to 12.0 dS/m have medium levels. When readings are above 12.0 dS/m, soils are considered to have high salt levels and only salt-tolerant turfgrasses survive above 16 dS/m.

Table 16. Classification of saline soils.

Salinity Class	EC (dS/m) (1:2 dilution method)	TDS (ppm)
low	2 to 4	1300 to 2500
medium	4 to 12	2500 to 7500
high	>12	>7500

Leaching to Remove Salts

Salt build-up from salt laden irrigation water occurs when rainfall is low and evaporative demand is high. This normally corresponds to mid-spring (April and May) and late-summer through early fall (September and October) in Florida. As water evaporates from the soil surface, salt deposits are left behind. Frequent flushing of such areas with rainfall or irrigating with good quality water are the best methods to prevent salt build-up. Unfortunately, many irrigation sources contain varying levels of salt, forcing soil salinity management with saline water.

If saline water is used to attempt to reduce the salt level in the soil, irrigation must be applied at rates exceeding evapotranspiration to leach excess salts out of the root zone. To determine amount of excess water required to leach salt below the rootzone, the following equation is often used.

$$\text{Leaching Fraction} = \frac{EC_{iw}}{EC_{dw}}$$

EC_{iw} equals electrical conductivity of the saline irrigation source and EC_{dw} is electrical conductivity tolerable by the specific turfgrass being grown. For example, an irrigation water source with a salinity level of 2 dS/m used on a turfgrass tolerant of a salinity of 4 dS/m would equal 2/4 or 50 percent extra amount of irrigation water applied in addition to normal irrigation requirement of the turf to leach salt from the rootzone (e.g., 50% greater than 2 inches of water applied would equal 3 inches) (Table 17).

As previously mentioned, leaching works well only with soils possessing good drainage. If compacted zones or abrupt changes in soil texture exist, less leaching occurs as water movement through the soil is reduced. Good soil drainage through use of drainage tile is used for carrying away salty water. Tile lines, spaced no more than 20 feet apart, are used on golf greens for this purpose.

SODIUM HAZARD (PERMEABILITY)

Another major water quality problem with saline irrigation sources is that of deteriorating soil structure. Fortunately for Florida sandy soils, this concern is greater on fine-textured soils. Sodium ions are adsorbed by soils containing higher amounts of clay particles which causes them to become dispersed (deflocculate). This results in the clogging of soil pores which reduces soil aeration and water infiltration or permeability. Increasing calcium and magnesium concentrations in clay soils will counteract negative effects of the sodium, therefore, help maintain good permeability.

Table 17. Recommended irrigation amounts for saline water.

Irrigation Water EC_{iw} (dS/m)	Maximum plant EC_{dw} tolerance level, measured by saturated soil paste extract (dS/m) 4 (low)	8 (medium)	16 (high)
	(inches of water required to replace weekly ET losses and provide adequate leaching in rootzone)		
0.00	1.5	1.5	1.5
1.00	2.0	1.7	1.6
2.00	3.0	2.0	1.7
3.00	6.0	2.4	1.8