

## RINGKASAN

Penelitian ini mengkaji pengaruh perubahan iklim terhadap produksi kelapa sawit yang ditanam di dua jenis tanah, yaitu lahan mineral dan lahan gambut. Penelitian ini dilakukan pada lahan mineral di Perkebunan Kelapa Sawit Kebun Air Tenang PTPN II Sawit Sebrang, Kabupaten Langkat Sumatera Utara seluas 511,07 ha dengan ketinggian tempat  $\pm 26$  m di atas permukaan laut (dpl). Untuk lahan gambut dilakukan di Perkebunan Kelapa Sawit PT Umbul Mas Wisesa, Kabupaten Labuhan Batu Selatan Sumatera Utara seluas 622,30 ha dengan ketinggian tempat  $\pm 30$  m dpl.

Tujuan penelitian ini adalah menganalisis hubungan antara curah hujan dan hari hujan terhadap produksi kelapa sawit di lahan mineral dan gambut serta menganalisis hubungan antara sifat-sifat tanah terhadap produksi kelapa sawit di lahan mineral dan gambut. Peubah amatan yang dianalisis adalah jumlah curah hujan dan hari hujan selama lima tahun terakhir, dan sifat-sifat tanah meliputi N-total, P-Bray II, jumlah kation basa (Ca-dd, K-dd, Mg-dd, Na-dd), kapasitas tukar kation (KTK), kejenuhan basa (KB) pH tanah, dan tekstur tanah dalam hubungannya dengan produksi kelapa sawit selama lima tahun terakhir. Metode penelitian menggunakan analisis korelasi dan regresi untuk mengetahui hubungan antara peubah amatan dengan produksi tanaman kelapa sawit di lahan mineral dan gambut.

Hasil penelitian menunjukkan bahwa curah hujan dan hari hujan berkorelasi positif rendah terhadap produksi kelapa sawit pada lahan mineral, sedangkan di lahan gambut berkorelasi negatif rendah. Peubah sifat-sifat tanah N-total, P-Bray II, jumlah kation basa (Ca-dd, K-dd, Mg-dd, Na-dd) secara signifikan mempengaruhi produksi kelapa sawit di lahan mineral. Curah hujan dan hari hujan berkorelasi negatif sangat rendah terhadap produksi kelapa sawit di lahan gambut. P-Bray II, K-dd, Ca-dd, Mg-dd, dan pH secara signifikan berpengaruh terhadap produksi kelapa sawit pada lahan gambut.

## SUMMARY

This study examines the impact of climate change on palm oil production planted in two types of soil: mineral land and peat land. The research was conducted on mineral land at the Kebun Air Tenang PTPN II Sawit Sebrang Palm Oil Plantation, Langkat Regency, North Sumatra, covering an area of 511.07 hectares with an elevation of approximately 26 meters above sea level (asl). For peat land, the study was conducted at the PT Umbul Mas Wisesa Palm Oil Plantation, Labuhan Batu Selatan Regency, North Sumatra, covering an area of 622.30 hectares with an elevation of approximately 30 meters asl.

The objective of this research is to analyze the relationship between rainfall and rainy days with palm oil production on mineral and peat land, as well as to analyze the relationship between soil properties and palm oil production on both types of land. The observed variables analyzed include total rainfall and rainy days over the past five years, and soil properties such as total nitrogen (N-total), Bray II phosphorus (P-Bray II), base cation content (Ca-dd, K-dd, Mg-dd, Na-dd), cation exchange capacity (CEC), base saturation (BS), soil pH, and soil texture in relation to palm oil production over the past five years. The research method employs correlation and regression analysis to determine the relationship between the observed variables and palm oil production on mineral and peat land..

The results indicate that rainfall and rainy days have a low positive correlation with palm oil production on mineral land, while on peat land, they have a low negative correlation. Soil properties such as N-total, P-Bray II, and base cation content (Ca-dd, K-dd, Mg-dd, Na-dd) significantly affect palm oil production on mineral land. Rainfall and rainy days have a very low negative correlation with palm oil production on peat land. P-Bray II, K-dd, Ca-dd, Mg-dd, and pH significantly influence palm oil production on peat land.