EFFECT OF IRRIGATION ON THE RESUMPTION OF GROWTH OF GUAYULE TRANSPLANTS

D. C. TINGEY AND W. H. FOOTE

IN THE production of guayule, Parthenium argentatum A. Gray, by the Intercontinental Rubber Company, it was the practice to grow the stock from seed in nurseries for a season before transplanting into the field. Under dry-land conditions at Salinas, Calif., where the company operated, the transplanting was done in the late winter and early spring. This coincided with the rainy season which supplied sufficient moisture to get the plants started before the dry season set in. However, on the Emergency Rubber Project it was desirable, if possible, to lengthen the transplanting season so as to make more efficient use of men and equipment. Furthermore, to plant the acreage originally planned, it was necessary to extend the production to irrigated lands, and into other parts of California, Arizona, New Mexico, and Texas. This included a large area over which the precipitation varies in amount and seasonal distribution.

The generally low percentage of survival from transplantings made in the spring of 1942 by the Emergency Rubber Project and again from field and experimental plantings made in the spring of 1943 indicated the need for investigations to determine, if possible, the probable causes and to devise methods of handling guayule to insure better stands. The study herein reported was one dealing with irrigation as related to the resumption of growth of transplants.

METHODS AND MATERIALS

Two experiments were conducted. The first (Exp. 53) was started on April 24, and the second (Exp. 61) on June 3, 1944. The stock used was obtained from the Alisal and Bakersfield nurseries, respectively. The stock was hardened and in good condition at the time of transplanting. Plants with roots from 6 to 7 inches in length and a crown diameter from 5 to 12 thirty-seconds of an inch were used. The irrigation furrow was placed midway between the two rows and, in irrigating, the water was allowed to run until the soil around the plants was wet. The row spacing was 28 inches with the plants spaced approximately 20 inches in the row.

Experiment 53 consisted of topping treatments and irrigating at different intervals after transplanting. The topping treatment consisted of (a) clipping off all but about 1 inch of the tops and removing any leaves present, (b) the same as (a) but without removing the remaining leaves, and (c) removing all but about 3 inches of the tops.

The irrigation treatments originally planned for experiment 53 involved irrigating (a) immediately, (b) 2 days, (c) 4 days, and (d) 8 days after transplanting. However, after a rain of 0.46 inch on the third day after the experiment was started, treatments (c) and (d) were changed. Treatment (c) was not irrigated until 2 months after transplanting and treatment (d) was not irrigated until 3 months after transplanting.

In experiment 61 part of the plots were nonirrigated and part were irrigated

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2Formerly Senior Agronomist and Assistant Agronomist, respectively; now Associate Agronomist, Utah State Agricultural College and Experiment Station, and Graduate Assistant, Division of Agronomy and Plant Genetics, University of Minnesota, respectively.

3Forest Service, U. S. Dept. of Agriculture.