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# Soil Analysis Report

Professional Soil Water Characteristics Analysis

## Professional User

Generated for: John Smith

Email: john.smith@agritech.com

## 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/cm<sup>3</sup>

Saturated Conductivity

**3.8** mm/hr

Gravel Content

**2**%

### Expert Parameters

Porosity

**52.8**%

Bulk Density

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

Particle Density

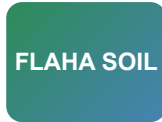
**2.65** g/cm<sup>3</sup>

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: 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 ( $\theta_{FC}$ )

28.5%

Wilting Point ( $\theta_{WP}$ )

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

42.1%

Saturation

28.5%

Field Capacity

14.2%

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

### Loamy Soils

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

Ideal for most crops due to balanced properties

Generated by FlahaSoil Professional Analysis System

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

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