

Performance of two sugar beet varieties under fertilization  
with potassium and foliar spraying with micronutrients.

**Abstract**

Two field experiments conducted during 2013/14 and 2014/15 seasons to study the effect of three potassium levels *i.e.*, 0 (K<sub>1</sub>), 25 (K<sub>2</sub>) and 50 (K<sub>3</sub>) kg K/fed and five foliar spraying with mixture of micronutrients (B+Zn) T<sub>1</sub>, (B+Mn) T<sub>2</sub>, (Zn+Mn) T<sub>3</sub>, (B+Zn+Mn) T<sub>4</sub> and (water as a control) T<sub>5</sub> on yield and its attributes of two sugar beet varieties *i.e.*, Farida (V<sub>1</sub>) and Demo (V<sub>2</sub>). The experimental design was a split-split plot in RCBD with three replications where varieties, potassium levels and micronutrients were allocated in the main, sub and sub-sub plots, respectively.

Results indicated that potassium and foliar spray with micronutrients mixture fertilization had a highly significant ( $P \leq 0.01$ ) positive effect on yield, yield components and quality traits, varieties differed significantly in root length, root fresh weight, yields in terms of root, top biological, gross sugar and extractable sugar, as well as harvest index in both seasons.

The highest yields of root and top were 53.25 & 49.96, 15.21 and 15.55 t/fad (fad= faddan= 4200 m<sup>2</sup>) in both seasons, respectively as well as, root fresh weight (2661.50 g/plant) and extractable sugar yield (12.67 t/fad) in the first season were obtained by Demo (V<sub>2</sub>) variety with 50 kg K/fad (K<sub>3</sub>) with mixture of micronutrients B+Zn+Mn (M<sub>4</sub>). Correlation analysis revealed the presence of highly significant *r* values between gross sugar yield with each of root yield and gross sugar (%).