

ABSTRACT

HEALTH ANALYSIS OF PALM OIL PLANTS IS APPLIED TO AN INTERPRETATION OF THE IMAGE OF THE SENTINEL-2 AND LANDSAT 8 IN BEKRI DISTRICT, CENTRAL LAMPUNG REGENCY

By

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Oil palm productivity in Central Lampung Regency at 2.25 tons/ha is still below the national average productivity of 3.90 tons/ha. One factor is the condition of the farmland, which has affected the health of the palm tree. The research was conducted to monitor the health of palm oil by utilizing remote sensing technology from satellite imagery. This research uses sentinel-2 satellite imagery to analyze the health of oil palms and landsat 8 satellite imagery to assess land suitability classes. This research methodology includes the Normalized Difference Vegetation Index (NDVI) vegetation index, the Normalized Difference Moisture Index (NDMI) land moisture index, and land suitability analysis based on oil palm planting requirements parameters. Then a match was made between the oil palm health results from the NDVI, NDMI index and land suitability class. The results of the suitability of oil palm land are divided into two, namely class S2 (quite suitable) covering an area of 7615 Ha and class S3 (marginally suitable) covering an area of 218 Ha which is spread over several points. Analysis of oil palm health using the NDVI index from sentinel-2 satellite imagery produces good health palm oil covering an area of 3721 Ha, normal health class 765 Ha, and poor health class covering an area of 310 Ha with a total accuracy of 81.82%

Keywords: oil palm health, sentinel-2, landsat 8, land suitability, NDVI and NDMI index

ABSTRAK

ANALISIS TINGKAT KESEHATAN TANAMAN KELAPA SAWIT MENGUNAKAN INTERPRETASI CITRA SENTINEL-2 DAN CITRA LANDSAT 8 DI KECAMATAN BEKRI KABUPATEN LAMPUNG TENGAH

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Produktivitas kelapa sawit di Kabupaten Lampung Tengah pada angka 2,25 ton/Ha masih berada di bawah produktivitas rata-rata nasional yang mencapai 3,90 ton/ha. Salah satu faktor penyebabnya ialah kondisi dari lahan perkebunan sehingga mempengaruhi kesehatan tanaman kelapa sawit. Penelitian ini dilakukan untuk memantau kesehatan kelapa sawit dengan memanfaatkan teknologi penginderaan jauh dari citra satelit. Dalam penelitian ini menggunakan citra satelit sentinel-2 untuk menganalisis kesehatan kelapa sawit dan citra satelit landsat 8 untuk mengkaji kelas kesesuaian lahan. Metodologi penelitian ini mencakup indeks vegetasi Normalized Difference Vegetation Index (NDVI), indeks kelembaban lahan Normalized Difference Moisture Index (NDMI), dan analisis kesesuaian lahan berdasarkan parameter syarat tanam kelapa sawit. Kemudian dilakukan pencocokkan antara hasil kesehatan kelapa sawit dari indeks NDVI, NDMI, dan kelas kesesuaian lahan. Hasil kesesuaian lahan kelapa sawit terbagi menjadi dua yaitu kelas S2 (cukup sesuai) seluas 7615 Ha dan kelas S3 (sesuai marginal) seluas 218 Ha yang tersebar di beberapa titik. Analisis kesehatan kelapa sawit menggunakan indeks NDVI dari citra satelit sentinel-2 menghasilkan sawit kesehatan baik seluas 3721 Ha, kelas kesehatan normal 765 Ha, dan kelas kesehatan buruk seluas 310 Ha dengan akurasi total yaitu 81,82%.

Kata kunci : kesehatan kelapa sawit, sentinel-2, landsat 8, kesesuaian lahan, indeks NDVI dan NDMI