

Root-knot-nematode-infected (left) and healthy roots of Rillito soybean.



Management of root-knot nematode on Rillito soybeans

Demetrios G. Kontaxis □ Robert W. Hagemann

Soybeans, *Glycine max*, have become a crop of economic appeal to many farmers in the Imperial County and elsewhere in California: In Imperial County during 1979 more than 3,000 acres were planted to soybeans, mostly the Rillito cultivar. Soybeans are subject to attack by root-knot, cyst, lesion, reniform, stunt, and dagger nematodes.

We conducted an experiment in Imperial County to evaluate Rillito for root-knot resistance. A field with sandy-loam soil was planted to Rillito following sugarbeets. The field was infested in spots with root-knot nematodes, and the sugarbeets grown in those spots the previous year had been severely infected.

Telone II (1,3-Dichloropropene) at 6 gallons per acre, was shank-injected 10 inches deep at listing time (June 1, 1978) in the bed. Twelve days later the field was planted to Rillito and furrow-irrigated. The experimental plots were four beds across the field with two plant rows per bed. Beds were 42 inches wide. Plots were randomized and replicated five times. Soil in the center of beds was approximately 88° F at a depth of 12 inches.

On October 5, 1978, 10 plants from each 100-foot plot were sampled at random and examined for root-knot galls. The crop was

machine-harvested on November 7, 1978 (two beds, 50 feet long in each plot harvested).

Results and discussion

Two percent of the treated plants and 68 percent of the controls (nontreated) showed galls of various sizes and numbers.

Treated and nontreated plots yielded 25 and 18.6 bushels per acre respectively. Yield data were statistically significant at the 1 percent level (F49.78). Plants of the treated plots were generally taller than those of the nontreated plots.

The root-knot nematode was identified as *Meloidogyne javanica* by Dr. S.D. Van Gundy, Department of Nematology, University of California, Riverside.

The data show that Rillito cultivar is susceptible to root-knot nematodes and that such infection can significantly reduce yield. Based on this information, soybeans should not follow a crop that is susceptible to root-knot nematodes unless the soil is properly treated before planting.

Demetrios G. Kontaxis is now Farm Advisor in Contra Costa County (960 East Street, Pittsburg, CA 94565) and Robert W. Hagemann is Farm Advisor, Imperial County.

Rooting and growth of dormant grapevine cuttings

Dormant cuttings have occasionally been stored under refrigeration for more than a year and, when planted, have grown satisfactorily with no detrimental effects. To learn how cold storage affects rooting and growth, we kept cuttings under refrigeration for one or two years and then planted them in the nursery with fresh dormant cuttings.

Methods

Cuttings of wine cultivars Cabernet Sauvignon, Carignane, and Zinfandel were made up into bundles of 100 and placed upright in 4x4x3-foot fruit bins in January 1977. Moist wood shavings were packed around the cuttings, and a canvas cover was placed over the tops of the bins to prevent drying. They were stored at 32° to 35° F for one year.

In January 1978, some cuttings of each cultivar held for one year in refrigeration were taken from the bins and made into replications of 10 cuttings. At the same time, fresh dormant cuttings of these same cultivars were combined into similar small bundles. For the 1978 experiment, only fresh and one-year-old stored cuttings were compared.

Also in January 1978, bundles of 100 freshly made dormant cuttings of these same cultivars were placed in refrigeration along with bundles of one-year-old, dormant cuttings to be used for the 1979 planting season.

In both years the cuttings were planted in the nursery at the Kearney Horticultural Field Station at Parlier in a randomized order in nursery rows. The dormant cuttings, in 11 to 15 replications, depending upon the cultivar, were then placed in temperature-controlled callusing boxes and held at 80° to 85° F until they had callused, top shoots were out 1 to 2 inches, and roots were beginning to appear.

In the 1978 experiment, the cuttings were planted on April 20. The rootings were dug in January 1979, graded into four sizes, counted, and weighed.

The experiment was repeated in 1979 and cuttings that had been refrigerated for two years were included. Cuttings were made up into replications on February 14 and then held in heated callusing boxes for 2 weeks