

amounts of saline irrigation must be applied because of the tendency to concentrate salts in the soil. Leaching with large amounts of saline irrigation water keeps soil salts at tolerable levels because excessive salt is removed from the rootzone. Rainfall is extremely beneficial when saline water is used for irrigation because it will aid in leaching and diluting soluble salts.

Effect of Salinity on Plants

Saline water can cause salt stress and injury to plants by several means. Direct salt injury occurs with the accumulation of salts in the soil as well as ion accumulation within the plant. Reduction in plant growth and other metabolic processes such as photosynthesis is primarily a result of water stress. The ability of saline soils to hold water more tightly results in greater plant water stress. This indirect osmotic stress causes dehydration of the plant by removing water from the plant into the soil because of a salt concentration gradient. Plant nutrient deficiencies are indirectly caused by suppression of nutrient absorption. The most common example of this is the antagonistic effects of sodium on the uptake of potassium into the plant.

Plant resistance to salt stress varies greatly. Some plants avoid salt stress by either excluding salt absorption, extruding excess salts, or diluting absorbed salts. Other plants tolerate salt stress by adjusting their metabolism to withstand direct or indirect injury. In most cases the mechanism of salt tolerance in plants is a combination of several methods.

The effect of high salt levels on turf can be observed by a number of visual symptoms. There is a tendency for the turf to wilt faster than normal as a result of osmotic stress. Shoot and root growths are reduced at high salt levels through both direct and indirect salt injury. Leaf tipburn and a general thinning of the turf are also common symptoms. Severe salt stress will ultimately cause turf death.

Table 3. Salt Tolerance of Turfgrass Species.

Salt tolerance	Species	EC at 50% yield reduction
Excellent	Zoysiagrass	37
	Bermudagrass	28
	Seashore paspalumgrass	26
	St. Augustinegrass	24
Good	Tall fescue	13
	Perennial ryegrass	12
Fair	Creeping bentgrass	10
	Bahiagrass	9
	Centipedegrass	9