الملخص باللغة الإنجليزية:

Soils in dry environments, including Egypt, have low fertility and poor structure. To enhance soil fertility and crop performance, management technologies such as plant nutrition and suitable cultivars are needed for such environments. To investigate the yield performance under such conditions, two field trials were conducted using two *Beta vulgaris* cultivars (Amina – V_1; BTS 301 – V_2), two nitrogen levels (N_1 – 200; N_2 – 350 kg N/ha) and two micronutrient mixtures (M_1 – Fe + Zn + Mn; M_2 – tap water). Results indicated that growth and yields and their qualities were positively ($P \leq 0.05$ and/or $P \leq 0.01$) affected by all factors singly or in various interactions. The best yield performance was obtained with the trilateral interaction application of $V_2 \times N_2 \times M_1$. Correlation analysis revealed presence of highly significant r values between white sugar yield and root yield.