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■ Japanese journal of crop science

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[\[Full-text PDF \(718K\) \]](#) [\[References \]](#)**Relationships between Vascular Bundles of Panicle Neck Internode and Characters of Head under Different Planting Densities and Nitrogen Fertilizers Applied in *Oryza sativa* L.**

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Abstract:

Investigations were carried out on the characters of rachilets, grains and grain weight per panicle of the growing rice plant cv. Shimokita under different planting density and nitrogen fertilizer norm conditions during the maturity stage of growth. The large vascular bundle (LVB), and small vascular bundle (SVB) of the panicle neck internode (PNI) and partial different internode were examined under a microscope. Analysing the above data with various statistical methods, the change in LVB number of PNI and its relationship with rachilets, grains or grain weight were determined. The average numbers of LVB and SVB were 9.0 and 16.5, and the variable range were 5-13 and 11-22, respectively. The frequency distribution of these attributes in the 1st internode and its coefficient variation was significantly larger than the other internodes. The number of LVB and SVB in PNI appeared to be positively correlated; the former with the primary rachilets having a correlation coefficient (CC) of 0.894 and the latter with the secondary rachilets a CC of 0.764. The LVB and SVB of the PNI exhibited a significantly higher positive correlation with the total grains at a CC of 0.955 and 0.850, respectively. The number of LVB and SVB of the PNI increased with increasing nitrogen fertilizer norm. The number of LVB and SVB of the PNI decreased with increasing planting densities.

Keywords:

Fertilizer, Grains, Large vascular bundles, *Oryza sativa* L., Panicle neck internode, Planting density, Rachilets, Small vascular bundles

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