DISTRIBUTION OF SALINITY UNDER DRIP IRRIGATION

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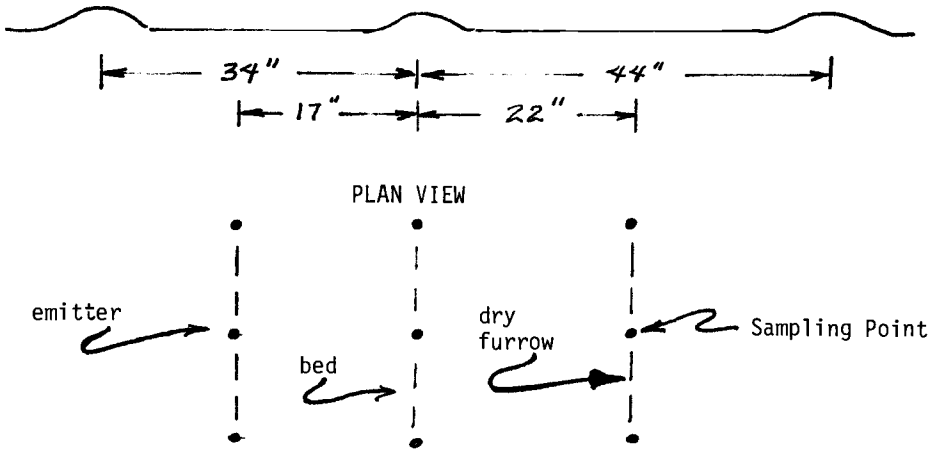
The distribution of salinity in a saline soil under drip irrigation was identified after one season of cotton production. Salinity of the water is approximately 3500 p.p.m. total soluble salts with a SAR value of 8.5 and an adjusted SAR of 23.2. Irrigation was begun April 23 on variable row spacing of 34"-44" and terminated October 3.

Three points each were sampled in the irrigated furrow, the bed, and the dry furrow with 19.6 inches between sampling points. The sampling points in the bed were 17 inches from the furrow line through the emitter and the line in the dry furrow was 22 inches from the bed line.

Electroconductivity values in the first foot were 2.77 times higher in the dry furrow than in the irrigated furrow. The ESP values in the dry furrow averaged 1.3 and 1.16 times higher than the irrigated furrow in the first and second foot of soil, respectively.



	Line A	Line B	Line C
Average Ec 0"-12"	1.62	2.13	4.5
Average ESP 9-12	9.37	9.00	12.20
Average Ec 12-24	3.81	5.67	9.73
Average ESP 12-24"	13.97	14.07	16.30

Drip Irrigated Cotton in Cochise County

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Summary

A drip irrigation system was installed on 9 acres of the Carl Barton farm in Pearce, Arizona. T-Tape irrigation lines were buried approximately 6 inches below each seed row. In each of five areas of the field two plots 14 feet long were established to compare productivity of plant populations of 6 plants versus 2 plants per foot. Variable discharge in some T-Tape lateral lines, was detected 12 weeks after planting and required replacement in August. As a result five plots received an estimated 20 percent less water than the other five plots. Blooms were tagged and counted each day from July 20 through August 30. In the fall bolls were hand-picked as they opened and separated according to the date on the tag, counted, and weighed. Values in Table 1 represent number of blooms produced, percent of blooms that developed into bolls, pounds of lint per acre produced and boll size. Also, yield results of machine harvesting are presented in Table 2. These results compare low water rows and high water rows. Figure 1 illustrates petiole nitrate levels in furrow irrigated vs. drip irrigated cotton on the Carl Barton farm.

Results of Table 1 show that proper plant spacing is important. A population of 6 plants/ft (82,000 per acre) produced a greater number of flowers and a higher total yield than 2 plants/ft (27,500 per acre). Water input was also important in that rows receiving the most water produced a greater number of flowers and a higher total yield than those receiving less water. Eighty one percent of all blooms that developed into bolls and seventy four percent of total yield was made from flowers that opened by August 9, thus stressing the importance of early season management. Plots with low water input cut out earlier than those with high water input. Yield results of machine harvested rows show a