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Tests of

COTTON VARIETIES

for STRIPPER HARVESTING;

1952 and 1953.

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THE HIGHLIGHTS.

Variety tests were harvested by mechanical stripper at four locations in Western Oklahoma in 1952 and 1953. The tests included seven varieties selected for their adaptation to stripper harvest.

CR-3, an experimental strain, was consistently high in lint yield. The three recommended stripper varieties, Stormproof No. 1 (Lockett No. 1), Northern Star, and Lankart 57, were next in order.

Gin turnout reflects varietal differences in both seed-lint ratio and trash in the harvested sample, with the six top varieties ranging from 25 to 28 per cent.

Pre-harvest losses varied more for locations than variety, all varieties being satisfactory on the average.

Harvest losses were low for all varieties when good stripping conditions existed. The results emphasize the importance of uniform stands in stripper-harvested cotton.

Pre-harvest losses determined in storm tests at three locations show a wide range among varieties as well as locations. Location differences were due to differences in degree of drought stress and maturity of the crop.

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One objective of the Oklahoma Station's cotton program is identification of those varieties best adapted to the various cotton-growing sections of the State. Therefore existing varieties and promising experimental strains are tested each year at about ten locations selected as representative of the different areas. These tests are in addition to the more comprehensive trials at the Cotton Research Station at Chickasha.

Western Oklahoma tests put emphasis on the suitability of varieties for mechanical harvesting. Tests in 1952 and 1953 were of two types:

- (1) Stripper harvest performance tests, in which six commercial varieties and one unreleased strain were planted at five locations during the two years; and
- (2) "Stormproofness" tests, in which small plots of 27 varieties were planted at three locations.

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STRIPPER HARVEST PERFORMANCE TESTS

How Tests Were Made

Six commercial varieties and one unreleased strain of cotton were planted at five locations in 1952 and 1953. All plots consisted of $1/5$ acre--either 2 rows $1/4$ mile long or 4 rows $1/8$ mile long. Single $1/50$ th acre plots were harvested in 1952 and duplicate $1/50$ th acre plots were harvested in 1953. All harvesting was with a John Deere stripper, but different machines were used at the different locations. Each machine was adjusted for each variety in an attempt to get maximum efficiency.

Preharvest losses were determined by gathering seed cotton which had escaped from the burrs prior to stripping. Harvest losses were determined by gathering the seed cotton remaining on the plants and on the ground after stripping. Samples of stripped cotton were analyzed for each location and variety in 1952 in order to determine turnout. Turnout in 1953 was based on the average of all locations in 1952.

An attempt was made to strip at each location at the optimum time after frost. In some cases a better time might have been found, and some of the differences among location are undoubtedly associated with plant condition. The results have been generally consistent, however, and the variety comparisons should be valid under the conditions of these tests.

Results of the Tests

Seasonal Conditions. --Generally similar conditions existed each year throughout the area covered by these tests, but some local differences are worth mentioning.

Stands were thin at Davidson in 1952, and the resulting large plants caused large harvest losses. The 1952 fall drought was severe at Hobart and Elk City, causing high preharvest losses at Elk City, and resulting in small, easily strippable plants at both locations. Altus was under irrigation in 1952, and plants were larger than desired for stripping.

The severe drought of June 1953 affected all locations, and the stand was lost at Altus. Differences in summer and fall rains at the remaining locations influenced plant size and yield. Elk City had the best plants for stripping; Hobart had generally small plants except where stands were poor; and Davidson had relatively large plants.

Net Lint Yields (Table I). -- Yields shown in Table I are based on the total weight harvested by the stripper. Variety ranks are similar to results obtained with hand-harvested variety tests in that area. Although the data were not analyzed statistically, it can be assumed that a difference of at least 40 to 60 lbs. per acre would be necessary for significance.

Gin Turnout (Table II). --Gin turnout was determined partly by the seed-lint ratio of the variety and largely by the amount of trash harvested. Actual commercial gin turnouts would be lower, because in analyzing the samples it was not possible to thoroughly clean the lint. However, the figures presented should show valid comparisons.

Pre-harvest Losses (Table III). --Pre-harvest losses were similar for all varieties except Northern Star. High losses in this variety at Elk City and Hobart resulted in its having the highest over-all average pre-harvest loss.

NET LINT YIELDS

TABLE I. --Lint Harvested per Acre by a Mechanical Stripper
in Tests of 7 varieties at 5 Locations in 1952 and 1953.
(Pounds of lint harvested per acre)

	2-year average			1953	1952	Variety Average
	Davidson	Elk City	Hobart	Mangum	Altus	
CR-3	375	301	284	455	1440	477
Stormproof #1	348	268	270	440	1370	448
Northern Star	360	246	247	346	1182	404
Lankart 57	318	234	261	304	1178	389
Lankart 611	348	268	194	356	1016	374
Stormmaster	254	233	241	344	1082	360
Macha #1	203	190	190	274	882	290
Location Average	315	249	241	360	1164	

GIN TURNOUT

TABLE II. --Gin Turnout of Stripped Cotton of 7 Varieties
Tested at 4 Locations in 1952.

	Davidson	Elk City	Hobart	Altus	Variety Average
CR-3	30.2	29.2	24.9	31.2	28.9
Stormproof #1	27.9	27.8	21.6	31.0	27.1
Northern Star	28.1	27.7	21.6	28.8	26.6
Lankart 57	25.9	30.7	27.3	29.3	28.3
Lankart 611	26.5	22.4	21.6	29.5	25.0
Stormmaster	24.2	26.3	20.9	28.8	25.1
Macha #1	21.7	21.6	16.4	26.5	21.6
Location Average	26.4	26.5	22.0	29.3	

Harvest Losses (Table IV). --Harvest Losses were not consistent among locations. With good stripping conditions (e. g. Elk City) all varieties were satisfactory. With large plants, Macha appeared to be least efficiently stripped. This was due in part to the weak stalk permitting lodging of large plants, and in part to a relatively weak pedicel which resulted in loss of entire bolls.

PRE-HARVEST LOSS TEST

Small plot plantings were made at Chickasha, Tipton, and Elk City for the purpose of studying losses through dropping of locks or entire bolls. At

PRE-HARVEST LOSSES

TABLE III. --Pre-harvest Losses of 7 Varieties Tested at 5 Locations in 1952 and 1953.
(Percent of total lint)

	2 year average			1953	1952	Variety Average
	Davidson	Elk City	Hobart	Mangum	Altus	
CR-3	1.8	7.7	2.4	3.3	0.15	3.4
Stormproof #1	2.2	6.1	2.6	2.6	0.43	3.1
Northern Star	1.4	14.8	2.9	12.3	0.21	6.3
Lankart 57	0.7	7.5	1.1	2.9	0.03	2.7
Lankart 611	1.3	6.8	1.1	2.7	0.14	2.6
Stormmaster	1.7	6.2	2.2	4.6	0.30	3.1
Macha #1	2.7	3.5	2.6	3.2	0.22	3.9
Location Average	1.7	8.2	2.1	4.5	0.21	

each location the total number of locks on 10 plants of each variety was determined. Counts of locks lost were made in late October, prior to frost, and again in early December after the cotton was in condition to be stripped.

Although tests of this type have been conducted each year, conditions in 1953 gave more losses than had been observed for several years. Therefore the data presented are of special value in indicating the loss to be expected from the different varieties in years when unfavorable weather conditions occur.

Data presented in Table V include counts made at each location on each date. In most varieties, losses were heaviest at Tipton where drought conditions

HARVEST LOSSES

TABLE IV. --Harvest Losses of 7 Varieties Stripped at 5 Locations in 1952 and 1953. (Percent of total lint)

	2 year average			1953	1952	Variety Average
	Davidson	Elk City	Hobart	Mangum	Altus	
CR-3	12.3	5.1	11.2	11.3	3.2	9.0
Stormproof #1	12.1	5.1	5.8	8.9	8.6	7.9
Northern Star	14.1	4.4	8.9	8.6	5.3	8.6
Lankart 57	16.5	5.0	2.9	12.8	7.4	8.6
Lankart 611	13.3	2.9	7.1	8.3	7.5	7.8
Stormmaster	22.4	4.4	11.2	8.1	9.0	11.6
Macha #1	29.1	6.1	9.3	16.1	17.8	15.4
Location Average	17.1	4.7	8.1	10.6	8.4	

were most severe. They were next heaviest at Chickasha, and lightest at Elk City. Chickasha had the most favorable growing conditions as indicated by total yield. The crop at Elk City was late because of lack of moisture until July.

The lack of agreement in this test and the stripper-harvested variety test is difficult to explain, and may be due in part to the small samples involved in this test. These results are to be considered as showing relative losses. CR-3 was entered twice and ranked 7th and 8th, but the percentages of 3.8 and 6.0 indicate that the estimates obtained are subject to some error.

The last column in the table refers to the fluffing, or stringing, of the locks. In some cases actual dropping of locks may be low, but excessive stringing of the locks results in a poorer sample if the cotton is stripped.

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Hobart	Bryan Gentry

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STORM LOSS

TABLE V. --Average results of storm tests conducted at Chickasha, Tipton, and Elk City in 1953.
First count made in late October; second count in early December.

Entry	Percentage of Locks Out								Stringing of Locks
	First Count (late October)				Second Count (early December)				
	Chick-Elk				Chick-Elk				
	Tipton	asha	City	Avg.	Tipton	asha	City	Avg.	
Stormmaster	.2	1.2	0.0	.5	.5	2.4	0.0	1.0	none
Macha	3.7	1.0	0.0	1.6	3.9	1.0	0.0	1.6	none
Lankart 57	.6	2.5	1.0	1.4	1.1	1.6	1.5	1.4	light
Lockett #1	.7	5.0	0.0	1.9	1.6	4.6	0.0	2.1	none
Lankart 611	1.9	1.3	2.0	1.7	1.9	2.6	2.0	2.2	light
Wacona	3.5	3.4	1.8	2.9	4.0	3.4	1.8	3.1	none
CR-3	5.8	.7	0.0	2.1	10.1	1.4	0.0	3.8	light
CR-3	6.4	4.5	0.0	3.6	8.7	9.4	0.0	6.0	light
Stufflebeme Stmpf.	6.8	1.1	0.0	2.6	9.0	3.6	5.9	6.2	none
Dortch 1	6.5	1.3	0.8	2.9	11.6	5.8	1.2	6.2	light
Stoneville 5A	8.2	5.6	0.5	4.8	14.4	2.6	3.7	6.9	severe
Qualla 60 (Str. 6)	12.9	3.2	3.0	6.4	15.4	7.4	3.0	8.6	medium
Empire	12.2	6.6	1.0	6.6	17.9	6.4	4.0	9.4	medium
Lockett 140	8.8	2.4	1.4	4.2	12.4	3.8	12.5	9.6	severe
Empire P511	12.1	4.5	1.1	5.9	20.9	3.4	8.0	10.8	severe
Northern Star	9.2	4.0	2.5	5.2	16.9	7.4	10.0	11.4	light
CR-2	10.4	9.0	1.3	6.9	16.2	16.0	3.1	11.8	severe
Mebane 6801	17.5	7.4	0.0	8.3	20.9	8.0	6.9	11.9	severe
Floyd's 8-G Mebane	20.4	4.9	0.0	8.4	27.3	6.6	2.4	12.1	severe
Stoneville 2B	13.4	3.4	1.4	6.1	16.4	8.0	12.8	12.4	severe
Stoneville 62	9.4	11.0	3.7	8.0	18.0	11.1	11.9	13.7	severe
Deltapine 15	15.7	6.3	0.6	7.5	26.3	12.0	7.1	15.1	severe
Hale D & PL 33	27.0	10.3	0.8	12.7	36.8	11.2	9.0	19.0	severe
Hi-Bred	37.3	3.1	2.5	14.3	48.4	6.4	10.9	21.9	severe
D & FL Fox	38.4	11.6	0.7	16.9	48.8	13.0	6.7	22.8	severe
Paymaster 54	30.2	7.2	5.4	14.3	40.6	13.8	21.4	25.3	severe
Paula 95	24.9	7.9	12.6	15.1	32.7	12.6	30.5	25.3	severe