

PA-18

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

Seon Yeong Im<sup>1,2</sup>, Thi Thuy Luu<sup>1</sup>, Rehman Abdul<sup>1</sup>, Dong Jin Lee<sup>1\*</sup>

<sup>1</sup>Dep. of Crop Science and Biotechnology, Dankook Univ, Chungnam 31116, Republic of Korea

<sup>2</sup>DICA, Cheonan-si, 31116, Republic of Korea

### [Introduction]

Potato (*Solanum tuberosum* L.) is one of the main and strategic crops, which ranks fourth after wheat, rice and corn. In 2017, the potato world production was approximately 388 million tons and grown in nearly 19.3 million ha (FAOSTAT, 2019). Korea's potato production has declined gradually from 70,623 MT in 2000 to 464,772 MT in 2017, down 34 percent over the past 18 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 (USDA, 2018).

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 an 8.1 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 potatoes and of that total, about 35,000 MT are imported.

Potato varieties are roughly classified into three types based on their values in use: table stock, food processing, and starch production. For processing, Atlantic, a round and white flesh color potato variety, has long been a standard chip variety since 1976. The variety has been grown as farmers have contracts with potato-chip manufacturers.

This study was to find high yielding of Korean chipping potato varieties which are adaptable to Vietnam condition.

### [Materials and Methods]

The experiments were conducted in experiment fields of Field Crops Research Institute, Hai Duong, Vietnam (20°53'40.35"N 106°17'4.18"E) in Winter Spring season 2017-2018. There were 10 Korean varieties of potato (G1, G2, G3, G4, G5, G6, G7, G8, G9, G10), 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 x 30 cm.

### [Results and Discussion]

G4, G10 were significant higher number of big tuber size (>250g), while G2, G3, G4 and Atlantic had the highest number of medium tuber size (80-250g). Although G1 and G3 had the highest number of tuber/hill, their number of small tuber size (<80g) are also high. While G1, G2, G9, G10, G11 and the control have the same tuber color (both outside and inside), G1, G2, G3, G8, G10, G11 had the same tuber shape as the control (oblong). Total yield of G3 is insignificant higher than that of the control one. Its total yielding index was 116%. G2, G3, G4 and G9 had higher commercial yield than those of the control one. G3 had the similar scab infection as the control. G5, G6, G9 and Atlantic has the same crack rate. In yield, G2, G3, G4 and G9 were highly adaptable to Vietnam condition.

### [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) (213009-05-2-WT421)

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