

4-5-63 10,000

L-591

Midland

BERMUDAGRASS



THE AGRICULTURAL AND MECHANICAL
COLLEGE OF TEXAS
TEXAS AGRICULTURAL EXTENSION SERVICE
J. E. HUTCHISON, DIRECTOR, COLLEGE STATION, TEXAS

MIDLAND BERMUDAGRASS

E. M. Trew
Extension Pasture Specialist
The A&M College of Texas

MIDLAND BERMUDAGRASS, A HYBRID between Coastal Bermuda and a cold-hardy Indiana Common Bermuda, is producing excellent forage yields under irrigation on the High Plains of Texas. Midland was developed at the Georgia Coastal Plain Experiment Station and further tested and released by the Oklahoma Agricultural Experiment Station.

Compared to Common Bermuda, Midland has a more open sod, longer, taller leaves and fewer rhizomes. Compared to Coastal, Midland is a darker green color, has stiffer leaves, produces more seed-heads, begins growth earlier in the spring and is more cold-hardy.

Adaptation

Midland is best adapted to the High Plains of Texas or above the cap-rock where some winter-killing normally is expected with Coastal. Coastal is a better choice in other areas of the State, because of its higher forage yields.

Midland may be grown on most soils where adequate fertility and moisture are available. The grass has performed well on soils ranging from sands to clays in the High Plains area. It spreads more rapidly on sandy loam soils.

The grass requires irrigation for satisfactory production in areas with less than 25 inches of annual rainfall. This should be considered when other crops are also to be grown under irrigation, because the peak use of moisture by Midland comes at the same time as for crops such as cotton and grain sorghum.

Establishment

Midland Bermuda is started from sprigs or underground stems called rhizomes, since it produces few viable seed. These sprigs are food storage organs of the grass. Therefore, sprigs for planting should be well developed and plump to produce vigorous new plants. County agricultural agents can supply a list of sprig sources.

Drying seriously reduces sprig viability. Common Bermuda sprigs, exposed to sun and wind from 12 p.m. to 2 p.m., lost 70 percent of their viability, compared to practically no viability loss when the sprigs were kept shaded and moist. For this reason, obtain only enough sprigs for one day's planting. Keep sprigs shaded and moist from the time they are dug until planted. Protect sprigs from sun and wind while moving them from the source to the planting site.

Time of planting depends on the location, availability of irrigation water, when grazing is desired and other factors. Do not plant before April 15 in the Lubbock area and April 25 north of Amarillo. Obtain quicker emergence and growth by delaying the planting until May 1 in the Lubbock area and May 15 around Amarillo. Plant sprigs no later than August 1 in the Amarillo area and August 15 around Lubbock. If grazing is desired for the following spring, make plantings in the spring. Usually 4 to 12 months are required for a complete cover, depending on time of planting, moisture, fertility and weed competition.

Seedbeds should be firm, moist and free of other growing plants. When the seedbed is prepared well in advance of planting, it may be irrigated for firmness and adequate moisture. Also, time is allowed for destroying one or more crops of weeds before the Midland is planted. Destroy stands of Johnsongrass or other weeds before attempting to establish Midland. Where weeds are not a problem, seedbeds may

be prepared immediately prior to planting. The grass may be planted in dead sorghum stubble on sandy soils to reduce wind damage.

The seedbed surface should be flat where the grass is to be sprinkler irrigated. Furrow irrigation may not be possible where slope is insufficient and irrigation runs too long. The furrows disappear with trampling and sod development. Properly designed border irrigation systems may be more desirable. Consider slope and length of run for satisfactory irrigation of Midland.

Fertilization is necessary for a quick cover on soils of medium to low fertility. A soil test is the best means of determining the grade and amount of fertilizer needed. Generally, apply the fertilizer in a band 3 to 4 inches to the side of the sprigs and 3 to 4 inches below the soil surface. Placing the fertilizer in a band reduces weed competition and allows the grass roots to reach the nutrients quickly. When weeds or weedy grasses may be a problem, delay the application of nitrogen until the plants begin growth. Then place the nitrogen in the soil 3 to 4 inches to the side of the plants or apply dry materials down the row, directly on top of the plants, when they are dry. If the grass is planted in the spring, an additional nitrogen application in July or August may be needed for a cover to develop before winter.

Rate of planting is determined by the cost of sprigs and how soon a solid cover is desired. The sooner a complete cover and grazing is wanted, the higher the planting rate should be. Additional money for more sprigs per acre usually pays dividends in quicker grazing and fewer weeds. Use 15 to 20 bushels of sprigs in 36 to 42-inch rows for a quick cover. A minimum planting rate is about 9 bushels per acre, which allows a spacing of 3 feet between sprigs in 36 to 42-inch rows. Spacing sprigs 18 inches apart in the row requires 15 to 18 bushels per acre; a 12-inch

spacing in the row requires roughly 27 bushels of sprigs per acre.

Planting method depends on the acreage and equipment available. The ideal sprig placement is for one end to be about 6 inches deep with the other end at or barely above the soil surface. Few sprig planters place sprigs in this upright position.

Several types of Bermuda sprig planters are available. Some are more satisfactory than others. Hand sprigging is effective but expensive. Do not cover sprigs laid flat more than 2 inches; sprigs covered as much as 4 inches may never begin growth. Firm soil around the planted sprigs with heavy press wheels or by running a tractor wheel down the row to prevent the soil's drying around the sprigs, unless irrigation immediately follows planting. When sprigs are inexpensive, they may be broadcast, disced into the soil and irrigated at once.

Irrigate sprigged areas immediately after planting. Do not allow the soil to dry below the 2-inch depth until after the plants have begun to spread. The runners will not root down in dry soil.

Weed control during the establishment is essential for a quick cover. Rotary hoes are excellent for controlling seedling weeds and grasses and they break up soil-surface crusts. It may be possible to control all weeds and undesirable grasses with this implement, if used often enough until the time the grasses make a 50 to 60 percent cover. Control broad-leaved weeds with 2,4-D where this chemical safely can be used. Use conventional cultivators for weed control until Midland runners are 10 to 12 inches long. After the grass begins to cover the middles, shred weeds and weedy grasses for control.

Grazing should be delayed until Midland has developed a good cover. Grazing before a cover is obtained postpones maximum grazing and increases the weed problem.

Cost of Midland Bermuda establishment in the High Plains averages \$40 to \$50 per acre. This includes land preparation, fertilizer, sprigs, planting and irrigation, followed by weed control and additional irrigation until a cover is obtained. Since a properly managed stand provides long period grazing, allocate the establishment cost over at least a 5-year period. With a \$40 cost, the average annual establishment cost is \$8 per acre on the 5-year basis.

Management

Grazing management may determine whether a Midland Bermuda pasture is profitable or unprofitable. A systematic grazing plan is necessary for optimum utilization of forage, to prevent excessive forage loss from trampling and to allow irrigation and fertilization schedules.

A rotation grazing system meets these requirements. Four blocks are the minimum number of divisions for one pasture. Six blocks are required for a 5-day grazing—25-day rest schedule. Strip-grazing, or confining livestock to the amount of pasture they will graze down in 1 day, is the most refined system of rotation grazing.

As soon as a block is grazed down and the livestock removed, mow off the old growth refused by the animals, scatter the droppings with a harrow and apply fertilizer and irrigation water as needed.

Hay from Midland Bermuda is good quality when grown with adequate fertility and moisture and when cut and cured properly. The crude protein content of the hay usually varies roughly from 8 to 18 percent, depending on growing conditions and growth stage at harvest. Cut Midland for hay when the plants are 14 to 16 inches high. With favorable growing conditions, cut grass at 4 to 5-week intervals.

Fertilization is necessary in almost every case for high yields of good quality Midland forage. A 10-ton

per acre yield of dry matter removes from the soil about 300 pounds of actual nitrogen, 100 pounds of phosphorus and 300 pounds of potassium. Nutrient removal varies depending on the soil, fertilizer applied, stage of growth at harvest and other factors. Part of these nutrients are supplied by the soil but some must be replaced by fertilizer for sustained high yields. The balance and amount of nutrients are important. Because of the high rate of nutrient removal, soil nutrient balance can change rapidly. Thus, make a soil test at least every 2 years to determine fertilizer needs.

Nitrogen is the key nutrient in grass production. In the early spring when growth starts, Midland Bermuda should receive about 50 to 80 pounds of actual nitrogen with the needed phosphorus and potassium indicated by soil tests. An additional 50 to 80 pounds of nitrogen will be needed after each cutting or grazing down if good regrowth is desired. Let the level of forage production desired determine the amount of nitrogen applied. Usually three or four nitrogen applications will be needed during the growing season for high production. Irrigation should immediately follow surface application of fertilizer.

Irrigation water required for Midland Bermuda is about 24 to 30 inches per season, depending on rainfall and forage production desired. Only fair yield may be obtained with 25 to 30 inches of total moisture from both irrigation and rainfall. Do not allow soil moisture to deplete below the 12-inch depth if sustained growth is desired. Irrigate grass during the winter to prevent winter-killing, if snow or rain does not supply ample moisture.

Prepared in cooperation with Billy C. Gunter, D. W. Sherrill, John J. Seibert and James H. Valentine, Extension area specialists in agronomy, irrigation, farm management and soil chemistry, respectively, and Byron Greiman, former Extension area livestock specialist.