

# Salinity Management Agricultural Perspective

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## *Farms and Salinity Issues*

### Salinity Sources on the Farm

- High TDS imported water
- Use of groundwater previously deemed unacceptable
- Desire to use recycled water where available
- Irrigation water capture and reuse

## *2010 Crop Year*

# Avocados in Southern California

- 58,000 bearing acres
- 274,000 tons harvested
- \$415,000,000 farm gate value



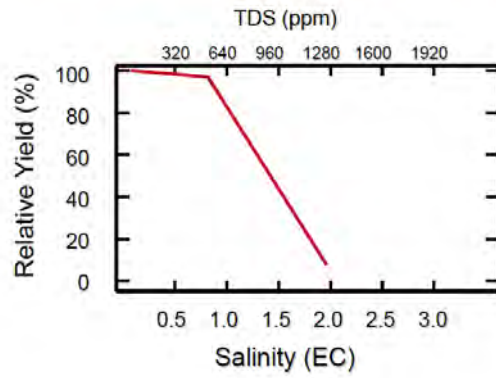
## *Why Farmers Have Concern*

# Impacts of Salinity

- Poor root growth and root damage
- Reduction of water and nutrient uptake
- Soil compaction
- Smaller tree size
- Leaf scorching (tip burn)
- Loss of photosynthesis capacity
- Yield reduction

### Avocado Yield Function for Irrigation Water Salinity

Oster and Arpaia, J. Am Soc. Hort Sci. 2007



### Avocados Tree Symptoms





## *Avocados*

### Salinity Management Techniques

- Low-salinity irrigation water
  - Source water
  - On-site filtration
- Monitoring salt levels in the soil
- Soil leaching
- Use of salt-tolerant rootstocks
- Good irrigation practices
- Proper irrigation equipment

## *Avocados*

### Soil Leaching

- Application of additional water to drive salts out of the root zone
- Top six inches of soil are most important
- Appropriate leaching depends on knowing irrigation water and target root-zone salinity
- Generally use 10-20% leaching fraction at each irrigation
- Annual triple irrigation

## *Farm Salinity Management*

### Challenges

- 500ppm salts = 5420 lbs. per acre per year
- \$1200-\$1600 water makes leaching expensive
  - 100 acre farm = \$84,000 annual extra expense
- Cost of onsite filtration
  - Equipment installation and operation
  - Need for storage
  - Brine disposal
- Regional Board compliance