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## Japanese journal of crop science

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#### Growth and Yield of Japonica × Indica Hybrid Cultivars under Direct Seeding and Upland Cultivation Conditions

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#### Abstract:

Direct seeding is one possible improvement for future low-cost and labor-saving rice production. This study was conducted to determine whether high yielding cultivars can be adapted to direct seeding and/or upland cultivation. Four rice cultivars, Koshihikari and Toyohatamochi, which are typical Japonica lowland and upland cultivars, and Suweon 287 and Suweon 290, which are high yielding Japonica × Indica hybrid cultivars bred in Korea, were used. Directly seeded upland (DU) and lowland (DL) conditions were compared with usual transplanting (TL) conditions concerning growth and yield in 1994 and 1995. The Japonica × Indica hybrid cultivars showed better establishment than the Japonica cultivars. Maximum tillering and anthesis were delayed for 7 to 14 days in DU and DL as compared to TL. The Japonica × Indica hybrid cultivars had short culm even under DU conditions. Biomass at anthesis was the largest under upland conditions, whereas biomass production after anthesis was the smallest under upland conditions. Suweon showed high biomass production even under DU conditions. The yields of the Japonica × Indica hybrid cultivars were higher than those of the Japonica cultivars under all three conditions. These cultivars had a large sink size and a high ratio of ripened grain under directly seeded conditions. Thus, it was concluded that the high yielding Japonica × Indica hybrid cultivars have high adaptability for both direct seeding and upland conditions.

#### Keywords:

Direct seeding, Dry matter production, Emergence, Growth, High yielding ability, Japonica × Indica hybrid cultivar, Upland rice, Yield

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