



Potassium nitrate and calcium nitrate alleviated the NaCl-effect on the reduction of tomato fruit weight

The objective of this study was to investigate the effects of potassium nitrate and calcium nitrate application on tomato cultivars subjected to NaCl stress. The experiment was conducted at a greenhouse in Oman.

Seedlings of tomato (

Lycopersicon esculentum

Mill) were transplanted at the five leaf stage to pots filled with coastal sand. Plants were irrigated with half-strength Hoagland nutrient solution supplemented with 50 mM NaCl solution, 50 mM NaCl + 20 mM $\text{Ca}(\text{NO}_3)_2$, 50 mM NaCl solution + 2 mM KNO_3 , 50 mM NaCl + 20 mM $\text{Ca}(\text{NO}_3)_2$ + 2 mM KNO_3 or were not supplemented. The experimental design was a randomized complete block design with four replications. Each block had 25 plants with five cultivars and five salt treatments.

Salinity stress significantly decreased flowering in all treatments relative to the control. However the addition of KNO_3 and $\text{Ca}(\text{NO}_3)_2$ with NaCl in irrigation water significantly increased fruit set over the control and NaCl-treated plants.

Fruit weight was suppressed with NaCl stress, but improvement in fruit weight and hence yield was achieved when potassium nitrate and calcium nitrate were added to the saline water (Figure 1). Plants treated with KNO_3 and $\text{Ca}(\text{NO}_3)_2$ were able to overcome and alleviate the NaCl-effect on the reduction of fruit weight.

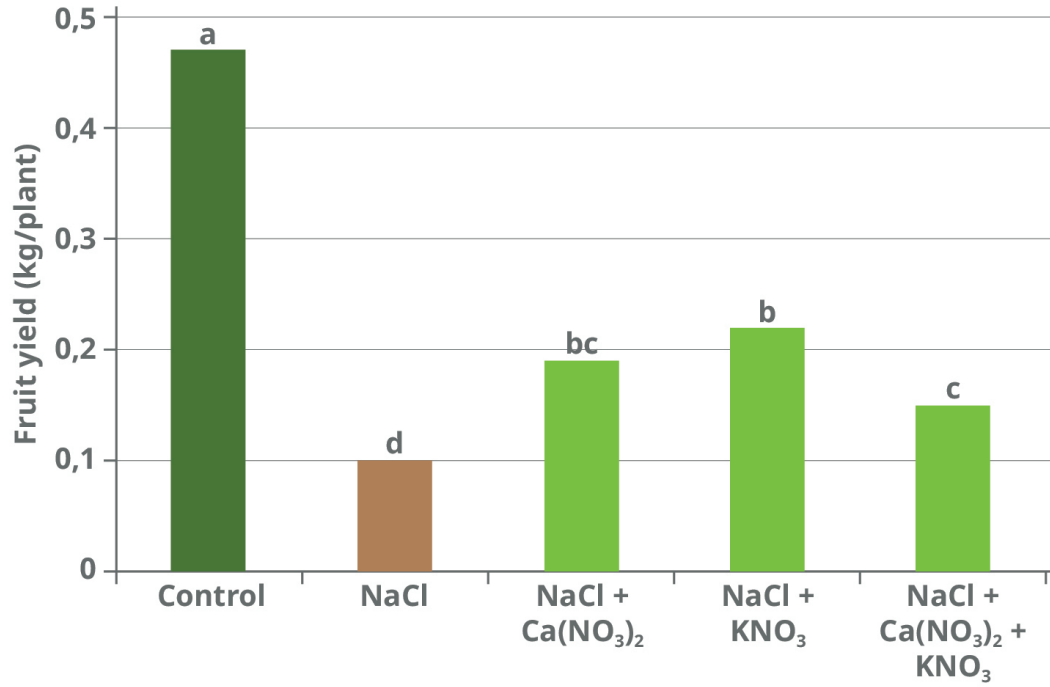
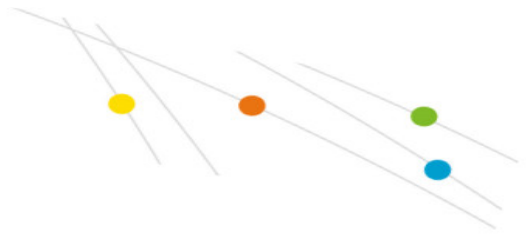


Figure 1. The effect of salinity and calcium nitrate and potassium nitrate treatments on tomato fruit yield.