

## Effect of pre and post sowing weed management on weeds, growth and yield of summer irrigated cotton

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### ABSTRACT

Field investigation was carried out at Agricultural College and research Institute, Madurai during 2003 and 2004 to study the weed control, growth and yield of summer irrigated cotton. The results revealed that density of grasses, sedges and BLW was found reduced under pre sowing weed management practice of SSB by paraquat application at 0.40 kg ha<sup>-1</sup>fb SSB by slight hoeing during 2003 and 2004. Among the post sowing weed management practices, MW on 20 DAS fb glyphosate at 1.5 kg ha<sup>-1</sup> brought down the density of grasses, BLW and sedges to the significant level during 2003 and 2004. In response to the above said effect, these treatments had lesser number of total weed density at 90 DAS during both years. The growth attributes like plant height, monopodial branches plant<sup>-1</sup> and plant DMP were influenced by the pre sowing practice of SSB with paraquat 0.40 kg ha<sup>-1</sup> followed by SSB by slight hoeing owing to satisfactory control of weed density in these treatments. Under post sowing weed management practices, MW on 20 DAS fb glyphosate 1.5 kg ha<sup>-1</sup> increased the plant height and plant DMP over other treatments. As evident from the above effects, the pre sowing practice of SSB by paraquat application at 0.40 kg ha<sup>-1</sup> and post sowing practice of MW on 20 DAS fb glyphosate 1.5 kg ha<sup>-1</sup> recorded higher seed cotton yield during both the years.

**Key words :** Pre-Sowing weed management, Post sowing weed management, Stale seed bed, Weed density, Growth attributes, Seed cotton yield.

### INTRODUCTION

In textile industry cotton plays vital role in supplying raw materials to the tune of 85 per cent of total requirement in India. It has immense potentiality to share foreign exchange of 38 per cent of total export of Indian economy besides providing employment to 60 million people in India (Kairon and Venugopalan, 2000). In the recent past, its production and productivity in Tamil Nadu (324 kg ha<sup>-1</sup>), it is far lower than the world average of 500 kg ha<sup>-1</sup> (Natarajan, 2004). The causes for decline in productivity of cotton might be due to various factors, which accounts for poor fertility status of the soil due to heavy weed infestation besides crop weed competition in summer irrigated cotton in particular. Because of availability of wide row spacing, slow growth nature of cotton and plenty of sunlight during summer season provides ample scope for weed growth in cotton. Yield loss due to weed competition in cotton is estimated to vary from 40 to 85 per cent (Sreenivas, 2000). The post sowing weed management reduces the weed competition in the later vegetative phase of the crop and hence control on early emerged weeds is become questionable. Further, timely weed control after establishment of crop is not feasible due to high cost and non availability of labourers during peak period. Under such situation, adoption of pre sowing weed management practice is essence in addition to post sowing weed management practice in order to reduce weed competition in the initial and later stages of cotton

crop. Keeping the above facts in view, the study was undertaken for effective control of weeds in summer irrigated cotton.

### MATERIALS AND METHODS

A field experiment was conducted at Agricultural College and Research Institute, Madurai, Tamil Nadu during 2003 and 2004 to study the combined effect of pre and post sowing weed management practices on weeds and their influence on yield and economics of summer irrigated cotton. The soil of the experimental field was well drained clay loam with organic carbon content of 0.45 per cent and low, medium and high N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O, respectively. The experiment consists of three Pre-sowing weed management practices *viz.*, S<sub>1</sub>-Normal sowing, S<sub>2</sub> – Stale seed bed (SSB) by slight hoeing on 14<sup>th</sup> day of SSB and S<sub>3</sub> - SSB by paraquat spray @ 0.40 Kg ha<sup>-1</sup> on 14<sup>th</sup> day of SSB assigned to main plot and seven post sowing weed management practices *viz.*, W<sub>1</sub> - Pre-emergence application of fluchloralin at 1.0 kg ha<sup>-1</sup> fb MW on 30 DAS, W<sub>2</sub> - Pre-emergence application of fluchloralin at 1.0 kg ha<sup>-1</sup> fb post-emergence spray of glyphosate at 1.5 kg ha<sup>-1</sup> on 30 DAS, W<sub>3</sub> - Pre-emergence application of fluchloralin at 1.0 kg ha<sup>-1</sup> fb post-emergence spray of glyphosate at 1.0 kg ha<sup>-1</sup> on 30 DAS, W<sub>4</sub> - MW on 20 DAS fb post-emergence spray of glyphosate at 1.5 kg ha<sup>-1</sup> on 40 DAS, W<sub>5</sub> - MW on 20 DAS fb post-emergence spray of glyphosate at 1.0 kg ha<sup>-1</sup> on 40 DAS,

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