

## Foliar applied potassium nitrate alleviated salinity stress in winter wheat

The response of a salt-resistant and a salt-sensitive wheat cultivar under salinity stress to foliar applied  $\text{KNO}_3$  was studied in China. Both cultivars were sown in vermiculite boxes. Control seeds were germinated and raised in Hoagland nutrient solution (0 mM NaCl, 6 mM  $\text{KNO}_3$ ). In the saline treatments, seeds were exposed to 100 mM NaCl. Foliar applied  $\text{KNO}_3$  (10 mM; 1 g  $\text{KNO}_3$ /L) was applied at the wheat heading stage for three consecutive days. A randomized block of four treatments and two different winter wheat cultivars with 6 replications per treatment was designed.

Although, the wheat grain yield of both cultivars was statistically significantly increased due to the foliar application of potassium nitrate under saline conditions. The salt-resistant cultivar was more productive under salinity stress than the salt-sensitive cultivar (Figure 1).

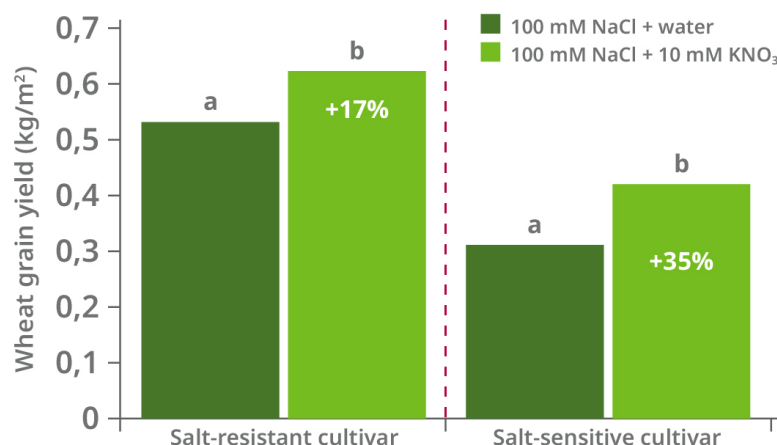


Figure 1. Effect of foliar  $\text{KNO}_3$  on wheat grain yield under saline conditions for two winter wheat cultivars (cultivars are analyzed separately,  $P < 0.05$ ):



Foliar application at the heading stage also statistically significantly elevated flag-leaf chlorophyll concentration. This enhanced the gas exchange under salinity stress, as well as the leaf-area index, spike length and the plant height. Grain quality characteristics were also improved in the salt-resistant cultivar by foliar application of potassium nitrate under saline conditions, as compared to the salt-sensitive cultivar. Their findings suggest that cultivating the salt-resistant wheat cultivar combined with foliar application of  $\text{KNO}_3$  at heading stage may alleviate salinity injuries and produce higher grain yield and better grain quality under saline conditions.