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A study on socio-personal and socio-economic characteristics of the farmers in Chhattisgarh plains with reference to IPM in major crops

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Abstract
India is one of the world's largest producers of rice and brown rice, accounting for 20% of all world rice production. Rice-based cropping system can be described as mix of farming practices that comprises of rice as the major crop followed by subsequent cultivation of other crops. Intercropping of rice and other compatible crops is also widely practiced in many regions. The study was conducted in two irrigated districts namely Janjgir-Champa and Dhamtari and two rainfed districts namely Korba and Mahasamund in Chhattisgarh Plains. Form the each of the selected districts two representative blocks namely Kurud and Dhamtari from Dhamtari district and Janjgir and Champa form Janjgir-Champa district were selected purposively. Similarly, two blocks Pali and Katghora from Korba district and Mahasamund and Bagbhra from Mahasamund district were selected. It was observed that among the farmers who had irrigation facilities, 23.75 Percent respondents were educated up to middle school where as 29.38 Percent respondents were primary school passed whereas rainfed farmers, the educational profile showed that 24.38 Percent were middle school passed followed by 26.25 Percent respondents passed primary school. Regarding size of family of the irrigated respondents, it was found that 55.50 Percent of the respondents were under large family (>5 members), whereas in case of non-irrigated respondents, 55 Percent of the respondents belonged to large family. From seeing the result, it can be concluded that farmers family size had not found any significance role with adoption of insect pest management practices.

Keywords: Family, irrigation, school, income, rice

Introduction
India is one of the world's largest producers of rice and brown rice, accounting for 20% of all world rice production. Rice is India's pre-eminent crop, and is the staple food of the people of the eastern and southern parts of the country. Production increased from 53.6 million tons in FY 1980 to 74.6 million tons in year 1990, a 39 percent increase over the decade. Since 1950 the increase has been more than 350 percent. Most of this increase was the result of an increase in yields. Rice production constitutes the major economic activity and key source of livelihood for the rural households of Chhattisgarh. In Chhattisgarh rice occupies average of 3.6 million ha. with the productivity ranging between 1.2-1.6 t/ha depending upon the rain fall.

The State is popularly recognized as rice bowl of the country as rice is the principal crop and about 69.7% of net sown area is covered under kharif rice. Fallowing of land is common in Chhattisgarh but recent demand of food security lead to take succeeding crop in cropping system to make it profitable. Rice is grown under different agro ecological condition *viz*., water logged, deep water, hills, high humidity, high temperatures, salinity, alkalinity and flood prone areas. The cropping intensity differs from one environment to the other with a maximum of three rice growing season in a year in the fertile deltaic regions due to availability of continuous irrigation.

Methodology
The study was conducted in two irrigated districts namely Janjgir - Champa and Dhamtari and two rainfed districts namely Korba and Mahasamund in Chhattisgarh Plains. Form the each of the selected districts two representative blocks namely Kurud and Dhamtari from Dhamtari district and Janjgir and Champa form Janjgir-Champa district were selected purposively.

Similarly, two blocks Pali and Katghora from Korba district and Mahasamund and Bagbhra from Mahasamund district were selected. From each selected blocks two representative villages were selected randomly. Therefore 8 irrigated and 8 rainfed villages were considered for the study. Total 16 villages were selected. From each selected village 20 representative farmers were selected randomly. In this way a total of 160 (20X8) farmers from irrigated and 160 (20X8) farmers from rainfed area were selected. Thus total 320 farmers were considered as respondents for the present study. The data were collected by a personal interview with the help of a pre-tested structured interview schedule.

Results and Discussion

Socio-personal characteristics of the respondents

The independent variables *i.e.* education, size of family, caste and social participation were considered as socio-personal characteristics of respondents.

Education

This has been observed from the Table 1 as for irrigated respondents, that the 10 percent respondents had illiterate, 29.37 percent respondents educated up to middle school level, 17.50 percent respondents passed high school, 12.50 percent respondents had passed higher secondary school and only 6.87 percent of respondents passed graduate and above. (Fig.1)

Table 1: Distribution of the respondents according to their education (n=320)

Sl. No	Category	Irrigated		Non-irrigated	
		F	%	F	%
1.	Illiterate	16	10.00	22	13.75
2.	Neo literate	0	0	0	0
3.	Primary school	47	29.37	42	26.25
4.	Middle school	38	23.75	39	24.38
5.	High school	28	17.50	32	20.00
6.	Higher Secondary school	20	12.50	18	11.25
7.	Graduate and above	11	06.87	07	04.37
	Total	160	100.0	160	100.0

F = Frequency

With regard to respondents of rainfed areas, the findings show that 13.75 percent respondents were illiterate. About 26 percent were found to be educated upto primary school and 24.38 percent were passed middle school. Further the findigs shows that 11.25 percent respondents were acquired higher secondary certificate and only 4.37 percent of them were found to be graduate or higher level of education. Shine *et al.* (2000) [10] noted almost similar findings in their study which are in conformity to this study.

Size of family

Regarding size of family of the irrigated respondents, it was found in the Table 2 that 57.50 percent of the respondents under the category of large family (>5 members), whereas 42.50 percent felled under the category of small family (<5 members). In case of non-irrigated respondents, 55 percent of the respondents felled under the categories of large family while, 45 percent respondents felled under the category of small family Fig. 2 This finding is supported by Padekar (2004) [11].

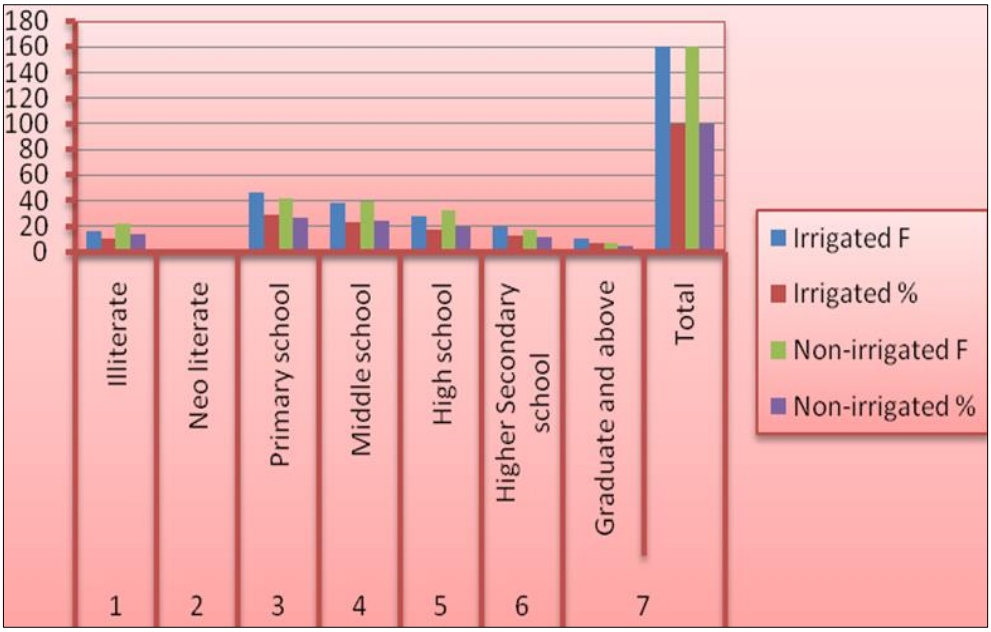

Fig 1: Distribution of the respondents according to their Education

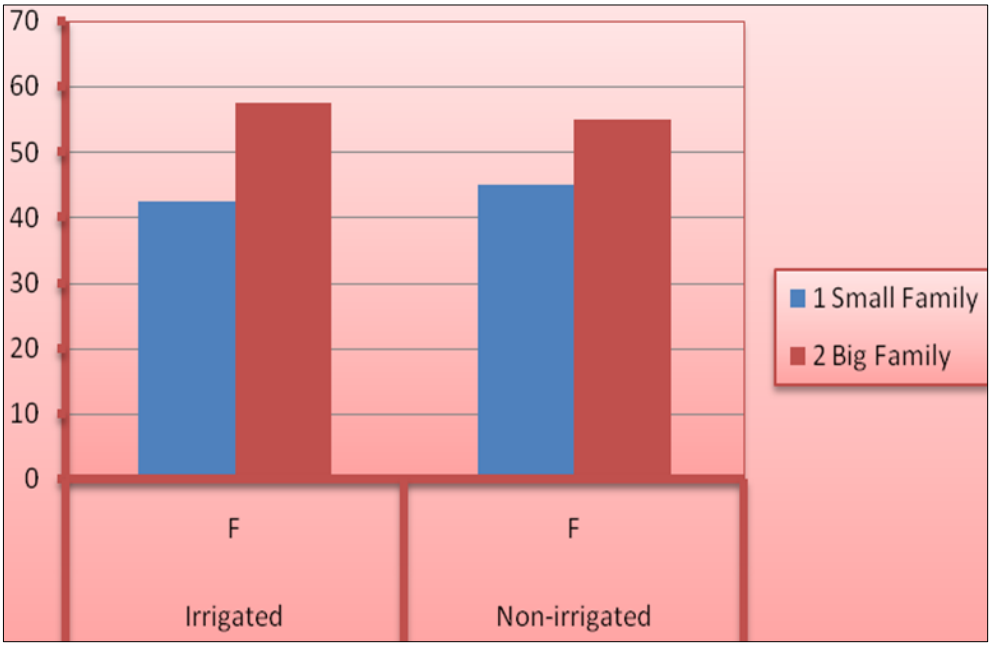

Fig 2: Distribution of the respondents according to their size of family

Table 2: Distribution of the respondents according to their size of family (n= 320)

Sl. No	Category	Irrigated		Non-irrigated	
		F	%	F	%
1.	Small family (up to 5 members)	68	42.50	72	45.00
2.	Large family (more than 5 members)	92	57.50	88	55.00
	Total	160	100.0	160	100.0

F = Frequency

Table 3: Distribution of the respondents according to their caste (n= 320)

Sl. No.	Caste	Irrigated		Non irrigated	
		F	%	F	%
1.	Scheduled Caste	15	9.37	11	6.87
2.	Scheduled Tribe	10	6.25	9	5.63
3.	Other Backward Class	25	15.63	25	15.63
4.	General	110	68.75	115	71.87
	Total	160	100.0	160	100.0

F = Frequency

Caste

The data as shown in Table 3 clearly indicated that large sum of was 68.75 percent of irrigated farmers belonged to the general category, followed by 15.63 percent came under the OBC category, 9.37 percent respondents felled under scheduled caste category, only 6.25 percent of respondents belonged to the category of scheduled tribes. (Fig.3)

The similar picture had screened in rainfed respondents where majority (71.87 percent) of respondents belonged to the general category, followed by 15.63 percent came into the category of OBC, 6.87 percent respondents found scheduled caste category and 5.63 percent respondents were found schedule tribe category. Padekar 2004 [11] had found almost similar findings in his study.

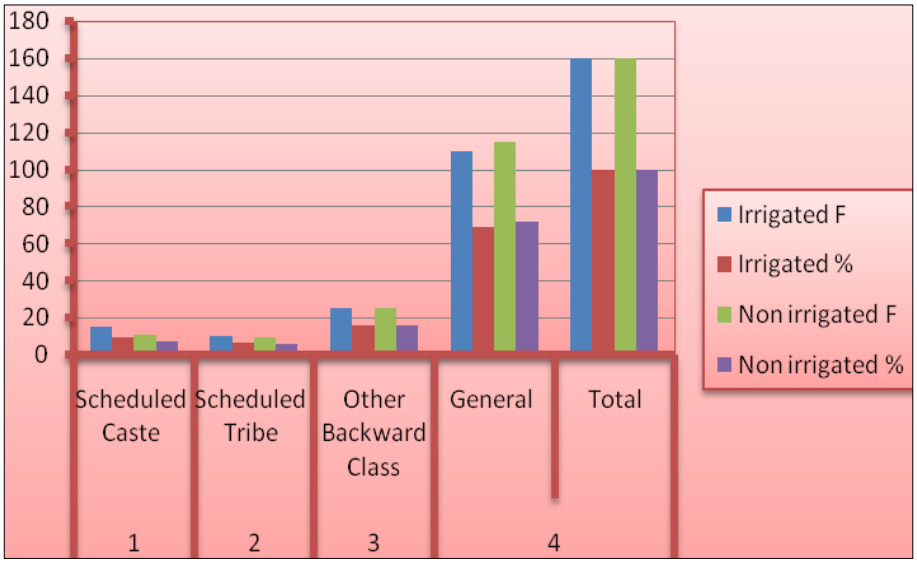

Fig 3: Distribution of the respondents according to their caste

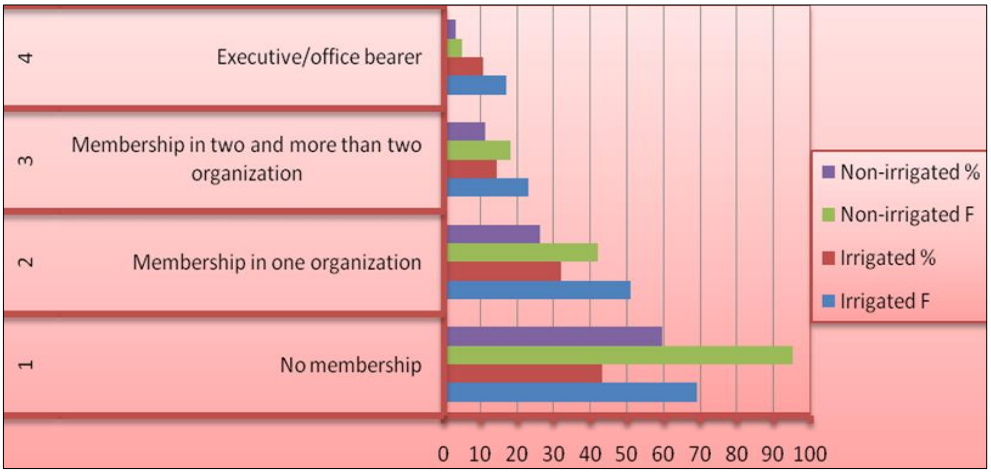

Fig 4: Distribution of the respondents according to social participation

Social participation

The distribution of respondents according to their social participation depicts in Table 4. The data revealed that 43.12 percent of respondents having irrigation facilities had no membership in any organization followed by 38.88 percent respondents had membership in one organization, 14.37 percent respondents had membership in two or more than two organizations and 10.63 percent respondents were found executive/office bearer in the organization. In the case of rainfed respondents, it was observed that majority of the respondent's 59.38 percent had no membership in any organization followed by 26.25 percent of the who had membership in one organization, 11.25 percent respondent had membership in more than two organizations and only 3.12 percent were found executive/office bear in the organization Fig. 4 This finding is supported by Patel 2008 [12].

Table 4: Distribution of the respondents according to social participation (n= 320)

Sl. No.	Occupation	Irrigated		Non-irrigated	
		F	%	F	%
1.	No membership	69	43.12	95	59.38
2.	Membership in one organization	51	31.88	42	26.25
3.	Membership in two and more than two organization	23	14.37	18	11.25
4.	Executive/office bearer	17	10.63	05	03.12
	Total	160	100.00	160	100.00

F = Frequency

Socio-economic characteristics of the respondents

The independent variables taken for the research study were, considered occupation, annual income, land holding and credit availability considered.

Occupation: In Table 5, data showed the status of occupation of selected respondents had irrigated land. The Number of income activities of each respondents house hold engaged was another key indicators for the financial status of the responded.

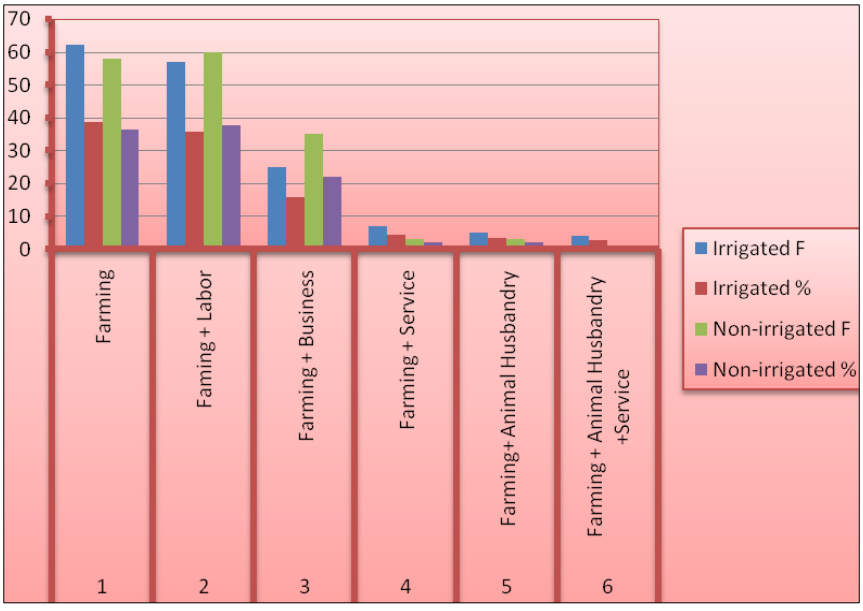

Fig 5: Distribution of the respondents according to their occupation

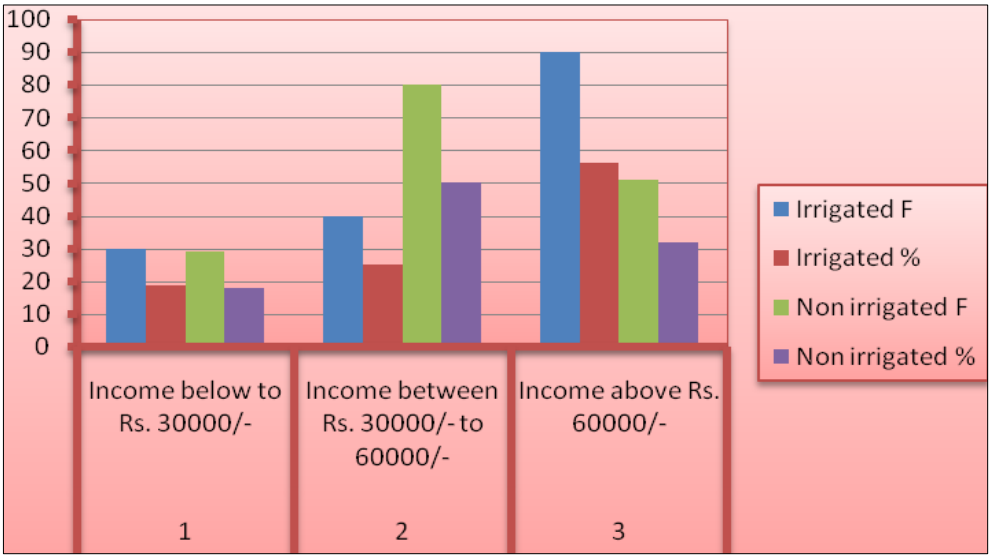

Fig 6: Distribution of the respondents according to their annual income

Table 5: Distribution of the respondents according to their occupation (n= 320)

Sl. No.	Occupation	Irrigated		Non-irrigated		
		F		%	F	%
1.	Farming	62		38.75	58	36.25
2.	Faming + Labor	57		35.63	60	37.50
3.	Farming + Business	25		15.62	35	21.87
4.	Farming + Service	07		4.37	03	1.88
5.	Farming+ Animal Husbandry	05		3.13	03	1.88
6.	Farming + Animal Husbandry +Service	04		2.50	01	0.62
	Total	160	100.00	160		100.00

F = Frequency

The data revealed that 38.75 percent of the respondents having irrigation facilities engaged mainly in farming as income earning activities, followed by 35.63 percent of respondents had engaged in the activities of farming+ Labor, 15.62 percent respondents did farming+ business activities, 4.37 percent respondents were found that they did, farming along services for their livelihood, respondents trailed with 3.13 percent respondents engaged, farming with animal husbandry activities, as source of additional income to improved their economic status only 2.50 percent respondents had engaged in more than two occupation for their livelihood i.e. farming + Animal husbandry +Services. In rainfed system 37.50 percent respondents, engaged mainly in Farming+ Labor activities, followed by only farming 36.25 percent, farming+ business 21.87 percent, farming + service 1.88 percent and farming + animal husbandry 1.88 percent while 0.62 percent found to be engaged in Farming + Animal husbandry +Service.

Keeping in view to above facts it has been cleared that significant proportion of respondents were 0.62 percentages towards found to be organize involved more than one occupation. This finding is supported by Dhruw 2008 [13].

Annual income

By seeing the data depicted in the Table 6, it has been observed that 56.25 percent respondents under the irrigated rice based cropping system area were came in to the range of annual income Rs. 60000/- and above followed by 25 percent respondents having the annual income between Rs. 30000/- to 60000/- and only 18.75 percent of the respondents fitted in the range of annual income below the Rs. 30000/-.

Table 6: Distribution of the respondents according to their annual income (n= 320)

Sl. No.	Annual Income (Rs.)	Irrigated		Non irrigated	
		F	%	F	%
1.	Income below to Rs. 30000/-	30	18.75	29	18.12
2.	Income between Rs. 30000/- to 60000/-	40	25.00	80	50.00
3.	Income above Rs. 60000/-	90	56.25	51	31.88
	Total	160	100.00	160	100.00

F = Frequency

It can be concluded from above data that the respondents having the irrigation facilities were financial sound as compared to non-irrigated respondents. Padekar 2004 [11] had found almost similar findings in his study.

Land holding

From the Table 7 elucidated that respondents having irrigation facilities possesses 30.00 percent the semi medium land holding size 2.1 to 4.0 ha followed by 28.75 percent respondents had small land size (1.1 to 2.0 ha), 20 percent possesses medium land size (4.1 to 10.0 ha), 12.50 percent respondents had marginal land holding (up to 1.00 ha) and 8.75 percent having large land holding (10.1 ha and above).

Table 7: Distribution of the respondents according to their size of land holding (n= 320)

Sl. No.	Size of land holding	Irrigated		Non irrigated	
		F	%	F	%
1	Marginal (up to 1.00 ha)	20	12.50	30	18.75
2	Small (1.1 to 2.0 ha)	46	28.75	44	27.50
3	Semi medium (2.1 to 4.0 ha)	48	30.00	50	31.25
4	Medium (4.1to 10.0 ha)	32	20.00	26	16.25
5	Large (10.1 and above)	14	08.75	10	06.25
	Total	160	100.00	160	100.00

F = Frequency

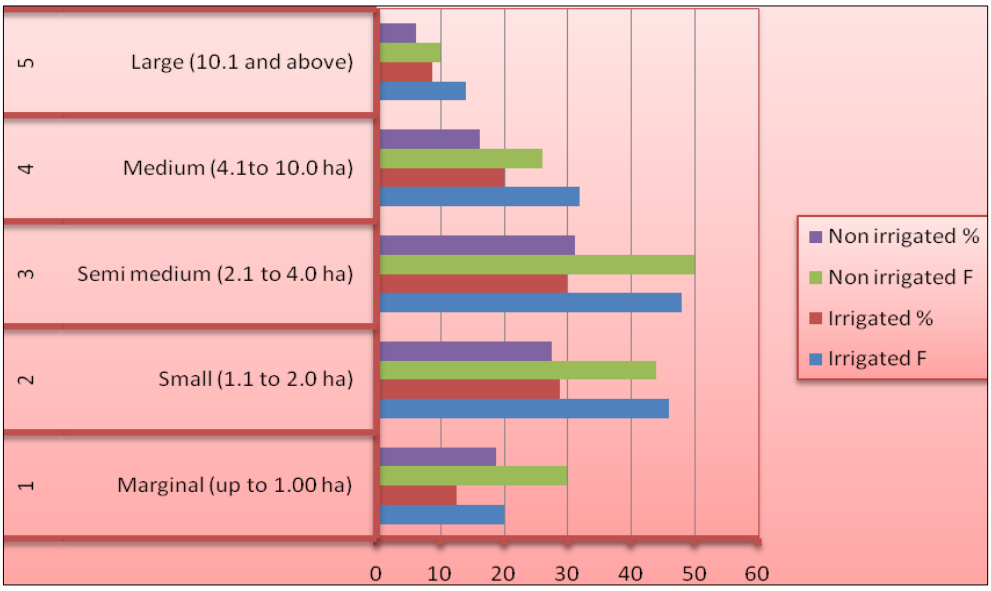

Fig 7: Distribution of the respondents according to their size of land holding

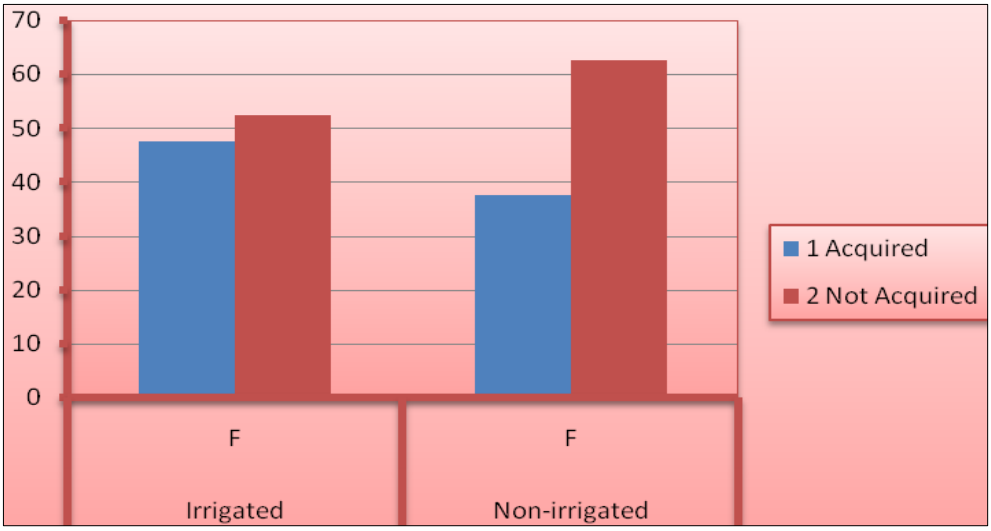

Fig 8: Distribution of the respondents according to their credit availability

ALand followed by small land holding 28.75 percent respondents, semi medium land holding 30.00 percent, 20.00 percent respondents had, medium land holding only 08.75 percent respondents had large scale land holding Similarly if we see the table of non-irrigated rice respondents, it was found that 31.25 percent respondents had the semi medium land holding followed by small size land holding 27.50 percent respondents, semi medium land holding 18.75 percent respondents, 16.25 percent respondents medium land holding and only 6.25 percent had large scale land holding sampled respondents possess the land. This finding is supported by Padekar (2004) [11].

Credit availability

It has been apparent to see in table 8 that 47.50 percent of respondents had irrigation facilities had acquired the loan whereas the respondents belonged to non-irrigated area slightly less interested to acquire the loan i.e. 37.50 percent. The 47.37 percent respondents had irrigated land taken loan for the period of short terms followed by 35.53 percent respondents went for mid-term loan and only 17.10 percent respondents were taken long term loans for agriculture purposes. As for rainfed respondents were concerned, it had been observed from the table that 55 percent of respondents had taken short term loan. Subsequently, 23.33 percent

respondents borrowed mid-terms loan and 21.67 percent respondents taken the loan long-term bases. If we see the Table 4.8 the sources of credit indicated that the 36.00 percent respondents had irrigated conditions obtain the loan from co-operative society followed by 27.63 percent respondents obtain the loan from the national bank subsequently 15.75 percent respondents had borrowed the loan from money lenders and 9.25 percent respondents taken the loan from friends/neighbours/relatives.

The 76.32 percent respondents found that they obtain the credited from various resources essay whereas 80.00 percent non irrigated respondents expressed that credit from the various agencies are easily obtaining the loan. These findings are supported by the findings of Patel 2008 [12].

Table 8: Distribution of the respondents according to their credit availability (n= 320)

Sl. No.	Particulars	Irrigated		Non-irrigated	
		F	%	F	%
1.	Credit acquisition				
	Not acquired	84	52.50	100	62.50
	Acquired	76	47.50	60	37.50
2.	Duration of credit				
	Short term	36	47.37	33	55.00
	Mid term	27	35.53	14	23.33
	Long term	13	17.10	13	21.67
3.	Sources of credit				
	Co-operative society	36	47.37	23	38.33
	Nationalized bank	21	27.63	19	31.67
	Money lender	12	15.79	05	08.33
	Friends/neighbor/ relatives/ others	07	9.21	13	21.67
4.	Availability of credit				
	Easy	58	76.32	48	80.00
	Difficult	18	23.68	12	20.00
X= 1.9 F = Frequency		S.D.=0.9			

Conclusion

It was observed that among the farmers who had irrigation facilities, 23.75 Percent respondents were educated up to middle school where as 29.38 Percent respondents were primary school passed whereas rainfed farmers, the educational profile showed that 24.38 Percent were middle school passed followed by 26.25 Percent respondents passed primary school. Regarding size of family of the irrigated respondents, it was found that 55.50 Percent of the respondents were under large family (>5 members), whereas in case of non-irrigated respondents, 55 Percent of the respondents belonged to large family. From seeing the result it can be concluded that farmers family size had not found any significance role with adoption of insect pest management practices. The large sum of population of irrigated rice farmers belonged to the general category (68.75 Percent) and in case of non-irrigated farmers, majority of farmers came under the category of general (71.87 Percent). The caste was also found non-significantly correlated with extent of adoption of insect pest management. The majority of the respondents had irrigation facilities 43.12 Percent had no membership in any organization, 14.37 respondents had membership in two or more than two organizations. In case of non-irrigated respondents, it was observed that majority of the rice farmers 59.38 Percent had no membership in any organization, 11.25 Percent of them had membership in two or more than two organizations. Social participation variable was found to have significant and positive relationship with the adoption of insect pest management.

It was found that 38.75 Percent of the farmers having irrigation facilities were engaged mainly in farming as income earning activities, followed by Farming + Labour 35.63 Percent. In rain fed condition 37.50 Percent of the farmers were engaged mainly in Farming + Labor activities, followed by only farming 36.25 Percent. It can be concluded that farmers who are involved in a greater number of occupation have better financial status. It appears that 56.25 Percent respondents in the irrigated rice area were under the category of above Rs. 60000.00/- of annual income, while 50 Percent of the non-irrigated respondents were having annual income between 30000.00/- to 60000.00/-Data elucidated that about 30.00 Percent irrigated farmers possessed the semi medium land holding size (2.1 to 4.0 ha) and non-irrigated rice farmers, it was found that 31.25 Percent farmers had the semi medium land holding. It can be concluded that land holding had positive and significant relation with extent of adoption of insect pest management practices.

The 52.50 Percent respondents who have irrigation facilities acquired the credit from the financial institutions where as 37.50 Percent respondents of non-irrigated farmers taken the loan from financial institutions, In case of sources for obtaining the credit 47.37 Percent respondents had irrigated land credit had acquired credit from the co-operative society,76.32 Percent had acquired credit easily. In case of the non-irrigated respondents 62.50 Percent had not acquired the credit from any financial institutions. Credit availability found to be positive and significant related with adoption of insect pest management practices of the sample farmers.

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