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Evaluation of Growth and Yield on Italian Ryegrass in Reclaimed Land

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[Abstract]

More than 74% of forage crops in Korea are cultivated in winter rice fields. Italian ryegrass (IRG) can be said to be a representative forage crop, but over 70% of its seeds are dependent on imports. In addition, there are concerns that the stable supply of research fees may be disrupted due to the effects of climate change, war, and other factors. Therefore, it is necessary to secure a large production area for stable supply. Korea's reclaimed land area is 135,000 ha and its agricultural area is 112,000 ha. Therefore, this study attempted to apply IRG to the domestic IRG seed industry through stable cultivation techniques on reclaimed land. In this study, IRG 'Kowearly' variety was cultivated in late October 2020 and early October 2021 in the Saemangeum reclaimed land. The seeding methods were conventional drill sowing seeding, new technology spot seedling (30 x 18 cm) and new technology drill sowing seeding. The amount of sowing was conventional drill sowing seeding 2.0(kg/10a), new technology spot seedling 1.5(kg/10a), and new technology drill sowing seeding 1.5(kg/10a). Fertilizer application amount is conventional drill sowing seeding(N-P₂O₅-K₂O) 9.0-12-12(kg/10a), and new technology spot seedling and drill sowing seeding were(N-P₂O₅-K₂O) 4.5-12-12(kg/10a) respectively. Fertilizer was applied accordingly. After that, in February, the conventional drill sowing seeding, new technology drill sowing seeding and spot seedling applied 4.0 and 2.2(kg/10a) of nitrogen supplement fertilizer, respectively. Before wintering, plant length was higher in 2022 than in 2021, but leaf number was higher in 2021. Heading time was April 30, 2021 and April 25, 2022. In heading time, plant length was 74 cm in 2021 and 67 cm in 2022, lower than in 2021. On the other hand, There was no difference in the number of panicle and the number of seeds in the 2021 harvester in all treatment plots, and, thus seed yield was no differ. However, the drill sowing seeding and spot seedling of the new technology were somewhat higher than the conventional drill sowing seeding. On the other hand, seed yield was decreased in all treatment plots compared to 2022 because of rainfall deficiency in 2021.

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