



ISSN Print: 2664-7222
ISSN Online: 2664-7230
IJPPS 2022; 4(2): 11-14
www.pharmacyjournal.org
Received: 24-07-2022
Accepted: 25-08-2022

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Constraints and suggestions for increasing production of different cropping systems in Indore district of Madhya Pradesh

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DOI: <https://doi.org/10.33545/26647222.2022.v4.i2a.55>

Abstract

Cropping system is an important component of a farming system. It represents their interaction with farm resources, other farm enterprises and available technology which determine their makeup. The farmers in area adopting a certain cropping system, specially producing maximum remuneration with available suitable agro climatic condition and other factors receiving greater emphasis. Proper and well adopted cropping system increase supply of balanced food, feed and cash needs of farmers, without extra expense. To study the constraints related to existing cropping system and suggest ways and means for increasing production level of different cropping system. Indore district was selected for present study due to higher changing cropping system as progressive agricultural area. In Indore district Indore block in Madhya Pradesh was purposively selected for the study owing to well acquaintance with the researcher about area which would be make easy in data collection. Multi stage sampling technique was used for drawing a sample for the present study. At first stage, the villages were selected for study. At the second stage of sampling, the farmers were selected for data collection as respondents of study. A list of all the villages in the selected block was prepared with the help of Department of Agriculture Indore. Again, these villages were arranged in ascending order with the area of different crop's in the villages. Further in this selection process top 5 villages having maximum area under different crop's was further selected purposively for the study. From the selected villages, a list of all the different crop's growers was prepared. In the third stage of selection 70 farmers were selected randomly by proportional allocation of 3 categories i.e. small (less than 2 ha), medium (2 to 4 ha.) and large (more than 4 ha.). Thus 70 farmers was the sample of present study. In present study, both primary and secondary data were used to find out the findings of study. Primary data was collected from sample farmers and the secondary data was collected from another department. The data was collected through survey method. The period of the study was related to the agriculture year 2014-2015. The most important constraints was "natural causes" got rank Ist among all the constraint followed by "economic cause" (rank IInd), 'technological cause" (rank IIIrd), "institutional infrastructure cause" (rank IVth) and "social cause" (rank Vth) respectively. The major suggestions confronted by 92.86 per cent farmers were "area for intensive cultivation should be demarketed" followed by 88.57 per cent suggested that "emphasis should be given on dynamic crops", 85.71 per cent suggested that "training of farmers in modern methods of crop production" and 78.57 per cent suggested that "the preference should be given for drip and micro sprinkler irrigation" respectively.

Keywords: Agriculture, institutional, preference

Introduction

A study on the changes in land use and cropping pattern at the regional level will be useful to formulate appropriate agricultural policies for the location. Cropping pattern speaks about the intensity of land resource use on various crop growths under different level of technology. A conjugal response of so many factors association, changes in land utilization pattern is a global phenomena and subjective change in technology, degree of market perfection and economic status of the producers and consumers. All these factors of the region do change with the pace of the time. The recent advances in farm technology in terms of new crop varieties, irrigation facilities and other non-conventional inputs are well known to the farmers at different levels and thereby they plan their production accordingly. The technological advancement in agriculture resulting into higher productivity have been

established by effective substitute for land to its economic use. Cropping system is an important component of a farming system. It represents cropping patterns used in a farm and their interaction with farm resources, other farm enterprises and available technology which determine their make up. Cropping system specially intercropping and mixed cropping receiving greater emphasis in Indian agriculture now, because stabilized yield advantage, especially under adverse weather condition, mixed and intercropping systems have built mechanism of risk bearing against environmental hazards. Proper and well adopted cropping system increase supply of balanced food, feed and cash needs of marginal farmers, without extra expense. Experimental evidences have also proved that yield stability and monetary return is greater with intercropping and mixed cropping than single crop. The recently, huge gap between existing cropping systems and improved cropping systems, improved cropping systems are capable to increase the farmers land use efficiency, productivity and economic return in respect to farmers land use efficiency; productivity and economic return in respect to existing cropping systems.

Materials and Methods

Indore district was selected for present study due to higher changing cropping system as progressive agricultural area. In Indore district Indore block in Madhya Pradesh was purposively selected for the study owing to well acquaintance with the researcher about area which would be make easy in data collection. Multi stage sampling technique was used for drawing a sample for the present study. At first stage, the villages were selected for study. At the second stage of sampling, the farmers were selected for data collection as respondents of study. A list of all the villages in the selected block was prepared with the help of

Department of Agriculture Indore. Again, these villages were arranged in ascending order with the area of different crop's in the villages. Further in this selection process top 5 villages having maximum area under different crop's was further selected purposively for the study. From the selected villages, a list of all the different crop's growers was prepared. In the third stage of selection 70 farmers were selected randomly by proportional allocation of 3 categories i.e. small (less than 2 ha), medium (2 to 4 ha.) and large (more than 4 ha.). Thus 70 farmers was the sample of present study. In present study, both primary and secondary data were used to find out the findings of study. Primary data was collected from sample farmers and the secondary data was collected from other department. The data was collected through survey method. The period of the study was related to the agriculture year 2014-2015. A cropping system refers to the principles and practices of cropping and their interaction with farm resources, technology, aerial and edaphic environment to suit the regional or national or global needs and production strategy. It is an important component of farming system. Despite the importance of rainfed farming in general and cropping system in particular under Indian conditions, scant attention has been paid to devise suitable cropping systems on scientific basis.

Results and Discussions

Constraints related to existing cropping system:

There have been some constraints in prevailing cropping system. The constraints analysis was reported based on the opinion survey of the sampled farmers. Thus, the generalizations of result are the feedback of the cropping system prevailing in the area. The main constraints related to existing cropping system are presented in table 1.

Table 1: Production constraints identified by the sample farmers

S. No.	Socio Economic constraints	Frequency N=70	% to total number	Rank obtained
A.	Natural cause			
1.	Low fertility of soil	50	71.43	iii
2.	Unfavorable climate	58	82.86	ii
3.	Uncertainty of rain	65	92.86	i
4.	Damage due to insect pest	35	50.00	iv
	Average	52	74.29	Ist
B.	Social cause			
1.	Unavailability of labour at time	25	35.71	iii
2.	Low working capacity of labour	20	28.57	iv
3.	Family problems	30	42.86	i
4.	Not proper management of family labour	28	40.00	ii
	Average	26	37.14	Vth
C.	Economic cause			
1.	Economic poverty	55	78.57	ii
2.	Have not purchased recommended inputs	50	71.43	iii
3.	Unavailability of irrigation facilities	60	85.71	i
4.	Have not done agronomical practices proper and at the time	35	50.00	iv
	Average	50	71.43	IIInd
D.	Technological cause			
1.	Lack of technological knowledge	38	54.29	iv
2.	Unavailability of technical suggestions and guidance	42	60.00	iii
3.	Unavailability of training and demonstrations	45	64.29	ii
4.	Costly improved technology	58	82.86	i
	Average	46	65.71	IIIrd
E.	Institutional infrastructure cause			
1.	Unavailability of inputs at time	50	71.43	ii
2.	Do not performed agricultural practices at time	45	64.29	iii
3.	Unavailability of proper loaning system	25	35.71	iv
4.	Unavailability of proper distribution system	60	85.71	i
	Average	45	64.29	IVth

The constraints in prevailing cropping system, confronted by farmers are divided into five segments and each segment has its own importance in production process. The most important constraints was “natural causes” got rank Ist among all the constraint followed by “economic cause” (rank IInd), “technological cause” (rank IIIrd), “institutional infrastructure cause” (rank IVth) and “social cause” (rank Vth) respectively. Among the “natural cause”, the maximum number of farmers (92.86%) reported “uncertainty of rain” followed by “unfavourable climate” (82.86%), “low fertility of soil” (71.43%) and “damage due to insect pest” (50.00%) respectively. Among the “economic cause”, the maximum number of farmers (85.71%) reported “unavailability of irrigation facilities” followed by “economic poverty” (78.57%), “have not purchased recommended inputs” (71.43%) and “have not done agronomical practices proper and at the time” (50.00%) respectively. Among the “technological cause”, the maximum number of farmers (82.86%) reported “costly improved technology” followed by “unavailability of training and demonstrations” (64.29%), “unavailability of technical suggestions and

guidance” (60.00%) and “lack of technological knowledge” (54.29%) respectively. Among the “institutional infrastructure cause”, the maximum number of farmers (85.71%) reported “unavailability of proper distribution system” followed by “unavailability of inputs at time” (71.43%), “do not performed agricultural practices at time” (64.29%) and “unavailability of proper loaning system” (35.71%) respectively. Among the “social cause”, the maximum number of farmers (42.86%) reported “family problems” followed by “not proper management of family labour” (40.00%), “unavailability of labour at time” (35.71%) and “low working capacity of labour” (28.57%) respectively.

Suggestions for increasing production level of different cropping system

The suggestions for increasing production level of different cropping system, opinion survey from respondent cultivators were recorded on following points. The detail of suggestions is determined in table 2.

Table 2: Suggestions for increasing production level of different cropping system

S. No.	Suggestions	Frequency (n=70)	%to total	Rank
1.	Ensuring proper use of irrigation water	50	71.43	V
2.	The preference should be given for drip and micro sprinkler irrigation	55	78.57*	IV
3.	Timely supply of the quality inputs	40	57.14	VIII
4.	Self-provisioning of inputs and appropriate practices on farm	35	50.00	IX
5.	Training of farmers in modern methods of crop production	60	85.71*	III
6.	Emphasis should be given on dynamic crops	62	88.57*	II
7.	Location specific crop planning should be needed	45	64.29	VII
8.	Area for intensive cultivation should be demarcated	65	92.86*	I
9.	Popularization of high yielding varieties supported by strong seed programme	48	68.57	VI
10.	Average	51	72.86	

* higher than average value

The major suggestions confronted by 92.86 per cent farmers were “area for intensive cultivation should be demarcated”. It is fact that the area under study has tremendous potential for the production of soybean, wheat and gram. As the adoption of improved production technology covering substantial part of the area, systematic efforts could be made to identify areas for special attention in terms of the growing of economic cropping system. The 88.57 per cent farmers among the total suggested that “emphasis should be given on dynamic crops”. Many studies suggested that there are certain crops emerge as the dynamic crops in the area viz. maize among cereals, vegetable and other commercial crops. These crops also have better prospects for value addition and these are found in small scale. Therefore, these can be cultivated even by the small farmers wherever the condition are favourable. The 85.71 per cent farmers among the total suggested that “training of farmers in modern methods of crop production”. Inadequate attention has been placed on training the farmers in the scientific method of cultivation. Due to this notion, agricultural producers have been denied the benefit of agricultural science in their farming operations. Proper attention should be given to the producers in respect of farmers’ field school to enable them to understand modern method of production and to practice them in the field condition. The 78.57 per cent farmers among the total suggested that “the preference should be given for drip and micro sprinkler irrigation”. The area under study is scarce with irrigation water and the higher area is under rainfed condition. In this situation water saving

device should be given more preference to brought higher area under irrigation. The 71.43 per cent farmers among the total suggested that “ensuring proper use of irrigation water”. Irrigation is one of among the several factors responsible for low yields, but the inefficient use of water certainly caused economically in cropping system. Efforts thus need to be made to insure the proper use of water for example in rainfed conditions there are good prospect of gram cultivation with supplementary irrigation facility after the soybean cultivation. The 68.57 per cent farmers among the total suggested that “popularization of high yielding varieties supported by strong seed programme”. The genetic potential of grain yield of crops is still under estimated as a result of strong and dominating effects of economy. The fact is that the ultimate aim of farmers is to get higher remunerative income through use of superior varieties existing once in yielding ability, disease and insect resistance and other characteristics. The 64.29 per cent farmers among the total suggested that “location specific crop planning should be needed”. The specific feature of different climatic zone in the state found to close relation in production process of crops. The potentiality of study area should be carefully and farmer should be advised accordingly for specific crop planning. The 57.14 per cent farmers among the total suggested that “timely supply of the quality inputs”. There are problems with the timing of the application as well as the quality of the inputs in double cropping system due to unavailability of timely and quality inputs in time. Step should be taken timely and assured

supply of quality inputs. The 50.00 per cent farmers among the total suggested that “self-provisioning of inputs and appropriate practices on farm”. Self-provisioning of inputs is always advantaging, provided the productivity of these inputs is comparable to the purchase inputs. The inputs and practices which reduce costs without suffering productivity may be popularized.

Conclusion

Diversifications among the crops are seen due to these factors. As a consequence of advance technology in agriculture, production and income level of the farmers have experienced a change towards higher level, depending upon the market factors like demand and supply. It is difficult to measure the rate at which individual factors effect cropping system, however, their cumulative effect can hardly be ignored. The aim of this study is to evaluate the economics of production of existing cropping systems and improved there off in light off resources available in the production in different cropping systems. On the basis of result farmers should make efforts for conservation of water for life saving irrigation and to get higher yield from soybean-wheat cropping system and soybean-gram cropping system also. The farmers growing soybean-gram could be encouraged to go for soybean-wheat to avoid unforeseen economic losses. The most important constraints was “natural causes” got rank 1st among all the constraint followed by “economic cause” (rank IInd), ‘technological cause” (rank IIIrd), “institutional infrastructure cause” (rank IVth) and “social cause” (rank Vth) respectively. The major suggestions confronted by 92.86 per cent farmers were “area for intensive cultivation should be demarketed” followed by 88.57 per cent suggested that “emphasis should be given on dynamic crops”, 85.71 per cent suggested that “training of farmers in modern methods of crop production” and 78.57 per cent suggested that “the preference should be given for drip and micro sprinkler irrigation” respectively. It is suggested that the integrated crop and dairy enterprise can play an important role in increasing income and employment on the small farm. With the existing meager resources of the small farmers, it is not possible to increase the number of milch animals and to adopt the improved crop and dairy technology. Therefore, to help the farmers in harvesting the benefits of the integrated crops and dairy production with improved technology, the financial institution and medium-term credit on easy terms to the small farmers be provided.

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