

## **Keragaan Morfologis dan Fisiologis Empat Klon Kakao (*Theobroma cacao* L.) Fase Tanaman Belum Menghasilkan di Dataran Menengah Samigaluh**

### **ABSTRAK**

Perluasan areal lahan, sebagai salah satu upaya peningkatan produktivitas pertanaman kakao, memerlukan bahan tanam dari klon yang unggul. Penelitian ini bertujuan untuk mengevaluasi keragaan morfologis dan fisiologis empat klon kakao baru yang ditanam pada lahan dataran menengah Samigaluh. Penelitian menggunakan Rancangan Acak Lengkap (RAL), dengan empat klon kakao sebagai perlakuan, masing-masing tiga ulangan, yang tersebar pada kondisi lahan dataran menengah Samigaluh, milik Gudang Usaha Samigaluh, PT Pagilaran. Klon yang diamati adalah klon ICS 60, MCC 02, Sulawesi 2, dan TSH 858. Variabel yang diamati adalah Kandungan Air Nisbi (KAN), laju transpirasi, Aktivitas Nitrat Reduktase (ANR), kehijauan daun, kandungan klorofil, sekapan cahaya, jumlah daun, luas daun, tinggi tanaman, diameter batang, serta diameter cabang primer dan sekunder. Data yang diperoleh dianalisis untuk variansinya (ANOVA) pada tingkat kepercayaan 95% dan diuji dengan uji Beda Nyata Terkecil Fisher (BNT Fisher) jika ditemukan perbedaan yang signifikan. Hasil menunjukkan bahwa klon TSH 858 memiliki keragaan morfologis dan fisiologis tertinggi, yakni pada karakter kehijauan daun, tinggi tanaman, diameter cabang primer, serta biomassa tanaman. Klon MCC 02 ditemukan memiliki keragaan morfologis dan fisiologis yang secara umum paling rendah dibandingkan dengan ketiga klon lainnya.

Kata kunci: kakao; klon; morfologi; fisiologi; kekeringan

***Morphological and Physiological Performances of Four Immature Cocoa (*Theobroma cacao* L.) Clones in Samigaluh Moderate Ground***

**ABSTRACT**

*Expansion of land area, as one of the efforts to increase the productivity of cocoa plantations, requires planting material from superior clones. The aim of this study was to evaluate the morphological and physiological performances of four new cacao clones planted in the Samigaluh moderate ground. The study used a Completely Randomized Design (CRD), with four cocoa clones as treatments, three replications each, spread over the Samigaluh moderate ground, owned by Gudang Usaha Samigaluh, PT Pagilaran. The clones observed were ICS 60, MCC 02, Sulawesi 2, and TSH 858. The variables observed were Relative Water Content (RWC), transpiration rate, Nitrate Reductase Activity (NRA), greenish of the leaves, chlorophyll content, light absorption, number of leaves, leaf area, plant height, stem diameter, also primary and secondary branch diameters. The data obtained were analyzed for their variance (ANOVA) at the 95% confidence level and tested with Fisher's Least Significant Difference test (Fisher's LSD) if significant differences were found. The results showed that the TSH 858 clone had the highest morphological and physiological characteristics, namely the greenish character of the leaves, plant height, primary branch diameter, and plant biomass. The MCC 02 clone was found to have the lowest overall morphological and physiological performances compared to the other three clones.*

**Keywords:** *cocoa, clone, morphology, physiology, drought*