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A Combine-type Darso

By FRANK F. DAVIES and JOHN B. SIEGLINGER*

Darset**—"little Darso"—was developed in the Station's sorghum breeding program to meet the need for a combine-type grain sorghum resistant to damage by birds and weathering. It is intended only for those sections of Oklahoma where ordinary darso has heretofore been the most satisfactory grain sorghum.

This new grain-sorghum is essentially Oklahoma No. 1 darso with addition of the dwarf plant character that makes it suitable for combine harvesting. The only other respect in which it differs from Oklahoma No. 1 is maturity, the Darset being a week to 10 days earlier.

Grain yields of Darset in Station variety trials have been almost exactly the same as those of Oklahoma No. 1 Darso.

Both Darset and Oklahoma No. 1 are resistant to Periconia stalk rot (pythium rot or milo disease) and will remain standing under conditions that produce lodging of regular darso.

Darset remains dwarf even when planted thickly, being unlike most other dwarf sorghum varieties in this respect.

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**Intended to be pronounced dar-set', with the accent on the second syllable.

Performance

Table I shows the average grain yield, plant height, and maturity of Darset in the Station's grain sorghum variety trials at Perkins for the three years 1950 through 1953, in comparison with Oklahoma No. 1 darso, Martin milo, and Redlan kafir. Table II shows grain yields of Darset and Oklahoma No. 1 darso in the variety trials at Perkins, Stratford, and Heavener in 1952.

Average height of Darset was 15 inches less than that of Oklahoma No. 1 darso, a non-combine variety. Martin and Redlan, both of which are accepted combine types, were, respectively, 8 and 11 inches taller than Darset.

Darset matured 11 days ahead of Oklahoma No. 1 darso, 8 days ahead of Redlan kafir, and 4 days ahead of Martin milo in the trials at Perkins.

Grain production of Darset in the 1952 tests was approximately equal to that of Oklahoma No. 1 darso at each of three locations; and in the combined average of these locations the yields were identical, at 25.5 bushels per acre.

TABLE I.—Yield, Height, and Maturity of Darset as Compared to Other Grain Sorghum Varieties, Perkins, Okla.—Three-Year Average, 1950-1952

Variety	Yield (bushels per acre)	Plant height (inches)	Maturity (days--planting to ripe)
Darset.....	23.8	37	115
Darso (Okla. No. 1).....	24.1	62	126
Martin Milo.....	27.7	45	119
Redlan Kafir.....	32.1	49	123

TABLE II.—Grain Yields of Darset and Darso; Perkins, Stratford, and Heavener, Okla.—1952

Variety	Yield (bushels per acre)			Average; three locations
	Perkins	Stratford	Heavener	
Darset.....	33.6	27.7	15.2	25.5
Darso (Okla. No. 1).....	32.2	28.9	14.3	25.5

Description

Darset is a combine-height grain sorghum, closely resembling regular Darso in head and seed characters. The heads, although of the same general appearance as those of Darso, are somewhat smaller in size and have better exsertion from the boots. This latter character is most desirable when a combine is used to harvest the grain from the standing stalk.

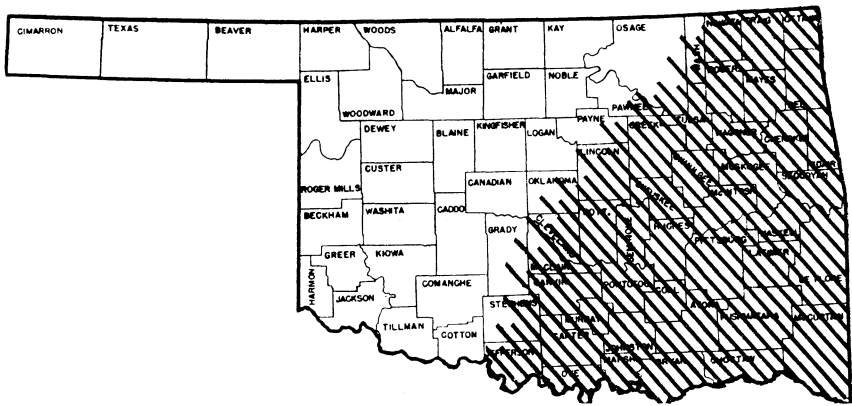
The principal differences between Darset and Darso are in plant height and maturity time. Darset is about 15 inches shorter and around 10 days earlier. It is a true dwarf and remains short even when planted thickly.

Darset seed closely resemble those of Darso in size, shape, and color. They are medium large in size, of a reddish-brown color, and thresh cleanly from the glumes without shattering. The bitter, tannin-like sub-coat found in Darso seed is also present in Darset. Apparently it is this material which partially accounts for the resistance of these varieties to bird and weather damage.

Plants and heads of Darset are smaller than regular Darso, therefore a 25 percent increase in seeding rate is advisable. Four to six pounds of high quality seed per acre is ample when seeded in rows 36 to 42 inches apart.



This photo shows the plant height and general plant characteristics of Darset, right, and Oklahoma No. 1 darso. The Darset is essentially the No. 1 darso except for being of combine height and having earlier maturity. Darset provides, for the first time, a combine-type grain sorghum adapted to those sections of Oklahoma where darso has been grown because of its resistance to bird damage and weathering.



This map shows the sections of Oklahoma where Darset is recommended. It provides a combine-height grain sorghum for those areas where Darso has been grown because of its resistance to bird damage and weathering. Darset is not recommended in any area where the white-, yellow-, or red-seeded grain sorghums can be grown successfully.

Origin

Darset was selected as an F_3 head row in 1949 planted from a selfed head selected from the F_2 (break-up) generation of a cross between a dwarf, darso-like sorghum and Oklahoma No. 1 Darso.

The original cross was made in the Oklahoma Station greenhouse during the winter of 1946-47 to obtain a darso suitable for combine harvesting. The crossed seed were planted in hills at Perkins in 1947 and five selfed F_1 heads were obtained.

Seed from two of the heads was planted head to row in 1948, and 21 bagged heads were selected from these two F_2 rows.

Twelve of the 21 heads were planted head to row in 1949. The seventh row, which was uniformly dwarf in height, early in maturity, with darso seed color and awns, and the head clearing the upper leaf, was selected as the dwarf darso desired. A four-row plot of this selection was grown beside Oklahoma No. 1 Darso in the varietal experiments in 1950 and appeared fixed as a dwarf, early darso.

Because of the demand for a grain sorghum that can be harvested with the combine in the darso-producing region of Oklahoma, this selection was released for seed increase in 1952 and assigned the name of Darset.