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Soil Analysis Report

Professional Soil Water Characteristics Analysis

Professional User

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Report Information

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Comprehensive Soil Water Characteristics Analysis

This report provides a detailed analysis of soil water characteristics based on the Saxton & Rawls (2006) methodology. The analysis includes soil composition, water retention properties, and physical characteristics essential for agricultural and engineering applications.

Soil Properties

Basic Properties

Sand Content

45%

Clay Content

25%

Silt Content

30%

Organic Matter

2.8%

Professional Features

Texture Classification

loam

Bulk Density Factor

1.1 g/cm³

Saturated Conductivity

3.8 mm/hr

Gravel Content

2%

Expert Parameters

Porosity

52.8%

Bulk Density

1.25 g/cm³

Particle Density

2.65 g/cm³

Void Ratio

N/A

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Soil Texture Classification

The soil texture triangle is a fundamental tool in soil science that classifies soils based on their sand, silt, and clay content. This classification helps predict soil behavior, water retention, drainage characteristics, and agricultural suitability.

Soil Texture Triangle Chart
Sand: 45% | Clay: 25% | Silt: 30%
Classification: loam

Chart visualization would appear here in the interactive version

Texture Analysis

Primary Texture: loam
Dominant Particle: Sand
Texture Description: Medium texture, ideal balance of drainage, water retention, and nutrients

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Soil Analysis Results

Overall Soil Quality Score

80/100

Good soil quality - suitable for diverse agriculture

Water Characteristics

Field Capacity (θFC)

28.5%

Wilting Point (θWP)

14.2%

Plant Available Water

14.3%

Saturation Point

42.1%

Advanced Parameters

Hydraulic Conductivity

3.8 mm/hr

Water Retention

High

Drainage Class

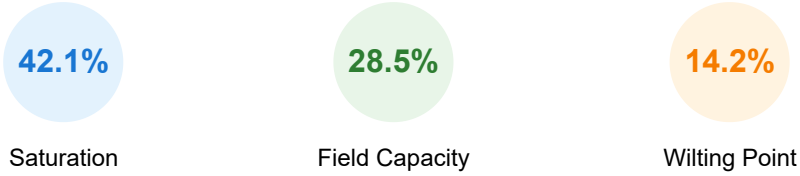
Somewhat Poor

Infiltration Rate

Moderate

Soil Water Content Visualization

Water Content Distribution



Understanding Soil Water Characteristics

Field Capacity: The maximum amount of water soil can hold against gravity.

Wilting Point: The minimum water content at which plants can extract water.

Plant Available Water: The difference between field capacity and wilting point.

Saturation: The maximum water content when all pore spaces are filled.

Crop Recommendations

Loamy Soils

Recommended crops: Corn, Tomatoes, Lettuce, Beans, Most vegetables

Ideal for most crops due to balanced properties