Parrott

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A NEW COTTON VARIETY FOR OKLAHOMA

CONTENT

In the Boll

The authors wish to emphasize the fact that the development of Parrott was almost entirely due to the efforts of the late I. M. Parrott, for whom it was named. Others contributing to its development in some manner or other include C. L. Fox, J. W. Simmons, Mack Keathley, N. M. Gober, and G. A. Niles.

Parrott is a high-yielding variety, well adapted to stripping or hand harvest in Western Oklahoma. It has good boll size, excellent gin turnout, and medium staple. The lint of Parrott is coarse and strong.

Parrott

A New Cotton Variety for Oklahoma

by

John M. Green and E. S. Oswalt[1]

Parrott is a new variety of cotton which was released by the Oklahoma Agricultural Experiment Station for planting by seed producers in 1955. A medium staple variety, Parrott has outyielded other varieties grown for stripper harvest in Central and Western Oklahoma. Its yield in Eastern Oklahoma has compared favorably with Stoneville 62 and Deltapline 15, varieties recommended for that area.

Origin and History

The original plant selection from which Parrott was developed was made on the Southwest Cotton Substation near Tipton about 1940. The plant was selected by I. M. Parrott from a field of Mebane 140, a variety selected and developed at the Texas Experiment Station at Chillicothe. Mebane 140 has a normal open boll, and it is subject to pre-harvest (shatter) losses; the plant selected bore stormproof bolls similar in appearance to the Macha type stormproof boll. Whether the plant selected by Mr. Parrott was the product of a natural hybrid with Macha or was stormproof as the result of mutation is an open question.

The original plant selection was designated Mebane 6819. Selection in the offspring of Mebane 6819 was practiced until 1950 by Mr. Parrott. Using the progeny row method under open pollination, he selected for an intermediate degree of stormproofness, high gin turnout, medium staple length, and a plant type suitable to stripper harvest. In 1950 the present staff assumed responsibility for selection in the variety, and it has added the objectives of uniform seed fuzz and coarse fiber.

The first bulk lots included in yield tests were designated as Mebane 6819. In the late 1940's, Mebane 6819 was called "Stormking," and it was tested under that name in Oklahoma and Texas. In 1951 the strain was given the experimental strain number "CR-3," and from 1951 through 1954 this designation was used. At the time of its release in 1955, the name "Parrott" was assigned to replace "CR-3."

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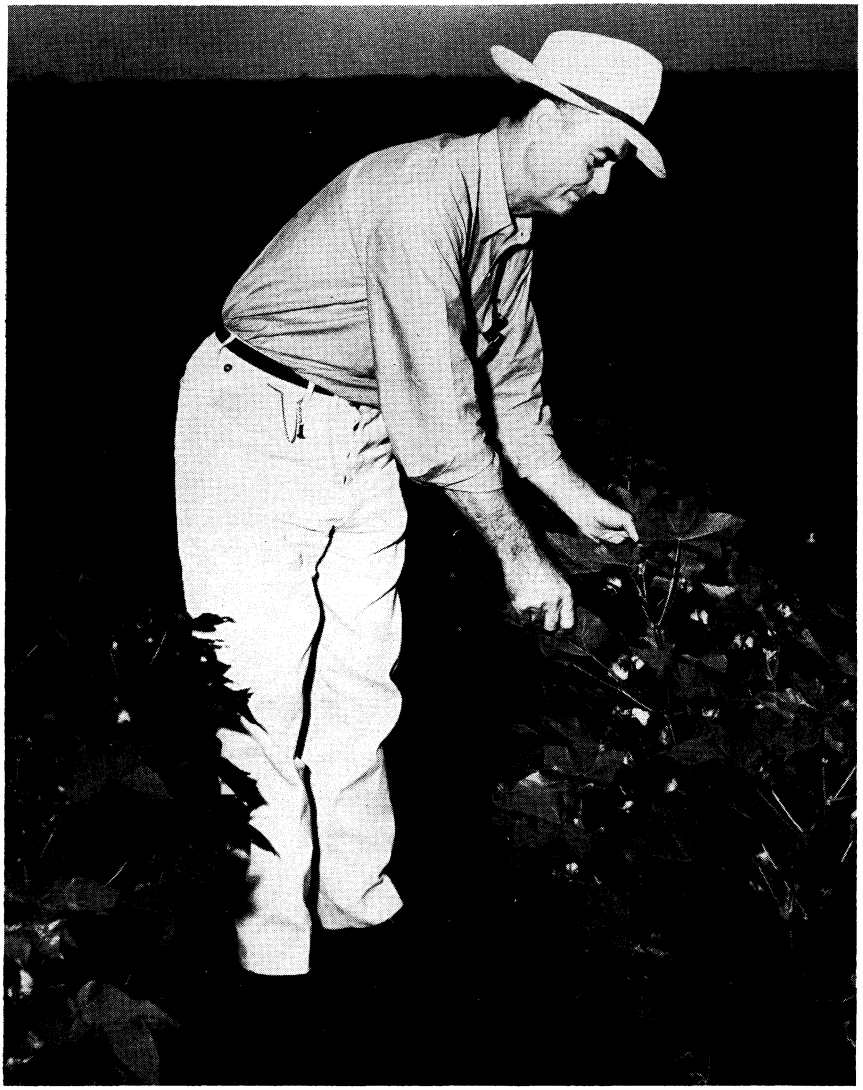
1 Agronomist, Oklahoma Agricultural Experiment Station, and Agent, A.R.S.; and Superintendent, Oklahoma Cotton Research Station, respectively.



I. M. Parrott inspecting growing cotton on the Oklahoma Cotton Research Station at Chickasha, where he served as Superintendent prior to his death. It is for "Polly" that the new variety described in this bulletin was named.

Description

Parrott can be distinguished from other varieties commonly grown in Oklahoma by a group of characteristics during the fruiting period. The leaves are medium large, and on many of them the margins are curled slightly downward. Pubescence is very light, and the leaves often have a slightly more leathery appearance than other varieties. The central stalk is strong, although internode length on fruiting branches is medium rather than short as in semi-cluster types. Bolls are usually 5-locked, medium smooth, and egg shaped.

Mature bolls open and fluff well, but there is sufficient drag of the lint in the burs to prevent excessive storm losses. There is a low percentage of off-type bolls in the variety, including some tight stormproof and some extremely loose open bolls.

Lint length is 29/32 to 31/32 under most conditions, although more extreme lengths are observed under extreme conditions.

Seed fuzz is variable, ranging from completely covered to tipped.

Performance in Western Oklahoma

Hand-harvested tests

Parrott has been included in 16 hand-harvested tests grown on dry land in Western Oklahoma during the years 1952-1955. Locations included were Chickasha (4 years), Tipton (5 years), Elk City (3 years), Hobart (2 years), Mangum (1 year), and Temple (1 year). Soil types on which these tests were grown were as follows: Chickasha, silty clay loam; Tipton, very fine sandy loam; Elk City, fine sandy loam; Hobart, silty clay loam; Mangum, deep-plowed sand; and Temple, clay loam. Fertilizer was not used on any of these tests. Average results of these tests appear in table 1.

Yield of lint per acre and **staple length** determine the comparative productiveness of cotton varieties. Parrott has been more productive than Lockett No. 1 in both yield and staple length. Its yield advantage over Lankart 57 and Northern Star has been partially offset by the longer staple of the latter two varieties. Lockett 140 is the only variety included which is not adapted to stripping and its yield has been closest to Parrott. The difference in staple is in favor of Parrott in this comparison.

Lint percent, or turnout, influences the cost per bale for harvesting and ginning. Parrott has been essentially equal to Lockett 140 and slightly superior to the other varieties when hand snapped.

TABLE 1. Comparative performance of Parrott and 4 other varieties recommended for Western Oklahoma as an average of 16 tests grown from 1952 through 1955.

Variety	Lint yield (lb. per A.)	Staple in 32's	Lint percent (snapped)	Bolls per lb.	Percent harvested 1st harvest
Parrott	289 *	29.2	27.8	82	72.9
Lockett 140	282	28.1	27.6	87	67.9
Lockett No. 1	266	28.6	25.6	91	65.3
Lankart 57	250	30.4	26.4	73	66.1
Northern Star	242	30.5	25.4	81	69.9

* The bars indicate that Parrott and Lockett 140 did not differ significantly in yield, and that these 2 were significantly higher in yield than the other varieties. (1% level of probability)

Boll size, expressed as bolls per pound of seed cotton, is important in determining the attractiveness of the crop to labor. Parrott was equal to Northern Star but not so good as Lankart 57 in boll size. Boh Lockett No. 1 and 140 had smaller bolls than did Parrott.

Earliness is important in escaping frost damage and under some conditions in minimizing drouth effects. Parrott has been earlier than the other Western Oklahoma varieties in this series of tests.

On the basis of this series of hand-harvested tests, Parrott deserves serious consideration in the selection of a variety for dry-land production in Western Oklahoma.

Stripper-harvested tests

The 17 tests included in this comparison were grown at Chickasha (1 year), Pocasset (1 year), Mangum (2 years), Elk City (4 years), Altus (3 years), Davidson (3 years), and Hobart (3 years). At both Altus and Pocasset the soil is a clay loam. Soils at the other locations were described above. Fertilizer has been applied at Altus, the amount and analysis varying from 100 lbs. of 16-20-0 to 500 lbs. of 8-10-0 per acre. Tests at Altus were irrigated; all other tests were on dryland. Average data appear in table 2.

All tests were harvested with a John Deere stripper, with the stripper adjusted for each variety when plant types were sufficiently different

to indicate adjustment was necessary. Yields reported are actual yields of harvested lint. Lint percent was determined in each case on a bulk sample of stripped cotton. Pre-harvest losses were determined by picking up cotton on the ground in each plot before harvest, and harvest losses were determined by picking up all cotton on the ground and on the plant after stripping.

The average yields in the stripper-harvested tests were higher than in the hand-harvested tests (Table 1) because of the high yields produced under irrigation at Altus. Significance of the differences in yield was not checked statistically because of asymmetry of the data, but the rank was in the same order here as in the hand-harvested tests. Staple comparisons can be made using data from the hand-harvested tests (Table 1). Parrott was superior to the other two varieties in gin turnout (lint percent). Both of the other varieties appeared to be slightly better than Parrott in pre-harvest and harvest losses. However the higher gross yield of Parrott resulted in the higher net yield when harvested with a stripper.

Performance in Eastern Oklahoma

Parrott is compared with 4 varieties recommended for Eastern Oklahoma in table 3. Perkins is representative of the better upland soils of the area, and the tests at this location were not fertilized. Yields did not differ significantly at Perkins. Parrott has had a shorter staple, and would not be so profitable as Stoneville 62 with hand-harvesting.

The Broken Arrow location is upland soil overlain with alluvium. The test has been fertilized each year. Here the difference in yield among the top four varieties is only 26 lbs. of lint per acre which was not a significant difference.

At Webber's Falls, in the Arkansas River bottom, yield differences were not significant, but consideration of staple length would indicate

TABLE 2. Comparative performance of Parrott and two varieties adapted to stripper harvest as determined by 17 stripper-harvested tests grown in Western Oklahoma from 1952 through 1955.

Variety	Lint harvested (lb. per acre)	Lint percent	Lint losses (percent)	
			Pre-harvest	Harvest
Parrott	421	28.0	3.4	7.0
Lockett No. 1	402	26.6	3.1	6.7
Lankart 57	391	27.3	2.0	6.3

TABLE 3. Performance of Parrott in comparison with 4 varieties recommended for Eastern Oklahoma. (4-year average results, 1952-1955.)

Variety	Perkins		Broken Arrow		Webber's Falls		Caddo		Average 4 locations			
									Lint %		% 1st	Bolls per
	Yield	Staple	Yield	Staple	Yield	Staple	Yield	Staple	Snapped	Picked	Harvest	Lb. S. C.
Parrott	352	28.8	668	30.3	576	29.8	360	30.0	28.7	39.3	70.2	77
Stoneville 62	391	30.0	642	30.5	510	30.0	360	30.8	27.0	36.5	75.4	83
Deltapine 15	345	30.8	645	32.3	560	31.8	375	32.8	27.2	38.6	67.2	90
D & PL Fox	339	31.8	652	32.8	530	32.0	373	32.5	25.5	35.2	75.4	92
Empire	352	31.3	628	32.3	500	32.0	353	31.8	25.6	35.6	71.1	70
L.S.D. (5%)	No. diff.		No. diff.		No. diff.		17					

that Deltapine 15 was more profitable than Parrott. At this location fertilizer has been used each year.

The Caddo test is located in the Blackland area of Bryan County. This test has not been fertilized. The results show Parrott to be less profitable than any of the four recommended varieties, when only yield and staple are considered.

On the basis of the 4 years' results at the four locations, the recommendation of Parrott over present recommended varieties would not be justified. However when factors other than yield and staple are considered, there may be situations in which Parrott should be grown. These can best be determined by farmer experience. The other factors affecting the profit realized include gin turnout, pre-harvest losses, boll size and earliness.

Parrott has a slight advantage in turnout, which affects the cost per pound of lint for hand-harvest and ginning. Its lower pre-harvest loss is an important factor if stripper-harvest is planned, and also where hand harvest may be delayed. Earliness of a variety is often important in boll weevil control. In this respect, Stoneville 62 and Fox are earliest, Parrott and Empire are essentially alike, and Deltapine 15 is the latest of the group compared. Boll size is still a factor in obtaining labor for hand harvest in some instances. Parrott is second to Empire in size of bolls as measured by number of bolls per pound of seed cotton.

TABLE 4. Lint properties of Parrott and 4 varieties recommended for Eastern Oklahoma as determined in 12 tests grown in 1954 and 1955.

Variety	Upper half mean length		Micronaire	
Parrott	.87	*	4.3	*
Stoneville 62	.89		4.0	
Empire	.93		3.8	
Deltapine 15	.95		4.1	
D & PL Fox	.96		4.2	

* Variety means bracketed by the same bar did not differ significantly at the 1% level of probability.

Lint Properties

Length and coarseness of lint of varieties tested have been measured in the fiber laboratory. Length is determined as upper half mean length expressed as a decimal fraction of an inch. Coarseness (or fineness) is determined on the Micronaire. Comparative figures for Parrott and 4 Eastern Oklahoma varieties appear in table 4. Length comparisons should compare with classer's staple length reported in other tables. Micronaire readings for the 5 varieties compared in Eastern Oklahoma did not differ significantly.

Lint from 5 stripper-harvested tests grown in 1954 is compared in table 5. Although 1954 was extermely dry, Micronaire readings agreed with other years in ranking varieties, and Western Oklahoma cotton was generally fairly coarse. Parrott was significantly coarser than the other varieties, all of which were essentially alike. In length, Parrott falls between Lockett No. 1 and the longer group consisting of Lankart 57 and 611 and Northern Star.

Spinning Value

Parrott has been included in spinning tests since 1951. All varieties tested have been grown on dryland under similar conditions. The lint samples have been from a small saw gin. The spinning tests have been conducted by the Agricultural Marketing Service (USDA) laboratory at College Station, Texas.

TABLE 5. Lint properties of Parrott and 4 other varieties grown for stripper harvest in Western Oklahoma as determined in 5 tests grown in 1954.

Variety	Upper half mean length		Micronaire	
Parrott	.87	*	4.7	*
Lockett No. 1	.82		4.1	
Lankart 57	.91		4.0	
Lankart 611	.91		4.0	
Northern Star	.92		4.2	

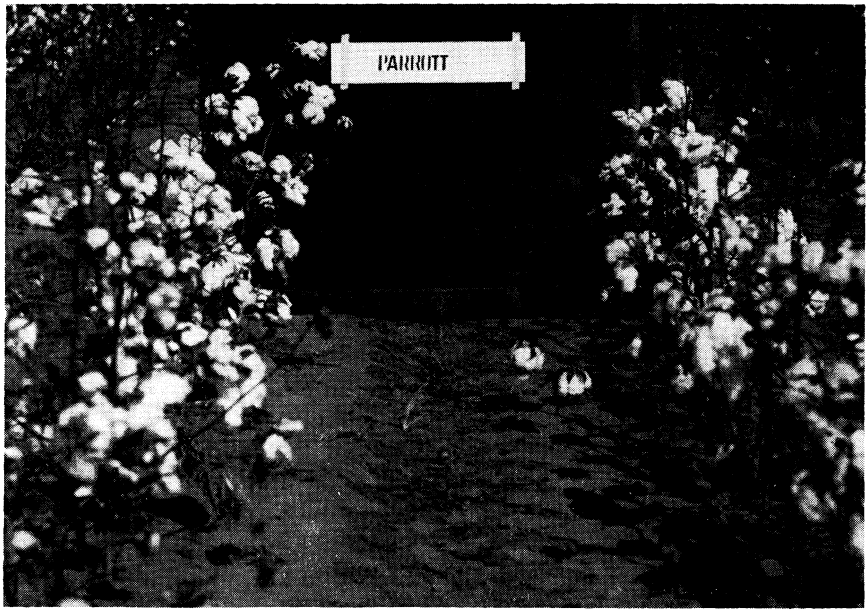
* Means bracketed by the same bar did not differ significantly at the 5% level of probability.

General spinning performance: Picker and card waste has been about average for Parrott. Neps and spinning end breakage have been consistently low. The low nep count would be expected in view of the Micronaire values observed for Parrott.

Yarn strength and appearance: Yarn strength indices for Parrott and four other recommended varieties are given in table 6, and yarn appearance indices are in table 7. A yarn strength index of 100 represents the average of a large number of samples of a given staple length. Therefore

TABLE 6. Comparative yarn strength index of Parrott and four other varieties recommended for Oklahoma.

Variety	1951	1952	1953	1954	1955	Average
Parrott	95	113	112	123	114	111
Lockett No. 1	119	111	95	109	116	110
Lankart 57	111	105	89	125	93	105
Stoneville 62	115	102	103	110	102	106
Deltapine 15	104	115	115	113	97	109



Parrott cotton ready for stripping at Chickasha in 1955. This dryland plot produced almost 700 lbs. of lint per acre.

these indices can be used to compare different varieties, eliminating differences in staple length. A yarn appearance index of 100 represents average yarn appearance.

On the average, Parrott compares favorably with the other recommended varieties. Because results were erratic from year to year, data for each year are presented. The differences in averages did not differ significantly. It appears most likely that all of these varieties are essentially the same in yarn strength and appearance index.

Chemical Composition of Seed

Table 8 contains average data from tests at Elk City, Mangum, Pocasset, and Chickasha in 1955. Under the present system of marketing cottonseed, individual cotton growers in Oklahoma are not paid on the basis of grade and quality of seed. However the gin and oil mill are both concerned with seed quality. Data obtained indicated that Parrott, Lockett No. 1, and Northern Star did not differ significantly in oil percentage, and that this group was significantly higher than Lankart 57 and 611. In ammonia percentage, Parrott and Lockett No. 1 were significantly higher than the other 3 varieties.

The low linters percentage of Parrott is partly responsible for its high oil and ammonia content. Data from one test in 1954 showed the following linters percentages: Parrott, 10.9; Lankart 57, 17.5; Lankart 611, 14.4; and Lockett No. 1, 9.9. Northern Star was not included in that comparison.

TABLE 7. Comparative yarn appearance index of Parrott and four other varieties recommended for Oklahoma.

Variety	1951	1952	1953	1954	1955	Average
Parrott	103	95	105	105	110	104
Lockett No. 1	90	100	110	110	110	104
Lankart 57	97	85	100	105	115	100
Stoneville 62	97	90	100	105	115	101
Deltapine 15	90	95	115	110	115	105

TABLE 8. Chemical composition of seed of Parrott and 4 other varieties grown in 4 stripper-harvested tests in 1955.

Variety	Percentage			
	Oil		Ammonia	
Parrott	20.3	*	4.78	*
Lockett No. 1	19.6		4.65	
Northern Star	19.8		4.43	
Lankart 611	17.6		4.42	
Lankart 57	16.1		4.40	

* Variety means bracketed by the same bar did not differ significantly at the 1% level of probability.