



Response of some sugar beet varieties to water stress

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Two field experiments were conducted in the experimental station, faculty of Agriculture, Cairo university, Egypt during 2014/2015 and 2015/2016 seasons to evaluate the growth, quality traits and yields of three sugar beet varieties (Puma and Marathon, a monogerm varieties, and Ninagri, a multigerm variety) under three water stress levels (25, 50 and 75% of available soil water). Increasing water stress level from 25 up to 75% decreased plant fresh weight by 25.93, 26.21, 25.61 and 11.48% in the first season and by 14.30, 21.16, 14.57 and 21.85% in the second season at 125, 150, 175 and 200 days from sowing, and decreased potassium and sodium percentage by 5.81 and 7.80 for K and 9.90 and 24.70% for Na in the 1st and 2nd seasons, respectively. On the other hand, sucrose, purity and sugar recovery percentage increased as water stress level increased, where root yield decreased significantly by 14.62 and 15.93% and sugar yield by 8.61 and 12.24% in the first and second season, respectively as water stress increased from 25 up to 75% of available soil water. Puma variety surpassed the other varieties in all growth traits, but recorded the lowest quality traits values in both seasons. There was significant interaction between water stress levels and varieties in most of the studied traits in both seasons.

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