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**DWARF KAFIR 44-14**  
and  
**REDLAN**

Two  
New  
Combine-type  
Grain  
Sorghums

OKLAHOMA AGRICULTURAL EXPERIMENT STATION

Oklahoma A. & M. College, Stillwater

in cooperation with

UNITED STATES DEPARTMENT OF AGRICULTURE





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**W. L. Blizzard, Director**

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**Bureau of Plant Industry, Soils, and Agricultural Engineering**

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# DWARF KAFIR 44-14 and REDLAN

## Two New Combine-type Grain Sorghums

By FRANK F. DAVIES AND JOHN B. SIEGLINGER\*

Two new dwarf kafir-type grain sorghums, suitable for combine harvesting, are being rapidly adopted by farmers in Oklahoma and other sorghum-growing states. These varieties, Dwarf Kafir 44-14 and Redlan, were developed and released at the Oklahoma Agricultural Experiment Station in research cooperative with the U. S. Department of Agriculture.

The new varieties are adapted to most of Oklahoma excepting the Panhandle and the eastern counties. They mature too late for average seasons in the Panhandle; and, like other kafirs, are subject to fall weathering and bird damage in the eastern part of the state.

These two varieties have extended the grain sorghum area to the eastward in Oklahoma, due to their chinch bug resistance. They have the chinch bug resistance of kafir, with Redlan showing more resistance than 44-14. In the milo area of Oklahoma, they have yielded as well as the popular combine milos. For early planting in this region, they are more satisfactory than Wheatland, Martin, or Plainsman. East of the milo area, their chinch bug resistance gives them a definite advantage.

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**Table I.—Grain Yields of Dwarf Kafir 44-14 and Redlan; Perkins, Oklahoma, 1945 to 1951.***(Bushels per acre)*

Variety	1945	1946	1947	1948	1949	1950	1951	Av.	Pct. of Sharon
Dwarf									
Kafir 44-14	45.7	25.0	29.4	19.1	18.5	19.3	17.9	25.0	112
Redlan	46.5	19.9	31.9	21.7	18.8	26.7	17.6	26.2	117
Sharon Kafir	36.2	20.3	31.0	16.7	17.6	21.1	13.4	22.3	100
Darso	30.1	17.8	30.0	13.1	23.2	17.9	21.1	21.9	98

Annual yields are the average from triplicate plots, planted on one date between May 8 and May 19.

**Table II.—Grain Yields of Dwarf Kafir 44-14 and Redlan; Woodward, Oklahoma, 1947 to 1949.***(Bushels per acre)*

Variety	1947	1948	1949	Average	Percent of Sharon
Dwarf Kafir 44-14	21.8	36.5	28.0	28.8	110
Redlan	18.0	38.6	27.8	28.1	107
Sharon Kafir	17.6	36.1	24.8	26.2	100

Annual yields are averages from duplicate plots, planted on two dates

**Table III.—Grain Yields of Dwarf Kafir 44-14 and Redlan; Woodward, Oklahoma, 1944 to 1951.***(Bushels per acre)*

Variety	1944	1945	1946	1947	1948	1949	1950	1951	Av.	Pct. of Martin
Dwarf										
Kafir 44-14	36.2	26.2	20.6	22.7	37.0	37.5	26.1	36.6	30.6	129
Redlan	32.8	22.7	31.6	12.2	41.7	43.3	26.4	29.2	30.0	126
Martin	29.5	18.9	19.8	13.9	31.1	28.6	26.2	22.2	23.8	100
Wheatland (Rest.)	19.8	21.0	24.8	15.2	41.2	35.4	22.9	27.6	26.0	109
Plainsman	26.5	19.8	24.0	15.2	41.7	37.9	24.7	28.5	27.3	115

Annual yields from single plots, continuous sorghum, planted between June 28 and July 2, except in 1950 and 1951 triplicate plot averages are used.

## Performance

The annual and average grain yields of Dwarf Kafir 44-14 and Redlan in varietal trials at Perkins and Woodward, Oklahoma, are shown in Tables I to III, inclusive. For comparison, these tables also show the yields of Sharon kafir, Darso, and Martin, Resistant Wheatland, and Plainsman milos in the same tests.

For seven crop seasons at Perkins, 44-14 averaged 25.0 bushels of grain per acre and Redlan 26.2 bushels. This compares to 22.3 bushels for Sharon kafir and 21.9 bushels for Darso. During this seven-year period, 44-14 outyielded Sharon five times, and Redlan exceeded it in six of the seven years. The yearly increases of these two new kafirs over the standard check variety were generally a bushel or less. However, in 1945 Redlan exceeded Sharon by 10.3 bushels per acre and 44-14 outyielded it by 9.5 bushels.

In a three-year comparison in the general variety plots at Woodward, 44-14 produced 110 percent and Redlan 107 percent the relative yield of Sharon.

In a trial at Woodward comparing only varieties of combine height, 44-14 and Redlan averaged 30.6 and 30.0 bushels per acre, respectively, during an eight-year period. This compares to 23.8 bushels for Martin, 26.0 for Resistant Wheatland, and 27.3 for Plainsman. The increase for this period of these new dwarf kafirs over the Martin check was 29 percent for 44-14 and 26 percent for Redlan.

The consistently favorable grain production of 44-14 and Redlan at both Perkins and Woodward indicates a wide range of adaptation for these new kafirs. They produce as well as the leading combine milo varieties in the western milo region, and will yield as much as kafir and Darso east of this area.

## Description

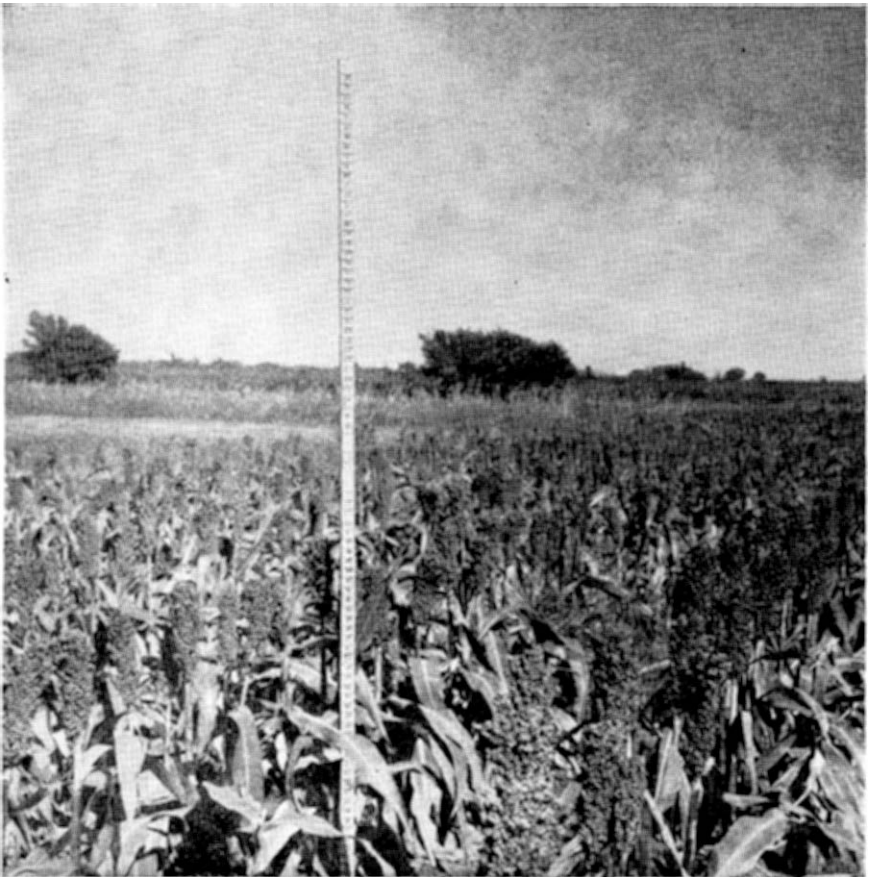
### Dwarf Kafir 44-14

Dwarf Kafir 44-14 is a grain type sorghum similar in plant and head characters to the regular kafirs. It differs from regular kafir in height and leaf area, being shorter and having somewhat broader leaves. The average height of 44-14 for seven crop years at Woodward was 40.1 inches. The average maturity for this period was 121 days. Under these same conditions Martin averaged 37.6 inches and 106 days, Resistant Wheatland 32.6 inches and 107 days, and Plainsman 34.4 inches and 111 days.

At Perkins, the average height and maturity of 44-14 during seven seasons was 44.9 inches and 122 days. This is 15 inches shorter and two days later than Sharon kafir grown in the same experiments.

The stalk of 44-14 is not as juicy as the kafir stalk, and the plants have more of a tendency to tiller.

The heads exert well from the boot, and in comparison to kafir they average slightly shorter, broader, and less compact. The seed thresh easily and free from the glumes but do not shatter. In size, shape, and color, they are typical White Blackhull kafir type.



Field of DWARF KAFIR 44-14 at Stillwater, Oklahoma. 9-11-1925



**Redlan**

Redlan, like Dwarf Kafir 44-14, is a combine grain sorghum resembling the kafirs, except for a shorter stalk height. It is slightly taller and later than the leading varieties of combine milo.

Redlan is identical to Sharon kafir in maturity, and averages around 15 inches shorter than this non-combine height variety. In varietal experiments at Woodward and Perkins, Oklahoma, for seven



**Field of REDLAN at Stillwater, Oklahoma.**

crop seasons it averaged 38.2 and 43.5 inches tall and matured in 118 and 120 days from planting.

The stalk of Redlan is juicy like the kafirs, and the plant rarely produces tillers. The seed head resembles kafir in size and shape and is produced on a sturdy stem which elongates well out of the boot. This facilitates machine harvesting of the grain from the standing stalk in field.

The upper part of the stalk just beneath the head, along with the center stem and the seed branches of the head, dry as the seed ripens. This feature is of major importance, especially when the seed mature before frost and harvesting is necessary while the stalks are yet green and high in moisture content.

The seed are large, of a bright reddish-yellow color, and thresh easily from the glumes. They are medium hard and resemble milo seed both in size and shape.

## Origin

### Dwarf Kafir 44-14

Dwarf Kafir 44-14 was developed from a cross between Sharon kafir and a Dwarf, Early feterita made in 1929 by J. B. Sieglinger at the Southern Great Plains Field Station at Woodward. The cross was made with the object of obtaining kafirs suitable for machine harvesting. Fifty-four  $F_3$  generation head row selections were grown in 1932. Seventy-four  $F_6$  generation head rows were planted in 1936, and severe selection gradually reduced the number of lines to nine in 1941. Two of these lines were selected for planting in the dwarf sorghum variety experiments at Woodward in 1942. In that year, Dwarf Kafir 44-14 averaged 57 bushels from duplicated plots, which was the highest yield of any dwarf sorghum included in the experiment. The strain was then observed in variety comparisons elsewhere in Oklahoma, and finally released as a variety in 1946.

### Redlan

A cross was made in 1936 at Woodward between Kafir x Milo-8-2-6 (C. I. No. 1090) and Standard Kafir, C. I. No. 71, with the object of developing a better dwarf kafir. Kafir x Milo-8-2-6 was a sister selection of Wheatland, but it was resistant to the milo diseases and had more kafir characteristics. Standard kafir is an old, high-yielding, medium maturing, typical kafir.

The breakup, or  $F_2$  generation, was grown in 1938; and 26  $F_3$  progenies were tested in 1939. Most of the selections from this cross were white-seeded, but one red-seeded selection appeared too good to discard and in 1943 was included in the combine-type variety test at Woodward as a "dwarf red kafir." Intensive testing at both Woodward and Perkins showed this selection to be a high yielding, red-seeded variety suitable for combine harvesting and with many kafir characters. It was named "Redlan" and released for increase in 1948.