

RESULTS FROM BOLL SAVER TESTS

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Abstract

Five experiments were conducted during the fall of 1994 to evaluate the effectiveness of a recent invention, Boll Saver, to lower cotton picker losses. Three different cotton pickers were used in the tests. Three replicated tests were conducted using the same picker and two were conducted using different picker heads. In the tests using the same picker head the Boll Saver lowered picking losses by 6.9, 35.5 and 30.9 pounds of seed cotton per acre. The Boll Saver reduced picker losses by 65.3 and 9.0 pounds of seed cotton per acre in tests using different picker heads.

Introduction

A properly maintained and operated spindle cotton picker has harvesting losses of around 5 percent depending on picking conditions. Harvesting losses as high as 20 percent can occur on poorly managed, out of adjustment pickers. The Boll Saver, an invention to lower harvest losses, was field tested in Southern Georgia in the fall of 1994. The Boll saver uses upward air flow at the bottom of the picker head to save cotton. The air is supplied by the main fan and delivered to a tube at the bottom of the picker head. The tube has radial holes which delivers the air in an upward direction.

Materials and Methods

Five different field tests were conducted. All fields had 38 inch row spacings and yields ranging from 700 to 1000 pounds of lint per acre. (Plot layouts are shown in Figure 1.)

In field 1, a 9965 four-row picker was used. It had Boll Saver attachments on every picker unit. Plots were laid out at 14 different locations in the field before the tests were performed. The plots were 50 feet in length and were located between the middle two rows of the four-row picker. Each plot was cleaned by removing any cotton on the ground before the picker was operated. The plots were replicated 7 times. The picker was operated first with the Boll Saver in operation, and then, secondly with the air supply removed from the Boll Saver. Plant height and spacing were recorded in each plot. After the picker harvested the plots, all cotton laying on the ground was gathered and placed in paper sacks. The samples were then cleaned by removing all burs and sorted into 2 categories, good and low quality cotton.

In field 2, the same 9965 four-row picker was used. The picker was outfitted with two Boll Saver units located on the left side of the picker. The picker was operated before the plots were cleaned. In this test the 4 replicated plot locations were places where the difference in losses was noticeable. The plots were 50 feet in length and located on the adjacent rows picked with the middle two picker heads. Since the picker was fitted with dual tires, all cotton on the ground was gathered from the 6 inches on the dual side and to the center of the row middle.

Field 3 was picked with a John Deere 9960 four-row picker equipped with 2 Boll Savers on the left two picker heads. Four replicated plots were chosen randomly in a previously picked field. All cotton laying on the ground was gathered for 50 feet of row length and 19 inches on each side of the two middle rows.

Field 4 was picked with the John Deere 9960 four-row picker used in field 3. Ten plots were cleaned by removing all cotton laying on the ground before the cotton was picked. Plots were 50 feet in length and 19 inches on each side of the row. The second picker head from the left of the picker was used in the study. Five of the plots were picked with the Boll Saver in operation and five without the Boll Saver in operation. All cotton laying on the ground after the cotton was picked was gathered.

Field 5 was picked with an IH 2055 four-row picker equipped with two Boll Savers on the left two picker heads. Ten plots were located in the field using the same method as field 4.

Results and Discussion

Tests using the same picker head:

The reduction in picker losses using the boll saver attachment was quite variable. Savings ranged from 6.9 to 35.5 with an average of 22.4 pounds of seed cotton per acre. Picker losses were significantly higher in the check plots. No significant difference existed in plant population; however, there was a significant difference in plant height. The average plant height was 1.7 inches higher in the boll saver plots. No specific reason can be attributed to this, since the plots were picked in random locations of the field where plant heights were comparable and no preference in plant heights were given to any treatment.

Tests using different picker heads:

The picker losses averaged 37.2 pounds of seed cotton per acre higher for the check plots than for the boll saver plots. In field 2, a location in the field was selected with a noticeable difference in harvest losses. The purpose of the tests was to determine the difference in losses at this location. The difference was not visibly noticeable throughout the field.

Acknowledgments

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Table 1. 1994 Boll Saver data obtained using the same picker head.

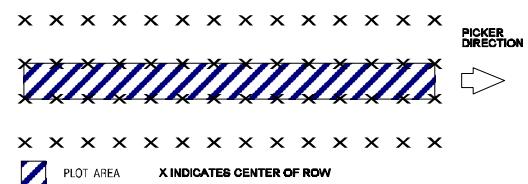
| Field | Picker Losses | | | Plant Population | | Plant Height | |
|-------|-------------------------|-------|-------|------------------|-------|--------------|--------|
| | Lbs of Seed Cotton/Acre | Saver | Check | Saver | Check | Plants/Ft | Inches |
| 1 | 174.3 | 181.2 | 6.9 | 2.19 | 2.48 | 44.5 | 44.7 |
| 4 | 124.6 | 160.1 | 35.5 | 1.28 | 1.36 | 53.2 | 48.6 |
| 5 | 107.4 | 138.3 | 30.9 | 2.32 | 2.56 | 45.5 | 43.7 |
| Avg | 140.0 | 162.4 | 22.4 | 1.96 | 2.17 | 47.3 | 45.6 |

LSD @ Alpha=0.05 Seed Cotton = 19.7 Plant Population = .36
 Plant Height = 1.6

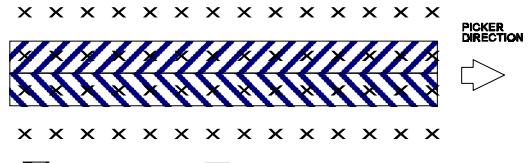
Table 2. Boll Saver data obtained using the different picker heads.

| Field | Picker Losses | | | Plant Population | | Plant Height | |
|-------|-------------------------|-------|-------|------------------|-------|--------------|--------|
| | Lbs of Seed Cotton/Acre | Saver | Check | Saver | Check | Plants/Ft | Inches |
| 2 | 137.4 | 202.7 | 65.3 | 2.10 | 2.30 | 45.3 | 43.5 |
| 3 | 229.8 | 238.8 | 9.0 | 1.75 | 1.20 | 39.1 | 38.1 |
| Avg | 183.6 | 220.8 | 37.2 | 1.93 | 1.75 | 42.2 | 40.8 |

FIELD #1 PLOT LAYOUT



FIELD #2 AND #3 PLOT LAYOUT



FIELD #4 AND #5 PLOT LAYOUT

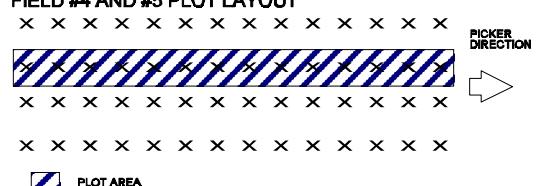


Figure 1 Plot layouts for Boll Saver tests.