

# Salt Affected Soils

## BACKGROUND

- Caused by an increase in salt ions;  $\text{Ca}^{+2}$ ,  $\text{Mg}^{+2}$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Cl}^-$ ,  $\text{SO}_4^{-2}$ ,  $\text{HCO}_3^-$ ,  $\text{NO}_3^-$ ,  $\text{CO}_3^{-2}$  (at pH >9.0)
- Salt ions come from; dissolution of minerals, irrigation water, fertilizers, soil amendments, high water table, salt water spray, insufficient leaching.
- High soil salt levels cause the following problems: water deficit, ion toxicity, ion (nutrient) imbalances and poor soil permeability.
- Salt affected soils are classed as: Saline (high salts), Sodic (high Sodium) or Saline-Sodic (high salt and sodium).

## APPROACH

1. Assess the site to evaluate potential risk.
2. Restrict salt addition through choice of fertilizer type.
3. Use salt tolerant grass cultivars.
4. Leach salt out of rootzone.
5. Check (and amend if possible) water quality.
6. Ensure nutrients are in balance.
7. Encourage good rooting.
8. Monitor situation and adapt as required (season specific).
9. Change the quantity of irrigation (and hence depth) every 3 days to change the layer of salts.



## i-TURF SOLUTIONS

Product type	Why	Scotts solution
Slow release nitrogen and potassium fertilizers	Encourages deeper rooting so turf more likely to find better quality water.	Sierraform GT range
Low salt index conventional fertilizers	Minimise salt inputs into rootzone to reduce soil electrical conductivity (EC) levels.	Greenmaster Pro-Lite, Greenmaster Liquid ranges
Low salt index slow release fertilizers	Salt inputs will be further reduced if nutrient are delivered gradually over time.	Sierraform GT, Sierrablen Plus
Quality liquid fertilizers	Foliar application using low water volumes ensure nutrient taken up directly by plant and not via soil which could add to salt levels.	Greenmaster Liquid range
Use foliar feeds in stress conditions	Foliar feeds can change the cations of Na in the leaf with Ca, K and/or Mg to get better nutrient balance.	Use Greenmaster Liquid Ca-Booster and STEP Liquid.
Calcium fertilizer with nutrient uptake activator	Calcium displaces Sodium (Na) ion from cation exchange sites.	Greenmaster Liquid Ca-Booster (9% Cao) applied at high water volumes as a root drench
Organic based fertilizer with low salt index	Organic material can improve the exchange of cations Na-Ca-K-Mg.	Greenmaster Organic
Carbohydrate + seaweed biostimulant	Carbohydrates are delivered directly to the plant and can help the plant adapt to reduced cytokinin synthesis in roots.	Vitalnova / Greenmaster Blade
Penetrant wetting agent	Encourage water and salt movement down through the soil profile to reduce surface salt levels.	H2Pro Maximise
Use salt tolerant grass cultivars	These varieties are able to withstand high salt levels.	Paspalum vaginatum: <i>Sea Spray (seeded Seashore paspalum)</i> Lolium perenne: <i>Silver Dollar, Vantage, Salinas, Gray Fox, Fairway</i> Poa pratensis: <i>Moonlight SLT</i> Festuca arundinacea: <i>Tarheel II, Pure Gold, Coronado TDH, Wolfpack II, Gazelle II</i> Festuca rubra: <i>Seabreeze GT, Florensate</i>

For solutions and treatments of Salt affected soils, please visit the dedicated solution pages at [www.scottspprofessional.com/iTurf](http://www.scottspprofessional.com/iTurf)



Growing success