

**PB-11**

## Assessment of Mechanization-related Traits for Korean Landrace Adzuki bean Germplasm

Hyemyeong Yoon<sup>1</sup>, Yu-Mi Choi<sup>1</sup>, Sukyeung Lee<sup>1</sup>, Myong-Jae Shin<sup>1</sup>, Xiaohan Wang<sup>1</sup>, Kebede Taye Desta<sup>1,2</sup>,  
Joungyun Yi<sup>1\*</sup>

<sup>1</sup>National Agrobiodiversity Center, NAS, RDA, Jeonju 54874, Korea

<sup>2</sup>Assistant Professor, Department of Applied Chemistry, Adama Science and Technology University, Adama 1888, Ethiopia

### [Introduction]

Adzuki bean is the legume grown mainly in Northeast Asia, and is the second highest cultivated and consumed legume in Korea after soybean. Nevertheless, compared to soybean, the major crop, adzuki bean is much less mechanized for cultivating and harvesting. The use of machines for growing adzuki bean greatly reduces the labor required, but the currently used adzuki bean breeding varieties are not suitable for growing and harvesting with machines. Therefore, this study tried to select germplasm necessary for the development of breeding varieties suitable for mechanization by examining and evaluating the characteristics related to mechanization of adzuki bean germplasm. In particular, only germplasm of Korean landrace was evaluated so that they could be used immediately after selection.

### [Materials and Methods]

The adzuki bean germplasm was cultivated in the field of the National Agrobiodiversity Center in Jeonju, Jeollabuk-do, and 1,126 accessions were initially planted, but only 848 accessions were used in this study by selecting only Korean landrace. Five characteristics related to mechanization (Height with bottom pod, Plant height, Lodging score, Simultaneously maturity, Seed size) were investigated, and major traits related to the yield component (Days to flowering, Days to maturity, Number of pods per plant, Number of seeds per pod) were additionally investigated according to the RDA criteria. Descriptive statistics, Correlation analysis were conducted under the R program (R Core Team, 2022).

### [Results and Discussion]

As a result of measuring the characteristics of adzuki bean germplasm, the average number of height with bottom pod was 7.2 cm, the average number of plant height was 60.4 cm, and the average number of 100-seed weight was 11.9 g. The highest frequency was 11~50% for lodging score and 51~75% for simultaneous maturity. The average number of flowering date and maturity date were 63.8 and 42.9 days, respectively, and the average number of pods per plant and seeds per pods were 41.2 and 7.0, respectively. Correlation analysis between each characteristic was also conducted, showing positive correlations between plant height and number of pods per plant, plant height and number of seeds per pod, maturity date and 100-seed weight (0.33, 0.28, and 0.26, respectively). There was a negative correlation between flowering date and maturity date, number of pods per plant and number of seeds per pods, and number of seeds per pods and 100-seed weight, flowering date and height with bottom pod (-0.42, -0.28, -0.24, -0.24, respectively). The results of this study will be the serve as the basis for selection of accessions for breeding adzuki bean varieties suitable for mechanization.

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\*Corresponding author: E-mail, naeskr@korea.kr Tel. +82-63-238-4911