

## البحث الرابع

Darwish Sam, Mohamed Saber, **Eman E. Belal** and Mohamed Abd E-Moneim (May 2021). Effect of nitrogen sources, rates and boron on the absorbance of N, K, Na and B on the quality and productivity of sugar beet. Fayoum Journal of Agricultural Research and Development (FJARD). VOL. 35, NO. 2. PP. 301-321.

تأثير صور النيتروجين ومعدلاته والبورون على امتصاص عناصر النيتروجين والبوتاسيوم والصوديوم والبورون على جوده وانتاجية بنجر السكر.

### ملخص البحث باللغة الانجليزية:

To investigate the effect of nitrogen sources and nitrogen rate, and boron or without it on sugar beet yield and quality, two field experiments were carried out at the Experimental Farm of the Agriculture Research Centre, Tamia Research Station, Fayoum Governorate. Egypt, during the two successive seasons of 2016/2017 and 2017/2018. A split-split plot design was used in both growing seasons. Two nitrogen sources (anhydrous ammonia 82% and urea 46% ) arranged in main plots, Three nitrogen rates (60, 75, and 90 kg N/fad) were devoted in sub-plots, whereas, sub-sub plots were allocated of boron applications at two rates of (without addition and addition 1 g/L of boron). The main results could be summarized as follows:

- 1-Nitrogen fertilization activated plant growth and increased its yield.
- 2- Nitrogen source as anhydrous ammonia showed the greatest growth (N, K, Na, and B) and yield while the lowest effective source was urea in 120 and 200days from planting,
- 3- By increasing the nitrogen rate from 60 to 90 kg /fed, led to an increase in the content of shoot and roots from N, K, Na, B and also increased the shoot and root dry and fresh weight and the yield of sugar was increased at the age of 120 days from planting as well as at the harvest, while this led to a decrease in the proportion of sucrose in the roots at harvest,
- 4- The addition of boron was superior to not adding it in all the studied traits such as root length and size and absorbed elements such as N, K, Na, and B, as well as the percentage of sugar and sugar yield per Fadden and the weight of roots and leaves in both seasons.