

SUGAR BEETS

AMERICAN-GROWN SUGAR BEET SEED.

Chemical Problems—Prof. Robert Stewart, A. C. U.

"It is absolutely essential to success that we secure the best quality of seed, and past experience has conclusively shown that we cannot depend upon doing so from abroad. We must raise it ourselves, and in such a careful, scientific manner that it will not only be of the best quality, but will have such characteristics as will make it adapted to the particular needs and requirements of the locality where it is to be sown. Seed raised on a particular soil and under certain climatic conditions may not be best suited for planting in like soils and under similar climatic condition; in fact, very often it is not. Seed for comparatively poor soil may do best on rich soil, or that raised in the East may do best when sown in the West. Only study and personal experience on the part of each factory

manager can determine what seed is best suited for the conditions in his region.

"The work was begun by securing the best varieties of European seed and also all known kinds of American-grown seed and growing them for comparison. Of these the best four strains was distributed in Montana. Tests of the beets raised showed that the richest lot contained 22.8 per cent sugar. The largest estimated yield of sugar per acre—5825 pounds—was obtained on the Station farm. Vilmorin Imperial, French Red Top, and Utah sugar beets, grown in comparison with the Washington-grown Kleinwanzlebener seed, were inferior in every particular, with the exception that the Utah-grown seed showed a purity of 1.08 per cent greater than the Kleinwanzlebener. The average of 22 beets grown in various parts of the State from this seed contained 16.9 per cent of sugar with 82.73 per cent purity.

"While the experiments have not been continued long enough to war-

rant positive conclusions, the results obtained clearly indicate that the home production of pedigreed sugar beet seeds may be profitably undertaken in the United States."

It is only a question of time when the importation of beet seed into this country will cease. In a recent Government report we note that during 1906 there were forty-nine experimenters under the direction of the United States Department of Agriculture. The tests were made in various States with the co-operation of the State Experiment Stations with a view of determining the comparative value of American and foreign beet seed. On 278 acres the home seed yielded an average of 14 tons of beets per acre. These roots had an average polarization of 14.9, meaning over 4000 pounds of sugar to the acre. The imported seed showed an average yield per acre of only 12 tons, with 50 per cent sugar, meaning 36000 pounds of sugar to the acre. A writer on this subject shows that as 376,000 acres of land were devoted to beets last year, the home seed would have placed an additional 226,000,000 pounds of sugar on the market. The argument looks well on paper, but is somewhat misleading

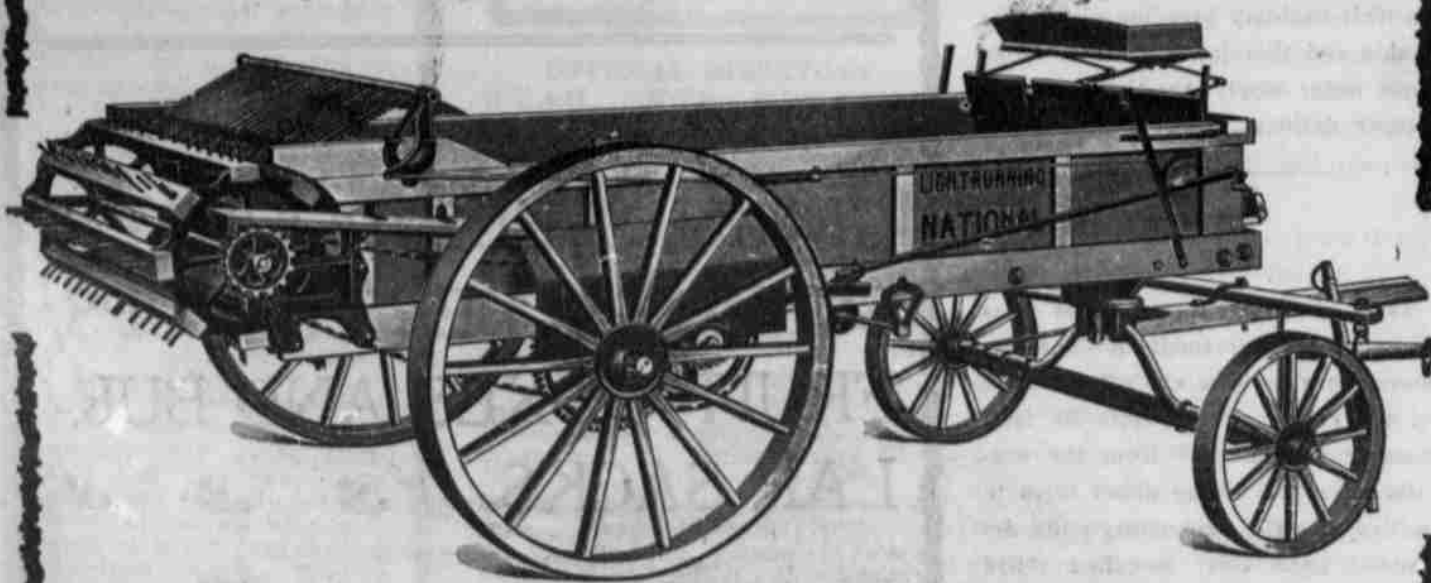
and in the long run would certainly lead to surprises.

Excellent beet seed may be obtained without any special effort, but unless the selection is kept up the quality will fall off. If we Americans undertake to grow beet seed it should be continued from year to year and not confined to experiments, which mean little or nothing. We are informed that at Fairfield, Washington, this is being done and 15,000 pounds of seed were selected as foundation stocks, and all beets of exceptional quality were saved and planted the next spring as mother beets for seed production. In 1904 one-half of the seed secured from these individual plants was planted and the best specimens of beets preserved for the production for the first crop of elite seed. The other half of the seed was saved for planting in 1905, and from the beets produced the next year's supply of elite seed will be grown.

"It is reported that during 1904 a Washington state sugar beet grower produced a lot of some 300 roots testing 21 per cent or more of sugar in the beet, with composite tests showing coefficients of purity ranging from 86 to 91.9. In this lot were included 15 roots containing 24 per cent, 50 with 23 per cent, and 100 with 22 per cent of sugar in the beet. Results of variety tests of sugar beet seed from American and European growers in 1904 show a range of from 15 to 17.7 per cent of sugar in the beet, and a range in coefficient of purity from 83.7 to 87.9. The low as well as the high figures were secured in Kleinwanzlebener sugar beet from American grown seed. The highest yield per acre, 13.17 tons, was obtained from Kleinwanzlebener seed grown at Fairfield, Wash.

"In 1904 this Department distributed some 4000 pounds of California grown and 11,000 pounds of Washington grown Kleinwanzlebener sugar beet seed, in order to compare it with the seed furnished to farmers by the factories. Of the reports received, 73 per cent of those planting Washington grown seed and 63 per cent of those planting the California grown seed found it to be of quicker, stronger and healthier germination, and none found it inferior to the other seed. The returns from 561 acres showed that the sugar content of the beets from the Washington grown

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