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Yield Components and Harvested Seed Quality of Italian Ryegrass (*Lolium multiflorum* L.) Cultivars Grown at Different Soil Salt Concentrations in Saemangeum Reclaimed Land

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[Introduction]

Italian ryegrass is a representative forage cultivated in Korea, but seed production is dependent on other countries, such as the United States. It is proposed as a solution to harvesting Italian ryegrass seed, using reclaimed land. The aim of this study was to evaluate the yield components and harvested seed quality of Italian ryegrass cultivars according to different soil salt concentrations.

[Materials and Methods]

In this study, the salt concentration of the Saemangeum reclaimed land was maintained at below 0.1% and 0.2~0.3% as the main plot. The subplot was made into five cultivars: Greenfarm, Kowinearly, Grazer, Ribeye, and Florida80. The yield component was investigated after harvest, and the harvested seed quality was examined 3-month later after harvest by measuring the percent germination(PG), germination energy(GE), mean germination time(MDG), germination speed(GS) promptness index(PI).

[Results and Discussion]

Examining the difference by soil salinity, the emergence rate of 0.2~0.3% soil salt concentration treatment decreased by 7% compared to 0.1%. The number of ear and grain weight decreased relatively at the 0.2~0.3% soil salt concentration and eventually the seed yield decreased by 23% compare to the 0.1% soil salt concentration. There was no difference significantly in yield components among cultivars, but Greenfarm was slightly higher than other cultivars. PG was 73% at 0.2~0.3% of soil salinity, and 76% at less than 0.1%. There was no difference between the salt concentrations of GE at 62~65%. MDG and GS also did not show much difference among cultivars. Greenfarm showed a PG 80%, other cultivars showed a PG 75%, and there was no difference among germination indices. There is no difference in quality according to salinity and cultivars. Follow-up studies are needed on post-harvest management techniques that increase the PG of harvested seeds.

Keywords: Italian ryegrass, reclaimed land, cultivar, salinity, seed production.

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