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RESEARCH

## Report for 1929

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## Mangolds

### Rothamsted Research

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| Spacing as set out                                          | <i>Rothamsted.</i>                            |                                              | <i>Woburn.</i>                                   |                                                   |
|-------------------------------------------------------------|-----------------------------------------------|----------------------------------------------|--------------------------------------------------|---------------------------------------------------|
|                                                             | 1928<br>24-inch rows.<br>10-inch<br>singling. | 1929<br>22-inch rows.<br>8-inch<br>singling. | 1929 I<br>22-inch rows.<br>8-9-inch<br>singling. | 1929 II<br>22-inch rows.<br>8-9-inch<br>singling. |
| No. of plants<br>expected ..                                | 26,000                                        | 36,000                                       | 35,000                                           | 35,000                                            |
| No. harvested ..                                            | 17,715                                        | 30,350                                       | 31,800                                           | 32,700                                            |
| Plants obtained as<br>percentage of what<br>was expected .. | 68%                                           | 83%                                          | 88%                                              | 94%                                               |
| Yield tons per acre<br>average ..                           | 9.15                                          | 7.43                                         | 8.07                                             | 8.23                                              |
| Average weight per<br>root (lb.) ..                         | 1.16                                          | 0.55                                         | 0.57                                             | 0.56                                              |

## MANGOLDS.

The Barnfield mangold experiments bring out clearly the harmful effects of failure to balance nitrogenous manure with potash. So long as the complete fertiliser is given the plant grows well and responds to heavy dressings of manure: when potash is omitted, however, the leaves lose efficiency, they make much less root and tend to become diseased, and the whole plant is weakened so that the mortality is considerable. The plants are grown in rows 26½ inches apart: there are on the completely manured plots some 30,000 to 34,000 per acre. But where high nitrogen manuring is not balanced by potash the number of plants is much less and the roots are smaller.

This is shown in the following table:—

*Barnfield Mangolds, 1924-29.*

No. of plants and yield per acre *Roots* and *Leaves*.

| Year     | Heavy Nitrogenous Manuring with<br>Potash<br>(Plot 4 A.C.) |                                 |                                  | Heavy Nitrogenous Manuring without<br>Potash<br>(Plot 5 A.C.) |                                 |                                  |
|----------|------------------------------------------------------------|---------------------------------|----------------------------------|---------------------------------------------------------------|---------------------------------|----------------------------------|
|          | No. of<br>Plants                                           | Roots<br>Yield per acre<br>tons | Leaves<br>Yield per acre<br>tons | No. of<br>Plants                                              | Roots<br>Yield per acre<br>tons | Leaves<br>Yield per acre<br>tons |
| 1924 ..  | 3328                                                       | 34.16                           | 5.62                             | 2573                                                          | 15.81                           | 4.83                             |
| 1925 ..  | 3201                                                       | 22.43                           | 6.05                             | 2356                                                          | 6.30                            | 4.51                             |
| 1926 ..  | 3035                                                       | 25.77                           | 4.12                             | 1996                                                          | 8.29                            | 2.25                             |
| 1927* .. | 3423                                                       | 13.42                           | 3.89                             | 3263                                                          | 12.79                           | 3.59                             |
| 1928 ..  | 2978                                                       | 29.22                           | 5.01                             | 2225                                                          | 9.55                            | 2.83                             |
| 1929 ..  | 3075                                                       | 20.67                           | 3.94                             | 1741                                                          | 4.71                            | 2.09                             |

\* Swedes.

## BARLEY.

In 1929 comparisons were made between sulphate of ammonia, muriate of ammonia, cyanamide and nitrate of soda. Of these, nitrate of soda gave the largest increase, possibly as the result of the dry conditions; the others, however, came out practically alike. One cwt. of sulphate of ammonia gave its usual return of 6 bushels of barley, a second cwt. gave an additional 4 bushels. It has been our usual experience that cyanamide does as well as sulphate of ammonia. This year, in common with muriate of ammonia, it