different quality forages (as-fed basis). With all mixtures and for all classes and ages of horses, provide free access in separate containers to (1) plain loose salt and (2) a mineral mixture containing equal parts of trace mineralized salt ⁷ , dicalcium phosphate, and steamed bone meal. | Feed with low-protein forage ⁴ | | | Feed with high-protein forage ⁴ | | | |
|---|---|--|---|-------|-------|--|-------|-------|-------|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | |
| | | Ingredients | | | | | | | |
| Foals, creep and starting (100 to 450 lb.) | At 1 to 4 months: 1/2 to 3/4 lb. grain per 100 lb. body weight. | Oats, crimped | 55.0 | 38.0 | 35.5 | 78.0 | 55.0 | 46.0 | |
| | | Corn, rolled | — | 15.0 | 15.0 | — | 21.0 | 20.4 | |
| | | Soybean meal, sol. | — | — | 25.7 | — | — | 10.0 | |
| | | Dried milk by-product ⁵ | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| | | Complete supplement ⁶ | 35.0 | 37.0 | — | 10.0 | 12.0 | — | |
| | | At 5 to 6 months: 1 to 1 1/4 lb. grain per 100 lb. body wt., together with a quantity of hay (or pasture equivalent) within same range for each period. | Alfalfa meal | — | — | 5.0 | — | — | 5.0 |
| | Molasses (liquid) | — | — | 5.0 | — | — | 5.0 | | |
| | Limestone | — | — | 0.6 | — | — | — | | |
| | Dicalcium phosphate | — | — | 2.2 | 2.0 | 2.0 | 2.6 | | |
| | Trace mineral salt ⁷ | — | — | .5 | — | — | .5 | | |
| | Vitamin premix ⁸ | — | — | .5 | — | — | .5 | | |
| | | | | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| | | | Calculated nutrient analysis: | | | | | | |
| | | | Protein, % | 21.7 | 21.7 | 21.7 | 15.9 | 15.8 | 16.2 |
| | | Calcium, % | 1.10 | 1.14 | 1.04 | .89 | .93 | .87 | |
| | | Phosphorus, % | .87 | .89 | .87 | .90 | .92 | .88 | |
| | | Dig. energy, Mcal/lb. | 1.33 | 1.36 | 1.36 | 1.34 | 1.38 | 1.35 | |
| | | TDN, % | 66.8 | 68.1 | 68.3 | 67.4 | 69.3 | 68.0 | |

(see footnotes on page 3)

¹ Grains should be rolled or cracked to increase their bulkiness.

² Five to ten percent wheat bran could be substituted for part of the oats or corn.

³ Five percent linseed meal could be substituted for part of the soybean meal.

⁴ Assume low-protein forage averages 10% CP and high-protein forage averages 17%CP (air-dry basis).

⁵ Dried skim milk or any similar milk-based product may be used as a source of high-quality protein for the foal (25-30% crude protein).

⁶ Any complete supplement containing 30 to 35 percent crude protein together with approximately 2.5 percent calcium and 1.5 percent phosphorus is suggested .

An example supplement formula:

| Ingredient | Amount lb. | Calculated analyses: | |
|---------------------------------|------------|-----------------------------|------|
| Soybean meal (46%CP) | 70.0 | Crude protein, % | 34.0 |
| Molasses (liquid) | 6.4 | Calcium, % | 2.6 |
| Alfalfa meal | 10.0 | Phosphorus, % | 1.7 |
| Limestone | 2.4 | Digestible energy, Mcal/lb. | 1.2 |
| Dicalcium phosphate | 6.2 | TDN, % | 60.0 |
| Trace mineral salt ⁷ | 2.5 | | |
| Vitamin premix ⁸ | <u>2.5</u> | | |
| | 100.0 | | |

⁷ Any commercial trace mineralized salt for animal use is satisfactory. The mixture should contain approximately the following:

| | |
|----------------|--------|
| Zinc (Zn) | 0.350% |
| Manganese (Mn) | 0.280% |
| Iron (Fe) | 0.175% |
| Copper (Cu) | 0.035% |
| Iodine (I) | 0.008% |
| Cobalt (Co) | 0.005% |

An example trace mineralized salt mixture:

| | |
|---|-------------|
| Salt (NaCl) | 97.39 lb |
| Zinc sulfate (ZnSO ₄) | 0.77 |
| Manganese sulfate (MnSO ₄) | 0.77 |
| Ferrous sulfate, heptahydrate (FeSO ₄ = 7H ₂ O) | 0.87 |
| Copper sulfate (CuSO ₄) | 0.09 |
| Ethylenediamine dihydriodide(EDDI) | 0.01 |
| Cobalt carbonate (CoCO ₃) | <u>0.01</u> |
| | 100.00 lb |

⁸ The vitamin mixture should provide approximately the following minimum daily requirements per pound of final concentrate (grain) ration: vitamin A, 2000 I.U.; vitamin D, 200 I.U.; vitamin E, 20 I.U.; thiamine, 4.0 mg.; niacin, 4.0 mg.; riboflavin, 3.0 mg.; pantothenic acid, 3.0 mg.; and vitamin B₁₂, 5.0 mcg.

An example composition for 1.0 pound of a vitamin premix:

| | |
|--|-------------------|
| Vitamin A | 400,000 I.U. |
| Vitamin D | 40,000 I.U. |
| Vitamin E | 4,000 I.U. |
| Thiamine | 800 mg. |
| Niacin | 800 mg. |
| Riboflavin | 600 mg. |
| Pantothenic acid | 600 mg. |
| Vitamin B ₁₂ | 1 mg. |
| Carrier (finely ground corn or soybean meal) | <u> </u> |
| | 1.0 lb. |

Table 2. Nutrient Content of Selected Feeds for Horses (As-fed basis).

| Feedstuff (International Feed No.) | Dry matter % | Dig. energy Mcal/lb. | TDN % | Crude protein % | Lysine % | Calcium % | Phosphorus % | Carotene mg/lb. |
|---|--------------|----------------------|-------|-----------------|----------|-----------|--------------|-----------------|
| Alfalfa, dehy, meal, 17%, (1-00-23) | 92 | .89 | 47.2 | 17.4 | .8 | 1.38 | .23 | 59.6 |
| Alfalfa, hay, s-c, early bim, (1-00-059) | 90 | .90 | 48.1 | 18.0 | .8 | 1.48 | .19 | 52.0 |
| Alfalfa, hay, s-c, full bim, (1-00-068) | 91 | .87 | 43.6 | 15.5 | .8 | 1.08 | .22 | 14.7 |
| Alfalfa, grazed, (2-00-196) | 26 | .26 | 14.1 | 5.3 | .2 | .40 | .07 | 10.5 |
| Alfalfa-brome, smooth, grazed, (2-00-262) | 21 | .21 | 10.7 | 3.9 | — | .32 | .08 | — |
| Bahiagrass, hay, s-c, (1-00-462) | 90 | .81 | 42.3 | 8.5 | — | .45 | .20 | — |
| Barley, grain, (4-00-549) | 89 | 1.45 | 72.6 | 11.5 | .4 | .05 | .34 | .5 |
| Barley, hay, s-c, (1-00-495) | 88 | .80 | 42.3 | 7.8 | — | .21 | .25 | — |
| Barley, straw, (1-00-498) | 91 | .57 | 28.1 | 4.0 | — | .27 | .06 | — |
| Beet pulp, dried (4-00-669) | 91 | 1.18 | 59.2 | 8.9 | .5 | .62 | .09 | — |
| Bermuda grass, hay, s-c, (1-00-703) | 91 | .77 | 39.8 | 9.4 | — | .43 | .16 | 53.2 |
| Bluegrass, Kentucky, grazed, early (2-00-777) | 31 | .29 | 15.4 | 5.4 | — | .15 | .14 | 53.1 |
| Bluestem, big, grazed, early (2-00-821) | 27 | .26 | 13.4 | 3.6 | — | .17 | .05 | 52.5 |
| Brewer's grains, dried (5-02-141) | 92 | .98 | 47.9 | 27.1 | .9 | .29 | .51 | — |
| Brome, smooth, hay, s-c, (1-00-947) | 90 | .87 | 47.0 | 12.4 | — | .34 | .24 | 2.0 |
| Brome, smooth, grazed, early (2-00-963) | 27 | .25 | 12.7 | 4.1 | — | .20 | .18 | 86.1 |
| Canary grass, reed, hay (1-01-104) | 89 | .82 | 42.8 | 9.1 | — | .32 | .21 | 37.5 |
| Clover, ladino, hay, s-c (1-01-378) | 89 | 1.05 | 56.8 | 20.0 | — | 1.30 | .30 | 66.8 |
| Clover, red, hay, s-c (1-01-415) | 88 | .81 | 42.3 | 13.0 | — | 1.22 | .22 | 14.7 |
| Clover, red, grazed, early (2-01-428) | 20 | .19 | 9.4 | 4.1 | — | .44 | .07 | — |
| Corn, cobs, ground, (1-01-782) | 90 | .57 | 27.8 | 2.8 | — | .11 | .04 | .3 |
| Corn, grain, (4-02-931) | 87 | 1.54 | 77.4 | 8.8 | .3 | .02 | .29 | 1.9 |
| Corn, stover, w/o ears, s-c, mature (1-02-776) | 85 | .77 | 36.1 | 5.4 | — | .49 | .08 | — |
| Corn, ensiled, (3-20-506) | 37 | .55 | 27.6 | 3.1 | — | .08 | .09 | — |
| Corn-and-cob meal, ground (4-02-849) | 87 | 1.29 | 64.4 | 7.8 | .2 | .06 | .24 | — |
| Corn, distiller's grains, dehy (5-02-842) | 93 | 1.29 | 64.4 | 27.8 | .8 | .09 | .39 | — |
| Cottonseed, meal, solv-extd (5-01-621) | 91 | 1.23 | 61.6 | 41.3 | 1.7 | .17 | 1.11 | — |
| Fescue, meadow, hay, s-c, (1-01-912) | 88 | .72 | 37.1 | 8.2 | — | .33 | .25 | — |
| Lespedeza, hay, s-c (1-02-607) | 90 | .84 | 43.9 | 10.7 | — | .93 | .22 | — |
| Linseed, meal, mech-extd, (5-02-045) | 91 | 1.26 | 62.8 | 34.5 | 1.2 | .41 | .87 | — |
| Milk, skimmed, dried, (5-01-175) | 94 | 1.73 | 86.5 | 33.4 | 2.5 | 1.28 | 1.02 | — |
| Molasses, sugar cane, liquid (4-04-696) | 74 | 1.11 | 55.5 | 4.3 | — | .74 | .08 | — |
| Oat, grain, (4-03-309) | 89 | 1.35 | 67.6 | 11.8 | .4 | .08 | .34 | — |
| Oat, hay, s-c (1-03-280) | 91 | .74 | 38.0 | 8.6 | — | .29 | .23 | 40.4 |
| Oat, straw (1-03-283) | 92 | .84 | 44.2 | 4.1 | — | .22 | .06 | — |
| Orchardgrass, grazed (2-03-442) | 24 | .18 | 9.3 | 3.0 | — | .06 | .09 | 36.5 |
| Orchardgrass, hay, s-c, (1-03-438) | 90 | .77 | 40.0 | 10.5 | — | .37 | .23 | 13.5 |
| Prairie, midwest, hay, (1-07-956) | 94 | .71 | 35.7 | 5.6 | — | .37 | .14 | — |
| Rye, grain, (4-04-047) | 88 | 1.41 | 70.4 | 12.0 | .4 | .06 | .32 | — |
| Sorghum, grain (milo) (4-04-444) | 89 | 1.44 | 72.0 | 10.0 | .2 | .04 | .30 | — |
| Soybean, meal, beans, solv-extd, (5-04-604) | 90 | 1.47 | 73.8 | 45.7 | 2.8 | .30 | .69 | — |
| Soybean, seeds, heat-processed (5-04-597) | 93 | 1.60 | 80.0 | 36.6 | 2.2 | .26 | .61 | — |
| Soybean, oil (4-07-983) | 100 | 3.30 | 170.0 | — | — | — | — | — |
| Soybean, hay, s-c, (1-04-558) | 89 | .79 | 41.4 | 14.1 | — | 1.13 | .22 | 14.5 |
| Soybean, straw, (1-04-567) | 88 | 0.58 | 28.5 | 4.6 | — | 1.39 | .05 | — |
| Sunflower, seed, w/o hulls, meal, solv-extd, (5-04-739) | 92 | 1.30 | 65.3 | 45.2 | 1.7 | .42 | .94 | — |
| Timothy, grazed, midbloom (2-04-905) | 29 | 0.23 | 11.6 | 2.7 | — | .11 | .09 | — |
| Timothy, hay, s-c, head, (1-04-883) | 89 | .94 | 50.6 | 8.6 | — | .32 | .20 | 21.5 |
| Trefoil, birdsfoot, hay, s-c, (1-05-044) | 91 | .87 | 45.8 | 13.9 | — | 1.54 | .21 | — |
| Wheat, bran, (4-05-190) | 89 | 1.00 | 49.5 | 15.4 | .6 | .13 | 1.13 | — |
| Wheat, grain (4-05-211) | 89 | 1.55 | 77.4 | 13.0 | .4 | .05 | .45 | — |
| Wheat, hay, s-c, (1-05-172) | 89 | .76 | 39.8 | 7.7 | — | .13 | .18 | 43.5 |
| Wheat, straw (1-05-175) | 91 | .72 | 36.8 | 3.3 | — | .16 | .04 | 1.0 |
| Whey, dried, (4-01-182) | 93 | 1.56 | 78.0 | 13.1 | .9 | .85 | .76 | — |
| Yeast, brewer's, dried (7-05-527) | 93 | 1.40 | 69.8 | 43.4 | 3.0 | .14 | 1.36 | — |
| Mineral Supplements: | | | | | | | | |
| Bone meal, steamed (6-00-400) | 96 | — | — | — | — | 27.7 | 12.9 | — |
| Dicalcium phosphate (6-01-080) | 98 | — | — | — | — | 21.8 | 18.5 | — |
| Diammonium phosphate (6-00-370) | 98 | — | — | (17%N) | — | — | 20.0 | — |
| Limestone, ground (6-02-632) | 100 | — | — | — | — | 37.1 | — | — |
| Monosodium phosphate (6-04-288) | 94 | — | — | — | — | — | 24.2 | — |
| Rock phosphate, raw (6-03-945) | 100 | — | — | — | — | 35.0 | 13.0 | — |
| Rock phosphate, defluorinated (6-01-780) | 100 | — | — | — | — | 32.0 | 16.9 | — |

Table 3. Nutrient requirements of horses, 1,100 pound mature body weight (b.w)¹.

| | Typical body weight pounds | Dtg. Energy Mcal | | TDN pounds | | Crude Protein | | Calcium | | Phosphorus | | Vitamin A, IU8 | | Typical daily feed (air dry) pounds |
|--|----------------------------|------------------|-------|------------------|-------|---------------|--------------|---------|--------------|------------|-------------|----------------|--------|-------------------------------------|
| | | per 100 pound bw | Daily | per 100 pound bw | Daily | % | Daily pounds | % | Daily pounds | % | Daily grams | Per pound diet | Daily | |
| Mature horses, maintenance | 1100 | 1.5 | 16.4 | 0.75 | 8.2 | 8.5-10.0 | 1.4 | 0.30 | 20 | 0.20 | 14 | 1500 | 30,000 | 17 |
| Mature working horses (per hour above maintenance) | | | | | | 8.5-10.0 | 2 | 0.30 | 2 | 0.20 | 2 | 1500 | 2 | 2 |
| • light work | | 0.4 | 4.1 | 0.18 | 2.0 | | | | | | | | | |
| • moderate work | | 0.7 | 8.2 | 0.37 | 4.1 | | | | | | | | | |
| • intense work | | 1.5 | 16.4 | 0.75 | 8.2 | | | | | | | | | |
| Gestation (first 8 months) | | 1.5 | 16.4 | 0.75 | 8.2 | 8.5-10.0 | 1.4 | 0.30 | 23 | 0.20 | 14 | 1500 | 30,000 | 19 |
| Gestation (last 3 months) | | 1.7 | 18.8 | 0.85 | 9.4 | 10.0-11.0 | 1.7 | 0.50 | 36 | 0.35 | 23 | 1500 | 30,000 | 19 |
| Lactation (first 3 months) | | 2.6 | 28.3 | 1.28 | 14.1 | 13.0-14.0 | 3.0 | 0.50 | 56 | 0.35 | 42 | 1250 | 30,000 | 26 |
| Lactation (after 3 months) | | 2.2 | 24.3 | 1.11 | 12.2 | 12.0-13.0 | 2.4 | 0.45 | 41 | 0.30 | 34 | 1250 | 30,000 | 24 |
| Foal (2-5 months) | 300-400 | 3.6 | 13.7 | 1.80 | 6.8 | 16.0-18.03 | 1.63 | 0.80 | 33 | 0.60 | 20 | 900 | 10,000 | 11 |
| Weanlings (5-12 months) | 500-700 | 2.8 | 16.4 | 1.40 | 8.2 | 14.0-16.03 | 1.73 | 0.70 | 34 | 0.50 | 25 | 1100 | 14,000 | 13 |
| Yearling (12-24 months) | 700-900 | 2.5 | 19.7 | 1.22 | 9.8 | 11.0-13.5 | 1.7 | 0.50 | 31 | 0.40 | 22 | 900 | 14,000 | 16 |
| 2 year old; show and performance | 1000-1100 | 1.8 | 17.9 | 0.90 | 9.0 | 10.0-11.0 | 1.4 | 0.45 | 25 | 0.35 | 17 | 1600 | 30,000 | 18 |

¹ For each 100 pounds above or below 1100 mature body weight, add or subtract 7% to this amount.

² Daily amount will vary with level of dietary intake.

³ High-quality protein recommended (minimum of 0.65% dietary lysine).

⁴ The following vitamins also may be included in certain diets: Vitamin D, 125 IU/lb. diet; Vitamin B, complex mixture.

General Feeding Rules

1. Start with a healthy horse.
2. Avoid using moldy, spoiled, or otherwise damaged feedstuffs.
3. Typical consumption (air-dry basis):

| Body weight, lb. | Diet intake per day, % of body weight |
|------------------|--|
| under 600 | 2.5-3.0 |
| 600-1 000 | 2.0-2.5 |
| over 100 | 1.5-2.0 |

4. Minimum roughage in diet: 1 pound per 100 pounds body weight. Normal diets: 1-2 pounds per 100 pounds body weight. Use pasture whenever available. Optimum pasture acreage for average-size light horse: 3 acres.
5. Corn silage may make up one-third to one-half of the dry-matter roughage portion of diet (10-15 pounds, as fed).
6. Molasses may be incorporated at rate of 5-10 percent of ration.
7. Feed grain if horses need additional energy. Feed grain by weight and nutrient content rather than by volume. When practical, give a small feeding of hay prior to each grain feeding.
8. Composition of pelleted diet (if only feed fed): 60-70 percent coarsely ground hay or its equivalent, 30-40 percent concentrate. Suggested pellet size: one-half inch.
9. Rate of feeding vegetable meal supplement: usually 1/2-1 pound per head daily, rarely 2 pounds.
10. Establish a daily schedule for feeding and stick to it. No grain should be left from one feeding to the next, and all edible forage should be cleaned up at the end of each day.
11. Adjust each horse's ration to individual needs. Feed a balanced ration and then feed according to condition of the horse. Don't allow horse to become fat.

12. Make any changes in the ration gradually. It is best to make ration changes over a week-to-10-day period. Changing feed too quickly may throw your horse off feed.

13. Calcium-to-phosphorus ratio of diet: 1-3 parts calcium to 1 part phosphorus for weaning foals; up to 5 parts calcium to 1 part phosphorus for mature horses.

14. Weanling foal diet: 1-1/4 pounds concentrate plus 1-1 1/2 pounds hay per 100 pounds body weight.

15. Weaning to year: 1-1 1/2 pounds concentrate plus 1-1 1/4 pounds hay per 100 pounds body weight.

16. Yearlings: 1/2 -1 pound concentrate plus 1-1 1/2 pounds hay per 100 pounds body weight.

17. Two- and three-year-olds: proportions same as for yearlings; quantity depends on size, work schedule, and other factors.

18. Suggested total protein content of horse diets:

| | |
|---|--------|
| Weanling foals | 14-16% |
| Yearlings | 11-14% |
| Two-year-olds, stallions, lactating mares, performance horses | 10-13% |
| Mature, idle horses (maintenance) | 9-10% |

19. Feed horses after cooling out. Divide ration into two or three equal portions daily.

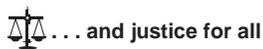
20. Provide clean, fresh water free-choice for idle horses. Encourage horses to drink before feeding rather than after. Water horses after cooling out.

21. Follow a strict disease and parasite control program.

22. Provide the horse with adequate exercise.

23. Pay proper attention to nutrition and management details.

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