

Section 8 of 22 (8g - Measurement of soluble Salts)

EC Plant Response

ds/m-1 or mmho/cm or ms/cm

	SOIL	EC	SAR	pH
➤	Normal	<4	<13	
➤	Saline	>4	<13	< 8.5
➤	Sodic	<4	>13	> 8.5
➤	Saline-sodic	>4	>13	7.8 – 8.5

Three types of soils with salt problems

1.

- **Saline soils** - Saline soils contain large quantities of neutral salts which interfere with plant growth. The salts present may include bicarbonates, carbonates, borates, chlorides, or sulfates of calcium, magnesium, potassium, or sodium.
- SAR < 13
- EC > 4 mmho/cm
- pH < 8.5
- Sometimes called **white alkali soils**

2.

- **Sodic soils** - Sodic soils contain large amounts of exchangeable sodium (Na⁺)
- SAR = > 13
- EC = < 4 mmho/cm
- pH > 8.5

3.

- **Saline-sodic soils** –
- Saline-sodic soils contain appreciable quantities of both neutral salts and sodium
- SAR > 13
- EC > 4 mmho/cm
- pH 7.8 to 8.5 usually

Measurement of soluble Salts by EC

EC Plant Response

ds/m-1 or mmho/cm or ms/cm

- 0 - 2 No or negligible salt effects
- 2 – 4 Yield reduction possible in salt-sensitive crops
- 4 - 8 Yield of many crops reduced
- 8 -16 Yield satisfactory only in salt-tolerant crops
- > 16 Yield satisfactory only in few very salt-tolerant crops

The conversion factor from PPM to mmho/cm is 640

Agronomy Tech Note 76

(<http://www.nm.nrcs.usda.gov/technical/handbooks/iwm/nmiwm.html>)