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Effects of Scion and Stock on Root Growth of Grafting Plants between Two Potato Varieties with Different Root Mass

Kazuto IWAMA, OSAMU TAKATA, Masatoshi OHNAMI and Kimio NAKASEKO

- 1) Faculty of Agriculture Hokkaido University
- 2) Faculty of Agriculture Hokkaido University
- 3) Faculty of Agriculture Hokkaido University:(Present address)Hokkaido Prefectural Agricultural Experiment Stations
- 4) Faculty of Agriculture Hokkaido University

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Abstract:

The relationships of root growth with shoot and tuber growths have still not been clear in potato plants. The aim of this report is to clarify whether a varietal difference in root growth of potato plants is determined by some inherent characteristics in the root organ per se, or affected by the growth of other organs. Four combinations of grafting plants between two late varieties, Norin 1 and Konafubuki, with different root mass were produced and cultured in large pot; (25 cm in diameter, 50 cm in depth) with plentiful water supply. Dry weight (DW) of each organ and leaf area were measured at three stages, just after the transplanting, approximately after the initial flowering and after the last flowering, for three years. Analyses of variance for the characters were performed using the years as replications. The stock genotypes significantly influenced root DW of the grafting plants at the three stages examined. The effects of scion genotypes on root DW were not significant. The negative relationship was found between root DW and tuber DW in the grafting plants. Shoot DW and leaf area were not significantly different among the grafting plants. We concluded that the difference in root DW between the two varieties was mainly due to the inherent characteristic in the dry matter partition to roots and tubers just after the tuber initiation.

Keywords:

Dry matter partition, *Solanum tuberosum* L.[\[Full-text PDF \(703K\) \]](#) [\[References \]](#)

