

Interpreting Salt Alkali Report

Salt-affected soils are divided into three groups depending on the amounts and kinds of salts present. Classification depends on total soluble salts (measured by electrical conductivity, E.C.) soil pH, and exchangeable sodium percentage.

Table 1. Salt-Affected Soil Classification

Classification	Electrical Conductivity mS/cm	Soil pH	Exchangeable Sodium Percentage	Soil Physical Condition
Saline	> 4.0	< 8.5	< 15	Normal
Sodic (Alkali)	< 4.0	> 8.5	> 15	Poor
Saline-sodic	> 4.0	< 8.5	> 15	Normal

> = greater than, < = less than

Saline Soils: Saline soils are often in normal physical condition with good structure and permeability. However, they are characterized by irregular plant growth and salty white crusts on the soil surface.

Sodic Soils: Sodic soils are low in total salts but high in exchangeable sodium. The combination of high levels of sodium and low total salts tends to disperse soil particles, making sodic soils of poor tilth.

Saline-Sodic Soils: These soils contain large amounts of total soluble salts and exchangeable sodium. Physical properties of these soils are good as long as an excess of soluble salts is present.

Table 2. Interpretation of Electrical Conductivity

Saturation Extract (mS/cm)	Salt Rank	Interpretation
0-2	Low	Very little chance of injury on all plants.
2-4	Moderate	Sensitive plants and seedlings of others may show injury.
4-8	High	Most non-salt tolerant plants will show injury; salt-sensitive plants will show severe injury.
8-16	Excessive	Salt-tolerant plants will grow; most others show severe injury.
16 +	Very Excessive	Very few plants will tolerate and grow.

Table 3. Interpretation of Exchangeable Sodium Percentage

Exchangeable Sodium (%)	Alkali Rank	Interpretation
0-10	Low	No adverse effect on soil is likely.
10 +	Excessive	Soil dispersion resulting in poor soil physical condition and plant growth is likely.

Table 4. Salt Tolerance Ratings for Various Field and Forage Crops

Sensitive (0-4 mS/cm)	Moderately Tolerant (4-6 mS/cm)	Tolerant (6-8 mS/cm)	Highly Tolerant (mS/cm)
Field Beans (Dry)	Corn	Wheat	Barley
Red Clover	Grain Sorghum	Oats	Rye
Ladino Clover	Soybean	Triticale	Bermudagrass
Aliske Clover	Bromegrass	Sunflower	Crested Wheatgrass
	Sudangrass	Alfalfa	
	Sorghum-Sudans	Tall Fescue	
		Sweet Clovers	