

**EFFECT OF NITROGENOUS AND  
POTASSIUM FERTILIZERS ON THE  
GROWTH AND PRODUCTIVITY OF  
COTTON IN MIDDLE EGYPT**

**By**

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### ABSTRACT

This investigation was carried out in Sids Agricultural Research station, ARC at Beni-Suef Governorate, Middle Egypt region, Egypt, for two seasons (2013 and 2014) to evaluate effect of nitrogen fertilizer (60 and 75kg N/fed), foliar application of K 1% ( one or 2 sprays ) and time of application of N fertilizer at different stages ( D1: before 2<sup>nd</sup> and 3<sup>rd</sup> irrigations (after 40 and 55days after sowing), D2: before 2<sup>nd</sup> and 4<sup>th</sup> irrigation (after 40 and 70days after sowing), D3: before 2<sup>nd</sup> ,3<sup>rd</sup> and 5<sup>th</sup> irrigations(after 40,55 and 85days after sowing) and D4: before 2<sup>nd</sup> ,4<sup>th</sup> and 5<sup>th</sup> irrigations(after 40, 70 and 85days after sowing). The experiment was laid out in split-split plot in a randomized complete block design arranged with four replications. Treatments included two doses of potassium sulphate (1%) were applied in main plots, two applications of N fertilizer in sub-plots and four time of nitrogen application were applied in sub-sub-plots.

The obtained results could be summarized as follows: two foliar sprays of potassium improved the growth of cotton plants as was expressed in significant increase in plant height, number of open bolls/plant, but not in boll weight, leaf content of potassium and finally the seed cotton yield/fed with significant increase in earliness% . The increase of the level of N from 60 to 75 kg/fed didn't affect any significant increase in growth attributes or the seed cotton yield/fed or any of its attributes except seed index Splitting N partly in 3 splits given before the 2<sup>nd</sup> , 3<sup>rd</sup> and 5<sup>th</sup> irrigations improved cotton plant growth and seed cotton yield/ fed as well as, earliness than the control. The combination of two foliar potassium sprays with the 60 kg/fed of N level when given in 3 partly split before the 2<sup>nd</sup> , 3<sup>rd</sup> and 5<sup>th</sup> irrigation was the best combination which improved cotton plants growth and finally the seed cotton yield/fed. The fiber properties except fiber strength in the first season were not significantly affected by any of the factors under study or their first and second order interactions in both seasons.

**Key words:** *Gossypium barbadense* L., foliar spraying, potassium, nitrogen, growth, fiber quality.

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