

# **PROBLEM SOILS AND WATER WITH TOLERANT OR MODERATELY TOLERANT PLANTS**

## General Information

### GENERAL INFORMATION

The salinity of irrigation water is reported as electrical conductivity (ECe). Depending on the source, the amount of salt in irrigation water can vary considerably.

Salts accumulate in soil through the application of saline irrigation water, use of fertilizers and other means. A tremendous amount of salt can be carried in irrigation water. For example, one part per million (ppm) of salt in one acre foot of water weighs approximately 2.72 pounds. Therefore, using 3.5 acre feet of 500 ppm total dissolved solid content (TDS) water to irrigate an acre of trees results in the deposition of over 4700 pounds of salt.

Plants extract water and leave most of the salt behind. Over a period of time, this salt concentrates in the root zone of crops. Water and salts will move up through the soil profile due to evapotranspiration unless there is adequate leaching or drainage.

To keep salt levels manageable, it is essential to keep the net movement of water and salt downward through the soil profile. ECe-X is a proprietary blend of soil, water and electrical conductivity modifying agents. It is useful in managing the soluble salts that affect plant performance by helping keep the net movement of salts dispersed downward away from the soil surrounding the rooting zone.

### APPLICATION

ECe-X can be applied in a wide variety of ways. This includes its use through furrow, flood, microjet, sprinkler jet and other irrigation systems. It can also be applied in conjunction with most types of liquid fertilizer. In addition, it can be applied as a soil spray. When metering ECe-X directly into an irrigation system by means of a metering injection pump or suction regulated line, do not connect to an irrigation system used for chemical applications or directly to a public water system without a

back siphon prevention system in place. Always connect to such systems in accordance with local and/or state regulations.

ECe-X can also be used to reduce algae growth in irrigation or water tubing.

## DIRECTIONS FOR USE

The best results from using ECe-X are usually achieved utilizing multiple applications. These applications should be made in the preirrigation and/or germination stages of plant growth. A pre-irrigation and/or soil leaching program is recommended prior to the application of ECe-X . The use of ECe-X will help diminish the effect of salts on many plant species including weeds and grasses. Therefore, a sound herbicide program is essential.

## Limitations, Restrictions, and Exceptions

## RATES

The rate will vary depending on several factors. These factors include, but are not limited to, the following:

- Initial salinity of soil
- The stage of plant growth, frequency and type of irrigation
- Initial salinity of water source
- The sensitivity of tolerance of the crop or plants to salts
- Type of application (i.e., band, furrow, broadcast) and others

In general use the following rates for broadcast applications:

**PROBLEM SOILS AND WATER WITH TOLERANT OR MODERATELY TOLERANT PLANTS:  
2-3 Qts/Acre/Application**

Adjust the rates to match band furrow or other applications and to match the frequency and timing of applications.

## CROPS

Plants have widely varying responses to soil and water salinity. This can be affected

by the life stage of the plant and by soil or foliar applications. In general, plants can be grouped into sensitive, moderately sensitive, moderately tolerant or tolerant based on their sensitivity or tolerance to salt.

Some plants are relatively unaffected by high levels of salinity. These plants are tolerant or moderately tolerant of salinity because they can adjust osmotically to the increased salinity of the soil water largely by accumulating salts absorbed from the soil water. Salts accumulate in the root cells in response to the increased salinity of the soil water. This helps maintain water flow from the soil to the roots. The listed plants are tolerant to moderately tolerant plants.

#### FIBER AND GRAIN CROPS

Barley, Cotton, Cowpea, Guar, Kenaf, Oats, Rye, Safflower, Sorghum, Soybean, Sugar Beet, Triticale, Wheat.

#### GRASS AND FORAGE CROPS

Barley, Bermudagrass, Mountain Brome, Hubam Clover, Sweet Clover, Tall Fescue, Rape, Perennial Ryegrass, Forage Wheat.

#### VEGETABLE AND FRUIT CROPS

Artichoke, Asparagus, Red Beet, Zucchini Squash.

#### WOODY CROPS

Date Palm, Fig, Jojoba, Olive, Papaya, Pineapple, Pomegranate.

Some plants can be affected by even moderate levels of salinity in soils and water. Salt tolerance within this group can vary widely. These plants adjust osmotically to increased soil salinity, but by a process different from the tolerant or moderately tolerant plants. Rather than accumulating salts, these plants produce internally some of the chemicals necessary to increase the concentration of constituents in the root cells. These chemicals include sugars and organic acids. This process requires more energy, therefore crop growth and yield are more suppressed. These plants include:

#### FIBER AND GRAIN CROPS

Beans, Corn, Flax, Foxtail Millet, Peanuts, Rice, Sesame, Sugarcane, Sunflower.

#### GRASS AND FORAGE CROPS

Alfalfa, Bentgrass, Bersam Clover, Ladino Clover, Strawberry Clover, Forage Corn, Forage Cowpea, Oats, Orchard Grass, Rye, Common Vetch.

#### VEGETABLE AND FRUIT CROPS

Bean, Broccoli, Brussels Sprouts, Cabbage, Carrots, Cauliflower, Celery, Sweet Corn, Cucumber, Eggplant, Garlic, Kale, Lettuce, Muskmelon, Okra, Onion, Parsnip, Peas, Pepper, Potato, Pumpkins, Radish, Spinach, Squash, Strawberry, Sweet Potato, Tomato, Turnip, Watermelon.

#### WOODY CROPS

Almond, Apple, Apricot, Avocado, Blackberry, Boysenberry, Castorbean, Sweet Cherry, Currant, Gooseberry, Grape, Grapefruit, Lemon, Lime, Mango, Orange, Passion Fruit, Peach, Pear, Persimmon, Plum, Prune, Raspberry, Tangerine.

Method

[Broadcast](#)

Rates

[field rates 0](#)

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Timings

[N.A.](#)