



Rice Trial on Saline-Alkali Land, China

Sunrise is an OMRI Listed, CDFA-registered microbial inoculant and multi-strain biofertilizer developed for professional and specialty crop programs. This advanced microbial consortium for agriculture combines beneficial bacteria and fungi that function as a soil probiotic for plants, enhancing soil fertility, nutrient cycling, and crop performance. The diverse, spore-forming microbial inoculant colonizes the rhizosphere to solubilize nutrients, decompose organic matter, and strengthen the soil microbiome for sustainable productivity and more efficient nitrogen utilization.

- **Builds Soil Fertility:** enhances biological nutrient availability, accelerates organic matter conversion, and supports long-term soil structure and productivity.
- **Improves Fertilizer Efficiency:** Enhances nutrient-use efficiency by unlocking bound phosphorus and micronutrients while promoting biological nitrogen availability to reduce dependence on synthetic inputs.
- **Enhances Root Growth:** Stimulates root elongation and branching for improved nutrient and water uptake.
- **Promotes Crop Vigor & Resilience:** Boosts plant establishment and tolerance to environmental stress for consistent performance across diverse conditions.
- **Balances the Soil Microbiome:** Encourages beneficial microbial dominance, supporting healthier, more biologically active soils.
- **OMRI Listed & CDFA Registered:** OMRI Listed biofertilizer for organic production systems; CDFA registered for sale and distribution in California as a microbial soil amendment.

■ Trial Location:

The trial fields were located in a large area of saline-alkali soil in Jilin Province in northeastern China. pH levels averaged 9-10 and salinity was 0.5-0.6%; the area is considered to be one of the highest salinity growing areas in China. The seedling emergence rate of the region was significantly below 50%. As shown in the picture on the right, growing any type of crops in the area presents a considerable challenge.



- **Trial Period:** Jun. 2015 (transplant) – Oct. 2015 (harvest)

- **Trial Dosage:** The total size of the trial fields was 3,500m². *About 1,200g of Sunrise was applied, equaling a dosage of 360g/1000m². The product was simply mixed in the fields during transplanting.

- **Other Treatment:** Before using Sunrise, the soil in both fields was pretreated with EM bacteria to further neutralize the pH and reduce the salinity. No base fertilizer, chemicals or pesticides were used. NPK fertilizer was applied once during the middle of the crop cycle.

**The Sunrise used in this trial was 2 billion CFU/g. It equals 14.4g of standard Sunrise 50 billion CFU/g applied per 1000m².*



■ **Trial Results:** to verify the product, the client intentionally picked plots that had the highest saline concentrations in the region. The below pictures were taken in July of 2015, 1-month post-transplanting; the left one shows the trial field and the rice plants were healthy and thriving with thick green leaves. Such healthy growth has not been seen in this region in recent years. The right picture shows the state of the control fields which were located directly next to the trial fields. The control fields are representative of typical rice growth expected throughout the region. Due to the long-term overuse of NPK fertilizers and little to no resting time between crop cycles, the marginal soil has correspondingly low crop yields.



Growth of the Trial Fields vs. Control Fields Prior to and During Harvest





Root Comparison

The Sunrise treated plants yielded healthier, longer and more robust roots, due to drastically improved nutrient absorption and conditioning of the soil. The trial group's root health corresponds directly with higher trial group yields.



Final Yields

The average yield of trial fields was 600kg/1,000m². The average yield of the control fields was 212.5kg /1,000m².

