PHYSICAL CHARACTERIZATION OF COCONUT FRUIT (*Cocos nucifera L.*)

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ABSTRACT

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This study investigated the physical characteristics of Tacunan Green Dwarf (TACD) coconuts from a farm in Barangay Harada Butai, Padada, Davao del Sur. The farm spans 4 hectares, with 16-year-old trees grown at an elevation of 18 meters in clay soil. Farming practices involved fertilizer application and intercropping. Key parameters examined include major diameter, minor diameter, intermediate diameter, flesh thickness, shell thickness, geometric mean diameter, sphericity, surface area, fruit weight, shell weight, husk weight, coconut water weight, and flesh weight. A complete randomized design (CRD) was used to evaluate the data using three treatments: Young coconut fruits (Treatment 1), fairly mature coconut fruits (Treatment 2), and mature coconut fruits (Treatment 3).

The physical characteristics of young, fairly mature, and mature coconut fruits differ significantly ($p < 0.05$) according to the results of the Analysis of Variance (ANOVA) test. The mean major diameter (length)

decreases as the coconut matures, wherein T1 had the highest value of 130.96 mm. T2 has the highest mean minor diameter of 116.17 mm and intermediate diameter of 117.48 mm. Flesh thickness increased with maturity, peaking at T3 with 11.49 mm, while shell thickness was highest in T2 with 4.55 mm. The geometric mean diameter, sphericity, and surface area were also highest in T2, with values 119.66 mm, 0.94, and 45281.18 mm^2, respectively, indicating optimal size and shape during the fairly mature stage. Weight components varied, with T2 having the highest mean fruit weight of 1075.32 g and water weight of 467.89 g, and T3 the highest flesh weight (384.82 g), while shell and husk weights were highest in T1, having values of 319.36 g and 2268.76 g respectively, and decreased with maturity.

This study underscores the significant differences in the physical characteristics of coconut fruit across different maturity stages, providing essential insights into their growth and development patterns.

Keywords: *physical characteristics, coconut fruit, farming practices, Tacunan Green Dwarf, Padada, Davao del Sur*