

Picking efficiency of

# Cotton Picker

improved by unsynchronized speeds



Cotton picker efficiency increased in field trials using unsynchronized combinations of tractor and spindle drum speeds.

Results of Tests with a Cotton Picker with Tractor and Drum Head Speeds Unsynchronized.

Test year	Speeds		Picker efficiency	Losses		Trash		Grade index
	Tractor	Drum		on plant	on ground	Seed cotton	Lint	
	mph	rpm	%	%	%	%	%	
1957	2.1	80*	94.9	2.8	2.3	5.5	3.3	95
	1.5	80	95.8	1.9	2.3	6.9	4.3	94
	2.1	113	95.9	2.1	2.0	7.2	4.0	95
1958	2.1	80*	89.9	4.7	5.4	7.5	3.4	95
	1.5	80	92.9	2.9	4.2	7.5	2.8	96
	2.1	113	92.2	3.0	4.8	7.3	3.4	96
	2.9	113**	91.1	3.8	5.1	7.1	3.2	96
1959	2.1	80*	92.9	2.9	4.2	10.3	3.4	98
	1.5	80	95.4	1.7	2.9	9.6	3.5	99
	2.1	113	94.7	1.6	3.7	10.3	3.5	99
	2.9	113**	93.6	2.5	3.9	9.3	3.7	100
Average	2.1	80*	92.6	3.5	3.9	7.8	3.4	96
3 years	1.5	80	94.7	2.2	3.1	8.0	3.5	96
	2.1	113	94.3	2.2	3.5	8.3	3.6	97

\* Normal low gear speeds.  
 \*\* Normal second gear speeds

Picking efficiency of barbed-spindle cotton pickers was increased an average of 2.5% in a field test in the San Joaquin Valley.

The travel speed of the pickers was reduced from 2.1 mph to 1.5 mph by changing the low gear ratios in the picker tractor. The speed of the spindle drum drive was not affected by the change, so the drum ran faster than it would when normally synchronized with the forward speed of the tractor.

Further tests with single-row barbed-spindle type cotton pickers having unsynchronized speeds were conducted at Shafter, for three consecutive years in October, during clear dry weather. Different pickers were used each year but they were of the same make and the same picker was used for all tests in any one year.

Four combinations of tractor and spindle drum speeds—two synchronized and two unsynchronized—were tested. In the two synchronized combinations, the picker was operated with normal low gear and normal second gear speeds. One of the unsynchronized combinations was made by reducing the low gear tractor speed from 2.1 mph to 1.5 mph and retaining the normal spindle drum speed of 80 rpm. The second unsynchronized combination used the normal low gear tractor speed of 2.1 mph and the normal second gear spindle drum speed of 113 rpm.

The cotton harvested in the tests varied in yield from 1.5 to 3.0 bales per acre. The plants were 3' to 5' in height, standing erect, and 75% to 90% defoliated. The results of the tests are given in the accompanying table. The picking efficiencies of the two unsynchronized speed combinations were from 1% to 3% greater than either of the synchronized speeds in all tests. The highest efficiency was obtained with the unsynchronized speeds of 1.5 mph for the tractor and 80 rpm for the spindle drum. The lowest efficiency was obtained with normal low gear synchronized speeds. There was no significant difference in the trash content of either the seed cotton or the lint, nor in the grade index. No differences in damage to the plants could be observed in any of the trials.

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