

## ABSTRAK

**Amanda Ignacia Calista NIM. 4213520031 (2021). Keanekaragaman dan Kelimpahan Laba-laba dan Serangga pada Sawah Organik dan Sawah Anorganik di Desa Sumber Rejo Kecamatan Percut Sei Tuan**

Keanekaragaman dan kelimpahan arthropoda (laba-laba dan serangga) yang merupakan indikator utama kesehatan ekosistem pertanian karena mereka berfungsi sebagai agen pengendalian hayati, penyerbuk, dan komponen rantai trofik. Intensifikasi pertanian melalui penggunaan masukan sintetis seringkali mengurangi keanekaragaman hayati, sehingga diperlukan evaluasi manfaat praktik pertanian organik dalam menjaga stabilitas agroekosistem. Penelitian ini mengkaji keanekaragaman dan kekayaan laba-laba dan serangga di sawah organik dan non-organik di Desa Sumber Rejo, Kecamatan Percut Sei Tuan, Kabupaten Deli Serdang, Sumatera Utara. Studi ini dilakukan selama tiga bulan, dari Mei hingga Juli 2025, menggunakan teknologi *Yellow Sticky Trap* (YST) yang ditempatkan secara strategis di kedua jenis sawah. Data yang diperoleh dievaluasi menggunakan Indeks Shannon-Wiener ( $H'$ ) untuk keragaman, Indeks Shannon-Wiener untuk kelimpahan, Indeks Kemerataan ( $E$ ) dan Indeks Dominasi ( $C$ ) untuk menilai struktur komunitas. Perbedaan antara sistem diuji menggunakan uji  $t$ . Hasil menunjukkan bahwa sawah organik lebih beragam dan lebih berlimpah dibandingkan sawah non-organik. Indeks keragaman laba-laba di sawah organik adalah 1,77, sedangkan di sawah inorganik hanya 1,36, keduanya berada dalam rentang sedang. Demikian pula, indeks keragaman serangga di sawah organik adalah 2,37, lebih besar daripada di sawah inorganik (2,00). Nilai kelimpahan laba-laba dan serangga juga lebih tinggi di sawah organik (1,21 dan 2,26) dibandingkan sawah non-organik (0,87% dan 1,57%). Sementara itu, laba-laba dan serangga memiliki distribusi yang relatif seimbang di kedua sistem, dengan sawah organik sedikit lebih stabil, dan indeks dominasi di kedua lingkungan rendah, menunjukkan bahwa tidak ada spesies yang mendominasi secara signifikan. Secara keseluruhan, data ini menunjukkan bahwa praktik pertanian organik mempromosikan keanekaragaman hayati dan ketahanan ekosistem, sedangkan masukan sintetis dalam pertanian non-organik mengurangi proses ekologi alami dan meningkatkan sensitivitas terhadap gangguan hama.

**Kata kunci:** keanekaragaman arthropoda, pertanian organik, ekosistem padi.

## ABSTRACT

**Amanda Ignacia Calista NIM 4213520031 (2021). Diversity and Abundance of Spiders and Insects in Organic and Inorganic Rice Fields in Sumber Rejo Village, Percut Sei Tuan District**

The diversity and abundance of arthropods (spiders and insects) are key indicators of agricultural ecosystem health because they function as biological control agents, pollinators, and components of the trophic chain. Agricultural intensification through the use of synthetic inputs often reduces biodiversity, so it is necessary to evaluate the benefits of organic farming practices in maintaining agroecosystem stability. This study examined the diversity and abundance of spiders and insects in organic and non-organic rice fields in Sumber Rejo Village, Percut Sei Tuan District, Deli Serdang Regency, North Sumatra. The study was conducted over three months, from May to July 2025, using Yellow Sticky Trap (YST) technology strategically placed in both types of rice fields. The data obtained were evaluated using the Shannon-Wiener Index ( $H'$ ) for diversity, the Shannon-Wiener Index for abundance, the Evenness Index (E) and the Dominance Index (C) to assess community structure. Differences between the systems were tested using a t-test. The results showed that organic rice fields were more diverse and abundant than non-organic rice fields. The diversity index of spiders in organic rice fields was 1.77, while in inorganic rice fields it was only 1.36, both of which were in the moderate range. Similarly, the diversity index of insects in organic rice fields was 2.37, which was greater than in inorganic rice fields (2.00). The abundance values of spiders and insects were also higher in organic rice fields (1.21 and 2.26) than in non-organic rice fields (0.87% and 1.57%). Meanwhile, spiders and insects have a relatively balanced distribution in both systems, with organic rice fields being slightly more stable, and the dominance index in both environments is low, indicating that no species dominates significantly. Overall, these data show that organic farming practices promote biodiversity and ecosystem resilience, while synthetic inputs in non-organic agriculture reduce natural ecological processes and increase sensitivity to pest disturbances.

**Keywords:** arthropod diversity, organic farming, rice ecosystems.