The Diversity of Arthropods on Cacao Plantation (*Theobroma cacao* L.) with Different Plant Management in Kulon Progo Regency, Special Region of Yogyakarta

By: Dian Chelsiana

Supervised by: Mofit Eko Poerwanto

ABSTRACT

Cocoa (*Theobroma cacao* L.) has high economic value, and crop management affects arthropod diversity and pest pressure. This study compared arthropod diversity in intensive and non-intensive cocoa management in Kalibawang, Kulon Progo, DIY. Sampling was conducted over six days using light traps, sweep nets, pitfall traps, and sticky traps at three points in each field. The parameters observed included the abundance and role of arthropods, diversity indices, and pest attack intensity. In June, intensive management recorded 41 genera with 527 individuals, while non-intensive management recorded 25 genera with 373 individuals. In August, intensive management recorded 37 genera with 256 individuals, while non-intensive management recorded 34 genera with 310 individuals. Arthropods acted as pests, predators, parasitoids, decomposers, and pollinators. The dominant genera were Hypothenemus, Crematogaster, and Aedes. The diversity index was generally in the moderate category, indicating a relatively balanced ecosystem. Pest attack intensity was higher in non-intensive farming (6–12%) than in intensive farming (1–4%) and increased in August–September. Intensive management showed higher arthropod abundance, supported by lower rainfall, higher temperatures, and better light penetration.

Keywords: Diversity of insects, cocoa plant, traps

Keanekaragaman Arthropoda di Perkebunan Kakao (*Theobroma cacao* L.) dengan Pengelolaan Tanaman yang Berbeda di Kabupaten Kulon Progo, Daerah Istimewa Yogyakarta

Oleh: Dian Chelsiana

Diawasi oleh: Mofit Eko Poerwanto

ABSTRAK

Kakao (*Theobroma cacao* L.) memiliki nilai ekonomi tinggi, dan pengelolaan tanaman memengaruhi keanekaragaman Arthropoda serta tekanan hama. Penelitian ini membandingkan keanekaragaman Arthropoda pada pengelolaan kakao intensif dan non-intensif di Kalibawang, Kulon Progo, DIY. Pengambilan sampel dilakukan selama enam hari menggunakan *light trap, sweep net, pitfall trap,* dan *sticky trap* pada tiga titik di setiap lahan. Parameter yang diamati meliputi kelimpahan dan peran Arthropoda, indeks keanekaragaman, serta intensitas serangan hama. Bulan Juni, pengelolaan intensif mencatat 41 genus dengan 527 individu, sedangkan non-intensif 25 genus dengan 373 individu. Agustus, intensif mencatat 37 genus dengan 256 individu, sedangkan non-intensif 34 genus dengan 310 individu. Arthropoda berperan sebagai hama, predator, parasitoid, dekomposer, dan penyerbuk. Genus dominan adalah Hypothenemus, Crematogaster, dan Aedes. Indeks keanekaragaman umumnya berada pada kategori sedang, menunjukkan ekosistem relatif seimbang. Intensitas serangan hama lebih tinggi pada non-intensif (6–12%) dibandingkan intensif (1–4%) dan meningkat pada Agustus–September. Pengelolaan intensif menunjukkan kelimpahan Arthropoda lebih tinggi, didukung curah hujan lebih rendah, suhu lebih tinggi, dan penetrasi cahaya yang lebih baik.

Kata kunci: Keanekaragaman serangga, perangkap, tanaman kakao