

## RESPONSES OF GROWTH AND YIELD OF THREE COTTON CULTIVARS *Gossypium hirsutum* L. TO THE DIFFERENT APPLICATIONS OF UREA.

Watheq Falhi Hammood

Dept. Of Field Crop Sciences- College of Agric. -Univ. Of Baghdad

### ABSTRACT

A field experiment was conducted in the fields of Department of Field Crop Sciences, College of Agricultural University of Baghdad during Summer Seasons of 2009 and 2010. The objective of this study was to investigate the best method to apply nitrogen and its effect on growth and yield of three cotton (*Gossypium hirsutum* L.) cultivars (Has, Pamair and Dise). The layout of the experiment was factorial experiment in Randomized Complete Block Design (R.C.B.D) with four replications, to compare the following treatments: N1: (Control all of the ground recommendation with water spray), N2 (half of the ground recommendation + two spray of nitrogen), N3 (half of the ground recommendation + three spray of nitrogen) and N4 (half of the ground recommendation + four spray of nitrogen). The concentration of nitrogen was 3000 mg. L<sup>-1</sup>, the spray was after one month from planting, for two weeks among sprayer and other. The plants of Has cultivar were significantly superior in plant height 106.68 & 111.82 cm, number of sympodial 7.47 & 8.40 sympodial . Plant<sup>-1</sup>, dry weight per plant 124.12 & 133.41 gm, leaf area 2265.42 & 2290.04 cm<sup>2</sup> . plant<sup>-1</sup> on the two seasons respectively, plants of Pamair cultivar produced higher boll weight 3.52 & 4.57 gm, number of open bolls 9.33 & 10.42 boll. Plant<sup>-1</sup> and seed cotton yield 1.42 and 1.44 ton. ha<sup>-1</sup>, lint yield 487.76 & 496.61 kg. ha<sup>-1</sup> on the two seasons respectively, the third fertilizer treatment was superior in plant height 104.08 & 109.31 cm, number of sympodial 7.97 & 8.97 sympodial . Plant<sup>-1</sup>, dry weight per plant 118.69 & 128.88 gm, leaf area 2313.60 & 2352.52 cm<sup>2</sup> . Plant<sup>-1</sup>, boll weight 3.51 & 4.54 gm, number of open bolls 10.91 & 11.96 boll . Plant<sup>-1</sup> and seed cotton yield 1.52 and 1.53 ton. ha<sup>-1</sup>, lint yield 0.51 and 0.52 ton. ha<sup>-1</sup> on the two seasons respectively with increasing about (11.85 % , 10.99 %) & ( 7.55 , 7.81 % )& (1.55 , 1.49 %)&( 12.88 , 10.09 %)&( 9.68 , 6.32 %)&(61.86 , 53.13 % )&(33.33 , 33.04 %)&( 30.76 , 30.00 %) on the two seasons respectively compare with Control. The third fertilizer treatment with Has cultivar was superior in plant height 116.16 & 120.44 cm, number of sympodial 8.26 & 9.05 sympodial . Plant<sup>-1</sup>, dry weight per plant 144.86 & 151.93 gm, leaf area 2571.24 & 2593.53 cm<sup>2</sup> . Plant<sup>-1</sup> and seed cotton yield 1.68 & 1.69 ton . ha<sup>-1</sup>, lint yield 0.57 & 0.58 ton . ha<sup>-1</sup> and with Pamair cultivar in boll weight 3.71 & 4.73 gm & number of open bolls 11.41 & 12.50 boll . Plant<sup>-1</sup> on the two seasons respectively.

**Key words :** Cotton , Urea , applied nitrogen .