

**AN ANALYSIS OF THE INTENSIVE AND NON INTENSIVE COCOA
(*Theobroma cacao* L.) CULTIVATION ON THE ABUNDANCE AND
DIVERSITY OF ARTHROPODS IN GUNUNGKIDUL REGENCY, SPECIAL
REGION OF YOGYAKARTA**

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ABSTRACT

Cocoa (*Theobroma cacao* L.) is an important plantation commodity whose cultivation is often influenced by the presence of arthropods. Intensive and non-intensive cocoa cultivation systems are thought to affect the structure of arthropod communities and the level of crop damage. This study aims to examine the effect of intensive and non-intensive cocoa cultivation systems on the abundance, diversity, role of arthropods, and intensity of damage to cocoa plants in Gunungkidul Regency. The study was conducted in June and August 2025 on intensive and non-intensive cultivation areas using light traps, pitfall traps, sticky traps, and sweep nets. The data observed included the number of individuals, abundance, role of arthropods, Shannon–Wiener diversity index, and the intensity of damage to cocoa leaves, stems, and fruits. Differences in abundance and damage intensity were analyzed using the t-test, while the effectiveness of trap types was analyzed using the ANOVA test. The results showed that arthropod abundance differed significantly in August, with an average of 242.25 in intensive fields and 312.25 in non-intensive fields. The arthropod community was dominated by predators, especially in non-intensive fields. Arthropod diversity in both types of fields was moderate, ranging from 1.74 to 2.50. Leaf and stem damage did not differ significantly, while fruit damage differed significantly. *Helopeltis* was dominant in intensive fields with an average damage of 35.86%, and whiteflies were dominant in non-intensive fields with an average damage of 17.19%. It can be concluded that the insignificant differences were due to other factors such as seasonal fluctuations.

Keywords: Diversity of arthropods, cocoa, traps

ANALISIS BUDIDAYA KAKAO (*Theobroma cacao* L.) INTENSIF DAN NON INTENSIF TERHADAP KELIMPAHAN DAN KEANEKARAGAMAN ARTHROPODA DI KABUPATEN GUNUNGKIDUL, DAERAH ISTIMEWA YOGYAKARTA

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ABSTRAK

Kakao (*Theobroma cacao* L.) merupakan komoditas perkebunan penting yang dalam budidayanya sering dipengaruhi oleh keberadaan arthropoda. Sistem budidaya kakao intensif dan non-intensif diduga memengaruhi struktur komunitas arthropoda serta tingkat kerusakan tanaman. Penelitian ini bertujuan untuk mengkaji pengaruh sistem budidaya kakao intensif dan non-intensif terhadap kelimpahan, keragaman, peran arthropoda, serta intensitas kerusakan tanaman kakao di Kabupaten Gunungkidul. Penelitian dilaksanakan pada bulan Juni dan Agustus 2025 pada lahan budidaya intensif dan non intensif menggunakan light trap, pitfall trap, sticky trap, dan sweep net. Data yang diamati meliputi jumlah individu, kelimpahan, peran arthropoda, indeks keragaman Shannon–Wiener, serta intensitas kerusakan pada daun, batang, dan buah kakao. Perbedaan kelimpahan dan intensitas kerusakan dianalisis menggunakan uji t, sedangkan efektivitas jenis perangkap dianalisis menggunakan uji ANOVA. Hasil penelitian menunjukkan bahwa kelimpahan arthropoda berbeda signifikan pada bulan Agustus dengan rata rata intensif 242,25 dan non intensive 312,25. Komunitas arthropoda didominasi predator, terutama pada lahan non-intensif. Keragaman arthropoda pada kedua tipe lahan tergolong sedang yaitu antara 1,74 sampai 2,50. Kerusakan daun dan batang tidak berbeda signifikan sedangkan kerusakan buah berbeda signifikan. Helopeltis dominan pada lahan intensif dengan rata rata kerusakan 35,86% dan kutu putih pada lahan non-intensif dengan rata rata kerusakan 17,19%. Dapat disimpulkan bahwa perbedaan yang tidak signifikan diakibatkan karena adanya faktor lain seperti fluktuasi musiman.

Kata kunci: Keanekaragaman arthropoda, kakao, perangkap