CULTURAL TESTS WITH THE JERUSALEM ARTICHOKE

ARTHUR ANDERSON AND T. A. KIesselbach

The Jerusalem artichoke, Helianthus tuberosus, has been grown to a limited extent for many years as a forage and vegetable crop. Increased interest has been shown recently in its culture in view of the possible use of the tubers in the commercial production of levulose sugar. Shoemaker in a recent paper, reviews the literature pertaining to the history and culture of the artichoke and discusses its uses and adaptation in this country. In the absence of local experience with this crop, a number of tests concerning its production were undertaken at the Nebraska Agricultural Experiment Station during the three-year period, 1925 to 1927.

Tubers were secured for planting in 1925 from the Bureau of Plant Industry of the United States Department of Agriculture. Due to the limited supply of tuber seed-stock, only one field plat was planted in 1925. Tubers for the 1926 and 1927 plantings trace back to those grown in 1925. The tests were enlarged in 1926 and 1927 to include comparisons as to date of planting, size of tuber seed piece, and spacing within the row. These tests were made in duplicate plats 160 feet long, which contained three rows spaced 3½ feet apart. The seed pieces were dropped in furrows, like potatoes, and covered 3 inches deep. The yields are based on the middle rows of duplicate plats. Four cultivations were given, the same as required for corn.

It has been found equally satisfactory to carry over the seed stock for planting the following season, either by storage in a vegetable cellar, as potatoes, or by leaving them in the ground until the following spring. (See Fig. 1.)

The yields of tubers and of tops, consisting of the stems and leaves, and the sugar resulting from complete hydrolysis of the carbohydrates of the tubers are reported for the three-year period, 1925 to 1927, in Table 1. Analyses showing the comparative food constituents of the tops and tubers are given in Table 2. The results per-

1 Contribution from the Department of Agronomy, Nebraska Agricultural Experiment Station, Lincoln, Nebr., as paper No. 74, Journal Series. Published with the approval of the Director. Received for publication April 10, 1929.

2 Agronomists. Acknowledgment is made to Director W. W. Burr for initiating these tests and to L. L. Zook, Agronomist of the North Platte Substation, E. M. Brouse, Superintendent of the Valentine Substation, and J. A. Holden, Superintendent of the Mitchell Substation, for supplying the field data from their respective substations. All sugar determinations and fodder analyses reported in this paper were made under the direction of Dr. M. J. Blish, Station Chemist.