



# Influence of fertilizer levels and growth substances on yield attributes and yield of hybrid maize

S. SEKAR, M. MOHAMED AMANULLAH\*, N. JAGATHJOTHI AND T. ANANTHI  
Department of Agronomy, Tamil Nadu Agricultural University, COIMBATORE (T.N.) INDIA  
(Email : aman\_agron@yahoo.co.in)

**Abstract :** A field experiment was conducted at Tamil Nadu Agricultural University, Coimbatore during *Kharif* 2008 to study the influence of fertilizer levels and foliar spray of plant growth substances on yield attributes and yield of hybrid maize under irrigated condition. The experiment was laid out in a split plot design replicated thrice. Three fertilizer levels *viz.*, 150:75:75, 200:100:100 and 250:125:125 NPK kg ha<sup>-1</sup> constituted the main plot treatments. Foliar spray of growth substances *viz.*, control (no spray), salicylic acid 100 ppm, boric acid 0.3 per cent, PGR consortia 1.5 per cent, TNAU panchagavya 3 per cent and pink-pigmented facultative methylotrophic bacteria (PPFM) 10<sup>6</sup> dilution were assigned to sub plot. The results of the experiment revealed that among fertilizer levels, application 250:125:125 NPK kg ha<sup>-1</sup> recorded better yield attributes and higher yield. However, the yield was comparable with 200:100:100 NPK kg ha<sup>-1</sup>. Regarding the growth substances, PGR consortia 1.5 per cent recorded better yield parameters and yield than the other growth substances.

**Key Words :** Hybrid maize, Fertilizer levels, Growth substances, Yield attributes, Yield

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## INTRODUCTION

Maize (*Zea mays* L.) is the third most important cereal next to rice and wheat, in the world as well in India. It is called as miracle crop and also queen of cereals. Maize is cultivated both in tropical and temperate regions of the world. In India, maize occupies third place among the cereals after rice and wheat and it is cultivated over an area of 8.26 million hectares with a production of 19.30 million tonnes and the average productivity is 2337 kg ha<sup>-1</sup> (Agricoop, 2007 - 08). In Tamil Nadu, maize is cultivated in an area of 0.20 million hectares with a production of 0.24 million tonnes and productivity of 1189 kg ha<sup>-1</sup> (Crop Report, 2006 - 07).

Among the plant nutrients primary nutrients such as, nitrogen, phosphorus and potassium play a crucial role in deciding the growth and yield. The response of crops to nitrogen varies widely from place to place, depending upon the fertility level of soil and other environmental conditions. This necessitates the study on the response of crop to different

levels of fertilizer.

Nutrients are important and crucial elements, which are required for the plant for its growth and development. Growth regulators can improve the physiological efficiency including photosynthetic ability and can enhance effective partitioning of the accumulates from source and sink in the field crops (Solaimalai *et al.*, 2001). Foliar application of growth regulators and chemicals at the flowering stage may improve the physiological efficiency and may play a significant role in raising the productivity of the crop (Dashora and Jain, 2004). Hence, an attempt was made to study the influence of graded levels of fertilizer and plant growth substances on growth and yield during *Kharif* season.

## MATERIALS AND METHODS

A field experiment was conducted at Tamil Nadu Agricultural University, Coimbatore during *Kharif* 2008 to study the influence of fertilizer levels and foliar spray of plant

\* Author for correspondence.