



# Response of quality protein maize (QPM) to integrated nutrient management on yield, nutrient uptake and availability of nutrients during summer

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**Abstract :** A field experiment was conducted at Agricultural Research Station, Arabhavi during summer 2010 to study the response of quality protein maize to integrated nutrient management practices. The experiment was laid out in randomized block design with three replications. Significantly higher grain yield ( $71.79 \text{ q ha}^{-1}$ ), nitrogen ( $217.9 \text{ kg ha}^{-1}$ ), phosphorus ( $29.4 \text{ kg ha}^{-1}$ ) and potassium ( $160.8 \text{ kg ha}^{-1}$ ) uptake and was recorded in  $T_1$  (FYM  $10 \text{ t} + 100$  per cent RDF) than other treatments. Available N,  $P_2O_5$  and  $K_2O$  content of soil ( $235.5$ ,  $26.5$  and  $271.3 \text{ kg ha}^{-1}$ , respectively) after harvest was significantly higher in  $T_{10}$  ( $10 \text{ t FYM ha}^{-1} + 75$  per cent RDF + Sunhemp *insitu* + *Azospirillum* + PSB + Panchagavya + Jeevamrutha) as compared to the rest of the treatments.

**Key Words :** *Azospirillum*, Jeevamrutha, PSB, Panchagavya, QPM Sunhemp *in situ* incorporation

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## INTRODUCTION

Maize (*Zea mays* L.) is the third most important cereal in India after wheat and rice. Maize contributes to Rs.100 billion to the agricultural GDP at current prices apart from providing employment to nearly 100 million man-days at the farm and downstream agricultural and industrial sector. In addition to staple food for human being and quality feed for animals, maize serves as a basic raw material to the industry for production of starch, oil, protein, alcoholic beverages, food sweeteners and recently, bio-fuel. The nutritious product developed from QPM can replace fancied and highly priced industrial foods. These products can be developed in villages and thus could be a great source of rural entrepreneurship. QPM based rural industries have a wider scope for employment generation and rural prosperity (Anonymous, 2009).

## MATERIALS AND METHODS

The field experiment was conducted at Agricultural Research Station, Arabhavi, Gokak taluka of Belgaum district, which lies in northern dry zone (Zone-3) of Karnataka and region II of agro-climatic zones of India. The soil type was clay loam with a pH of 7.89. The available nitrogen ( $231 \text{ kg/ha}$ ) and phosphorus ( $22.98 \text{ kg/ha}$ ) were low and potassium ( $250 \text{ kg/ha}$ ) was in medium range. The experiment was laid out in Randomized Complete Block Design with three replications. There were 12 treatments consisting of sunhemp green manure, biofertilizers (*Azospirillum* and PSB), two liquid manures (Panchagavya and Jeevamrutha) tried in combination with three levels of fertilizers (50, 75 and 100% RDF). FYM was applied @  $10 \text{ t/ha}$  in each treatment. QPM genotype HQPM-1 was sown in comparison with DMH-2 at spacing of  $60 \times 20 \text{ cm}$  on 7<sup>th</sup> January, 2010. The seeds were treated with biofertilizer (*Azospirillum* + PSB) to use in respective treatments for sowing. Green manure crop

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