

### Resource Concerns

Soil

Water

Excess Water

Insufficient Water

Water Quality Degradation

Nutrients

Pesticides

Pathogens

Salts

Petroleum and Heavy Metals

Sediment

Elevated Water Temperature

Air

Plants

Animals

Energy

### Water Quality Degradation - Salts

Irrigation or rainfall runoff transports salts to receiving waters in quantities that degrade water quality and limit use for intended purposes.

#### What is it?

Salinity is a process by which water-soluble salts accumulate in the soil and water. Nearly all waters contain dissolved salts and trace elements, many of which result from the natural weathering of the earth's surface. In addition, drainage waters from irrigated lands and effluent from city sewage and industrial waste water can impact water quality. In most irrigation situations, the primary water quality concern is salinity levels since salts can affect both the soil structure and crop yield. Most salinity problems in agriculture result directly from the salts carried in irrigation water.

#### Why is it important?

Salinity increases the cost of treating water for drinking, reduces the availability of water for irrigation, and renders farmland useless, costing the economy millions each year. Salinity is an ecological factor, influencing the types of organisms that live in a body of water. It influences the kinds of plants that will grow either in a water body, or on land fed by irrigation water or groundwater. If water containing too much salt is applied during irrigation, salt tends to build up in the soil, reducing the amount of water available to plants. Salts in the soil increase the efforts by plant roots to take in water and can make water unavailable to plants at higher salt levels. Few plants grow well on saline soils; often restricting options for cropping in a given land area.

#### What can be done about it?

Salinity as a water quality issue is addressed through soil management activities. Reducing the severity and extent of salinity is accomplished primarily with recharge and discharge water management. Recharge management is used on areas that contribute excess water to the soil and includes decreasing infiltration of excess saline water and irrigation to maintain salts at a level below the root zone. Discharge management is used on areas where excess water comes to the soil surface and includes growing salt tolerant crops, reducing deep tillage and eliminating seepage.

#### Salts at a Glance

Problems / Indicators - White crusting of soil, irregular crop growth, and lack of plant vigor	
Causes	Solutions
<ul style="list-style-type: none"> <li>Naturally occurring in soils with concentrations of soluble salts, such as sulfates of sodium, calcium, and magnesium in the soil</li> <li>Inadequate drainage to leach salt from the soil</li> <li>Upward migration of salt from shallow ground water</li> <li>Application of saline water</li> </ul>	<ul style="list-style-type: none"> <li>Proper use of irrigation water</li> <li>Salt-tolerant crops</li> <li>Removal of excess water from recharge areas</li> <li>Maintain water table at a safe levels</li> <li>Cropping and tillage systems that promote adequate infiltration and permeability</li> <li>Reducing deep tillage</li> </ul>