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Appropriate Sowing Time and Planting Density to Improve Popcorn Production

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[Abstract]

Popcorn grains are consumed around 10,000 tons per year, in South Korea. It is consumed in amusement parks, movie theaters and snacks. The size of the popcorn processed market in Korea is estimated to be 3.6 billion won per year. So, the popcorn grain market has good prospects. On the other hand, domestic grain is at the level of 1 %, which is less domestic production than the size of the market. Maize Research Institute has developed domestic varieties in order to increase the use of domestically produced grains. The Oyrunpopcorn variety which was commonly distributed is a preferred cultivar because it has a good popping rate compared to imported grains. In addition, 'G-Popcorn', 'Oyrun #2' and 'Kichan Popcorn' were developed, which diversified the choice of the farmers. Yield per unit area is important to improve farmers' income. At present, domestic grain production is traded at 5,000 won/kg, so if the yield improves, a high farmer's income is expected. Therefore, this study compared the growth characteristics and yield according to the appropriate sowing time and plant density to improve the yield of domestically grown popcorn. We used 'Oryunpopcorn' for this research. Agronomic characteristics were compared by sowing times April 23, May 22 and June 22. The 100 seeds weight were 15.9g, 17.7g and 15.0g, respectively. Kernel weight planted in May 22 is the highest value. Yield per 10a were 414kg, 434kg and 296kg, respectively. It shows the yield planted in May 22 was higher than other trials. Therefore, the sowing time to increase the kernel weight and yield is appropriate for planting in mid-May. The number of plants in planting density trial was 5,700 plants, 4,700 plants and 4,000 plants in 10a area. Plant height at each trial were 221cm, 214cm and 218cm, respectively. It was the highest height in 5,700 plants trials. The 100 kernel weight were 14.8g, 15.9g and 16.5g, respectively. Low planting density trial indicated high kernel weight. Yield per 10a was 415kg, 357kg and 314kg, respectively. It was higher at high density trial than other experimental plots. Therefore, appropriate sowing time was in mid-May and planting density was 5,700 plants/10a in order to increase the yield of popcorn in South Korea. This study will be useful for farmer's income to use the domestic cultivars.

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