



**MORE NUTRIENTS. LESS STRESS.**

# Effects of Salt on Crop Yield Potential

## How Can Accomplish MAX™ Help?

Salt plays an important role in the production of crops and is formed by minerals such as sodium (Na), calcium (Ca), potassium (K) and magnesium (Mg) as well as chlorides, nitrates, sulfates, bicarbonates and carbonate components. In irrigated cropping systems, dissolved salts from irrigation water can lead to soil salinity problems that may compound over time. Salts in commercial fertilizers can exacerbate these circumstances. Taking steps to manage soil salinity is critical to having balanced soil for optimal plant growth and productivity.

### High-Salt Soils Affect Seed Germination and Plant Development

Although plants take up many salts in the form of nutrients, they will be negatively affected if more salt is added to the soil system than can be taken up or flushed out of the root zone. Soils that are high in salts (e.g., saline, saline-sodic, and sodic soils) limit water and nutrient uptake as well as seed germination. Plants that do survive will exhibit less vigor and signs of stress, slowing physiological development and preventing full yield potential from being realized. If soil salinity is high enough, the plants will die.

### Mitigating Salt Stress with Accomplish MAX

Accomplish MAX, a next-generation biocatalyst from Loveland Products, is designed to help plants better tolerate salt and other abiotic stresses by addressing the problem at both the plant and the soil level. Recommended for use in starter applications, it contains biochemistry proven to increase nutrient availability in the soil combined with a highly soluble kelp-based extract to increase crop tolerance to abiotic stresses like salinity from applied fertilizers.

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Accomplish MAX mitigates salt/sodium stress with a three-pronged effect:

- Frees up calcium from soil chemistry, which allows sodium to be displaced from the exchange site and flushed from the root zone.
- Encourages plants to uptake additional potassium, which increases the  $K^+/Na^{++}$  ratio to offset the toxic effects of sodium.
- Breaks soluble salts apart thereby lowering electrical conductivity.

## Plant Growth in a Saline Environment



Water control



*Plant germinated in presence of 120 mM salt, with and without Accomplish MAX. Images taken 10 days after treatment. Note longer roots, more vigorous plant with Accomplish MAX.*

## Conclusions

Accomplish MAX can be an important addition to any fertility or management program for plants that may be affected by salt stress.

**Contact your local Nutrien Ag Solutions retail location for more information.**

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