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FlahaSoil

# Soil Analysis Report

Professional Soil Water Characteristics Analysis

## Professional User

Generated for: 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

33%

Clay Content

33%

Silt Content

34%

Organic Matter

2.5%

### Professional Features

Texture Classification

**Clay Loam**

Bulk Density Factor

**1.3** g/cm<sup>3</sup>

Saturated Conductivity

**13.8** mm/hr

Gravel Content

**0**%

### Expert Parameters

Porosity

**N/A**%

Bulk Density

**1.30** g/cm<sup>3</sup>

Particle Density

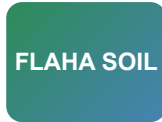
**2.65** g/cm<sup>3</sup>

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: 33% | Clay: 33% | Silt: 34%

**Classification: Clay Loam**

*Chart visualization would appear here in the interactive version*

## Texture Analysis

**Primary Texture:** Clay Loam

**Dominant Particle:** Silt

**Texture Description:** Fine texture with good water retention and moderate drainage



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## Soil Analysis Results

### Overall Soil Quality Score

85/100

Excellent soil quality - ideal for most crops

### Water Characteristics

Field Capacity ( $\theta_{FC}$ )

33.1%

Wilting Point ( $\theta_{WP}$ )

19.8%

Plant Available Water

13.3%

Saturation Point

50.9%

### Advanced Parameters

Hydraulic Conductivity

13.8 mm/hr

Water Retention

Moderate

Drainage Class

Moderately Well

Infiltration Rate

High

### Soil Water Content Visualization

## Water Content Distribution

50.9%

Saturation

33.1%

Field Capacity

19.8%

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

### Clay Soils

**Recommended crops:** Rice, Wheat, Soybeans, Cotton

Excellent for crops requiring high water retention

Generated by FlahaSoil Professional Analysis System

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

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