

Sediment

EXCHANGEABLE SODIUM PERCENTAGE (ESP)

Overall sodium content and sodium content in relation to other nutrients can affect nutrition. However, the critical issues with high ratios of sodium are physical ones such as soil sealing and crusting which can affect infiltration, water logging and runoff. Testing for sodium and the ratio of sodium to other Cations (called ESP) is stated on most soil tests.

Soils are considered sodic when the ESP is >6%. Soils with an ESP between 6–14% are moderately dispersive, and have been associated with dam walls failing due to tunnelling. Soils with an ESP >14% are highly dispersive and are highly susceptible to tunnelling, and also to surface sealing which makes them difficult to revegetate.

Sodic soils have the following problems:

- very severe surface crusting
- very low infiltration and hydraulic conductivity
- very hard, dense subsoils
- high susceptibility to severe gully erosion, and
- high susceptibility to tunnel erosion.

The table below indicates the treatment options for various types of problem soils.

At the surface and subsoil levels your soil is:

Surface	acid	acid	acid	neutral
Subsoil	acid	sodic (alkaline)	saline	acid
you need to:	add lime	add lime then add gypsum	add lime lower water table	add lime
Surface	neutral	neutral	alkaline	sodic
Subsoil	sodic (alkaline)	saline	sodic (alkaline)	sodic (alkaline)
you need to:	add gypsum	lower water table	grow acidifying legumes add gypsum	add gypsum
Surface	sodic	saline	saline & sodic	highly sodic
Subsoil	saline	with any other combination	saline & sodic (alkaline)	saline & sodic (alkaline)
you need to:	add gypsum lower water table	control salinity before adding gypsum or lime	control salinity try test areas of gypsum	add gypsum

Information in this fact sheet has been obtained from the following resource and is gratefully acknowledged. Controlling acid, sodic and saline soils. (Managing Sodic, Acidic and Saline Soils, CRC for Soil and Land Management, 1997).

Disclaimer: This information is provided as a reference tool only. Please seek professional advice.

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