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Development of tetraploid rye (*Secale cereale* L.) cultivar in Korea

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Abstract

Rye is cultivated on about 30,000ha domestically for forage and green-manure production in Korea. 'Daegokgreen' has been developed as a good quality rye cultivar for forage and green-manure, which was doubled-chromosome by colchicine treatment of diploid rye cultivar 'Gogu' in 2010. By the colchicine treatment with 0.05% for 12 hours at 2nd leaf stage of 'Gogu', 31 tetraploid plants were obtained and they produced 2,470 seeds with 135 spikes. There was 4.4 in the number of spikes per plant, 18.3 in grain number per spike, and 37.6 g in the 1,000-grain weight. The heading date of 'Daegokgreen' was April 11, which was two days later on average compared with 'Gogu'. The biomass (fresh weight) of 'Daegokgreen' was 3,701kg, which was similar to 'Gogu'. The average crude protein content of 'Daegokgreen' was 8.9%, which was 1.0% point higher than 'Gogu'. 'Daegokgreen' was found to be strong resistant to winter-kill and can be adapted to before maize cultivation.

Keywords: Rye, Forage, Breeding, Tetraploid, Cultivar

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