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Research Article

Farming system approach is a path of prosperity for ruined farm families

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SUMMARY : The adaptive research on farming system was carried out during 2000-01 to 2002-03. The yield of different enterprises in maize-potato-summer groundnut +1 graded buffalo farming system harvested 27.40 q/ha of maize, 264.60 q/ha of potato and 27.00 q/ha of summer groundnut and 8.00 l milk/per day/buffalo. Likewise, in maize-field pea-watermelon + 1 graded buffalo farming system gave 26.30 q/ha of maize, 27.00 q/ha of field pea, 212.00 q/ha of watermelon and 8.00 l milk/day/buffalo. The yields of maize, field pea and summer groundnut reaped as 25.22 q/ha, 32.00 q/ha and 30.00 q/ha, respectively, with same milk productivity in maize-field pea-summer groundnut + 1 graded buffalo farming system at pilot village Rajpura. Maize-garlic-summer moong + 1 graded buffalo farming system yielded 27.70 q/ha of maize, 107.07 q/ha of garlic and 9.75 q/ha of summer moong along with 11 l milk/day/buffalo. Similarly, 25.60 q/ha of maize, 29.89 q/ha of mustard, 9.80 q/ha summer moong and 11 l. milk/day/buffalo reaped from maize-mustard-summer moong + 1 graded buffalo farming system. The newly introduced farming system, maize-mustard-summer groundnut + 1 graded buffalo gave 25.00 q/ha of maize, 29.50 q/ha of mustard, 23.40 q/ha of summer groundnut and 11 l. of milk/day/buffalo at village Pal under partially reclaimed sodic soil condition. Maximum net income of Rs.73430/ha was obtained from maize-potato-summer groundnut + 1 graded buffalo farming system closely followed by maize-field pea-summer groundnut + 1 graded buffalo farming system (Rs. 72504/ha) from the normal soil condition of Rajpura. Under partially reclaimed sodic soils the farming system of maize-garlic-summer moong + 1 graded buffalo gave maximum net income of Rs. 96300/ha followed by maize-mustard-summer groundnut + 1 graded buffalo (Rs. 64325/ha).

KEY WORDS:
Farming system, Resource poor, Farm household, Innovative research

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BACKGROUND AND OBJECTIVES

Indian Council of Agricultural Research, New Delhi remandated the Zonal Agricultural Research Station, Mainpuri to take up the additional function of KVK under NATP. Improving human resources and elevation of rural poverty with the suitable farming system is the major activity of this programme. Time concept relates to increase the intensity of cropping under assured irrigated condition, whereas, space utilization pertains to building up of vertical dimension through multi-tier cropping and farming system approach. By adopting these two concepts, the productivity per unit area per unit time can inevitably be enhanced in the sustained manner. Farming system is one of the main approach where in the risk is dealing with single component can be minimized, and at the same time increase the productivity through effective recycling.

The economy of U.P. is predominantly rural and agriculture oriented. In agriculture, 85 per cent of the holdings are less than two hectares and the declining trend in the average size of the farm holdings, poses a serious problems. For sustaining the income and productivity, the farmers has to integrate ancillary propositions with crop production. A judicious and systematic conjunction of any one or more of enterprises with agronomic crops should complement the farm income and help in recycling the farm residues/ wastes. The selection of enterprises must be based

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on the cardinal principles of minimizing the competition and maximizing the complementarity's between the enterprises.

RESOURCES AND METHODS

The innovative research on farming system was laid out on farmers fields of village Rajpura and Pal of Mainpuri district during 2001-02 to 2002-03. Village Rajpura situated on the denuded soils, having loamy sand texture while village located in sodic land area having light loam texture with clay loam in tit-bits. The resource poor farm families were selected for this innovative adaptive research. The primary survey fewer than two A.E.Ss. of Mainpuri has been done by ZARS team. The important information about the existing farming systems were collected by PRA. The farmers were maintained good animal population but these were not properly integrated with agronomic crops, raised under different cropping systems. The animal husbandry enterprises was basically managed by women folk. The programme was prepared through bottom up approach. Maize-potato – summer groundnut + 1 graded buffalo, maize-fieldpea watermelon + 1 graded buffalo and maize-field pea-summer groundnut + 1 graded buffalo farming systems were tried at villalge Rajpura while maize-garlic-summer moong + 1 graded buffalo, maize-mustard-summer moong + 1 graded buffalo and maize-mustard-summer groundnut + 1 graded buffalo were carried out at village Pal. The each farming system replicated on five-resource poor farm households. The better marketing facilities were developed for daily and quick disposal of milk and milk products.

OBSERVATIONS AND ANALYSIS

The results obtained from the different farming system carried out in two A.E.Ss. of Mainpuri are discussed below :

Yield of enterprises under different farming systems:

Maize-potato-summer groundnut + 1 graded buffalo farming system gave 27.40 q/ha of maize, 264.60 q/ha of potato and 27.00 q/ha of summer groundnut and 8.00 l milk/per day/ buffalo. Likewise, maize-field pea-water melon + 1 graded buffalo farming system yielded 26.30 q/ha of maize, 27.00 q/ha of field pea, 212.00 q/ha of watermelon fruits and 8.00 l milk/ day/ buffalo.

The productivity of maize, field pea and summer groundnut recorded as 25.22 q/ha, 32.00 q/ha and 30.00 q/ha, respectively, with same milk yield in maize-field pea-summer groundnut + 1 graded buffalo farming system at pilot village Rajpura. Maize-garlic-summer moong + 1 graded buffalo farming system yielded 27.70 q/ha of maize, 107.07 q/ha of garlic and 9.75 q/ha of summer moong along with 11 l milk/ day/buffalo. Similarly, 25.60 q/ha of maize, 29.89 q/ha of mustard, 9.80 q/ha summer moong and 11l milk/day/ buffalo reaped from maize-mustard-summer moong + 1 graded buffalo farming system. The newly introduced farming system, maize-mustard-summer groundnut + 1 graded buffalo gave 25.00 q/ ha of maize, 29.50 q/ha of mustard, 23.40 q/ha of summer groundnut and 11 l. of milk /day/buffalo at village Pal under partially reclaimed sodic soil condition (Table 1). These results confirm the findings of Singh *et al.* (2003).

Net return acquired from different farming systems:

In regards to net income, maximum net income of Rs. 73430/ha obtained from maize-potato-summer groundnut + 1 graded buffalo farming system while maize-field pea-summer groundnut + 1 graded buffalo farming system gave net profit of Rs. 72504/ha under normal soil condition of Rajpura. Under partially reclaimed sodic soils, the farming system of maize-garlic-summer moong + 1 graded buffalo gave maximum net income of Rs. 96300/ha followed by maize-mustard-summer groundnut + 1 graded buffalo (Rs. 64325/ha). These results are in accordance with those of Singh (1999).

Therefore, for amelioration of resource poor farm families, the aforesaid farming systems may be proved helpful for

Table 1 : Yield of enterprises under different systems

Sr. No.	Yield under different farming systems			
1.	Maize	Potato	Summer groundnut	Graded buffalo
	27.40 (q/ha)	264.60 (q/ha)	27.00 (q/ha)	8 lit milk/per day/buffalo
2.	Maize	Field pea	Water melon	Graded buffalo
	26.30 (q/ha)	27.00 (q/ha)	212.00 (q/ha)	8 lit milk/per day/buffalo
3.	Maize	Field pea	Summer groundnut	Graded buffalo
	25.22 (q/ha)	32.00 (q/ha)	30.00 (q/ha)	8 lit milk/per day/buffalo
4.	Maize	Garlic	Summer moong	Graded buffalo
	27.70 (q/ha)	107.07 (q/ha)	9.75 (q/ha)	1 lit.milk/per day/buffalo
5.	Maize	Mustard	Summer moong	Graded buffalo
	25.60 (q/ha)	29.89 (q/ha)	9.80 (q/ha)	11 lit. milk/per day/buffalo
6.	Maize	Mustard	Summer groundnut	Graded buffalo
	25.00 (q/ha)	29.50 (q/ha)	23.40 (q/ha)	11 lit.milk/per day/buffalo

Table 2 : Net income under different farming systems

Particulars	Economics of farming systems				
1.	Maize	Potato	Summer groundnut	1 G. Buffalo	Total
Cost	13940	39930	36620	19000	109490
Gross Ret.	22180	66150	71550	23040	182920
Net Ret.	8240	26220	34930	4040	73430
2.	Maize	Field pea	Watermelon	1 G. Buffalo	Total
Cost	13940	13630	15000	19000	61570
Gross Ret.	21410	27500	27000	23040	98950
Net Ret.	7470	13870	12000	4040	37380
3.	Maize	Field pea	Summer groundnut	1 G. Buffalo	Total
Cost	13940	13630	36620	19000	83190
Gross Ret.	20654	32500	79500	23040	155694
Net Ret.	6714	18870	42880	4040	72504
4.	Maize	Garlic	Moong	1 G. Buffalo	Total
Cost	13940	35300	14350	21000	84590
Gross Ret.	22390	107070	19750	31680	180890
Net Ret.	8450	71770	5400	10680	96300
5.	Maize	Mustard	Moong	1 G. Buffalo	Total
Cost	13940	12230	14350	21000	61520
Gross Ret.	20920	34374	19850	31680	106824
Net Ret.	6980	22144	5500	10680	45304
6.	Maize	Mustard	Summer groundnut	1 G. Buffalo	Total
Cost	13940	12230	36620	21000	83790
Gross Ret.	20500	33925	62010	31680	148115
Net Ret.	6560	21695	25390	10680	64325

Note: Prevailing market rates of different commodities of experimental years were used for calculating the economics of farming systems

harvesting of fruits of the generated technology to the other similar area of farm families (Table 2).

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