ABSTRACT

Peat soil, better known as peat, is a mixture of fragments of organic material derived from decaying plants. Peatlands in Indonesia cover 13.43 million ha and in Jambi Province cover 496,766 ha. Water balance in peatlands planted with oil palm (*Elaeis guineensis* Jacq). Pandan Lagan Village, Geragai District, East Tanjung Jabung Regency, Jambi Province. Peatlands have an important role in maintaining hydrological balance, but their management, especially for oil palm plantations, often faces challenges in water management that can cause peat oxidation and subsidence if the groundwater level decreases. The study was conducted for three months (April-June 2025) using a survey method with water balance calculations based on the Steady-State Hooghoudt method. Data collected included rainfall, groundwater level (TMAT), channel dimensions, peat thickness, peat maturity level, hydraulic conductivity, drainage pore space, and drainage water flow discharge. The research results show that the peatland water balance from October to December 2024 showed a surplus of 10,327.401 mm, with input from rainfall (11,703.031 mm) and inflow (2,054.49 mm), and output from outflow (2,862.30 mm) and actual evapotranspiration (567.82 mm).

ABSTRAK

Tanah gambut yang lebih dikenal dengan nama peat, adalah campuran dari fragmen–fragmen material organik yang berasal dari tumbuh-tumbuhan yang telah membusuk. Lahan gambut di Indonesia mencakup 13,43 juta ha dan di Provinsi Jambi mencakup 496.766 ha. Neraca air pada lahan gambut yang ditanami kelapa sawit (Elaeis guineensis Jacq.) di Desa Pandan Lagan, Kecamatan Geragai, Kabupaten Tanjung Jabung Timur, Provinsi Jambi. Lahan gambut memiliki peran penting dalam menjaga keseimbangan hidrologi, tetapi pengelolaannya, terutama untuk perkebunan kelapa sawit sering menghadapi tantangan dalam tata air yang dapat menyebabkan oksidasi dan subsiden gambut jika muka air tanah menurun. Penelitian dilaksanakan selama tiga bulan (April-Juni 2025) menggunakan metode survei dengan perhitungan neraca air berdasarkan metode Steady-State Hooghoudt. Data yang dikumpulkan meliputi curah hujan, tinggi muka air tanah (TMAT), dimensi saluran, ketebalan gambut, tingkat kematangan gambut, konduktivitas hidraulik, ruang pori drainase, dan debit aliran air drainase. Hasil penelitian menunjukkan neraca air lahan gambut pada bulan Oktober-Desember 2024 menunjukkan surplus 10.327,401 mm, dengan input dari curah hujan (11.703,031 mm) dan debit masuk (2.054,49 mm), serta output dari debit keluar (2.862,30 mm) dan evapotranspirasi aktual (567,82 mm).