



SALTED SOILS: A quarter of U.S. irrigated cropland is overly saline. This extreme example shows the white telltale sign of dissolved solids left as water leaches away.

At odds with destructive soil salinity

By **ALAN NEWPORT**

CHANCES are one in four that if you're reading this article, you have salinity problems. One-fourth of irrigated land in America does.

Since salinity is so widespread and since it is on the rise, it behooves everyone to know something about how to reduce the causes of salinity and/or manage it. Many common field crops quickly lose productivity in the presence of salt-laden soils.

Keep in mind that salinity problems are not caused just by sodium, but a variety of dissolved solids including beneficial soil nutrients like calcium and magnesium.

The only way to determine whether you have salinity problems is by soil and water sampling with an emphasis on parts per million of total dissolved solids or electrical conductivity. Deci-Siemens per meter is the most common measurement of electrical conductivity, although there are others.

Once you have your tests in hand, you can compare your electrical con-

Key Points

- Salinity affects 25% of U.S. cropland under irrigation.
- Management can help alleviate effects of salts in soils.
- Measurements rely on soil conductivity to electricity.

ductivity or dissolved solids numbers with charts showing crop sensitivity and potential losses.

Corn, clover, alfalfa and many vegetables are susceptible. Soybeans are more tolerant, but can be hurt by salinity.

Six management tips

This list of management options, prepared by Texas irrigation specialists Dana Porter and Thomas Marek, covers some basics of salinity mitigation:

1. If you have saline soils and/or irrigation water, avoid growing the less-tolerant crops when possible, knowing they will suffer more yield loss.
2. Minimize the application of salts. Use the most efficient irrigation and

tillage methods possible so you reduce the amount of saline irrigation water applied. Choose fertilizers with minimum salt components.

3. Consider leaching salts below the root zone occasionally with a heavy irrigation. There exist formulas to help determine how much water must be applied to accomplish this. Soil additives such as polyacrylamide may help.

4. If foliar damage to crops by saline water is a problem, consider true low-energy precision application with drag socks under a pivot or subsurface drip to minimize application rates and plant wetting.

5. Consider scheduling your irrigation to wet a larger, deeper area and thereby support larger plant root systems. This gives the crop more opportunity to pick up nutrients and water besides just irrigation water.

6. Manage for organic matter, which can help lower exchange rate of salts and maintain the soil structure which salinity otherwise tends to break down. Organic mulch without salts can reduce evaporation, the specialists warn.


Breaking it down

THE word salinity generally refers to the amount of dissolved solids present in soil or water that have pairs of ions that readily dissolve in water. Most commonly, these include: calcium, magnesium, sodium, potassium, chloride, bicarbonate, carbonate and sulfate.

Salinity is more common in surface irrigation than groundwater, but as groundwater supplies have declined in some areas, water quality has declined and salinity has increased. Some soils are naturally sodic. Salinity is a natural outcome in areas with high evaporation rates, since all water and all soils contain saline-causing compounds and since many commercial fertilizers contribute slightly to the buildup of these compounds.

Salinity affects 23% of U.S. irrigated crop ground. It is generally less in the eastern states and much higher in the western states.

Chemigation Systems, Fertilizer Pumps & Platforms



The original patented closed containment!

- Double wall containment for environmental safety
- Latched cover to keep out rain and debris
- 60 or 90 gallon tank • 3-year warranty

Neptune
CHEMICAL PUMP CO., INC.

Agricultural Services Center: P.O. Box 406A
201 S. Georgetown • Yuma, CO 80759
970-848-2550 • FAX: 970-848-2652

Factory: P.O. Box 247 • Lansdale, PA 19446
Tel: 215-699-8700 • Toll-Free Fax: 800-255-4017
Web Site: www.neptune1.com
E-mail: pump@neptune1.com

Wide Variety of Capacities! Simplex and Duplex Pumps.

Don't be left high and dry.

Accurate, efficient McCrometer water meters won't leave you stranded.

As water becomes more precious and regulations more stringent, the accuracy of your flow meter becomes critical. McCrometer water meters lead the industry in performance, durability and accuracy. Their corrosion resistant design and quality tested mechanism guarantees a long life of water management.



Model MD300 shown in aluminum tube

McCrometer now offers the FS100 Flow Straightener which establishes accurate flow measurement in limited space installations. Call for more information.

Great Plains Meter, Inc.

For your nearest dealer call:
Aurora, NE 68818 • 402-694-4114
Marion, TX 78124 • 210-667-1668