Krim-Saghyz, *Taraxacum megalorrhizon*, is a rubber-bearing dandelion native to the Crimean area of Russia. Seeds of krim-saghyz and of kok-saghyz (*T. kok-saghyz*) were supplied to the United States Department of Agriculture by Russia shortly after the entrance of the United States into World War II. During the war years, major attention was given to study of the rubber-production capabilities of kok-saghyz, which has reportedly been grown extensively in Russia. A report on the war-time studies on rubber production from kok-saghyz in the United States has been made by Whaley and Bowen. Little attention was given to krim-saghyz. It is understood that the Russians have not cultivated it to any great extent, because it is climatically adapted to a relatively small area, in contrast with the much wider climatic adaptation of kok-saghyz. A small planting of krim-saghyz made during the war by George Harrison at the U. S. Cotton Field Station, Shafter, Calif., gave results indicating its possible superiority over kok-saghyz as a rubber producer under San Joaquin Valley conditions. The war-time rubber research program was curtailed before the possibilities of krim-saghyz could be fully evaluated. Upon reactivation in 1948 of the agronomic research program on domestic rubber-producing plants, it appeared desirable to study further the potentialities of krim-saghyz as a source of rubber. The plant is highly apomictic and uniform, and it is to be expected that improvement through breeding will be relatively slow in comparison with that of the highly sexual and variable kok-saghyz. Accordingly, an experiment was established to test the effects of variations in plant density, soil moisture, and soil fertility upon rubber production by krim-saghyz.

As a supplement to the main experiment, a planting of kok-saghyz, krim-saghyz, and tau-saghyz (*Scorzoner a taur-saghyz*, closely related to the garden salsify and also native to Russia) was made for the purpose of comparing the rubber-production capabilities of these three plants. The kok-saghyz seed was from some of the selections made during the war from the Russian imports.

**EXPERIMENTAL PROCEDURES**

In the main experiment, 3 soil moisture treatments, 4 fertilizer treatments, and 3 stand levels were factorially combined in a split-split plot design, with 4 complete replications. The experimental area was bedded on 28-inch centers; 2 rows, 12 inches apart, were seeded on each bed. The moisture plots were 12 rows wide and 80 feet long; stand plots, 4 rows wide and 80 feet long, were randomized within moisture plots; and fertilizer plots and 20 feet long, were in turn randomized within fertilizer plots. Buffer strips 4 rows (2 beds) wide separated plots within blocks.

The experiment was established on Greenfield dark gray soil at Salinas, Calif., on Nov. 22, 1948, by planting rates to give stands averaging (S, thin stand) 19.5, and (D, dense stand) 34 plants per row. Fertilizer variables were established as follows:

- **Fertility level resulting from application of** 50 pounds N in April 1949 (N); F4, fertility level resulting from application of 100 pounds P4O6 per acre at seeding; and F6, fertility level resulting from application of 50 pounds P4O6 and 75 pounds K2O per acre at seeding.

Soil moisture were randomized at the 6-inch depth in the SfP plots using the following values: M1 (dry), approximately 15 atmospheres; M2 (medium), approximately 3.5 atmospheres; and M3 (wet), 0.85 atmosphere, as measured by psychrometers.

In accordance with these criteria for the need for irrigation, the M1, M2, and M3 plots were irrigated 5, 7, and 9 times, respectively, between April 20 and Oct. 28, 1949. Soil moisture observations were omitted in 1950; between April and harvest, the M3 plots were irrigated three times each.

All plots of the experiment were sampled in June 1950. The plots of fertility treatments F3 (no N) and F4 (NPK), stand levels S1 (thin) and S2 (dense) were sampled in October 1949 and May 1950. At each date all roots to a depth of 15 inches were dug by hand from 5 feet of row at a random location within each plot. The plant tops were removed at the crown, counted, and the samples were dried at 65°C, ground, and analyzed for rubber. Analyses of variance were made.

The kok-, krim-, and tau-saghyz of the supplemental experiment were seeded in randomized blocks, with five replications. In November 1948, adjoining the main experiment, krim-saghyz seeds were planted at the rate of approximately 15 seeds per foot of row; the quantity of tau-saghyz seed admitted the planting of only 15 seeds per foot. The krim-saghyz plots were sampled 7½ months after seeding; all 3 plants were sampled at 11½ and 20 months, as in the main experiment. Counts were made of all surviving plants per foot of row, and yield of roots and yield of rubber were determined.

Approximately 11 months after seeding, roots of krim-saghyz in the supplemental experiment were hand harvested and divided into depth increments to 12 inches, in order to obtain the quantity of rubber that could be procured from the plants to different depths.

**RESULTS AND DISCUSSION**