

Integrating PURIC® into a Salinity Remediation Program

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Though different crop species and varieties have differing levels of salt tolerance, accumulation of soil salts resulting from inadequate leaching and reliance on poor quality irrigation water high in dissolved solids (salts), can lead to problems for crop managers and consultants. Salt accumulation can lead to reduced growth rates, stunting, reduced root growth, moisture stress, necrosis, and death.

HOW DO SALTS HARM PLANTS?

There are two processes by which salts harm crops. Specific ion toxicity is the result of the accumulation of sodium, chloride, and/or boron to levels that directly kill plant cells. More commonly, injury from salinity is due to osmotic stress, which makes it harder for plants to extract water from the soil due to an imbalance in ions internal to the plant roots and in the soil itself. To overcome this ion imbalance, plants must expend energy to produce sugars and other solutes that are translocated to the roots, or absorb more ions from soil solution. This requires energy that would otherwise be used for beneficial growth processes and yield. Salt-stressed crops may also be more sensitive to other abiotic stress and are increasingly susceptible to attacks by biotic agents.



WHAT IS A GOOD STRATEGY FOR MANAGING SALTS THIS SPRING AND FALL?

The west experienced a very wet 2022-2023 rainy season, so Mother Nature has already lent a big helping hand for the leaching of salts accumulated over prior drought years. But many fields will still benefit from a good salinity remediation program this fall in anticipation of an average 2023-2024 rainy season (Source: NOAA – National Oceanic and Atmospheric Administration). The key this fall is to condition the soil with beneficial inputs to maximize the soil's leaching potential when fall and winter rains arrive. Gypsum is important to restore soluble calcium levels in the soil that help build soil aggregates and contribute to good water infiltration and drainage. Soluble calcium also displaces sodium from the cation exchange complex so that it may be leached out of the soil profile.

High-value humic acid, such as PURIC®, can be a valuable tool in conjunction with gypsum to prep the soil for winter rains. Humic acids have high cation exchange capacity and contribute to soil aggregation and porosity, which are important physical properties that contribute significantly to the leaching potential of soils.

PRODUCT APPLICATIONS

PURIC products can be applied in a broad range of techniques and at all stages of plant growth any time of the year.



SOIL APPLICATION: Apply up to 5 gallons per acre.

FOLIAR APPLICATION: Apply 1-3 quarts per acre.

IRRIGATION SYSTEMS: Apply up to 5 gallons per acre.

DRY BLENDS: PURIC WSG at 3-10 pounds per acre.

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