



Intercropping of *Rabi* maize (*Zea mays* L.) with oilseed, pulses and spice crop

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ABSTRACT

An experiment was conducted at Kanpur, during *Rabi* 2006-07 to assess the performance of maize in intercropping with oilseed, pulses and spice crops. The result revealed that intercropping association of maize and fenugreek in 1:2 row ratio produced significantly higher harvest index and maize equivalent yield (38.80% and 83.96 q ha⁻¹, respectively) than rest of the intercropping systems and also maize alone except maize + field pea + fenugreek and maize + vegetable pea + fenugreek tried in 1:1:1 row proportion. Maize + fenugreek (1:2) intercropping system produced significantly highest net returns (Rs. 36666 q ha⁻¹) as well as higher B:C ratio (2.48) than other intercropping systems tested and maize alone also.

KEY WORDS : Intercropping, Maize equivalent yield, Fenugreek, Vegetable pea

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INTRODUCTION

Maize is regarded as most important cereal crop in the world; particularly on account of the many uses it is put to. The percentage of distribution of maize under various uses (animal feed 10%, human food 85% and waste 5%) conclusively proves the superiority of this cereal crop over rests. There is no any cultivated cereal which has so immense potentiality as miracle crop maize possess thus commonly called Queen of cereals.

Maize is better in nutrition after wheat. Maize grain contains about 10% protein, 4% Oil, 70% carbohydrate, 2-3% crude fiber, 10.4% albuminoides, 1-4% ash. Maize protein zein is deficient in tryptophane and lysine, the two essential amino acids. Besides this, maize grain contains significant quantities of vit 'A', nicotine acid, riboflavin and vitamin 'E'. Maize is low in calcium, fairly high in phosphorus.

Maize has immense potential not only in *Kharif* but equally in winter and spring season also. A separate winter maize programme started in 1975 realizing its potential in all non temperate areas of the country. *Rabi* maize on an

average yield 1 to 5 times higher than rainy season maize. The winter maize favourably responds to better crop management (Singh, 1998). Sustainable crop production from limited land resources is the key concern in this millennium. According to an estimate, India will requires 420 million tonnes food grain to meet the in increasing food needs by the year 2020. The only option available is to increase production by crop intensification by increasing the input use efficiency.

Among various approaches, intercropping is one of them which provide an opportunity to increase the production and productivity of the cereals particularly maize. Advantages of legume intercropped with cereal have been highlighted by Aiyer (1949). Growing oilseeds, pulses, legume and spice crops in wider row spacing is beneficial to the marginal farmers. Physical area under cultivation cannot be enhanced, thus the only way is to increase the productivity per unit area and per unit time. This can be achieved by raising more crops in a year through multiple, relay and inter cropping by utilizing the available resources more efficiently. Considering these views, present investigation was carried out.

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MATERIALS AND METHODS

A field experiment was conducted during *Rabi* season of 2006-07 at Department of Agronomy, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur (India). The experiment was carried out in Randomized Block Design with twelve treatments