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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

58.7%

Clay Content

22.1%

Silt Content

19.2%

Organic Matter

2.1%

Professional Features

Texture Classification

sandy clay loam

Bulk Density Factor

1.42 g/cm³

Saturated Conductivity

28.3 mm/hr

Gravel Content

0%

Expert Parameters

Porosity

N/A%

Bulk Density

1.42 g/cm³

Particle Density

2.65 g/cm³

Void Ratio

0.87



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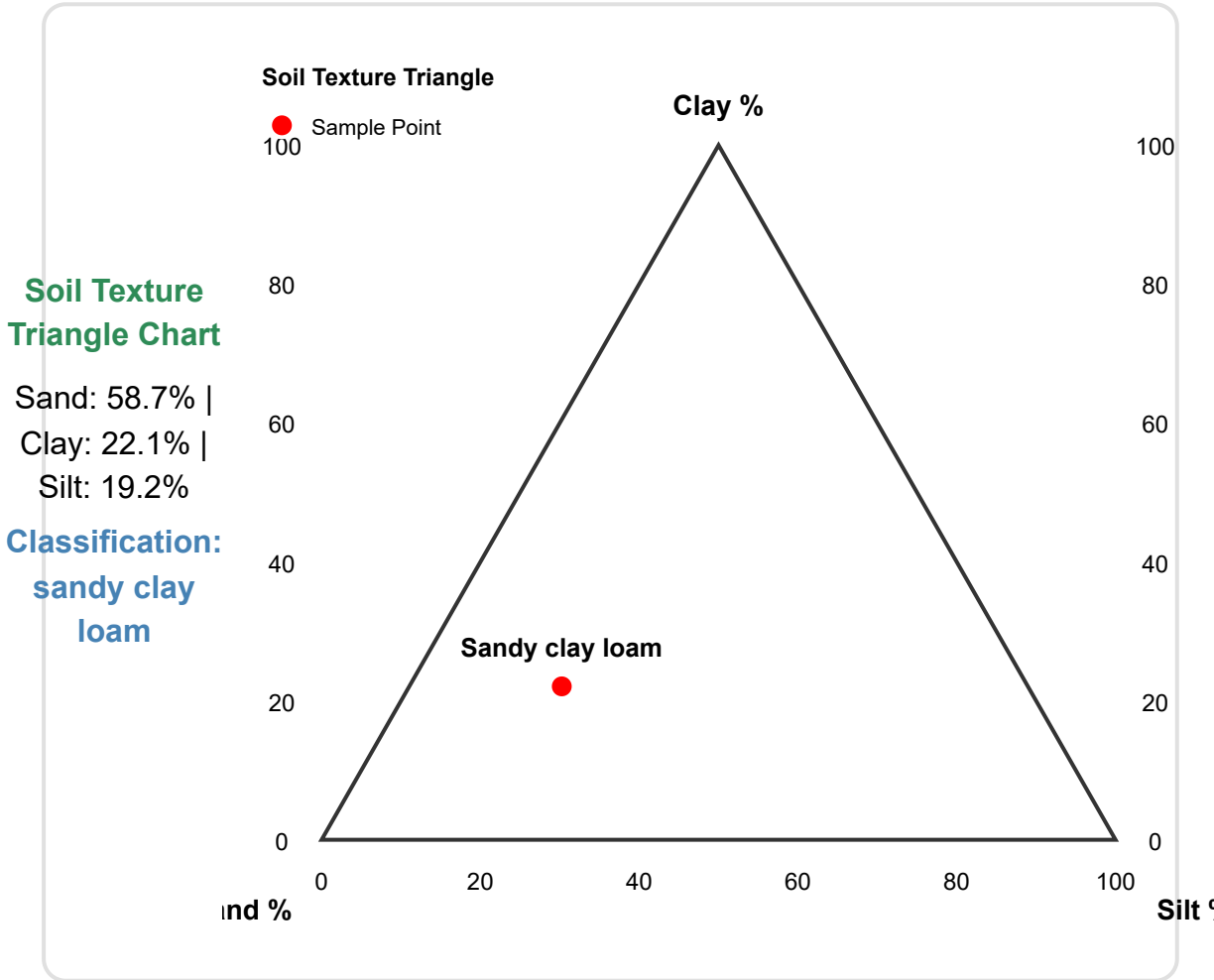
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Soil Texture Classification

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.



Texture Analysis

Primary Texture: sandy clay loam
Dominant Particle: Sand

Texture Description: Moderately fine texture, good structure with balanced properties



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Soil Analysis Results

Overall Soil Quality Score

61/100

Moderate soil quality - may need some improvements

Water Characteristics

Field Capacity (θ_{FC})

18.9%

Wilting Point (θ_{WP})

9.8%

Plant Available Water

9.1%

Saturation Point

46.4%

Advanced Parameters

Hydraulic Conductivity

28.3 mm/hr

Water Retention

Low

Drainage Class

Well Drained

Infiltration Rate

Very High

Soil Water Content Visualization

Water Content Distribution

46.4%

Saturation

18.9%

Field Capacity

9.8%

Wilting Point

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

Sandy Soils

Recommended crops: Carrots, Radishes, Potatoes, Peanuts

Well-suited for root vegetables and crops that prefer good drainage

Generated by FlahaSoil Professional Analysis System

Based on Saxton & Rawls (2006) Soil Water Characteristics methodology

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