

## Response of irrigated cotton (JLH-168) to different levels and sources of fertilizers

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### ABSTRACT

Present investigation was carried out at Pulses Research Unit, Dr.PDKV, Akola (M.S.) during *kharif* and *rabi* season in wilt sick plot, in which fungi population was observed more in rhizosphere of sunflower, soybean, and groundnut as compared with sorghum, mung and urid. There was a gradual increase in the propagules of *Fusarium oxysporum* f.sp. *ciceri* from sowing to harvesting of chickpea. In correlation study the inoculum range of 10.11 to 14.00 per cent was recorded and there was positive but non-significant correlation between the inoculum available and the wilt incidence in chickpea.

**Key words :** Cotton, Fertilizer levels, Fertilizer sources, Growth, Yield attributes

### INTRODUCTION

India is one of the major cotton growing countries of the world. The most vexed problem concerning cotton, as in case of many of our agricultural crop is low levels of yield per hectare. Some of the major reasons for low yield of cotton are that the maximum cotton cultivation is under rainfed condition, poor management practices, fertilizer application and plant protection practices etc. In order to increase the cotton production the farmer should adopt the above practices critically with improved technology including use of fertilizers and also the use of balanced fertilizer *i.e.* complex fertilizers which play important role in higher crop production.

### MATERIALS AND METHODS

A field experiment was conducted on different fertilizer levels and sources during *kharif* season at post graduate farm, Mahatma Phule Krishi Vidyapeeth, Rahuri. Soil was medium black clay in texture and alkaline in reaction, and was low in available nitrogen, medium in available phosphorus and high in available potassium with a pH of 8.30. Cotton was sown with the spacing of 90 x 60 cm<sup>2</sup> with different levels and sources of fertilizer. The experiment was laid out in split plot design with three replications and fertilizer levels (NPK kg ha<sup>-1</sup>) as main plot treatments with five levels : F<sub>1</sub>- 120:60:60 ; F<sub>2</sub>- 100:50:50 ; F<sub>3</sub>- 80:40:40 ; F<sub>4</sub>- (60 + 20): 40: 40 ; F<sub>5</sub>- 60:30:30 and fertilizer sources as sub plot treatments with five levels : S<sub>1</sub>- straight fertilizer; S<sub>2</sub>- 19:19:0 (RCF) ; S<sub>3</sub>- 27:9:0 (RCF) ; S<sub>4</sub>- 20:20:0 (Zuari); S<sub>5</sub>- 23:23:0 (Deepak).

Cotton (cv. JLH-168) was sown in first week of May. All the recommended cultural practices were followed. Picking of cotton was started from second week of September to last week of October. Seed cotton yield

and stalk yield from net plot was recorded.

### RESULTS AND DISCUSSION

Analysis of variance carried out for growth parameters and yield contributing attributes are presented in Table 1 and 2.

#### *Effect of fertilizer levels :*

The growth of cotton studied in terms of mean plant height, the number of monopodial and sympodial branches per plant during all the phases of observations were higher due to application of 120:60:60 Kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup> dose of fertilizer than reduced levels of fertilizer (Satao *et al.*, 1984). The magnitude of expression of yield attributes like, number of developed bolls per plant and yield of seed cotton increased significantly with every successive increase in the level of fertilizer up to 120:60:60 Kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup>. Results are similar to earlier reported by Tomar and Dhyani (1995) and Patel *et al.* (1983). The fertilizer level F<sub>2</sub> (100:50:50) was at par with F<sub>3</sub> (80:40:40) and F<sub>3</sub> was at par with F<sub>4</sub> (60 +20: 40:40) in respect of number of bolls per plant and seed cotton yield (Table 1 and 2). Increased value of yield contributing characters with NPK application at higher levels resulted in the production of highest seed cotton yield and also the stalk yield with application of 120:60:60 Kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup>. The mean seed cotton yield and stalk yield due to 120:60:60 Kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup> fertilizer level were 16.69 and 54.19 q ha<sup>-1</sup>, respectively and which were significantly superior to the reduced levels tried.

#### *Effect of fertilizer sources :*

The variation in the mean values of growth attributes like periodical plant height, number of sympodial branches