BORON DEFICIENCY RELATIONS IN SUGAR BEETS GROWN FOR SEED IN OREGON

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BORON deficiency in sugar beets grown for sugar was described by Brandenburg (1) in Europe in 1931, and since that date the deficiency has been recognized and described in many localities. Kotila and Coons (3) were the first to connect certain root troubles observed in Michigan and Ohio with boron deficiency. Berger and Truog (2) have pointed out the desirability of using plants with a high boron requirement to test for boron deficiency in soils and the sugar beet is one of the plants that has been commonly used. Observations reported in this paper indicate that the sensitivity of the beet plant as a boron-deficiency indicator can be heightened by selecting the growing season that will provide the possibility of observations either during periods of freezing temperature or during the period of seedstalk development.

HISTORY OF SUGAR BEET SEED GROWING IN OREGON

The development of sugar beet seed production in Oregon, leading to the discovery of some new aspects of boron deficiency, has taken place in the past five years. Exploratory investigations of sugar beet seed growing in Oregon were started in the fall of 1936 by George T. Scott, Manager of the West Coast Beet Seed Company, in cooperation with the Oregon Experiment Station. In that fall, at the request of Mr. Scott, the Division of Sugar Plant Investigations sent F. C. Reimer, Superintendent of the Southern Branch Experiment station at Talent, Ore., seed of several varieties, some of which were so low in bolting tendency that satisfactory reproduction by the method of overwintering in the field (4) had been impossible in the previously established seed-growing areas.

During the summer of 1937 these lots all flowered uniformly during the same period and produced seed of satisfactory quality. This was the first successful demonstration of sugar beet seed growing in the Pacific Northwest by the overwintering method. Tests were expanded the following fall to include a field planting at Corvallis, Ore., in cooperation with the Farm Crops Division of the Oregon Experiment Station and under the direction of G. R. Hyslop. Following these trials the sugar beet seed industry in southwestern and western Oregon expanded rapidly. More than 500 acres were planted in the fall of 1939 and in 1940, 1,742 acres were planted in Oregon with

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1 Contribution from West Coast Beet Seed Company, Salem, Ore., and Salt Lake City Field Laboratory, Division of Sugar Plant Investigations, Bureau of Plant Industry, U. S. Dept. of Agriculture. Received for publication April 8, 1941.
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3 Figures in parenthesis refer to “Literature Cited”, p. 665.