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Constraints Faced by the Households in Existing Farming Systems in Chittorgarh and Banaswara Districts of Southern Rajasthan

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ABSTRACT

Chittorgarh district from Agroclimatic zone IV-A and Banswara district from zone IV-B was selected for the study of integrated farming systems, as these districts have high potential for development of agriculture and livestock. Multi stage random sampling plan was used in two villages of two different tehsil from each district in such a way that one has highest proportion of irrigated area and other one have highest share of rainfed area to total net sown area. Fifteen households from each village were selected. Thus a total sample of 120 households was selected, representing 60 households from rainfed and 60 households from irrigated farming systems. There were four farming systems prevalent in the rainfed and irrigated condition of Chittorgarh and Banswara districts. Farming system (FS-I) describes crops + vegetables and crops + dairy cattle forms FS-II. Crops + dairy + goats constituted the FS-III. Crops either supported by poultry or orchards were the part of FS-IV in both the situations of the selected districts. In rainfed and irrigated area of Chittorgarh and Banswara districts households reported as lack of timely availability of good quality seeds, followed by lack of availability of agricultural labour in peak season, low price of farm produce at the time of harvest and high cost of quality seeds. Constraints faced by households in livestock enterprises in Chittorgarh and Banswara districts were low productivity, non availability of green fodder, lack of A.I and veterinary facilities and high cost of feed and fodder were the most important constraints.

Keywords: Farming System, Constraints, Cost, Household

At the dawn of the new millennium, agriculture in India is facing the challenge to achieve sustainable food security with shrinking land resources by producing an additional 50 million tonnes of food to meet the requirement of the prognosticated population of 1,000 million in the country. Because of declining per capita availability of land in India, there is hardly any scope for horizontal expansion of land for food production. Only vertical expansion is possible by integrating appropriate farming components that require lesser space and time to ensure periodic income to the farmer. Further, modest increments in land productivity are no longer sufficient for the resource-poor farmers. Hence, intelligent management of available resources, including optimum allocation of resources, is important to alleviate the risk related to land sustainability. Moreover, proper understanding of interactions and linkages between the components would improve food security, employment generation as well as nutritional security. This approach can be transformed into a farming system that integrates crops with enterprises such as – agroforestry; horticulture; cow, sheep and goat rearing; fishery; poultry and pigeon rearing; mushroom production; sericulture; and biogas production – to increase the income and improve the standard of living of small and marginal farmers. Integrated farming system (IFS) seems to be the possible solution to meet the continuous increase in demand for food, stability of income and diverse requirements of food grains, vegetable, milk egg, meat, etc. thereby improving the nutrition status of the small scale farmers with limited resources. The farm is viewed in holistic manner and

farmers are subjected to many socioeconomic, biophysical, institutional, administrative and technological constraints. Producer farmers face problems of production, protection, marketing, feeding and health management related to integrated farming systems. Therefore, it was also thought worthwhile to identify various constraints in integrated farming systems. Thus, the present study attempts to examine the constraints of prevailing farming systems in southern Rajasthan with special reference to irrigated and rainfed conditions in tribal and non tribal area.

MATERIALS AND METHODS

Southern Rajasthan comprises of eight districts viz., Udaipur, Chittorgarh, Bhilwara, Rajsamand, Dungarpur, Banswara, Pratapgarh and Sirohi. These districts fall in agro-climatic region IV A and IV B. Among these districts Chittorgarh is non tribal and Banswara is highly-tribal dominated district. Chittorgarh district from IV-A and Banswara district from IV-B was purposively selected for the study of integrated farming systems, as these districts have high potential for development of agriculture and livestock. Multi stage random sampling plan was used. Two tehsils from each districts were selected in such a way that one having highest proportion of irrigated area and other one having highest share of rainfed area to total net sown area so that selected tehsils represented irrigated and rainfed farming systems in tribal areas. There after fifteen households from each village were randomly selected. Thus a total sample of 120 households was selected from Chittorgarh and Banswara districts, representing 60 households from rainfed and 60 households from irrigated farming systems. Both primary and secondary data were collected during the year 2012-13.

Garret's ranking technique was used to analyze the constraints as perceived by the respondents in integrated farming systems. The respondents were asked to rank the factors that limit in the integrated farming systems. These orders of merit were transformed into units of scores by using the following formula:

$$\text{Per cent position} = 100\ (R_{ij} - .50)/N_j$$

Where,

R_{ij} - Rank given for the i^{th} factor by the j^{th} individual.

N_j - Number of factors ranked by the j^{th} individual.

The percent position was converted into scores by referring to the Table suggested by Garret and Woodworth (1969). Then for each factor the scores of the individual respondents were added together and divided by the total number of respondents for whom scores were added. These mean scores for all the factors were arranged in descending order and the most influencing factors were identified through the ranks assigned.

RESULTS AND DISCUSSION

Existing farming systems in the study area

Mainly there were four farming systems prevalent in the rainfed and irrigated condition of Chittorgarh and Banswara districts as shown in Table 1. Farming system (FS-I) describes crops + vegetables and crops + dairy cattle forms FS-II. Crops + dairy + goats constituted the FS-III. Crops either supported by poultry or orchards were the part of FS-IV in both the situations of the selected districts.

Table 1: Existing farming systems in study area

Farming System	Chittorgarh		Banswara	
	Rainfed	Irrigated	Rainfed	Irrigated
	Description			
FS-I	Crop + Vegetable (C+V)	Crop + Vegetable (C+V)	Crop + Onion Nursery (C+ON)	Crop + Vegetable (C+V)
FS-II	Crop + Dairy (C+D)	Crop + Dairy (C+D)	Crop + Dairy (C+D)	Crop + Dairy (C+D)
FS-III	Crop + Dairy + Goat (C+D+G)	Crop + Dairy + Goat (C+D+G)	Crop + Dairy + Goat (C+D+G)	Crop + Dairy + Goat (C+D+G)
FS-IV	Crop + Goat + Poultry (C+G+Po)	Crop + Goat + Orchard (C+G+O)	Crop + Poultry (C+Po)	Crop + Poultry + Orchard (C+Po+O)

CONSTRAINTS

The constraints faced by the household have been discussed under three sections.

1. Constraints Faced in Crop Enterprises
2. Constraints Faced in Livestock Enterprises

Constraints faced in crop enterprises/activity

Constraints faced by households in crop production are presented in Table 2. It is evident from the table that twelve constraints were faced by households in crop production. The constraints vary from area to area as well as rainfed and irrigated situations.

In rainfed area of Chittorgarh district 68.10 score were reported by households as lack of timely availability of good quality seeds, gave first rank it was followed by lack of availability of agricultural labour in peak season (65.30 score), low price of farm produce at the time of harvest (64.20 score) and high cost of quality seeds. While in irrigated area maximum Garret score (69.10) of households gave their opinion towards lack of availability of agricultural labour, followed by lack of timely availability of good quality seeds (68.20 score), high cost of quality seeds (67.20 score) and inadequate irrigation facilities (67.10 score). In all 12 constraints were reported by the respondent households in both the districts under crop activities. Kadam *et al*. (2003), Singh and Singh (2005) and Choudhary *et al*. (2007) also reported similar findings.

Thus, in Chittorgarh (non tribal) district in both rainfed and irrigated conditions lack of availability of good quality seeds, high cost of quality seeds and lack of availability of agricultural labour in peak season were the major constraints faced by the households. In Banswara district in rainfed area high cost of quality seeds (62.10 score) and lack of timely availability of good quality seeds (61.20 score) emerged as first two constraints followed by lack of knowledge of recommended package of practices (61.10 score) and inadequate irrigation facilities (60.80 score), while in irrigated area lack of knowledge of recommended package of practices (65.20 score) emerged as the first major constraints followed by high cost of quality seeds (64.10 score), lack of timely availability of good quality seeds (63.10 score) and lack of availability of agricultural labour in peak season (64.10 score). Thus, it may be concluded that in Banswara (tribal) district, both in rainfed and irrigated condition farmers face high cost of quality seeds, the farmers of irrigated area face lack of availability of agricultural labour in peak season. Kadam *et al*. (2003), Singh and Singh (2005) Choudhary *et al*. (2007) and Sharma (2012) also reported similar findings.

Constraints Faced in Livestock Enterprises/Activity

An attempt was made to assess the constraints in dairying in the study area, Commonly occurring constraints were enlisted and the milk producer households in the

Table 2: Constraints faced in crops activities

Sl. No.	Constraints	Chittorgarh district				Banswara district			
		Rainfed		Irrigated		Rainfed		Irrigated	
		Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank
1	Lack of timely availability of good quality seeds	68.10	1	68.20	2	61.20	2	63.10	3
2	High cost of quality seeds	62.10	4	67.20	3	62.10	1	64.10	2
3	Lack of availability of agricultural labour in peak season	65.30	2	69.10	1	57.10	7	63.00	4
4	Low price of farm produce at the time of harvest	64.20	3	66.10	5	58.10	6	62.00	5
5	Lack of marketing facilities	59.40	9	65.50	8	54.10	8	61.00	6
6	Lack of storage facilities	60.10	7	54.10	9	51.10	9	61.00	7
7	Lack of credit availability	58.20	10	51.20	10	59.10	5	60.00	8
8	Lack of knowledge about recommended package practices	61.80	5	66.00	6	61.10	3	65.20	1
9	Inadequate power supply	59.20	8	65.90	7	50.10	10	59.10	9
10	Inadequate Irrigation facilities	61.50	6	67.10	4	60.80	4	58.10	10
11	Damage caused by birds and animals	40.10	11	44.10	12	41.10	12	40.00	12
12	High incidence of disease and pest	42.10	12	45.00	11	42.30	11	41.00	11

Table 3: Constraints Faced in Livestock Enterprises

Sl. No.	Constraints	Chittorgarh district				Banswara district			
		Rainfed		Irrigated		Rainfed		Irrigated	
		Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank	Garrett Score	Rank
1	Low productivity	68.10	1	67.00	4	69.10	1	67.00	1
2	Problems of heat detection	65.00	7	66.00	6	61.00	8	56.00	8
3	Lack of A.I. and veterinary facilities	66.30	4	66.50	5	59.00	9	63.10	4
4	Relatively low conception rate through A.I.	65.10	6	64.10	7	58.00	10	62.00	5
5	Non-availability of green fodder cultivation	67.10	2	60.10	9	68.40	2	55.00	9
6	Lack of Availability of land for fodder cultivation	64.20	8	54.10	10	40.00	13	53.00	10
7	Low availability of dry fodder	66.80	3	51.10	11	67.00	3	51.00	11
8	High cost of feeds and fodders	61.10	10	69.10	1	65.00	5	64.00	2
9	Inadequate knowledge about balanced feeding	64.10	9	68.10	2	64.10	6	63.50	3
10	Improper housing facilities leading to infection	60.10	11	49.10	12	62.00	7	41.00	12
11	Lack of common grazing	59.10	12	44.10	13	51.00	11	40.00	13
12	Lack of organized milk marketing facilities in village	57.10	13	67.10	3	40.10	12	60.00	6
13	Low price of cross bred cow milk	66.20	5	61.00	8	66.00	4	58.00	7

study area were asked to rank the constraints related to feeding, breeding, health management, milk marketing, infrastructure and technical etc. and the same has been analyzed by using Garrett ranking technique the result of which are presented as below. Constraints faced by households in livestock enterprises in Chittorgarh and Banswara districts presented in Table 3. Data revealed that low productivity (68.10 score), non availability of green fodder (67.10 score), non availability of dry fodder (66.80 score), lack of A.I and veterinary facilities and low price of crossbred cow milk were the most important constraints in the Chittorgarh rainfed area and households gave higher rank and score Where as in irrigated areas of Chittorgarh district high cost of feed and fodder (69.10 score), un adequate knowledge about balanced feeding (68.10 score), lack of organized milk marketing facilities in village (67.10 score), low productivity in local livestock cattle (67.00 score), lack of A.I and veterinary facilities and problems of heat detection were the most important constraints faced by the households. In Banswara district rainfed area the main constraints observed were low productivity in local bred of cattle (69.10 score), non availability of green fodder (68.40 score), non availability of dry fodder (67.00 score), low price of cross bred cow milk (66.00 score), and high cost of feeds and fodder while in irrigated areas low productivity local cow (67.00 score), high cost of feed and fodder (64.50 score), In-adequate knowledge about balance feeding (63.00 score), lack of A.I and veterinary facilities and relatively low conception rate through. A.I was the most common constraints Kadam *et al*. (2003), Singh and Singh (2005) and Choudhary *et al*. (2007) also reported similar findings.

CONCLUSION

The crop activities of Chittorgarh (non-tribal) district in both rainfed and irrigated conditions lack of availability of good quality seeds, high cost of quality seeds and lack of availability of agricultural labour in peak season were the major constraints faced by the households. In Banswara (tribal) district of rainfed area, farmers were faced high cost of quality seeds, while the farmers of irrigated area the constraints were faced lack of availability of agricultural labour in peak season. In dairy activities major constraints faced by households in Chittorgarh district were low productivity of local cattle, non-availability of green fodder and lack of A.I and veterinary facilities in rainfed areas where as high cost of feeds and fodders, in adequate knowledge about balanced feeding and lack of organized milk marketing facilities in villages were the

most important constraints in irrigated areas of Chittorgarh district. In Banswara district the main constraints observed were low productivity in local cattle in both rainfed and irrigated areas whereas non-availability of green fodder, non-availability of dry fodder were next main constraints in rainfed areas, while high cost of feed and fodder, inadequate knowledge about balanced feeding and lack of A.I and veterinary facilities were the next common constraints in irrigated areas (tribal) of Banswara district.

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