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STUDIES ON FARMERS PERCEPTION ABOUT MAIZE BASED CROPPING SYSTEM IN IRRIGATED ECOSYSTEM OF GATAPRABHA LEFT BANK CANNEL

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Abstract

A field survey was conducted to study the perception of farmers about maize based cropping system in three villages of Mudhol *viz*., Mantur, Mugalkod and Sirol of the irrigated tract of Karnataka, India. The study comprises of the socioeconomic background *viz.*, family size, literacy levels, land holdings and income etc. production enquires comprises of detailed production practices *viz*., sources of irrigation, cropping pattern, live stalk size, maize genotype selection, seed rate, manure, fertilizers and their application timings, sowing methods, spacing adopted. Further, it was noticed from the field survey cent per cent of the farmers of study area were using the cannel water as sources of irrigation, predominant cropping system prevailed in study area was maize and sugarcane based cropping systems, most often preferred genotypes were single cross maize hybrids. From the interaction, it was noticed that farmers were going for the high density planting (5 to 8 kg extra seeds per ha) with the higher levels of nutrient application to the extent of 30 per cent more then recommended for study area and farmers are experiencing the yield of 80-100 q ha^{-1}.

Key words : Farmers perception, genotypes, nutrient management.

Introduction

In the recent years, cultivation of single cross maize hybrid have become popular among farmers due to their upright leaves, uniform growth, flexible to planting geometry, response to applied nutrients and high yield potential are resulted to provide few extra grains per each ear harvested under dense population attributes to grab the interest of maize grower to growing hybrid maize (Karunaranthane, 2001 and Mariga *et al*., 2000). Hybrids developed in recent years are able to withstand higher plant density levels than earlier genotypes. The maize grain yield typically exhibits a quadratic response to plant density with a near-linear increase across a range of low densities, a gradually decreasing rate of yield increase relative to density increase and finally a yield plateau at some relatively high plant density (Shapiro and Wortmann, 2006). So, it is always advisable to go for high density planting in case of maize in the area, where the irrigation and nutrients are in the hands of grower. Mantoor, Mugadkod and Sirol villages of Mudol thaluk of Bagalakot district are high intensity cropping zone where farmers are habituated to grow maize as one of the component of their cropping pattern. The need was felt to study the farmer's perception about the predominant maize based cropping system prevailing in the study area with respect to agro techniques.

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Materials and Methods

Sample area selected based on purposive sampling techniques three intensive maize growing belts was selected *viz*., Mantoor, Mugalkod and Sirol villages of Mudol thaluk of Bagalakot district. In each village, number of respondents constitute 15 farmers and totally 45 farmers' formed the sample size. The data, which were indicated through numerical values were averaged for better interpretation and data with respect to string values were indicated in words only.

Results and Discussion

Socio-economic background of the maize growers of irrigated ecosystem

As per the survey average age of the farmers was

Table 1 : Summary of field survey conducted on farmers perception on growing maize based cropping system.

S. no.	Particulars			
1.	Village	Mantoor	Mugadkod	Sirol
2.	Number of respondents	15	15	15
3.	Average age of the respondents	49.6	47.64	42
4.	**Education**			
	Illiterate	60 %	46.15 %	69.23 %
	Primary	20 %	38 %	23 %
	High school	10 %	15 %	8 %
	Degree	10 %	0 %	0 %
5.	**Average land holding (acre)**			
	Dry land	Nill	Nill	Nill
	Irrigated	3.3	4.584615	5.192308
	Garden land	Nill	Nill	Nill
6	Average family size	6.4	6.0	5.0
7	Income	148000	167307	190769
8	Source of irrigation	Canal	Canal	Canal
9	Cropping pattern	Sugarcane-ratoon maize-chickpea/sunflower/ dicocum wheat	Sugarcane/sunflower -maize/sunflower -chickpea/sunflower	Sunflower/ sugarcane-maize-sunflower
10	Live stalk size	3.9	4.6	4.4
11	Genotype used	Private *viz.*, NK 6240, Pinnacle, 900-M-Gold CP 818, Super 900 M Gold, Seed tech, Kanchana and Kaveri.	Private *viz.*, NK 6240, Pinnacle, 900-M-Gold CP 818, Super 900 M Gold, Seed tech, Kanchana and Kaveri.	Private *viz.*, NK 6240, Pinnacle, 900-M-Gold CP 818, Super 900 M Gold, Seed tech, Kanchana and Kaveri.
12	Seed rate (kg/acre)	7.86	7.84	7.61
13	Qty. FYM/Acre in tons	2.925	4.8	6.5
14	**Fertilizers (Kg/acre)**			
	Urea	57.18	71.99	70
	DAP	41.66	56.04	64.86
	MOP	47.5	30	42
	Zn	10	0	0
18.	Number of splits	Three	Three	Three
19.	Sowing methods	Dibbling	Dibbling	Dibbling
20.	Spacing adopted	45 cm x 20 cm	45 cm x 20 cm	45 cm x 20 cm
21.	Area under maize under intercropping	Nill	Nill	Nill
22.	Source of extension about the maize based cropping system	Fellow farmers/friends	Fellow farmers/friends	Fellow farmers/friends
23.	Topping operation	Nill	Nill	Nill
24.	Fodder demand meeting	Cereals byproducts	Cereals byproducts	Cereals byproducts
25.	Purpose of chickpea	Grain purpose	Grain purpose	Grain purpose
26.	Awareness about the POP	Nill	Nill	Nill
27.	Over all opinion of the farmers about farmers is profitable enterprises			

46 years, in all the village literacy levels is less than 50 per cent and the average holding is 4.3 acres with canal irrigation facility. Further, farmers are also aware of the live stalk maintenance with average live stalk size of 4.35 animals, which includes mulching cow, buffalos, drought animals and rarely goats (table 1). From their farming activity, farmers are expressed opinion of getting the Rs. 1,68,692 from the average holding of 4.3 acres and all famers are falling in categories of medium range famers. From the study, it was noticed that almost all the respondents in the study were illiterates and it was ultimately reflected in the non awareness of the agriculture technologies disseminated from the agriculture university of maize production such as genotypes, seed rates, seed treatments, plant nutrition, after care operations, plant protection etc. and respondents were expressed their view of gaining proficiency of crop production from their fellow ancestors.

Production practices of maize under irrigated ecosystem

The predominant cropping system followed in the study area was sugarcane/–ratoon, maize-chickpea/ sunflower/dicocum wheat. Purposively study was related to maize based production activities, as per as the opinion of the farmers 100 per cent of the respondents were using the single cross maize hybrids, which are belong various multinational corporations, farmers are often preferred genotypes were NK 6240, Pinnacle, 900-M-Gold CP 818, Super 900 M Gold, Seed tech, Kanchana and Kaveri. And none of their holding were sowed with public bred maize genotypes of state agricultural universities. Probable reason for growing private single cross hybrids was they are available plenty in seed market, responds to applied nutrient and flexible to population density and relatively high yielder compared to public bread hybrids.

With respect to production activity, farmers are having the habit of incorporation of FYM well in advance at the average quantity of 4 tons per acre based on their generative capacity. Farmers are often going for the higher seed rates of 7-8 kg ha^{-1} than recommended with narrow row spacing of 45 cm × 20 cm was following in the entire study area. Sowing method is manual dibbling. Farmers are applying the appreciable amount of inorganic fertilizer like N, P and K at an average rate of 70, 56 and 39 kg per acre, respectively; apart from this in Mantoor village all most all farmers are aware of benefits accrued from the application of $ZnSO_4$. Reason for the above practices was less generative capacity of organic manures by the very few livestock size and maize being C_4 plant respond instant to the externally applied mineral nutrition especially in case of nitrogen may be the main reason for higher application.

As after care operation farmers were going for earthingup at 30-45 DAS and are rarely going for plant protection measures, none of them are aware of the topping operation after cob reaches the physiological maturity. Farmers are expressing better opinion about cereal crops byproduct as the source of fodder for their animals and because of that reason none of them are going for the residue retention and incorporation their fields. As a resultant of their indigenous flow of knowledge about maize production with exotic maize hybrids farmers were achieving the yield level of 80-100 q ha^{-1}.

Conclusion

Mantoor, Mugalkod and Sirol are mainly the nontraditional areas of maize, small holding marginal famers habituating replace sugarcane, where perennial irrigation facilities were not available for high water consuming crop like sugarcane because of its versatile, short duration and non flexible market price with shortest production cycle of irrigated ecosystem.

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