

## Pasture and Hay for Horses

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The horse is by nature a grazing animal. The nutrition (protein, energy, minerals, and vitamins) provided by good pasture can meet the daily requirements of most horses. Pasturage also provides an area for exercise necessary for healthy horses. When pasture is not available, good quality hay should constitute 50% of most horses daily diet. The fiber from pasture or hay provides an important factor in normal digestion for the horse. Growing animals, working animals or horses in training require less fiber and more energy in their diet.

Texas and the South is fortunate to have many forages to use for pasture and/or hay production. The long warmseason and fairly mild winters allow an individual to select a variety of forages to provide near year- around grazing on pasture. Drought and extremely cold temperatures are two factors that limit growth and keep individuals from having truly year-around productive pastures.

The warm-season perennial grasses like bermudagrass, bahiagrass, introduced bluestems, buffelgrass, and native grasses provide the bulk of the pasture for horses from April through November. Since they are perennial, once established, they provide dependable pastures for years. Their quality is highest in the spring and early fall but tend to drop in quality during midsummer. With proper fertility and management, they can be very productive as either pasture or hay.

Warm-season annuals (millet, sorghums, sudans, and crabgrass) provide high quality grazing or hay for many horse owners. The sorghums and sudans are not recommended for pasture, however. The Texas A&M Veterinary Diagnostic Laboratory has diagnosed cases of sorghum cystitis in horses grazing pastures of sorghum and/or sudans. This condition is characterized by urinary tract problems and loss of control of the rear quarters. Pearl millet does not cause this problem but can build high levels of alkaloids due to moisture stress. Warmseason annuals provide a large volume of high quality forage over a short period but require yearly plowing and planting.

Perennial cool-season grasses are limited in Texas. At high elevations in West Texas and the Panhandle, wheat-grass and fescues provide pasture. Fescue can also be used in North-central and East Texas in bottomlands and selected poorly drained sites plus the upper Gulf Coast area. Fescue is not generally recommended as pasture or hay for mares because of a toxicity problem unless an individual plants an endophyte free variety of improved fescue. In the milder areas of the state, fescue can furnish quality grazing during the fall, winter, and spring months.

Annual cool-season grasses are used commonly by planting in September-October on either a prepared seedbed or sodseeded. These include wheat, oats, barley, rye,

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triticale and ryegrass. Matua prairie bromegrass is in this category for much of the state. These grasses are highly dependent upon fall moisture for fall and winter pasture. They produce a high quality forage but are generally limited by volume of production until spring growth starts.

Legumes and clovers may be added to summer or winter pastures to improve the quality of forage available. Horses, however, tend to prefer grasses before legumes so mixtures should always be maintained for pasture. Pure stands of alfalfa or clovers are best used for hay production.

Horse pasture should always be managed to maintain high quality grazing. Moderate nitrogen fertility should be applied at 45 day intervals during the growing season to maintain higher protein levels. Excess growth during periods of rapid growth should be mowed to prevent patches of old growth in the pasture. Pastures should be dragged or harrowed occasionally during the grazing season to breakup and spread manure.

## HAY PRODUCTION

For hay production, a balanced fertilizer in the spring with nitrogen applications following each cutting are required for top production and quality. In sandy soil, potassium fertility is almost as important as nitrogen fertility in maintaining a productive forage stand. Apply adequate amounts of potassium all at one time in the spring or in split applications like nitrogen throughout the growing season.

Hay can be made from almost any type of forage grown, whether it is grass or legume. The basic principle behind good, high quality hay production is to cut the plant at a growth stage when it is high in protein and high in digestibility. Age of the plant is the prime factor that determines plant digestibility. All grasses and legumes are high in quality until the plant starts seedhead formation. Once this starts, the plant changes its style of growth. New leaf development ceases, and the plant starts forming a seed stem and seedhead. At this point the plant starts building fiber, thus digestibility and percent crude protein start declining. Any plant that goes to full seedhead is considerably lower in protein and digestibility than it would be if cut in the boot or early head stage. This principle of plant age has more to do with plant quality than does the fertility program.

## Effect of Frequent Cutting on Yield and Quality of Coastal Bermudagrass Hay

(Georgia Coastal Plains Section)

Clipping Frequency (week)	Tons/A	Percent Crude Protein	Percent Crude Fiber	Percent Leaf
3	9.7	19.0	27.7	86.0
4	10.0	16.9	29.5	83.0
6	11.9	13.6	33.2	62.0
12	11.6	9.7	35.0	51.0

Fertility is the prime requisite for high production in a hay-making operation. Almost any forage plant responds to moderately high fertility levels with increased production. Fertility increases the amount of protein in the plant and total pounds of protein per acre. But the effect of fertility on protein is not as important as is plant age. In Coastal bermudagrass cut at the same stage, 50 pounds of nitrogen per acre may produce 8 to 9 percent protein hay, while 400 pounds of nitrogen per acre may produce only 12 to 13 percent protein hay. This may vary considerably, depending on growth stage.

## Effect of Difference Nitrogen Rates on Yield and Protein Content of Coastal

(Texas A&M)

Lb/N/Acre	Yield in Tons	Protein
0	2.67	7.9
100	4.38	9.1
200	5.93	10.5
400	8.59	11.7
600	10.65	12.4

Fertility has much higher impact on total production per acre. Any grass responds to higher nitrogen rates. Coastal bermudagrass will produce from 12,000 to 14,000 pounds of hay per acre with approximately 300 pounds of total nitrogen per acre. The relationship between production and fertility is almost direct as long as growing conditions are adequate. Producing large amounts of hay per acre is only possible where a good fertility program is followed.