

PA-79

An Analysis of the Growth Characteristics of Triticale (*x Triticosecale* Wittmack) in Pocheon, Gyeonggi-do according to Seeding rate and Seeding date

Hyung Gyu Park¹, Ki Seung Bin¹, Bo Hwan Kim¹, Hyeok Kwon², Yi Kyeong Kim¹, Si ju Kim³, Wook Kim^{1*}

¹BK21 FOUR R&E Center for Plant Biotechnology, Korea University, Seoul 02841, Republic of Korea

²Institute of Life Science and Natural Resources, Korea University, Seoul 02841, Korea

³Agriculture & Rural Society Research Institute

[Introduction]

Triticale (*x Triticosecale* Wittmack) is a hybrid between wheat and rye. Triticale is a crop that has both the high nutritional value of wheat, adaptability of rye. It is not used in Korea for edible, but it is used as an edible or feed crop in Northern Europe, Eastern Europe, and North America. In this study, We wanted to test whether it could be cultivated in the high-latitude area such as North Korea. Therefore, Pocheon, a high-latitude area in Gyeonggi-do, was selected to cultivate. Gwangyeong(GY), Minpung(MP), and Saeyoung(SY) were used in the experiment.

[Materials and methods]

The triticale varieties used in the experiment were 1.Gwangyeong(GY) 2. Minpung(MP) 3. Saeyoung(SY), provided by RURAL DEVELOPMENT ADMINISTRATION (RDA). The experimental area was gyeonggi-do pocheon yeongjung-myeon (100 m above sea level). Sowing was conducted four times; the first and second sowing in the fall, and the third and fourth sowing in the spring of the following year. The seeding rates were 1x (15 kg/10 a, standard seeding rate by RDA), 1.5x (22.5 kg/10 a), and 2x (30 kg/10 a). The fertilizer levels were N 12 kg/10 a and P 6.3 kg/10 a. Wintering rate, culm length, head length, fresh weight and dry weight were measured at harvest period on July, 2022. 30 cm were randomly selected three times per plot to measure fresh and dry weight 20 samples were three times selected to measure height.

[Results and Discussion]

The total length of triticale was 111.4 cm and 96.4 cm in the first and second sowing. And third and fourth sowing were the average of 76.1 cm and 86.8 cm. The total fresh weight of each cultivar, there was no significant difference, however, SY showed higher value than GY and MP in the first and second sowing. In the second sowing, the fresh weight of 1x MP was 478.7 g, which was much higher than that of GY 209.0 g and SY 247.7 g showing significant difference. 1x SY was higher than 1.5x SY, 2x SY in the first sowing and lower than 1.5x, 2x in the second sowing. In addition, 1.5x MP had a lower fresh weight than 1x and 2x in the third sowing, and the highest in the fourth sowing. Therefore, It was found through this experiment that the appropriate sowing period can vary depending on the seeding rate even for the same variety.

[Acknowledgment]

This work was supported by Rural development administration for the development of Triticale and Hairy vetch stable production technology to improve crop productivity in high-level areas (Project Number: PJ015339022021) and the BK21 FOUR program (Grant No. 4299991014324) funded by National Research Foundation of Korea (NRF)

*Corresponding author: E-mail, kwook@korea.ac.kr Tel. +82-2-3290-3046