

## Water Quality and Salinity

Although water quantity usually gets more attention in irrigated corn production, water quality can be equally important. Shallow ground water and some surface waters often have high dissolved salts, sodium, and other specific ions that require special management to minimize production problems.

Yield impacts from salinity vary greatly with management, soil type and weather during the season. However, some dissolved salts in irrigation water are beneficial, reducing or negating the need for fertilizing with nitrogen, sulfur or boron. See fertility section for details. Always base management decisions on knowledge of actual water quality by having water periodically tested by a laboratory and consult a professional crop adviser for interpretation.



*To reduce the effects of salinity on corn yields, irrigate with better quality water early in growing season if available (ditch vs. ground water). If plants are on bed centers, irrigate every other row early, driving salt accumulation to the bed's edge. If irrigating with an overhead sprinkler, don't irrigate on hot, windy days and either irrigate at night or use LEPA systems or properly spaced drag hoses.*

Table 26. Corn is more sensitive to salinity than other grain crops like sorghum, wheat or barley, but less sensitive than most vegetables. This sensitivity is most acute during the seedling stage.

Potential yield reduction to corn from saline water				
	0%	10%	25%	50%
	-----EC* dS/m-----			
Grain	1.1	1.7	2.5	3.9
Silage	1.2	2.1	3.5	5.7

\*Electrical conductivity

Specific ion toxicity levels to corn		
	-----Toxicity level-----	
	Low	High
	-----mg/l or ppm-----	
Boron	<1	>2
Sodium***	230	460
Chloride***	<350	>700
Bicarbonate***	<400	>400

\*\*\*Potential foliar damage from sprinkler irrigation

### BMP

When leaching of soluble salts is necessary to maintain productivity, time leaching to coincide with periods of low residual soil nitrate.