Phenotypic Characterization of Five Maize (Zea mays L.) Lines

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ABSTRACT

Maize (Zea mays L.) is one of the key food crop commodities prioritized for increased production in Indonesia. It ranks second after rice as a staple food due to its comparable nutritional content, including carbohydrates, protein, and calories. In addition to being a food source, maize is also utilized as raw material for industry and livestock feed. Characterization aims to identify the variability of plant traits to provide valuable information for plant breeding programs. The study was conducted from May to September 2024 at PT. Surya Kencana Agrifarm Sejahtera. The research employed a non-factorial Randomized Complete Design (RCD), with data analyzed using Descriptive Analysis and Principal Component Analysis (PCA) through Minitab 19 software. Based on descriptive and PCA results, genotypes G01 and G02 demonstrated good levels of stability and uniformity as indicated by qualitative parameters (leaf color, leaf tip shape, leaf type, stem color, tassel color, kernel color, kernel shape, and root type). For quantitative traits, genotype G01, with a coefficient of variation ranging from 0.46% to 14.1%, showed the best values in stem diameter (18.55 mm), number of tassels (10), and leaf width (9.1 cm). Genotype G02, with a coefficient of variation between 0.38% and 9.25%, had the best performance in harvest age (120 DAS), silking age (58 DAS), and tassel emergence age (59 DAS). Based on the characterization results, genotypes G01 and G02 have the potential to be developed as prospective parental lines for hybrid maize varieties.

Keywords*: Maize, Characterization, Variation, Uniformity*