



## Effect of various sources of organic manures on yield and yield attributes of irrigated maize (*Zea mays*) Super 900M

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### ABSTRACT

Maize is the third most important cereal crop after wheat and rice grown in virtually every suitable agricultural region of the globe. Maize being an exhaustive crop responds well to higher levels of NPK. The use of organic sources had significant effect on macro and micronutrients and thus it helps in sustenance of the soil fertility. For the study, a field experiment was conducted in Malayalathanpatty village, Madurai to evaluate the response of maize (Super 900M) with different organic sources like vermicompost, sewage sludge, green leaf manures and composted coir pith combined with inorganic fertilizers. There were ten treatment combinations replicated thrice in RBD in Annaiyur soil series (Entic Haplustert). The results showed that the highest grain yield of 4402 kg ha<sup>-1</sup> was recorded in treatment that received vermicompost @ 5 t ha<sup>-1</sup> with 75 per cent RDF and it was found to be superior to over other treatments.

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**Key words :** Maize, Organic sources, RDF, Yield attributes, Yield

### INTRODUCTION

Intensive agriculture largely depends on the use of high dose of chemical fertilizers, plant protection chemicals and labour saving farm machineries. The effect of indiscriminate use of chemicals in soil over years for crop production resulted in pollution of soil and environment. Out of the total geographical area of 328.7 m ha in India, nearly 174 m ha of land is subjected to environmental hazards. Therefore, the per capita availability of cultivated land is likely to be reduced from 0.48 ha in 1951 to 0.15 ha in 2010 due to degradation of soil resource coupled with increases in population. Maize is globally the top ranking cereal in potential grain productivity. It is cultivated in tropical regions of the world.

In Tamil Nadu maize is cultivated in an area of 0.20 million hectares with a production of 0.24 million tonnes and an average productivity of 1189 kg ha<sup>-1</sup> (Ministry of Agriculture, Crop Report, 2006-07). By 2020 AD, the requirement of maize for various sectors will be around 100 million tonnes, of which the poultry sector demand

alone will be 31 million tonnes. It is a very difficult task for our agriculturists to increase the maize production from the present level of 34 to 100 million tonnes (Seshaiah, 2000).

### MATERIALS AND METHODS

The experiment was conducted in farmer field the Malayalathanpatty village, at Madurai district. There were 10 treatments which included T<sub>1</sub>-Control, T<sub>2</sub> - Recommended dose of fertilizer (RDF), T<sub>3</sub>-75% RDF +25% vermicompost @ 5t ha<sup>-1</sup>, T<sub>4</sub>:100% vermicompost @ 5t ha<sup>-1</sup>, T<sub>5</sub>-75% RDF+ 25% green leaf manure @ 12.5t ha<sup>-1</sup>, T<sub>6</sub>- 100% green leaf manure @ 12.5t ha<sup>-1</sup>, T<sub>7</sub>-75% RDF+25% composted coir pith @ 10t ha<sup>-1</sup>, T<sub>8</sub>-100% composted coir pith @10t ha<sup>-1</sup>, T<sub>9</sub>-75% RDF+25% sewage sludge @ 2t ha<sup>-1</sup>, T<sub>10</sub>-100% sewage sludge @ 2t ha<sup>-1</sup> which were replicated thrice in a Randomised Block Design. The test crop was maize (Super 900M). The experimental soil was of sandy clay loam texture and belong to anaiyur soil series (Entic Haplustert). The soil was non-saline with alkaline reaction (pH 8.2 and EC

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