

Mimeographed Circular M-248

September, 1953

BROOMCORN TESTS IN GARVIN COUNTY

Progress Report

1952 and 1953

By

John B. Sieglinger
and

Harry C. Young

*
*
*
*

OKLAHOMA AGRICULTURAL EXPERIMENT STATION
Oklahoma A. & M. College, Stillwater

A. E. Darlow, Director
Louis E. Hawkins, Vice Director

BROOMCORN TESTS IN GARVIN COUNTY

Progress Report,

1952 and 1953

By JOHN B. SIEGLINGER and HARRY C. YOUNG

Departments of Agronomy and Plant Pathology

A stalk disease of broomcorn has caused considerable damage to the crop in the Standard Broomcorn area around Lindsay, Okla.

1952

In response to requests from growers and other interested groups, preliminary tests with broomcorn were started in 1952. Since the condition appeared to be caused by a plant disease (wilt, blight, lodging, going-down), research on the problem was outlined cooperatively between the Departments of Plant Pathology and Agronomy.

Local cooperation has been with the Lindsay Chamber of Commerce.

Test plots of broomcorn varieties and crosses were planted in the Lindsay area in 1952 and 1953. Both seasons were so drouthy that the disease was not apparent. Ob'servations were made of broomcorn varieties, and selfed seed heads were obtained to continue the work.

Under conditions of drouth and no disease, Black Spanish appeared to be as good as any variety.

1952 Variety Trials

On May 7, 1952, 26 varieties, selections, and samples of broomcorn seed were planted on the Ledgerwood Farm west of Maysville, in a field that produced broomcorn which had been diseased in 1951.

The seed used consisted of: 6 lots Black Spanish; 2 lots Standard Evergreen; 1 lot Okaw; 1 lot of a foreign standard (P.I. No. 179503); 4 lots of dwarf (2 Scarborough, 1 Fultip, 1 Rennels); 11 tall selections from broomcorn crosses from Woodward and Stillwater; and first generation seed of a cross of the foreign standard and a dwarf tan, which gave the segregating (F_2) population.

The planting was duplicated with Arasan treated seed and was at the rate of 4 seeds per foot. Comparable stands were obtained and seed heads were obtained and seed heads were bagged on July 16 and 24. The bagged seed heads were harvested August 26.

No lodging, due to disease, was observed in 1952. The Black Spanish variety appeared as good as any variety, under conditions of drouth and no disease.

1953 Variety Trials

A planting of broomcorn was made April 13, 1953, on Mr. J. M. Brown's farm east of Lindsey. The planting was on land that produced broomcorn in 1952 and consisted of 42 varieties and selections of broomcorn duplicated with Arasan treated seed. Planting was at the rate of 4 seeds per foot. Most of the seed used in the 1953 planting was from selfed heads selected from the 1952 planting.

The varieties and selections of broomcorn planted were: 2 Black Spanish; 2 Standard Evergreen; Okaw; Foreign Standard; 3 Dwarf (Scarborough, Fultip, Rennels); 30 breeding lines, and 2 tall selections from dwarf broomcorn.

June of 1953 was extra hot and dry and the broomcorn was damaged by drouth. Seed heads were bagged July 2 and harvested August 7.

Because of the drouth there was no lodging caused by the disease. The Black Spanish variety again looked as good as any of the varieties. One or two

of the fifth generation selections and several of the third generation selections may develop into satisfactory broomcorn. These selections have the same length of growing period as Black Spanish and are tan colored plants.

Study of the Causal Fungus

Attempts were made to produce an artificial epidemic of the stalk-rot disease on plots of the Black Spanish variety in the Lindsay area in both 1952 and 1953. These attempts were unsuccessful both years.

At Stillwater in 1953, using a different causal fungus, definite infection and stalk rot and breaking were obtained. It seems apparent from the latter test that the causal fungus has been found, and that in future years artificial epidemics can be induced in plots so that varieties and breeding material can be adequately tested for resistance.