PA-080

Testing Adaptability and Yield of Korean Chipping Potato Varieties (*Solanum tuberosum* L.) in Vietnam conditions

Seon Yeong Im[1,2], Thi Thuy Luu[1], Dong Jin Lee[1,2]*

[1]Dep. of Crop Science and Biotechnology, Dankook Univ, Chungnam 31116, Republic of Korea
[2]DICA, Cheonan-si, 31116, Republic of Korea

[Introduction]

Potato (*Solanum tuberosum* L.) is one of the main and strategic crops which is roughly classified into three types based on their values in use: table stock, food processing, and starch production. For processing, Atlantic, an oblong and white flesh color potato variety, has long been a standard chip variety since 1976. The variety have been grown as farmers have contracts with potato-chip manufacturers. The world potato production in 2019 was 423 million tons.

Korea's potato production has declined gradually from 704,623 MT in 2000 to 376,349 MT in 2020, down nearly 46.6% over the past 20 years due to reduction of demand for domestic fresh potatoes, while potato imports, mostly processed potatoes (prepared, frozen and dehydrated potatoes) have increased steadily. The country self-sufficient rate was 71.2% in 2017.

The United States was the dominant supplier in Korea with a 70 percent share (108,076 MT) followed by Australia with 13 percent share, and Canadian with a 7.1 percent share. Fresh potatoes for chipping are imported seasonally to avoid competition with domestic production, while prepared potato products (French fries) are imported through the year. The local potato chip processors use imported chipping potatoes during the off-season. Annually, Korea uses about 70,000 MT of chipping and of that total, about 35,000 MT are imported.

Transparently, although its total production area has decreased gradually, Korean demand for importing chipping potatoes is still high. This study was to find high yielding of Korean chipping potato varieties which are adaptable to Vietnam condition.

[Materials and Methods]

The experiment was conducted in Field Crops Research Institute, Hai Duong, Vietnam (20°53'40.35" N 106°17'4.18" E) in the season of Winter 2018 – Spring 2019. There were 12 Korean potato elite lines (2B01, 2B04, 2B05, 2B06, 2B07, 2B08, 2B09, 2B10, 2B12, 2B13, 2B14, 2B15) and one control variety (Atlantic). The experiment was designed as Random Complete Block Design (RCBD) with one treatment (varieties) and three replications. Seed tubers were sown in two rows/bed at distance of 40 cm (between rows) x 30 cm (within row)

[Results and Discussion]

The big size tubers (over 250g/tuber) were found in the lines 2B08, 2B09, 2B10, 2B14, 2B15. While the line 2B07 had the highest number of medium size (80-250g/tuber), the lines 2B01, 2B06 and Atlantic (the control) bore the highest number of small tubers (lower 80g/tuber). The total number of tubers per hills of 2B01, 2B05, 2B06, 2B07 were the same that of the control. It was found that several lines had higher commercial yielding index 208 (120%), 2B09 (136.6%), 2B13 (120%) and higher total yielding index 2B07 (117.7%). White flesh line 2B09 was the most promising one with high commercial yielding index (136.6%), lower level of scab infection (point 3-5) and lower percentage of cracking tubers (2.9%).

[Acknowledgement]

This work was supported by Korea Institute of Planning and Evaluation for Technology in Food, Agriculture, and Forestry (IPET) through Golden Seed Project, funded by Ministry of Agriculture, Food and Rural Affairs (MAFRA)(213009-05-4-WT421).

*Corresponding author: Tel. +82-41-550-3618, E-mail. dongjlee@dankook.ac.kr,