Table 14. Salt tolerance of turfgrass species grown in culture solutions.

Salt tolerance	Species	EC at 50% yield reduction (approximate ppm)
Excellent	Zoysiagrass	37 (24,000)
	Bermudagrass	28 (18,000)
	Seashore paspalum	26 (17,000)
	St. Augustinegrass	24 (15,000)
Good	Tall fescue	13 (8,000)
	Perennial ryegrass	12 (8,000)
Fair	Creeping bentgrass	10 (6,000)
	Bahiagrass	9 (6,000)
	Centipedegrass	9 (6,000)

Plant symptoms of salinity stress initially resemble drought stress. The initial symptom is reduced growth. Leaf blades become narrower and stiff, and can become darker green or even blue-green in color. Shoot growth generally decreases with increasing salinity stress. There also is a tendency for turf to wilt faster than normal as a result of osmotic stress. Root growth initially increases, but over time, root growth is reduced presumably as a response to reduced shoot growth. Shoot and root growths are reduced at high salt levels through both direct and indirect salt injury. Leaf tipburn and a general thinning of turf develop at higher salinity levels. Severe salt stress will ultimately cause turf death, leaving a patchy, thin turfgrass stand.

Turfgrass Salt Tolerance

Turfgrass species have been classified according to salt tolerance (Table 14). Most turfgrass comparisons are based on the salt levels which cause a 50 percent reduction in top or root growth. Only a few species grow well under saline conditions. Zoysiagrass, seashore paspalum, bermudagrass, and St. Augustinegrass are the best species to grow in Florida if irrigation is limited to saline water. Under these conditions, grasses require good drainage and moist soil conditions to produce good quality turf. In addition, adequate leaching is essential, whether it is from rainfall or excess saline irrigation. Because of nematode and insect pest problems with these turfgrasses, maintenance necessities need to be carefully considered before planting.

Cultivars within a species often show a wide range of salt tolerance (Table 15). Sometimes cultivar differences are greater than species differences. Tifdwarf and Tifgreen are the most salt-tolerant bermudagrass cultivars available.

Table 15. Salt tolerance of various bermudagrass cultivars.

Salt tolerance	Bermudagrass
Most	Tifdwarf
	Tifgreen
	Tifway
	Common
Least	Ormond

Saline Irrigation Influence on Soils

Soils are a key to continued use of saline irrigation water. *Good drainage is essential to leach soluble salts through the soil profile.* The better the drainage, the more successfully proper saline irrigation can keep the soil level of soluble salts within tolerable limits. Sand soils are usually best suited for saline irrigation because of easy drainage, but they must be maintained at field capacity in order to prevent intolerable salt levels.

Soluble salts are measured in soils by the same basic method as water samples. A conductivity instrument measures electrical conductivity either from a saturated paste extract from a soil or from a soil water dilution ratio. The IFAS Soil Testing Laboratory uses the dilution method by diluting one part dry soil to two parts water. Soils with EC readings of 2.0 to 4.0 dS/m are considered to have low salt levels (Table 16). Soils with EC readings of 4.0