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RELIANCE

An Early Grain Sorghum

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Reliance, a new grain sorghum for South Dakota, stands longer after a killing frost and has a wider range in planting time than Norghum. It is also larger seeded and has a sturdier stalk. About 3,000 pounds of Reliance seed was released by the South Dakota Experiment Station to the County Crop Improvement Associations in the spring of 1953. Tests conducted at several locations on widely different soil types and under varying climatic conditions show Reliance is well adapted to the sorghum growing areas of the state.

History

Reliance was derived from the cross of Modoc x Sooner Milo made at the South Dakota Experiment Station in 1939. Modoc is characterized as a white-seeded, late maturing variety having the seed panicle growing well above the flag leaf. Sooner Milo, a reddish-tan seeded, mid-late variety which seldom produces the seed panicle above the flag leaf, has the recurving habit of the stalk below the seed panicle, a character very common in milos. The purpose of the cross was to develop a strain of the Sooner Milo type which would have good yield, earlier maturity, stand longer after a killing frost, and have the seed panicle borne well above the flag leaf.

Seed and Plant Characteristics

Reliance has a seed similar in size and color to the seed of Sooner Milo. The seeds germinate readily, even under limited soil moisture, thereby securing relatively uniform stands under these conditions. The young emerged seedlings are larger than Norghum. The larger seedling is an important factor as it is more easily distinguished from grass-like weeds. This aids considerably in the early cultivation of the crop.

The stems are sturdier than Norghum and have about the same type of foliage. In tests throughout the state, Reliance has stood longer than Norghum after a killing frost. All sorghum varieties will eventually break over if left standing in the field too late in the fall. Therefore, the grain crop should be harvested as early as possible after killing frosts and before the crop goes down.

Reliance has an open-seed panicle similar to that of Norghum. This allows better drying of the mature seeds than the closed or compact types such as Midland or Sooner Milo. The seed panicles are borne well above the flag leaf, but not as high as the seed panicles of Norghum. Having the seed panicle well above the flag leaf is a very desirable

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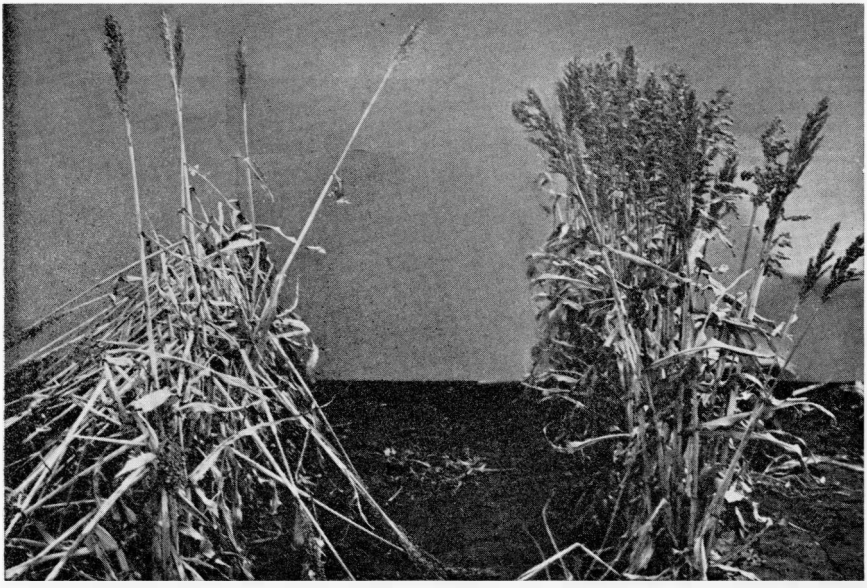
character because there is less sterility due to high temperatures, less aphid damage, the grain dries out more readily, and it is a considerable aid in combining. Reliance has a maturity range similar to that of Norghum and is well adapted to the sorghum growing areas of South Dakota.

Time of Planting

The dates of planting test show that Reliance yields higher at the optimum time of planting than Norghum; that is, it has a wider range in planting time before the resulting yields of grain are greatly reduced. Norghum yielded higher than Reliance on the earliest May plantings. However, the best time for planting grain sorghums in South Dakota is from May 20 to June 1.

When sorghums are planted in early May, weeds become a serious problem before the crop can be cultivated. It is best to kill as many weeds as possible before planting the crop, because sorghum seedlings have a 10-day or longer dormant period. It is at this stage that the weeds make a rapid growth and may take over the crop before it can be cultivated. Sorghums should be planted shallow, not over one inch deep, on a well-prepared, firm, clean seed bed.

The yields of Reliance compare very favorably with Norghum at all seven locations tested in South Dakota. Reliance and Norghum yielded considerably more than either Martin or Midland. The latter two varieties are too late for South Dakota. In the four years tested at the



Two sister strains of the Reliance cross (Modoc x Sooner). At right, Reliance; at left, a white-seeded selection which is much higher yielding but breaks over after frost. Picture was taken in the last week of October 1951.

several locations, Reliance and Norghum were ripe before the first killing frost while Martin and Midland were either in the early or late dough stage when killed by frost. Late - maturing grain sorghums when frosted before they are ripe produce light - weight, shrunken grain which dries out slowly in the field.

Reliance can be harvested in the latter part of September or forepart of October when there is good drying weather in the early fall. It is very important to have the grain go into storage with a low moisture content, because sorghum grain heats readily if the moisture content is too high. Since Reliance matures early, it can be harvested before frosts have impaired the germination. A high quality seed can be readily produced with Reliance.

Table 1. Sorghum Yield in Bushels per Acre According to Dates of Planting at Brookings, 3-Year Average, 1950-52

Variety	Dates of Planting					
	May 10 Bu./A.	May 17 Bu./A.	May 24 Bu./A.	May 31 Bu./A.	June 7 Bu./A.	June 17 Bu./A.
Reliance	51.9	49.7	51.3	51.6	50.2	33.1
Norghum	55.6	54.4	47.7	48.0	40.5	28.5
Sooner Milo	38.0	36.3	31.8	31.6	25.4	14.3

Table 2. Bushels per Acre for Reliance, Norghum, Martin, and Midland Sorghums Tested at Seven Locations in South Dakota, 4-Year Average, 1949-52

Variety	Locations Tested						
	Brookings Bu./A.	Highmore* Bu./A.	Eureka Bu./A.	Cotton-wood Bu./A.	7-11 Ranch Hot Springs Bu./A.	Newell† Bu./A.	Winner Bu./A.
Reliance	52.6	20.8	20.2	13.5	36.0	18.3	36.4
Norghum	57.8	21.7	15.7	15.5	34.5	20.5	37.3
Martin	33.6	8.1	3.7	5.3	21.0	2.6	14.5
Midland	38.9	7.5	6.7	7.9	20.9	5.1	26.9

*2-year average at Highmore—1950 no stand, drought; 1951 stand destroyed by cutworms.
†3-year average at Newell—1950 no stand, drought.

Cover Picture: Reliance (left) is a cross of Modoc and Sooner Milo. It has larger seeds, larger seedlings and sturdier stalks than Norghum (right). Reliance has less tendency to lodge—5 to 9 percent as compared to 15 to 20 percent for Norghum. Both are adapted to growing conditions in South Dakota.