

Innovative Technologies in Crop and Livestock Enterprises for Economic Development of the Farmers in Khammam District

M S Rao and N Mallikharjuna Rao

Department of Agricultural Extension, Agricultural College, Bapatla, A. P.

ABSTRACT

The study was conducted in Nacharam cluster villages of Khammam district of Andhra Pradesh under NICRA (National Initiative on Climate Resilient Agriculture) Project funded by ICAR.. The innovative technologies such as mulching in chilli, improved method of seeding in Maize, improved fodder varieties, silage bags for silage making and backyard poultry. The technologies adopted by farmers in project area has shown significant increase in productivity, net income and economic status of the farmers.

Keywords: *Backyard poultry, , Mulching, Project, Productivity, Silage bags.*

Small and marginal farmers dependent mostly on daily wages as a source of income meanwhile agriculture alone cannot meet their livelihood security. There is a strong need to introduce innovative technologies that will reduce the cost of cultivation as well as enhance the net returns of small and marginal farmers. Agriculture of today is witnessing several sustainable initiatives by farmers to improve farming techniques and to prop up their livelihoods and income. On the basis of ground realities of the project area and the conditions of the farmers the study has been formulated with the objective to study the economics of innovative crop and livestock interventions for economic development of the farming community.

MATERIAL AND METHODS

Field experiments were conducted from 2011 to 2014 at Nacharam cluster villages of Enkooor mandal, which is 70 km away from the district head quarters of Khammam. The annual rainfall varies from 950 mm to 1035 mm, the monsoon commences in June and ends in November with the peak rainfall period between August and October. The area has been experiencing continuous drought from several years. After continuous discussions with the farmers, four farmers were selected for mulching in chilli, maize seeding by seed drill, twelve farmers were selected for improved fodder varieties silage bags and back yard poultry at Nacharam cluster villages. Cost sharing ratio of NICRA and farmer is 80: 20 ratio for each demonstration. Before introduction of the interventions, the farmers were not aware of the above technologies. Due to continuous efforts of scientists of KVK, NICRA staff the farmers readily accepted and adopted the various interventions.

RESULTS AND DISCUSSION

Chilli requires huge volume of water, there is scope for saving the water by the efficient management practices. Shortage of labour and higher wages are acute problems which can be minimized by using mulch in chilli cultivation. Mulching is an innovative technology which will reduce weed problem and in turn the cost of cultivation. To increase the water-use efficiency, and reduce the cost of cultivation in chilli, the mulching technology is best alternative for improving the water-use efficiency, reducing the weeds and improving the net returns. NICRA provided plastic mulch of 50 microns in thickness 1m width for the demonstration at farmers field.

Traditional method of seeding in maize with bullocks involves high cost, less coverage and less precision. But farmers still followed the traditional method of seeding in Maize. To reduce the cost of sowing, more coverage and high precision, seeding by seed drill is an innovative technology to the farming community.

Fodder variety grown in this demonstration is Sugar graze (multi cut) and is compared with local sorghum variety. Twelve farmers participated in demonstration. Multi cut fodder crops like Sugar graze increased fodder production and quality of milk, thereby farmer saved more income. The income and economic status of the farmer was also increased. Thereby introduction of fodder variety and silage bags for silage preparation, realized high benefit cost ratio and increased availability of green fodder during off season. This helped the farmer to overcome the scarcity of fodder during off season.

Table 1. Water Saving Technologies-Mulching in Chilli

Treatments	Irrigations	Yield (q/ac)	Cost of cultivation (Rs/ac)	Gross Income (Rs/ac)	Net income (Rs/ac)	B:C ratio	Remarks
Mulch in Chilli	7	22	48,000/-	1,54,000/- (Rs.7000/q)	1,06,000	01:02.2	High yield with higher returns
Farmers practice	11	20	50,000/-	1,40,000/- (Rs.7000/q)	90,000/-	01:01.8	

Table 2. Seeding of Maize with seed drill

Treatments	Seed / Grain yield (kg/ha)	Fodder yield (kg/ha)	Cost of cultivation (Rs/ha)	Gross income (Rs/ha)	Net income (Rs/ha)	B:C ratio	Remarks
Improved seed drill	7000	50,000	22,000/-	65,800/- (Rs.940/q)	43,800/-	01:02.9	* Saved the time and labour * Reduced cost of cultivation
Farmers method of seeding	7000	50,000	40,000/-	65,800/- (Rs.940/q)	25,800/-	01:01.6	-

Table 3. Comparison between farmers practice and improved method (seeding with seed drill in Maize)

Sl No	Particulars/item	Farmer practice	Improved method
1	Time taken to cover/ha	15 hr	6hr
2	No. of labors used/ ha	38	5
3	Total cost of seeding / ha	Rs.5700/-	Rs.2500/-
4	No. of plants germinated/sq.m	8	8
5	No. of plant population/sq.m	8	8

Table 4. Potentials of fodder varieties under irrigated or rain fed environment

Treatments	Fodder yield (t/ac)	Cost of cultivation (Rs/ac)	Gross income (Rs/ac)	Net income (Rs/ac)	B:C ratio	Quantity used for livestock and qty. sold
Local variety fodder	10	8500/-	20,000/- (Rs.2000/t)	11,500/-	01:02.3	*10t used for Livestock *Observed scarcity of green fodder in off season
Improved variety (Sugar graze)	18	12,750/-	36,000/- (Rs.2000/t)	23,250/-	01:02.8	18t green fodder is sufficient Used for livestock in off season

Table 5. Silage bags for silage preparation

Treatments	No. of farmers practiced	Fodder Yield (t/ac)	Cost of cultivation (Rs/ac)	Milk production (lit/animal)	Gross income (Rs/lit)	Net income (Rs/ac)	B:C ratio	Remarks
Farmers practice	12	10	12,500/-	720 (due to scarcity of fodder)	36000 (lit-50/-)	23500/-	01:01.8	Improved milk yield and net income
Improved technology (Silage bags)	12	18	12,500/-	800	40000 (lit-50/-)	27,500/-	01:02.2	

Table 6 . Performance of improved poultry birds in augmenting farm income

Particulars	Initial wt.(g)	Weight of bird (Kg) /year	No. of eggs/ year	Total expenditure	Income from eggs	Income from meat (Rs)	Total income
				(Rs)	(Rs)	(Rs)	(Rs)
Local Breed	650g	2.0 kg	52	615/-	260/-	450/-	710/-
Improved Breed (Vanaraja/ Rainbow roster)	650g	4.7 kg	110	925/-	550/-	846/-	1396/-

Low milk productivity of dairy animals due to shortage of green fodder during the off season is major problem. To enhance the fodder availability, milk productivity of dairy animals by introduction of silage bags is an alternative source to farmers for green fodder during off season. Silage bags helped to overcome the shortage of green fodder in off season.

The farmers were rearing local breed (Desiwali). They have less growth rate, late and less egg laying capacity and susceptible to diseases. So the income generation was reduced. Improved method of feeding with improved birds (Rainbow roster) is alternative for better income of the farmers. Hence there is a strong and immediate need to supplement the income of the farmers through income generating activities like backyard poultry.

CONCLUSION

From the above study, it was proved that the bold innovative initiatives of agriculture and allied activities helped the farmers in improving their economic status. In the era of doubling the farmer's income, there is a need for diffusion of innovative agriculture technologies by using appropriate extension methodologies with the help of multi disciplinary approach for sustainable development of farming community.

LITERATURE CITED

- CRIDA April 21-22, 2009** Proceedings of the National Workshop cum Brain.
- Storming on Rainwater Harvesting and Reuse through Farm Ponds:** Experiences, issues and Strategies held at Central Research Institute for Dry land Agriculture, Hyderabad.
- NICRA annual reports 2012-2015** Krishi Vigyan Kendra, Wyr, Khammam district.
- Reddy K S, Kumar M and K V C Rao 2012** Farm ponds: A climate resilient technology for Rain fed agriculture. Published by CRIDA, Hyderabad.
- Rao M S, Mallikharjuna Rao N and T Gopi Krishna 2017.** Impact of climate resilient technologies on economic development of the farmers in Khammam district of Andhra Pradesh. Published in proceedings National Conference on Adaptation interventions for climate resilient agriculture in costal agro ecosystem,9-10 March,2017. 97-102.
- Rao M S and Mallikharjuna Rao N 2017** Impact of farm pond technology on economic development of the farmers in Khammam district of Andhra Pradesh. *Bulletin of Environment, Pharmacology and Life Sciences. Vol 6 Special Issue (1) 2017 :510-511*
- Chandra Sekhara Rao N 2020** Emerging civil society initiatives in Agriculture. *Yojana* 64(1)43-46.