Ocean Organics®

StressRx®Ag

Improves Yield in Strawberries Under Salt Stress

StressRx®Ag from Ocean Organics® increased strawberry

- **Yields**
- **Total return per acre**

CROP

Garden strawberry, Portola variety

STUDY OBJECTIVES

To monitor growth and production in strawberries treated with two rates of Stress Rx Ag, when strawberries were exposed to excessive salts in the irrigation water.

LOCATION/SCIENTISTS

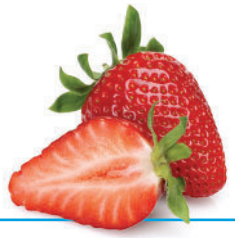
Ventura County, controlled environment, nursery setting
Investigator: David Holden
Study Director: Sarah Williams, Ph.D.

DATA COLLECTED

Measured the impact of Ocean Organics Stress Rx Ag seaweed extract on growth patterns over time, Na and Cl in leaf tissue, and production over time.

METHODS AND MATERIALS

The Portola strawberries used for this trial were grown in a controlled nursery environment in 2 liter containers in a commercial potting media. This trial was set up as a completely randomized block trial of two rates of Ocean Organics' Stress Rx overlaid on a grower standard. The Stress Rx treatments were compared to a grower standard. All treatments, as well as the grower standard, were exposed to an increased salt load in the irrigation water. All treatments received controlled release fertilizer at planting. All materials were applied as soil drenches to the potted plants.



The high rate of Stress Rx (4 qt/a) resulted in a cumulative numerical increase of $2,792 over the grower's return per acre.

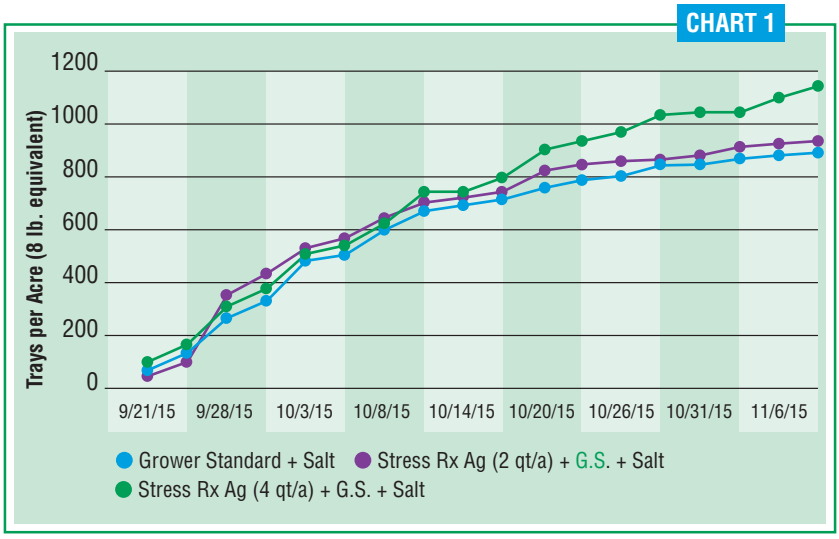
Treatments included the following:

- Grower Standard Program with 200 ppm of NaCl
- Grower Standard Program with 200 ppm of NaCl + StressRx Ag at 2 qt/acre (applied every 14 days Start 2 weeks post plant)
- Grower Standard Program with 200 ppm of NaCl + StressRx Ag at 4 qt/acre (applied every 14 days Start 2 weeks post plant)

RESULTS AND DISCUSSION

As can be seen in Chart 1, Stress Rx at 4 qt/acre produced the most flats on average for the pick period, with a cumulative total of 1123 flats per acre equivalent compared to 876 and 918 flats per acre equivalent for the Grower Standard and the lower rate of Stress Rx. This indicates that under salt stress, the 4 quart/acre rate of Stress Rx is ideal.

CHART 1



A different perspective of how the rated production affected final grower returns is shown in Chart 2 (next page), which shows the daily marketable returns based on USDA Shipping Point Market Prices found at http:\\marketnews.usda.gov/portal for each pick day. This data is represented as the net back to grower after costs of approximately $6.00 per tray were removed that would represent picking labor,

Continued

carton and tray costs, transportation to the cooler, and cooling costs associated with picking the strawberries. Based on this data, the high rate of Stress Rx (4 qt/a) resulted in a cumulative numerical increase of $2792 to the grower's return per acre for the season, as compared to the grower standard. The cumulative total return for the high rate of Stress Rx was $10,069 per acre for this program period, as compared to $7,277 for the grower standard program.

CHART 2

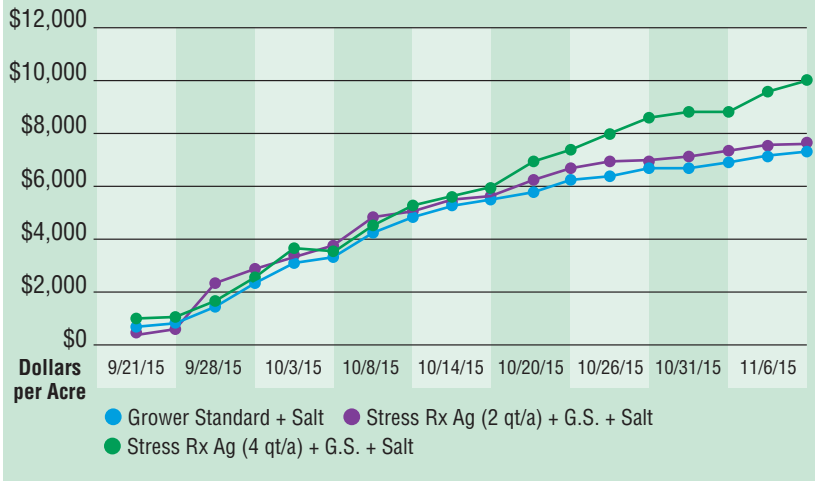
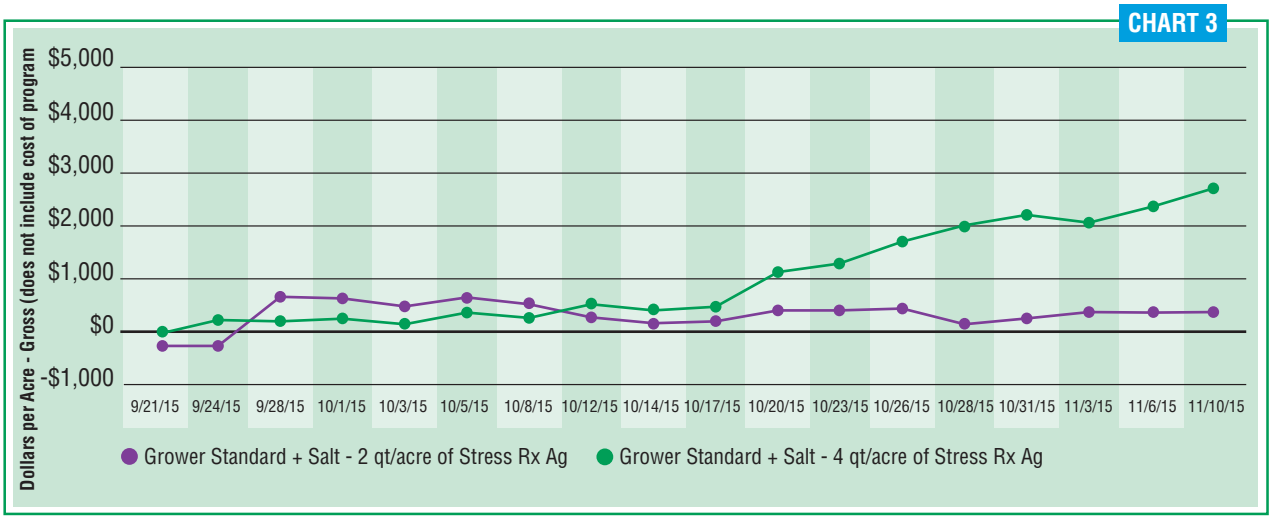


Chart 3 shows the net differential in returns to the farm for each pick day for the treatment programs over the grower standard, which in this case was $2792 per acre more for the season for the high rate of Stress Rx and $391 per acre for the lower rate of Stress Rx.

Leaf analysis was performed once in late October for the plants grown in these treatments. Leaf sodium levels were found to be quite similar and quite low for this test, but chloride levels were found to be higher. In general chloride leaf levels above 0.5% in strawberries is considered detrimental. These readings show that all treatments were above the 0.5% threshold level at 0.64, 0.68, and 0.78%, indicating that salt stress was successfully imposed on the plants. Therefore, we can conclude that Stress Rx improved production in strawberry plants under salt stress.

Based on the data collected in this trial, the use of the higher rate of Stress Rx did appear to counteract the effects of high salts in the water for the production of these strawberries. The lower rate also improved production, but the higher rate is optimal.

CHART 3



Ocean Organics is a manufacturer of high performance, scientifically proven seaplant-extract based biostimulants, plant growth materials and granular fertilizers. Our state-of-the-art products contain unique and proprietary constituents. Founded in 1977, we are the developers and manufacturers of the Emerald Isle foliar fertilizers and biostimulants, now owned and distributed to professional turf and ornamental markets by Lebanon Turf Products. Our materials have been tested in over 25 universities and independent laboratories.

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