

planted 50 feet long. Each planting was replicated four times.
 **Plant populations ranged from 3.9 to 4.1 plants per foot or from
 53,650 to 56,400 per acre. The June 15 population ranged from
 2.6 to 3.1 plants per foot or from 35,766 to 42,644 per acre.

NARROW-ROW HARVESTING

M.D. Cannon

Field G-3, Cotton Research Center: Field was planted to Delta-Pine 16 on March 25. Spacings were conventional single, 40-inch row check, and three double-row configurations on 40-inch centers-- 6-inch, 8-inch and 14-inch. The planting rate for all single-row was 12 lb/A; for double-row it was 24 lb/A. Culture was normal for the farm until harvest. The plots were harvested with a conventional spindle harvester after complete defoliation and was second-picked on the same date. Cleanings were made from three selected sampling areas in each plot. Results are shown in the table below.

Total Yield and Picking Efficiency when using a Spindle Machine for Harvesting Narrow-row Cotton.

Planting pattern	Total yield, pounds S/C per acre	Harvesting efficiency
Single, 40" row check	3,043 a	86.24 a
Double-row 6"	3,095 a	81.74 a
Double-row 8"	3,068 a	82.03 a
Double-row 14"	3,126 a	77.92 a

There were no significant differences at the 5% level in either total yield or harvesting efficiency.

An extended period of cold weather followed planting; the seeds failed to germinate and emerge, and the plots were replanted on April 14th.

NARROW-ROW HARVESTING

M.D. Cannon

Row-spacing tests, planted at the normal time, at Marana and Safford gave the following results:

SAFFORD: 1975, Pounds Seed Cotton Harvested, Left in the Field and Picking Efficiency after Two Pickings with a Single-Row Spindle Machine

Treatment	Pounds S/C per acre			Harvesting eff., Percent
	Picked	Lost	Total Yield	
Single 40" row 13.8#/acre	1,802	291	2,093 b	85.93 a
2 rows, 6" apart 27.6#/acre	1,545	477	2,022 b	76.33 b
2 rows, 8" apart 27.6#/acre	1,642	643	2,285 a	71.00 c
2 rows, 10" apart 27.6#/acre	1,376	984	2,360 a	58.20 d

MARANA: 1975, Pounds Seed Cotton Harvested, Lost in the Field, Total and Picking Efficiency after Two Pickings with a Single-row Spindle Machine

Treatment	Pounds S/C per acre			Harvesting eff., Percent
	Picked	Lost	Total Yield	
2 rows, 6" apart 24#/acre	2,243	401	2,644 a	84.62 ab
2 rows, 8" apart 24#/acre	2,307	493	2,800 a	82.17 b
2 rows, 10" apart 24#/acre	1,735	646	2,381 a	72.78 c
Single row 24#/acre	2,316	324	2,640 a	86.55 a
2 rows, 12" apart 12#/acre	1,901	739	2,640 a	71.96 c

At Safford the eight- and 10-inch spacings gave significantly higher total yields, but the higher picking efficiency of the single-row planting more than offset the gain from wider spacing. At Marana, there was no difference in yield by spacing. At both locations there were serious losses from trying to harvest the double-row cotton with a spindle machine--losses too great to ignore.

WATER AND FERTILIZER MANAGEMENT OF SHORT-SEASON, HIGH-DENSITY COTTON

R.A. Mohammed, D.D. Fangmeier, R.E. Briggs, and J.L. Abbott

INTRODUCTION

Water management of short-season, high-density cotton was studied for three seasons (1972, 1973 and 1974). Various irrigation schedules and nitrogen fertilizer application rates were examined. Data on amounts of water applied, yield, boll and fiber properties, soil nitrate levels and cotton petiole nitrate levels were collected.

The three-year study was conducted at The University of Arizona Experimental Farm at Marana. The research was funded by a grant from the Cooperative States Research Service (CSRS).

PROCEDURE

During each of the three years two separate experiments were conducted. One dealt mainly with establishing irrigation management criteria and the other was mainly used to determine fertilizer management criteria. The irrigation experiment will be discussed here in some detail while the fertilizer experiment will only be briefly mentioned.

The 1972 and 1973 experiments were discussed in the 1974 and 1975 Cotton Report, respectively. Some data from 1974 will be presented here. This report will present a summary of the three years of the irrigation experiment.

For the 1974 season, four water treatments were investigated:

1. W1 -- moderate stress (allows 55% available soil moisture depletion before irrigation) and early termination.
2. W2 -- moderate stress and late irrigation termination.
3. W3 -- dry (allows 70% available soil moisture depletion before irrigation) and early irrigation termination.
4. W4 -- dry and late irrigation termination.

For 1974, DPL-16 cotton was studied at a population of 60,000 plants per acre. The nitrogen fertilizer rates were zero pounds of N per acre and 100 pounds of N per acre. The plots that received