

**PENGARUH PERBEDAAN MANAJEMEN LAHAN
TERHADAP KUALITAS TANAH LAHAN JAGUNG
(*Zea mays* L.) DI NAGARI LUBUK GADANG TIMUR
KABUPATEN SOLOK SELATAN**

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ABSTRAK

Penelitian tentang pengaruh perbedaan manajemen lahan terhadap kualitas tanah lahan jagung (*Zea mays* L.) telah dilakukan dari Mei sampai Desember 2019 di desa Tanjung Harapan, Durian Tanjak, dan Simpang Sawit, Nagari Lubuk Gadang Timur, Kabupaten Solok Selatan. Di tempat studi ini, perbedaan manajemen lahan terdapat pada sistem pengolahan tanah, pola pertanaman, pemupukan dan pengelolaan sisa panen. Penelitian dilakukan secara deskriptif eksploratif yaitu lahan jagung pada toposequens yang sama (elevasi ± 500 m dpl dan kelas kemiringan lahan 8-15%) dan data analisis di laboratorium. Indeks kualitas tanah menggunakan konsep *minimum data set* (MDS) dari parameter fisika dan kimia tanah (*physiochemical soil properties*) yang dipilih menggunakan metode *Principal Components Analysis* (PCA) dan skor kualitas tanah menggunakan fungsi *Non-Linear Scoring*. Parameter *physiochemical soil properties* tersebut adalah berat volume, total ruang pori, tekstur, pH, bahan organik, nitrogen total, kalium dapat dipertukarkan, fosfor tersedia, dan kapasitas tukar kation. Hasil penelitian menunjukkan perbedaan penerapan manajemen lahan mempengaruhi kualitas tanah lahan jagung (*Zea mays* L.). Indeks kualitas tanah di ketiga manajemen lahan jagung tergolong kriteria rendah berkisar antara 0.26 sampai 0.28. Indeks kualitas tanah tertinggi terdapat pada lahan Durian Tanjak sebesar 0.28 dan terendah pada lahan Simpang Sawit sebesar 0.26. Indikator MDS terpilih adalah berat volume, total ruang pori, tekstur (liat), bahan organik, P-Tersedia, dan KTK. Berdasarkan hasil tersebut maka disarankan perbaikan kualitas tanah lahan jagung pada aspek pemupukan, pengapuran dan pengembalian sisa panen.

Kata kunci : Manajemen Lahan, Indeks Kualitas Tanah, Minimum Data Set, Physiochemical Soil Properties, Principal Components Analysis.

THE EFFECT OF DIFFERENT LAND MANAGEMENT ON SOIL QUALITY UNDER MAIZE LAND (*Zea mays* L.) IN LUBUK GADANG TIMUR, SOLOK SELATAN

ABSTRACT

A research about the effect of land management on soil quality under maize land (*Zea mays* L.) at three different locations (Tanjung Harapan, Durian Tanjak, and Simpang Sawit) in Lubuk Gadang Timur, Solok Selatan was conducted from Mei to December 2019. The difference of land management in the three locations were tillage, cropping pattern, fertilization, and crop residue management. This research used descriptive explorative method with survey approach on maize land at the same toposequence (altitude ± 500 m asl with 8-15% slope) and soil analysis in laboratory. Soil quality index (SQI) was determined on the basis of soil physiochemical parameters especially bulk density, porosity, soil texture, soil pH, soil organic matter, total nitrogen, available phosphorous, exchangeable potassium and cation exchange capacity. The best representated of soil quality (SQ) variabels forming a minimum data set (MDS) were selected using principal component analysis (PCA) and SQ was obtained using non-linier scoring functions. The results showed that differences in land management on maize land at the three locations had an effect on the SQI. The value of SQI in three land managements belonged to low category. The index value ranged from 0.26 to 0.28. The highest SQI value was found in Durian Tanjak (0.28) and the lowest SQI value was found in Simpang Sawit (0.26). Indicators of physiochemical properties that represented SQI value were bulk density, porosity, soil texture (clay), soil organic matter, available phosphorous, and cation exchange capacity. Based on the result, improvement of the soil quality was suggested through liming, management of plant nutrient, and returning crop residue.

Keyword : Land Management, Soil Quality Index, Minimum Data Set, Physiochemical Soil Properties, Principal Components Analysis