

Yield Components and Quality Characteristics of Selected Cluster Onion Lines Developed Through Cross Breeding

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Abstract

Newly out cross bred two cluster onion lines were evaluated with four check cluster onion lines/ varieties to evaluate their yield, yield components and quality characteristics for selecting most suitable consumer and farmer friendly line/s for the dry zone of Sri Lanka. The plant breeding program was carried out from 2014 Yala season to 2016/17 Maha season at Grain Legume and Oil Crop Research and Development Centre, Angunakolapelessa. The experiment was conducted according to the recurrent parent selection procedure and progeny selection method was followed to select important characteristics. The experimental design was Randomized Completely Block Design (RCBD) with three replicates. Data were analyzed by using Anova procedure. Based on the study, ANKLO 2015/1 and ANKLO 2015/2 (newly bred lines) were large sized bulbs (>2cm diameter) with higher average yields (>16t/ ha) than other check cultivars/ varieties. According to the Essa and Gamea, 2003, bulb shape index of ANKLO 2015/1 and ANKLO 2015/2 exhibited "Rhombic" shape. Growth performances of those lines (No. of leaves, plant height, bulb size, no. of bulblets and yield) were significantly different in a positive manner compared to others. Except released varieties, regionally popular varieties has been cultivated. Most popular cluster onion variety among farmers at Thanamalwila area was "Thelulla selection". Minimum number of days taken to maturity, large number of small bulblets/ plant and low yield were the prominent characteristics of "Thelulla selection". Therefore, cluster onion farmers had not the opportunity to earn more income with low yield. That is one of the major issues in that area. While variety Vedalan was taken >70 days, other treatments recorded < 65 days to maturity. More than 400g/ 100 bulbs weight and >20t/ ha yield was recorded in selected two lines. Those values were significantly higher than check varieties of Vedalan, Thelulla Selection, Thinnaweli Red and MICLO 11-4. The identified characteristics of large sized, early maturity and higher yield are the important characteristics for consumers as well as growers too. Similarly, quality parameters had been well performed for the texture and flavor.

Keywords: ANKLO 2015/1, ANKLO 2015/2, Cluster onion, Plant breeding, Yield

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