

HOME

About Journal@rchive

Journal List

Journal/
Society Search

GO

News



Science Links Japan

JST Japan Science and Technology Agency

Japanese journal of crop science

The Crop Science Society of Japan [Info](#) [Link](#)[TOP](#) > [Journal List](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN: 1349-0990

PRINT ISSN: 0011-1848

■ Japanese journal of crop science

Vol.65 , No.1(1996)pp.71-76

[\[Full-text PDF \(703K\) \]](#) [\[References \]](#)**Effects of Planting Density on Growth and Distribution of Roots in Rice Plants (*Oryza sativa* L.)**

Noriyuki TANAKA and Susumu ARIMA

1) Faculty of Agriculture, Saga University

2) Faculty of Agriculture, Saga University

[Published: 1996/03/05]

[Released: 2008/02/14]

Abstract:

Effects of planting density on the formation of the root system and the relative growth of the top and root in rice plants were investigated. The four planting densities used were 45, 70, 95 and 120 hills per 3.3m². The results obtained are follows: (1) The top-root ratio increased with increasing planting density, and thus the relative inferiority of root growth to top growth was amplified. (2) The root weights per unit area showed unimodal type time-course changes, which indicated the maximum weight immediately after the maximum tiller number stage, in the high density plots (95 and 120 hills), whereas in the low density plots (45 and 70 hills) they showed bimodal type time-course changes in which the root weights rose just after the maximum tiller number stage as well as at the heading stage. (3) The root system distributed in the surface soil layer became higher in ratios as the planting density increased. However, the roots in the surface soil layer in the high density plots decreased the weights strikingly in the later growth stages. (4) The total number of crown roots per unit area increased with increasing planting density, while the diameter of crown roots indicated a decreasing tendency.

Keywords:Crown root, *Oryza sativa* L., Planting density, Root system, Top-root ratio[\[Full-text PDF \(703K\) \]](#) [\[References \]](#)

Copyright© Crop Science Society of Japan