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Estimation of wheat germplasm collected from the world for breeding by introduction to enhance wheat yield in Korea

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Abstract

Wheat is one of the most important crops in production and consumption. Despite increasing of importance, the self-sufficiency of wheat is less than 2% in Korea. To improve yield potential and broaden the genetic pool of common wheat in Korea, introduction of alien germplasms into the Korean wheat breeding program is suggested. For effective utilization of the germplasm, we introduced total 1,195 germplasms from the world, which were provided by National Plant Germplasm System (NPGS, USDA) and evaluated the yield, field performances and agronomic traits for 8 years. Among 55 countries, germplasms from Canada, Ethiopia, Mexico and United States accounts for 78%, especially germplasms collected from United States accounts for 50%. Yield comparison of germplasms and collected region analysis indicate that the high yielding germplasms are collected from countries or states of particular range of latitude. The combination analysis of the yield and agronomic traits and the geographical information of collected region will be utilized for improving Korean wheat breeding programs.

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