MICHIGAN AGRICULTURAL COLLEGE

EXPERIMENT STATION

PRESS BULLETIN NO. 13

FERTILIZERS FOR SUGAR BEETS

Bulletin No. 179 of the State Experiment Station, which will be sent out shortly, reports the results of experiments with sugar beets at the College farm during the year 1899, conducted by Prof. J. D. Towar, the Agriculturist of the Station.

Owing perhaps to the severe drouth early in the season, subsoiling just before preparing the seed bed resulted in the practical failure of the crop. Plowing under coarse manure, applied during the winter previous, gave increased tonnage, with a normal content of sugar, and without making the beets ill shaped; but where the coarse manure was applied late in the spring and plowed under just before planting, the resulting crop contained many prongy beets. Where the manure was well rotted and spread on the surface after plowing, but well harrowed in, the beets were smooth, straight and rich in sugar.

Twenty loads per acre of well rotted stable manure gave a smaller yield than four hundred eighty pounds of home mixed fertilizer per acre, the fertilizer costing twenty-seven dollars and fifty cents per ton, the soil being a very sandy loam.

Nitrate of soda alone gave a fair yield of beets, with a per cent of sugar lower than the normal, but when applied in combination with potash and phosphoric acid it increased the yield without reducing the richness in sugar. Nitrate of soda gave better results than sulphate of ammonia.

On a sandy loam fairly rich in organic matter wood ashes and salt slightly increased the yield.

The results with lime varied according to the nature of the soil. On loams the application of air slaked lime slightly increased the yield; but on muck that had been cultivated over ten years and therefore was well subdued and not decidedly acid, lime worked an injury to the crop, reducing both the yield and per cent of sugar, when applied with normal quantities of nitrogen, phosphoric acid and potash, but when applied alone on muck it increased the tonnage over adjoining plots to which nothing had been applied, but reduced the per cent of sugar.

A comparative test of the various kinds of soil showed the largest yield of sugar per acre from clay loam; next in order stood sandy loam, next sand, next clay, and last of all muck. In tonnage of beets per acre the order was the same except that muck stood next to clay loam.

On the muck all forms of potash gave increased yield, and unleached ashes proved a good fertilizer.

The plots earliest sown gave larger tonnage and more sugar per acre than other plots sown later in the season, the experiment continuing from the middle of April to the first of June.

Under the peculiar conditions of climate and soil existing at the College, beets harvested in October were richer in sugar than those harvested later in the season, the per cent of sugar declining gradually as the season advanced.

The illustrations in the bulletin show, among other things, the relation between the size of the beets and the per cent of sugar, a very interesting case of scab on beets grown on land devoted to potatoes the year preceding, and a case of gall on a beet grown on soil which had produced a crop of beets the preceding season.

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Director.

Agricultural College, Mich.,
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