PROFITBLE INTERCROPPING SYSTEM OF MAIZE + REDGRAM FOR DRY LAND

Mr.V.D.Vaikunte, SMS (Agronomy), Mr.N.H.Bhandi, SMS(Soil Science)
and Dr.L.G.Hiregoudar, Programme Coordinator
ICAR-K.H.Patil Krishi Vigyan Kendra, Hulkoti, Gadag district

Introduction: Rainfed farming continue to be the challenging profession in view of the rapidly increasing climatic abberations viz., frequent occurance of agricultural drought and unseasonal rains. Climate resilient agriculture is the need of the hour and farmers needs to be equipped with basket of technologies that address the constraints in the agriculture production process especially in rainfed situation. Lot of research has been made to enhance the productivity of crops in rainfed eco-system. However, transfer of technology mechanisms needs to be scaled up to increase the profitability for farmers in rainfed areas.

DISTRICT SCENARIO OF GADAG: Gadag district belongs to Northern Dry Zone-3 and Region-2 of Karnataka State. The climate is semi rid and the district receives annual rainfall of 612 mm. The distribution pattern of rainfall is uneven and erratic. Maize is the important cereal crop cultivated in the district. It is being cultivated in 35,000 ha of area under rainfed situation in Kharif season. Mainly the crop is grown as a sole crop. The average district productivity is 17.5 Q/ha. Major production constraint is mid season agricultural drought resulting in moisture stress during the critical stages of crop. The sole crop cultivation of maize has become non-viable for the farmers.

KVK INTERVENTION AND DELIVERY MECHANISMS: KVK is implementing National Innovative Climate Resilient Agriculture (NICRA) project in Mahalingapur village of Gadag block. The village has Red gravel type of soil having shallow depth. Maize is the important crop cultivated in these soils in Kharif season under rainfed situation and productivity is very less owing to long dry spells of rains.

Under Technology Demonstration Component of NICRA project, during 2015-16 KVK introduced intercropping system of Maize+Redgram (5:1) in the NICRA village. TS-3R, a medium duration variety of Redgram was demonstrated along with Maize crop.

The intercropping system was demonstrated in an area of 8 hectares comprising of 20 farmers. During the demonstration period from June to November rainfall received was recorded. The details of rainfall data is presented in Table-1

TABLE-1: RAINFALL DATA DURING CROP SEASON (2015-16)

Months during the year 2015	Normal		Actual		% of deviation of Rainfall (mm)
	Normal Rainfall (mm)	No. of rainy days	Actual Rainfall received (mm)	Actual rainy days (Nos.)	
June	85.2	6	67.76	10	-20.47
July	70.6	7	8.63	1	-87.78
August	75.4	6	68.5	6	-9.15
September	137.4	8	91.8	12	-33.19
October	121.0	6	57.19	6	-52.73
November	32.8	2	1.65	0	-94.96
Total	**522.40**	**35**	**295.53**	**35**	**-43.43**

- The rainfall data of 6 months from June to November reveals the deficit of 43 per cent rainfall during the cropping season of Maize+Redgram intercropping system. About 295 mm of rainfall was received as against normal rainfall of 522 mm.

ECONOMICS OF DEMONSTRATIONS: The Maize crop suffered moisture stress during vegetative and tussle initiation stage whereas Redgram tolerated the moisture stress situation during vegetative stage. The economic analysis of the 20 demonstrations of the intercropping system was made and is presented in Table-2

TABLE-2: ECONOMICS OF INTERCROPPING SYSTEM OF MAIZE+REDGRAM

Crop	Yield (Qtl/ha)	Gross cost (Rs./ha)	Gross return (Rs./ha)	Net return (Rs./ha)	BCR
Maize sole crop (Local check)	21.95	25628	26340	712	1.02
Maize + Redgram (Demonstration) a) Maize	18.40	32980	44355	11374	1.34
b) Redgram	4.95				

- The net returns obtained from Maize sole crop (Local check) was Rs.712/ha and from Maize + Redgram (5:1) intercropping system (Demonstration), it was Rs.11374/ha. Thus, the Maize + Redgram (5:1) intercropping system is more economically viable than sole crop of maize in dryland situation characterised by long dry spells and erratic rains.

UPSCALING OF TECHNOLOGIES: The success of Maize+Redgram intercropping system even during drought year has impressed many farmers of Mahalingapur and surrounding villages. During 2016-17, Kharif season 70 ha of area was covered under the intercropping system in the village