

Sprinkler Versus Surface Irrigation of Cotton

(K. R. Frost)

A comparison test of two methods of irrigation was run on the Campbell Avenue Farm at Tucson. The plots for each treatment were in quadruplicate. To obtain equal stands all plots were germinated by surface irrigation. The surface plots were irrigated rapidly one at a time using two wells with a flow of 650 g.p.m. resulting in 4.5" per application and totaling seven irrigations plus rainfall.

Approximately 2.8" were applied each irrigation by a Sequa-matic sprinkler system. This system had five 1-inch laterals with 6 sprinklers per lateral and equipped with 1/8" nozzles spaced at 30' x 30'. One sprinkler per lateral operated automatically at one time. The pressure applied was about 60 psi. A total of 2.27 acre feet per acre was applied during the season by the sprinklers and 3.01 on the surface irrigated area. These totals include rainfall up to September and a 4" pre-plant irrigation. Yield of seed cotton per acre foot of water was 1120 pounds for the sprinkled area compared with 675 pounds for the surface irrigated.

Treatment	Appl. Rate	Border Area Sq. Ft.	Ac. Ft. per Ac.	Yield Seed-Cotton	lb. Seed- Cotton/Ac. ft.
Sprinkler	0.35 in/hr.	6000	2.27	2540	1120
Border	60 g.p.m. per foot of width	6000	3.01	2030	675

A Progress Report On Sprinkler Irrigation Of Cotton With Highly Saline Water

(C. D. Busch & F. Turner, Jr.)

A sprinkler irrigation system was installed on three acres of the Safford Experiment Station late in the Spring of 1964 to determine if cotton can be successfully sprinkler-irrigated with high salt-content water. The well, serving the sprinkler system, has an average salt content over 3,000 parts per million. At this concentration the water carries four to five tons of salt in each acre-foot.

Three comparisons were chosen for the effect they might have on crop tolerance to sprinkler-applied saline water. They were:

- a. day vs. night irrigation
- b. long staple (S-2) vs. short staple (1517D) cotton
- c. flat vs. bed planting.

In addition to the above comparisons, adjacent field areas provide opportunity for comparison with furrow irrigation.

Irrigations for both the sprinkler and surface plots were scheduled from tensiometer readings to insure that all plots received adequate, but not excessive moisture. Tensiometers were set at 12, 24, and 48 inch depths. The twelve inch depth with a tensiometer scale reading of 50 or higher was used to