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Evaluation of Growth and Yield on Transplanting time and Plant Density in ItalianRyegrass

Yun-Ho Lee[1]*, Hyeon-Soo Jang[1], Jeong-Won Kim[1], Bo-kyeong Kim[1], Deauk-Kim[1], Jong-Tak Youn[1]

[1]Crop Production & Phylsiology Div., NICS, Wanju 55365, Korea

[Abstract]
In recent years, due to climate change, the livestock industry has become more interested in the production of forage crops. In Korea, more than 74% of forage crops are cultivated in winter rice fields. In particular, Italian ryegrass (IRG) is depends on imports for more than 70% of its seeds. In generally, the IRG rapeseed cultivation method involves sowing from early October to mid-October by drill sowing seeding or spot seedling. However, the sowing period is delayed due to frequent rainfall during. And, same period require a lot of seeds. However, raising seedlings and transplanted IRG will overcome weather conditions and reduce the amount of seeds. This study was intended to be applied to the domestic IRG seed industry in the future through growth and quantity evaluation according to transplant time and planting density for the production of good quality IRG seeds in rice paddy fields. In this study, transplanting time (October 20, October 30, November 10) and planting density (50, 70, and 80) were cultivated at the National Institute of Crop Science in 2021. The amount of fertilizer applied was adjusted to (N-P_2O_5-K_2O) 4.5-12-12 (kg/10a), and then 2.2(kg/10a) of nitrogen was added each year. For the growth survey, leaf area, canopy coverage, plant length, and seed yield were investigated. Along with the transplanting time, the plant length was higher on October 20 than on October 30 and November 10. On the other hand, leaf area index changes differed depending on the transplanting time and planting density, and were particularly high on October 20, 80 density and 70 density, but similar on October 30 and November 10. 1000 seed weight showed no difference with transplanting time and planting density. On the other hand, the seed yield was 215(kg/10a) for 80 density on October 20, 211(kg/10a) for 70 density, 118(kg/10a) for 50 density, and 80 density for October 30 and November 10. and 70 density did not differ. On the other hand, the 50 density on October 30 and November 10 were 164(kg/10a) and 147(kg/10a) respectively. As can be seen from this study, the earlier the transplant, the higher the seed yield. However, the 50 density was reduced in yield compared to the 70 density and 80 density.

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*Corresponding author: E-mail. zooz9005@korea.kr Tel. +82-63-238-5269