

where further selections were made on Fusarium and root knot nematode-infested soils at the Plant Breeding Unit, Tallahassee, Alabama. Plains was released in 1949 cooperatively by the Federal Agency and the Auburn University Agricultural Experiment Station. The performance of Plains in Alabama in a 6-year period (1954 to 1959) is shown in Table 1, and its performance in the Eastern Regional Variety Tests (1960 to 1962) is shown in Table 2.

Wilt resistance and root-knot tolerance of the Cleve-wilt parent were largely recovered, while other characters were more nearly intermediate. Plants are spreading with well-spaced nodes; foliage is medium in density with moderate pubescence; bolls are ovate, slightly pointed, medium in size; and cotton is easily hand picked. Gin turnout is moderate (36-38%); staple length is 1-1/32 to 1-1/16 inches; tensile strength and micronaire are average; and spinning properties are acceptable.

Plains is well adapted for production in the Southeastern Rain-belt. It became a popular variety in the Coastal Plain of Alabama, Georgia, and Florida, where its wilt and nematode resistance and less determinate fruiting habit made it particularly adapted.

Table 1. Six-year average performances of 5 varieties in 41 tests in Alabama, 1954 to 1959.

Variety	Lint yield, lb./A.	% lint	Bolls per pound	Staple length, inches	Fiber strength, T <sub>1</sub>	Micronaire units
Auburn 56	691	36.8	75	1-1/16	1.80	4.50
Plains	690	37.2	70	1-1/16	1.81	4.40
Dixie King	677	37.6	63	1-1/16	1.80	4.60
Coker 100 Wilt	660	37.2	76	1-1/16	1.71	4.60
Empire	633	37.4	64	1-1/16	1.72	4.30

Table 2. Three-year average performances of 6 varieties in 24 Eastern Regional Cotton Variety Tests, 1960 to 1962.\*

Variety	Lint yield, lb./A.	% lint	Boll weight, grams	U. H. M. length, inches	Fiber strength, T <sub>1</sub>	Micronaire units
Auburn 56	796	36.5	6.47	1.08	1.78	4.40
Dixie King	776	37.9	7.88	1.08	1.80	4.32
Stoneville 7	773	39.6	6.11	1.10	1.76	4.96
Empire	755	37.8	7.93	1.08	1.78	4.11
Plains	753	37.2	6.75	1.07	1.75	4.22
Coker 100A	746	37.8	6.38	1.11	1.77	4.52

\* Regional cotton variety tests. USDA-ARS 34-30, 1961; 34-43, 1962; and 34-60, 1963.

## REGISTRATION OF AUBURN 56 COTTON<sup>1</sup>

(Reg. No. 45)

Albert L. Smith<sup>2</sup>

'AUBURN 56' cotton, *Gossypium hirsutum* L., was developed jointly by the Auburn University Agricultural Experiment Station and Crops Research Division, USDA. J. B. Dick and the late H. B. Tisdale<sup>3</sup> were associated in the breeding project from 1935 to 1946. The material was removed from the selfing nursery in 1947 and further selected and released by Tisdale in 1953. Beginning in 1938, 'Cook 307' was crossed and backcrossed to wilt-susceptible 'Coker 100' and outcrossed to 'Coker 100 Wilt' in 1942. Auburn 56 was derived from the open-pollinated seed from a single plant row and noticed as outstanding for Fusarium wilt-nematode resistance, when grown at the Plant Breeding Unit in 1946.

Auburn 56 is outstanding for combined yield and resistance to the Fusarium wilt-root knot nematode disease complex. The resistant parent, Cook 307, was derived from a wilt-resistant selection originally made near Loachapoka, Alabama, in 1908. The long period of selection of Cook 307 on soils infested with the wilt-nematode complex probably accounts for the outstanding performance of Auburn 56 under these conditions (Table 1 under Plains cotton). Yield performance is at a relatively high level on

non-wilt infested or only lightly infested soils (Table 2). Tests of Auburn 56 hybrids on soils infested by *Verticillium albo-atrum* Reinke & Berth., indicate that Auburn 56 is also a source for genes giving tolerance to *Verticillium* wilt.

Auburn 56 is a quick-fruiting cotton with short internodes and a slight tendency for bolls to cluster in some environments. Its fruiting branches are angled upwards. Leaves are medium in size; bolls are small to medium in size, round to round pointed. Auburn 56 picks well by machine, has moderate storm tolerance, and picks easily by hand except in rare instances. Gin turnout is moderate (36 to 38%). Staple length averages 1-1/32 to 1-1/16 inches and longer on better soils with good moisture. T<sub>1</sub> strength averages 1.75 and the micronaire 4.4. These characters give Auburn 56 acceptable spinning properties.

Auburn 56 is being planted primarily on lighter textured Coastal Plain soils and Fusarium and nematode-infested soils throughout Alabama and Georgia, and to some extent in Florida, Tennessee, Mississippi, Louisiana, and Missouri.

## REGISTRATION OF N-10 SAFFLOWER<sup>1</sup>

(Reg. No. 1)

J. H. Williams<sup>2</sup>

'NEBRASKA 10' (N-10) safflower, *Carthamus tinctorius* L., is a widely adopted variety developed by the Nebraska Agricultural Experiment Station. It was derived from a single plant selection, 852-95, made by C. E. Claassen at Alliance, Nebraska, in 1946. Accession 852 was a small commercial sample of seed introduced in 1945 from Khartoum, Anglo-Egyptian Sudan, increased and released as the variety N-852 in 1948. N-10 was tested in Nebraska in 1949 and entered into regional tests in 1950. N-10 was first grown commercially in California in 1953. It was approved for certification in Nebraska in 1955 when commercial acreage developed. Preliminary information about N-10 was published in 1950.<sup>3</sup> N-10 is an early maturing, high-yielding variety. The seed contains higher percentage oil than "N-852" or other varieties available during the 1940's and early 1950's.

N-10 is fairly uniform for plant type although it is slightly variable for flower color. The flower color is yellow in the bud and full bloom stages, turning to brownish yellow upon drying. About 2 to 3 percent of the plants have orange flowers. N-10 seedlings have rapid early growth and do not form a rosette after emergence. The plants are medium height and have a moderate branching habit. N-10 is moderately spiny. It has a spine index of 45, (the product of the number of spines on an outer involucre bract and the average length in millimeters). The seed heads are medium sized. The seeds are white and are relatively long and narrow shaped with heavy veination.

N-10 is susceptible to rust, *Puccinia carthami* Corda., to *Phytophthora* root rot and to *Alternaria* leaf spot.

<sup>1</sup> Registered under a memorandum of understanding between the Crops Research Division, ARS, USDA, and the American Society of Agronomy. Published with the approval of the Director as paper No. 1478, Journal Series, Nebraska Agricultural Experiment Station. Received for publication Mar. 28, 1964.

<sup>2</sup> Associate Professor of Agronomy, University of Nebraska.

<sup>3</sup> Claassen, C. E. and Hoffman, A. Safflower Production in the Western Part of the Northern Great Plains. Nebraska Agricultural Experiment Station, Circular 87 (revised), January 1950.

## REGISTRATION OF U.S. 10 SAFFLOWER<sup>1</sup>

(Reg. No. 2)

C. A. Thomas<sup>2</sup>

A VARIETY of safflower, *Carthamus tinctorius* L., named 'U.S. 10' was released jointly in 1959 by the California Agricultural Experiment Station and the Agricultural Research Service of the U. S.

<sup>1</sup> Registered under a memorandum of understanding between the Crops Research Division, ARS, USDA, and the American Society of Agronomy. Received Mar. 28, 1964.

<sup>2</sup> Pathologist, Crops Research Division, ARS, USDA, Beltsville, Md.

<sup>1</sup> Registered under a memorandum of understanding between the Crops Research Division, ARS, USDA, and the American Society of Agronomy. Received Mar. 19, 1964.

<sup>2</sup> Plant Pathologist (deceased), Crops Research Division, ARS, USDA, cooperative with Agronomy and Soils Department, Auburn University, Agricultural Experiment Station, Auburn, Alabama.

<sup>3</sup> Research Agronomist, Crops Research Division, ARS, USDA, Stoneville, Mississippi; and Plant Breeder, Department of Agronomy and Soils, Auburn University Agricultural Experiment Station, Auburn, Alabama.