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A Study on the Improvement Methods for Hybrid Sorghum Seeds Production

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[Abstract]

Sorghum (*Sorghum bicolor L.*) is a major cereal grain crop of the world and It can be cultivated under high temperature and dry condition with high adaptability to the adverse environment. It is usually eaten with rice in Korea and most of domestic sorghum cultivars have been developed by pure line selection and cross breeding. In prior studies, Hybrid cultivar (F1 seed) was known to improve 30-40% in yield and resist to disease and pest than pure line varieties due to hybrid vigor. Therefore, study on the hybrid sorghum is continuously necessary. In Korea, hybrid sorghum cultivar have been developed, so we need to find methods seed production technology for supply and commercialization of hybrid seed cultivar. Female inbred line(A-line) and male inbred line(R-line) are needed for hybrid seed production. This study was carried out to investigate growth characteristics and yield of hybrid sorghum according to the seedling period and planting rate between female inbred line(YSA1) and male inbred line (Sodamchal, Miryang 19). When the flowering period of two inbred groups in the process of hybrid seed production is coincides, hybrid seed production is increase. The female inbred line and male inbred lines were cultivated at Daegu in 2021. Two inbred lines were sown at intervals of 3days and 7days and were evaluated flowering period. As a result, the flowering period of the female inbred line and male inbred lines were matched at the 7days interval. To find out optimal planting rate, two inbred lines were cultivated under different planting rate (4:2, 5:2, 6:2). Yield of YSA1/Sodamchal(F1) was the highest 130(kg/10a) in the 4:2 ratio and yield of YSA1/Miryang 19 was the highest quantity of 139(kg/10a) in the 6:2 ratio. The results of this study could be helpful for hybrid Sorghum seeds production.

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