B-245

BLUE PANICGRASS

TEXAS AGRICULTURAL EXTENSION SERVICE
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BLUE PANICGRASS

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Blue panicgrass (Panicum antidotale) was first planted in Texas at the Chillicothe Experiment Station in 1935. The grass is native to Australia, Afghanistan and the plains of India. It was introduced to the United States in 1912 from India and was brought from Australia in 1920 and 1935 by the U. S. Department of Agriculture.

Description

Blue panic is a perennial warm-season bunch grass that grows in large, dense tufts. It has a bluish-green color and grows to a height of over 4 feet. The short, bulbous rhizomes or rootstocks on established plants enable them to live through and make regrowth after as much as 60 days of drouth. Stems branch freely at the nodes, many branches being about as long as the main stems. The old stems are coarse, woody and unpalatable. Blue panic is often described as a "perennial Sudangrass." It will furnish grazing two to six weeks earlier in the spring and later in the fall than Sudan. The grass grows throughout the warm season of the year so long as moisture and plant food are available. Blue panic often makes enough growth for grazing in February in South Texas.

Adaptation

Areas where blue panic is best adapted are the Rio Grande Plain, the Rolling Plains, the southern part of the High Plains, the Edwards Plateau and where irrigation is possible in the moun-

tains and basins region of West Texas. In general, these areas lie west of the 28-inch annual rainfall line. Blue panic has been generally unsuccessful in East Texas, the Gulf Coast, the West Cross Timbers and in the Blackland and Grand Prairies. A few plantings have been satisfactory on very fertile bottom soils in Central Texas. Occasional winter-killing may be expected in the northern High Plains.

Soils of the areas where blue panic is adapted range from clays to fine sandy loams and are generally high in lime. The grass has not grown satisfactorily on sands that are acid or that are low in organic matter. Old field land that is depleted in plant food and organic matter will probably produce more forage if planted to another grass, such as Sudangrass. Like other crops, blue panic does best on naturally fertile or well fertilized soils.

Use of blue panic is primarily as a cultivated grazing crop. It is not a range plant and is not suitable for overseeding among native range grasses. The grass should not be expected to do well when it has to compete with any other grasses in a mixed pasture. It should be seeded in rows and the land maintained in a state of cultivation. Because blue panic is produced under cultivation and since stands are easily destroyed by plowing, it is an excellent crop for use as a soil builder in cropping systems. The extensive root system of this plant will add a great deal of organic matter to the soil, if the grass is properly fertilized and allowed to grow two to five years. Then the land may be put back into annual cultivated crops and blue panic planted elsewhere. Blue panic is a good hay plant and a fair silage crop when cut at the proper stage of growth. With good pasture management, the grass would be used for hay or silage when more grazing than needed is produced. The plant is being used to control wind damage to soil and crops in South Texas, where it grows eight to ten months of the year. Two to four

rows of blue panic give good protection to soil and young plants on eight to ten regular-width rows when the plantings are at right angles to the direction of prevailing winds. This practice appears to offer considerable promise in other sections of the State where blue panic is adapted.

Establishment

Seeding time for blue panic is in the spring after danger of frost is past, except in the Rio Grande Plain. Young plants are easily killed by cold, and a hard frost kills established plants back to the ground. Fall seedings are desirable in South Texas to allow the plants to become established and better withstand spring weed competition.

Seedbeds for blue panic should be prepared very carefully. A pound contains about 657,000 seed, more than two and one-half times the number in a pound of turnip seed. Such small seed require a clean, firm seedbed, with the rows or beds prepared and allowed to settle ahead of planting. Seeding should always be in rows and never broadcast or close-drilled. Broadcast or drilled plantings have not been satisfactory.

Rate of seeding to provide enough plants for a good stand is one pound of good quality seed per acre. The 1948 Yearbook of Agriculture reports an average purity of 79 percent and an average germination of 70 percent. Seed of this quality should give 25 seedlings per row foot in 36-inch rows or 28 per foot in 40-inch rows. Planting may be done with vegetable seeding equipment, with special grass drills or with small seed attachments for conventional row-crop planters. The seed should be planted ¼ inch deep and the soil firmed over the seed with a packer-wheel or roller.

Fertilizer will be required for rapid establishment in many areas. Nitrogen usually will be needed, phosphoric acid very often and sometimes potash will be needed. Nitrogen might

best be applied to spring plantings after the plants have begun to grow. This will avoid some weed competition. A soil test is the best means of determining the type and amount of fertilizer needed for any soil. County agricultural agents can supply details on soil tests and local fertilizer recommendations.

Management

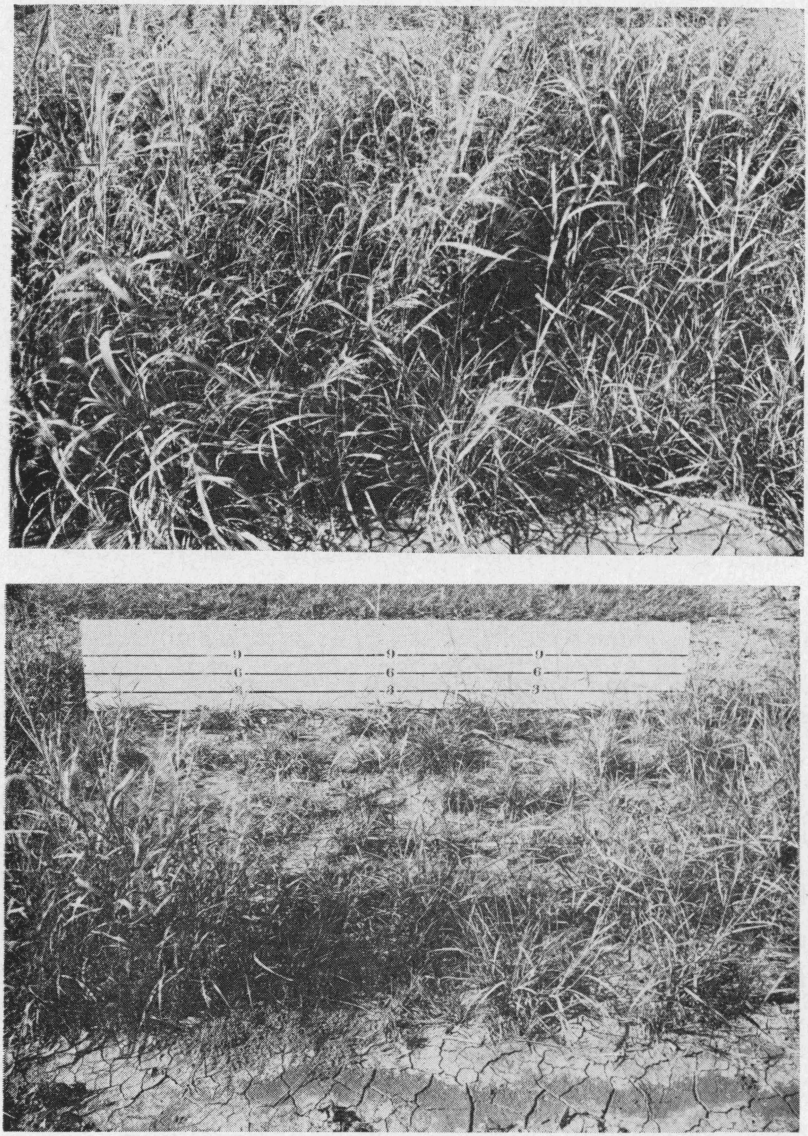
Grazing management of blue panic is much the same as for Sudangrass. Rotation grazing of small blocks with relatively large numbers of animals is necessary to get good utilization of forage produced during the peak growing period. This system of grazing calls for cross fencing, which may be with portable electric fences. Blocks not needed for grazing should be used for hay or silage. The plants should be well established before grazing starts, and they should not be grazed shorter than 6 to 10 inches. Grazing could begin by the time established plants

Blue panic in Rolling Plains in Childress County. This dairyman used fence to control grazing and used field shown for seed production.

have made 18 inches of growth and should not be delayed past the boot stage. During its peak growing period, the grass will usually get ahead of grazing animals and produce seed. Animals usually take the leaves and refuse the stems. As soon as a block has been grazed, the stems remaining should be mowed off to force out nutritious new growth from the base. If the old stems are left, only a small amount of short leaf growth will be made from the nodes or joints.

Cultivation will be necessary to control weeds and volunteer seedlings. If volunteer seedlings are allowed to become established to the point that the middles are filled with plants, the stand will tend to "choke itself out" and production likely will be unsatisfactory. Weeds may be controlled with 2,4-D in areas where cotton, legumes and other broad-leafed plants will not be damaged.

Fertilization will be needed to maintain stands and production where annual cultivated crops require fertilizer for best yields. Many stands of blue panic decline in vigor or yield the second and third years. The major cause is believed to be a lack of plant food. Some stands in Texas are over ten years old. Blue panic has one of the highest protein and phosphoric acid contents found in warm-season grasses grown in Texas. (See Tables 1, 2 and 3.) Plenty of available nitrogen is necessary for this high protein content, and good production cannot be obtained until it is available. Table 2 shows that plant food added at the rate of 64-80-0 stepped up the hay yield almost two tons per acre and the protein content about three percent on virgin upland at College Station. Approximately $17 worth of fertilizer produced a per acre gain in hay yield worth about $35 (at $20 per ton) and an increase in protein equivalent to almost 1,700 pounds of 41 percent cottonseed meal. If grazing is needed and moisture available, the grass can use 30 pounds of actual nitrogen following each grazing or cutting. This nitrogen may be applied as a



Blue panic in the Brazos River Valley near College Station, May 6, 1947, one year old. The plot in top picture received 40 pounds of nitrogen in March and yielded 2,700 pounds of hay per acre when cut May 8. The plot in lower picture received no nitrogen and cut 810 pounds per acre.

sidedressing between the rows. The annual phosphate and potash requirements may be supplied usually in one spring application.

Hay or silage may be made from blue panic, when it is not needed for grazing. It should be cut when in the soft dough stage or earlier for ensilage. For hay of good quality the plants should be cut when in the boot or just as the seedheads become visible.

Seed harvested from blue panic is providing additional income from some stands. Growers report from 75 to 200 pounds per acre from dryland stands. Seed may be combined direct from standing plants, if the growth is not too high. The cutter bar would need to be set high or a heading attachment used. A row binder can be used, but much seed is lost by shattering. Cleaning the seed too well should not be attempted when combining. After the seed have been dried, they may be cleaned with a seed cleaner.

Summary

Good yields of high quality forage may be expected from blue panic. (See Tables 1-4.) The data presented in Tables 2 and 3 were taken outside the area where the grass is adapted and are used simply for illustration. They do not show the potential of blue panic in areas where it is adapted. The grass is best adapted to the area west of the 28-inch annual rainfall line. Blue panic will not do well on low-fertility or acid-sandy soils. It should be planted and maintained in regular width rows and used for grazing, in crop rotations and for wind damage control. Plant one pound of seed per acre on a clean firm seedbed, and fertilize the grass properly for establishment and maintenance. Some cultivation is usually necessary. A good system of grazing management is necessary to get good utilization of the forage produced.

Table 1. Yield of hay, percent protein and protein per acre from grasses grown under irrigation at Weslaco, May 1950-June 1951, and at Winter Haven, 1953.

Location	Grass	Hay Yield (tons)	Percent protein	Lbs. protein per acre
Weslaco*	Blue panic	6.76	14.10	1,906
	Rhodes	11.53	10.68	2,463
Winter Haven	Blue panic	11.64	18.23	4,246
	Rhodes	9.36	13.23	2,478
	Coastal Bermuda	13.89	15.25	4,238
	Buffel	11.01	13.50	2,974

**Average of three locations.*

Table 2. Yield of hay, percent protein and protein per acre from blue panic and Rhodesgrass on virgin upland soil at College Station in 1943 (six cuttings).

	Hay yield (tons)		Percent protein		Lbs. protein per acre	
Grass	check	fertilized*	check	fertilized*	check	fertilized*
Blue panic	3.38	5.15	11.5	14.3	780	1,475
Rhodes	3.05	6.03	9.2	10.7	561	1,290

**Equivalent to 400 pounds each of nitrate of soda and 20 percent superphosphate (64-80-0).*

Table 3. Average yield of hay, percent protein and protein per acre from blue panic, Johnsongrass and Coastal Bermudagrass in 1947-48 in Brazos River Valley near College Station, Texas.

Grass	Hay yield (tons)	Percent protein	Lbs. protein per acre
Blue panic	2.97	9.21	562
Johnsongrass	4.11	8.06	640
Coastal Bermuda	2.94	9.08	502

Fertilizer treatment—80-0-0.

Table 4. Average Yield of Grasses Grown Under Irrigation at Iowa Park, 1951-53.

Grass	Hay Yield (Tons)			
	1951	1952	1953	Average
Blue panic	5.91	3.67	3.24	4.27
Coastal Bermuda	4.52	3.69	2.99	3.73
Johnsongrass	7.12	2.40	1.40	3.64

Information in this publication emphasizes some of the steps in the Texas 9-Point Livestock and Poultry Program, sponsored by the Texas A. & M. College System. See your local extension agents for more details on this program.

Good Pastures Are a Cash Crop ---
Treat Them as Such!

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