

Response of maize (*Zea mays* L.) hybrids to fertility levels in *kharif* season

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ABSTRACT

A field experiment was conducted during the rainy season of 2002-2003 on "Response of maize (*Zea mays* L.) hybrids to fertility levels in *kharif* season" at Experimental Farm of College of Agriculture, Parbhani, Marathwada Agril. University, Parbhani. To identify suitable variety of maize for *kharif* season, to find out optimum dose of fertilizer for *kharif* maize and also to find out interaction effect of variety into fertility level on growth and yield of *kharif* maize. Results indicated that the PMH-19 hybrid recorded highest values of grain, fodder and biological yield and are suitable for *kharif* season under Marathwada conditions. Fertilizer dose of 120:60:60 kg NPK per hectare proved to be the best for maize in *kharif* season. Maize hybrid PMH-19 and an application of 120:60:60 kg NPK per ha found to be beneficial for higher yields of hybrid maize in *kharif* season.

Key words : Hybrids, Maize, Fertility

INTRODUCTION

Maize (*Zea mays* L.) is an important cereal crop of the world in agriculture. Among the cereal grain crops, maize ranks third in production in world being surpassed only by wheat and rice.

India's food grain production is 206.39 million tonnes. Area under maize cultivation in India is 10.57 lakh ha. with productivity of 1.80 tonne per ha which is comparatively very low than China (4.93 tonne per ha.) and World (4.43 tonne per ha.) (Anonymous, 2006). In India, maize is grown on an area of 3.53 lakh hectares with the total production of 6.07 lakh tones and per hectare productivity is 1.718 tonne per hectare. In Marathawada, maize area of 161 lakh hectare with the total production of 3,33 lakh tonnes and the productivity is 2.066 tonnes per hectare (Anonymous, 2006a).

The major constrains in boosting the yield of maize are lack of improved package of practices *viz.* optimum use of fertilizer, sowing time and improved varieties etc. Among these, one of the factor responsible for limiting the yield of maize is inadequate use of major nutrients. Earlier studies showed that application of nutrient particularly nitrogen, phosphorus and potassium seems to be beneficial for increase the growth and yield of *kharif* maize.

However, with the introduction of new hybrids it becomes essential application of fertilizers, their doses. method and rate of application should be properly evaluated for *kharif* maize. In view of above, it was felt

necessary to study the effect of nitrogen phosphorus and potassium requirement of the newly released hybrids of this university.

Consequently, the present research project "Response of maize hybrids to fertility levels in *kharif* season" was planned and conducted during *kharif* season of 2002 at Department of Agronomy, Marathwada Agricultural University, Parbhani with following objectives.

1. To identify suitable variety of maize for *kharif* season.
2. To find out optimum dose of fertilizer for *kharif* maize.
3. To find out interaction effect of variety into fertility level on growth and yield of *kharif* maize.

MATERIALS AND METHODS

The present experiment was carried out at the college farm, Department of Agronomy, Marathwada Agricultural University, Parbhani during the *kharif* season of 2002-2003. Soil was vertisols with about 100 cm depth. Available (kg/ha) nitrogen 160.25, P₂O₅ 22.50, K₂O 345.60, organic carbon 0.58 % and soil pH of 7.85.

This present experiment was laid out in factorial randomized block design with three replications. Treatments were the fifteen combinations formed by combination of five varieties and three fertility levels. Allocation of the treatments to various plot in each replication was done by randomization.

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