

# Land use pattern and cropping pattern followed by co-operative credit borrowers

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## ABSTRACT

An empirical study was carried out with an objective to study the land utilization pattern and cropping pattern followed by the co-operative credit borrowers of District Central Co-operative Bank (DCCB) of Parbhani district. In analytical techniques and tabular analysis were carried out which included mean, percentage, frequency and ratio. It was revealed from the study that at overall average level, the total land holding of borrowers under marginal, small, medium and large farmers were 0.84, 1.67, 2.79 and 5.56 ha. for category I, 0.79, 1.71, 2.74 and 5.70 ha. for category II and 0.80, 1.69, 2.77 and 5.61 ha. for category III, respectively. In case of cropping pattern, it was also revealed that in category I, at overall average level wheat occupied the highest area (17.01 %) of the gross cropped area followed by soybean (15.98 %), cotton (13.93 %) and groundnut (12.50 %). On the contrary, in category II and III, soybean occupied highest area followed by wheat, cotton and groundnut.

**KEY WORDS :** Cropping pattern, Credit borrowers, Land use pattern

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Co-operatives are effective in credit delivery (Izekor and Alufohai, 2010). The socio-economic conditions of the farmers mostly depend on the proper utilization of credit borrowed by them. In this context, land use pattern and selection of proper cropping pattern by the borrowers play a key role. It is worth pointing out that the bank increased the income level of the farmers and overall agricultural scenario (Sarkale *et al.*, 2010). Land use pattern in Marathwada region especially in Parbhani district relates to the physical characteristics of land, the institutional and other resources

framework like labour and capital available. All these aspects are associated with the economic development. Land utilization is of great importance particularly when it can be put to alternative uses. The nature of economic activities performed by the people mainly depends upon the quantum of land resources and the manner in which these are used. This also may lead to discontinuing of cultivation of several crops *i.e.* maize, gram, cotton, and bajra (Suresh and Ramesh, 2012.) Similarly, cropping pattern of any region depends upon physical characteristics such as soil, climate, rainfall, etc. Apart from this, it depends on the nature and availability of irrigation facilities. Besides, physical and technological factors the co-operative credits are also important in determining the cropping pattern. However, an attempt has been made here to study the land use pattern and cropping pattern of co-operative credit borrowers in Marathwada region.

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## METHODOLOGY

Methodology provides an insight into the sources of data, methods of data collection and meaning of different

variables chosen for study and method of analysis deployed in the analysis of data in relation to objective of study. The main purpose of the present study is to access the land use pattern and cropping pattern of the borrowers of District Central Co-operative Bank of Parbhani in Marathwada region during the period of past 15 years *i.e.* from 1994-1995 to 2008-2009. District Central Co-operative Bank of Parbhani district was purposively selected.

A multistage sampling technique was adopted. In first stage District Central Co-operative Bank of Parbhani district was selected. In second stage two co-operative bank branches from Parbhani district *viz.*, Parbhani District Central Co-operative Bank Ltd. branch Jintur and Parbhani District Central Co-operative Bank Ltd., Purna Branch and two co-operative bank branches from Hingoli district *viz.*, Parbhani District Central Co-operative Bank Ltd. branch Sengaon and Parbhani District Central Co-operative Bank Ltd. branch Basmat were selected which were based on high financial supply to these branches.

In third stage from each selected co-operative bank branch two villages were selected randomly *viz.*, from Jintur Co-operative Bank branch, Bori and Kumbhari, from Purana Co-operative Bank branch Kawalgaon and Gaur, from Basmat Co-operative Bank branch Hatta and Girgaon, from Sengaon Co-operative Bank branch Umardari and Kawata were selected. In all eight villages were selected.

In fourth stage from each selected village, 20 farmers

were selected from the combined list of name of farmers provided by the co-operative bank branch. In this way, 160 farmers were selected for the study as sample size.

The information of selected borrowers from PDDC bank of Jintur and Purna branch togetherly classified category – I, Basmat and Sengaon branch togetherly as category – II and the overall information of selected borrowers *i.e.* 160 borrowers referred as category – III.

Data from the selected borrower were collected with the help of specially designed schedule by personal interview method. The information regarding the land use pattern and cropping pattern were collected by personal interview method. The selected total numbers of borrowers were classified into 4 groups according to their size of holding as below:

- 0 ha to 1.00 ha (marginal farmer),
- 1.00 ha to 2.00 ha (small farmer),
- 2.00 ha to 4.00 ha (medium farmer),
- Above 4.00 ha (large farmer).

The collected data were compiled, tabulated and classified according to size of holding and subjected to statistical tools. In analytical techniques, tabular analysis which includes mean, percentage, frequency and ratio were used to achieve the objective laid down for the study.

## ANALYSIS AND DISCUSSION

The results obtained from the present investigation are presented below :

**Table 1 : Land use pattern of crop loan borrower from PDCC bank of Jintur and Purna branch**

Sr. No.	Particular	Loan borrower farmer (land/ha)				Overall average (n=80)
		Marginal (n=07)	Small (n=18)	Medium (n=39)	Large (n=16)	
1.	Cultivated land	0.83 (98.80)	1.55 (92.81)	2.48 (88.88)	5.38 (96.76)	2.71 (93.45)
A	Irrigated	0.47 (56.62)	1.20 (77.42)	1.88 (75.81)	4.52 (84.01)	2.13 (78.60)
B	Unirrigated	0.36 (43.37)	0.35 (22.58)	0.60 (24.19)	0.86 (15.98)	0.58 (21.40)
2.	Fallow land	–	0.005 (0.30)	0.28 (10.04)	0.02 (0.36)	0.14 (4.83)
3.	Grazing land	–	0.014 (0.84)	0.0018 (0.06)	0.04 (0.72)	0.01 (0.34)
4.	Unsuitable for cultivation	0.0087 (1.04)	0.099 (5.93)	0.027 (0.97)	0.12 (2.16)	0.04 (1.38)
5.	Total land holding 5=(1+2+3+4)	0.84 (100.00)	1.67 (100.0)	2.79 (100.0)	5.56 (100.0)	2.90 (100.0)

Figures in parenthesis are percentage to total land holding

**Table 2 : Land use pattern of crop loan borrower from PDCC bank of Basmat and Sengaon branch**

Sr. No.	Particular	Loan borrower farmer (land/ha)				Overall average (n=80)
		Marginal (n=17)	Small (n=34)	Medium (n=20)	Large (n=09)	
1.	Cultivated land	0.71 (89.87)	1.68 (98.24)	2.46 (89.78)	5.34 (93.68)	2.08 (93.69)
A	Irrigated	0.52 (73.24)	1.38 (82.14)	2.10 (85.37)	3.82 (71.54)	1.65 (79.33)
B	Unirrigated	0.19 (26.76)	0.30 (17.86)	0.36 (14.63)	1.52 (28.46)	0.43 (20.67)
2.	Fallow land	0.076 (9.62)	–	–	0.13 (2.28)	0.03 (1.35)
3.	Grazing land	0.0029 (0.37)	0.029 (1.69)	0.19 (6.98)	0.09 (1.58)	0.07 (3.15)
4.	Unsuitable for cultivation	–	0.0053 (0.31)	0.094 (3.43)	0.14 (2.46)	0.04 (1.80)
5.	Total land holding 5=(1+2+3+4)	0.79 (100.00)	1.71 (100.00)	2.74 (100.00)	5.70 (100.00)	2.22 (100.00)

Figures in parenthesis are percentage to total land holding

**Land use pattern of selected crop loan borrowers :**

It is necessary to study the land use pattern of borrowers to know the distribution of land holding to increase the area of cultivated land and for converting unsuitable land for cultivation into cultivable land.

*Category I :*

It has been observed from Table 1 that at overall level, average total land holding of the borrowers was 2.90 ha of

which 93.45 per cent land was cultivated land. In this cultivated land, irrigated and unirrigated land was 78.60 per cent and 21.40 per cent, respectively.

The area under fallow land, grazing land and land unsuitable for cultivation were 4.83, 0.34 and 1.38 per cent, respectively.

At overall average level, land holding of borrowers was 2.90 ha and total land holding of the large farmer was 5.56 ha followed by medium, small and marginal farmer *i.e.* 2.79, 1.67 and 0.84 ha, respectively.

**Table 3 : Land use pattern of crop loan borrower from PDCC bank**

Sr. No.	Particular	Loan borrower farmer (land/ha)				Overall average (n=160)
		Marginal (n=24)	Small (n=52)	Medium (n=59)	Large (n=25)	
1.	Cultivated land	0.75 (93.75)	1.62 (95.86)	2.47 (89.17)	5.37 (95.72)	2.40 (93.75)
A	Irrigated	0.51 (0.68)	1.32 (81.48)	1.95 (78.95)	4.27 (79.52)	1.89 (78.75)
B	Unirrigated	0.24 (32.00)	0.30 (18.52)	0.52 (21.05)	1.10 (20.48)	0.51 (21.25)
2.	Fallow land	0.003 (0.38)	0.0001 (5.92)	0.18 (6.50)	0.06 (1.07)	0.09 (3.52)
3.	Grazing land	0.0001 (0.01)	0.02 (1.18)	0.06 (2.17)	0.05 (0.89)	0.03 (1.17)
4.	Unsuitable for cultivation	0.0004 (0.05)	0.03 (1.78)	0.05 (1.81)	0.13 (2.32)	0.04 (1.56)
5.	Total land holding	0.80 (100.00)	1.69 (100.00)	2.77 (100.00)	5.61 (100.00)	2.56 (100.00)
	5=(1+2+3+4)					

Figures in parenthesis are percentage to total land holding

**Table 4 : Cropping pattern of crop loan borrower from PDCC bank of Jintur and Purna branch**

Sr. No.	Particulars	Marginal (n=07)		Small (n=18)		Medium (n=39)		Large (n=16)		Overall average (n=80)	
		Ave. area	(%)	Ave. area	(%)	Ave. area	(%)	Ave. area	(%)	Ave. area	(%)
1.	<i>Kharif</i> season										
a	Soybean	0.42	25.45	0.53	17.91	0.87	18.79	1.00	11.11	0.78	15.98
b	Cotton	0.11	6.67	0.41	13.85	0.76	16.41	1.03	11.44	0.68	13.93
c	Tur	-	-	0.09	3.04	0.30	6.48	0.88	9.78	0.34	6.97
d	Mung	-	-	0.03	1.01	0.08	1.73	0.37	4.11	0.12	2.46
e	Urid	-	-	-	-	-	-	0.10	1.11	0.02	0.41
f	<i>K. Jowar</i>	0.20	12.12	0.25	8.45	0.31	6.70	0.75	8.33	0.37	7.59
g	Sugarcane	0.14	8.50	0.21	7.09	0.41	8.86	1.4	11.56	0.47	9.63
h	Turmeric	-	-	-	-	-	-	0.18	2.00	0.04	0.82
i	Other	-	-	-	-	-	-	-	-	-	-
2.	<i>Rabi</i> season										
a	Wheat	0.42	25.45	0.59	19.92	0.88	19.01	1.13	12.56	0.83	17.01
b	<i>R. Jowar</i>	-	-	0.02	0.68	0.09	1.94	0.44	4.89	0.14	2.87
c	Gram	0.14	8.50	0.16	5.40	0.24	5.18	0.50	5.56	0.27	5.53
d	Safflower	-	-	0.06	2.03	0.05	1.08	0.06	0.67	0.05	1.03
e	Other (Sugarcane)	-	-	-	-	0.04	0.86	-	-	0.02	0.41
3.	Summer season										
a	Groundnut	0.16	9.70	0.50	16.89	0.55	11.88	1.10	12.22	0.61	12.50
b	Sunflower	0.06	3.64	0.1	3.72	0.05	1.08	0.31	3.44	0.12	2.46
c	Others	-	-	-	-	-	-	-	-	-	-
4.	Perennial										
a	Banana	-	-	-	-	-	-	0.11	1.22	0.02	0.41
b	Others	-	-	-	-	-	-	-	-	-	-
5.	Gross cropped area	1.65	100	2.96	100	4.63	100	9.00	100	4.88	100
6.	Net cropped area	0.83	-	1.55	-	2.48	-	5.38	-	2.71	-

**Category II :**

It has been observed from Table 2 that at overall level, average total land holding of the borrowers was 2.22 ha of which 93.69 per cent land was cultivated land. In this cultivated land irrigated and unirrigated land was 79.33 per cent and 20.67 per cent, respectively.

The area under fallow land, grazing land and land unsuitable for cultivation was 1.35, 3.15 and 1.80 per cent, respectively. Fallow land was not observed in small and medium farmer and land unsuitable for cultivation was not observed in case of marginal farmer.

Total land holding under marginal, small, medium, and large farmers were 0.79, 1.71, 2.74 and 5.70 ha., respectively.

**Category III :**

It is observed from Table 3 that at overall level the land holding of borrowers was 2.56 ha of which 93.75 per cent land was cultivated land. In this cultivated land, irrigated and unirrigated land was 78.75 per cent and 21.25 per cent, respectively.

It was also observed that the area under fallow land,

grazing land and land unsuitable for cultivation was 3.52, 1.17 and 1.56 per cent, respectively.

Total land holding under marginal, small, medium, and large farmers were 0.80, 1.69, 2.77 and 5.61 ha observed, respectively.

**Cropping pattern of selected crop loan borrowers :**

**Category I :**

It was observed for the Table 4 that at overall average level wheat occupied highest area (17.01 %) of the gross cropped area followed by soybean (15.98 %), cotton (13.93%) and groundnut (12.50 %).

In *Kharif* season at overall level sugarcane and *Kharif* jowar occupied 9.63 per cent and 7.59 per cent area of gross cropped area, respectively.

In *Rabi* season gram and *Rabi* jowar also recorded sizeable area *i.e.* 5.53 per cent and 2.87 per cent, respectively.

In summer season groundnut occupied 12.50 per cent area of gross cropped area followed by sunflower *i.e.* 2.46 per cent.

Among perennial crops banana occupied 0.41 per cent

**Table 5 : Cropping pattern of crop loan borrower from PDCC bank of Basmat and Sengaoan branch**

Sr. No.	Particulars	Marginal (n=17)		Small (n=34)		Medium (n=20)		Large (n=09)		Overall average (n=80)	
		Ave. area	(%)	Ave. area	(%)	Ave. area	(%)	Ave. area	(%)	Ave. area	(%)
1.	<i>Kharif</i> season										
a	Soybean	0.36	27.91	0.61	22.09	0.74	15.55	2.04	21.82	0.75	20.37
b	Cotton	0.25	19.38	0.55	19.92	0.79	16.60	1.38	14.76	0.64	17.38
c	Tur	-	-	0.11	3.98	0.32	6.72	0.68	7.27	0.20	5.43
d	Mung	0.02	1.55	0.05	1.81	0.09	1.89	0.31	3.32	0.08	2.17
e	Urid	-	-	0.03	1.10	0.03	0.63	0.18	1.93	0.04	1.09
f	<i>K. Jowar</i>	0.05	3.88	0.09	3.27	0.30	6.30	0.59	6.31	0.19	5.16
g	Sugarcane	-	-	-	-	0.17	3.57	0.20	2.14	0.07	1.90
h	Turmeric	-	-	0.01	0.37	0.04	0.84	-	-	0.01	0.27
i	Other	0.02	1.55	0.02	0.72	-	-	-	-	0.01	0.27
2.	<i>Rabi</i> season										
a	Wheat	0.33	25.58	0.62	22.46	0.73	15.34	1.67	17.86	0.70	19.01
b	<i>R. Jowar</i>	0.11	8.53	0.01	0.37	-	-	0.42	4.49	0.08	2.17
c	Gram	0.05	3.88	0.25	9.05	0.38	7.98	0.64	6.84	0.28	7.61
d	Safflower	-	-	0.01	0.37	0.09	1.89	0.11	1.18	0.04	1.09
e	Other (Sugarcane)	-	-	-	-	-	-	0.02	0.21	0.002	0.05
3.	Summer season										
a	Groundnut	0.07	5.43	0.28	10.14	0.78	16.39	0.71	7.59	0.41	11.14
b	Sunflower	0.03	2.31	0.07	2.54	0.23	4.83	0.40	4.28	0.14	3.30
c	Others	-	-	-	-	-	-	-	-	-	-
4.	Perennial										
a	Banana	-	-	0.05	1.81	0.07	1.47	-	-	0.04	1.09
b	Others	-	-	-	-	-	-	-	-	-	-
5.	Gross cropped area	1.29	100	2.76	100	4.76	100	9.35	100	3.682	100
6.	Net cropped area	0.71		1.68		2.46		5.34		2.08	

area. At overall average level, it was observed that 4.88 ha area was gross cropped in all size groups. Gross cropped area in marginal, small, medium and large size group were 1.65, 2.96, 4.63 and 9.00 hectare, respectively.

Net cropped area at overall average level was 2.71 ha and in marginal, small, medium and large size group were 0.83, 1.55, 2.48 and 5.38 ha area, respectively.

**Category II :**

Table 5 revealed that at overall average level soybean occupied highest area *i.e.* 20.37 per cent of the gross cropped area followed by wheat (19.01 %), cotton (17.38 %) and groundnut (11.14 %).

In *Kharif* season at overall level tur and *Kharif* jowar occupied 5.43 per cent and 5.16 per cent of gross cropped area, respectively.

In *Rabi* season gram and *Rabi* jowar recorded sizeable area *i.e.* 7.61 per cent and 2.17 per cent, respectively.

In summer season sunflower had 3.30 per cent area of gross cropped area after groundnut *i.e.* 11.14 per cent.

Among perennial crops, banana had 1.09 ha of gross cropped area. At overall average level, it was observed that 3.68 ha area was gross cropped area in all size groups. Gross cropped area of marginal, small, medium and large sized group were 1.29, 2.76, 4.76 and 9.35 ha, respectively.

Net cropped area at overall average level was 2.08 ha and of marginal, small, medium and large sized group were 0.71, 1.68, 2.46 and 5.34 ha, respectively.

**Category III :**

It is observed from Table 6 that at overall average level, soybean occupied highest area (16.91 %) of the gross cropped area followed by wheat (16.69 %), cotton (14.49 %) and groundnut (11.20 %).

In *Kharif* season at overall level *Kharif* Jowar occupied 6.14 per cent area, followed by sugarcane (5.93 %), tur (5.93%) and turmeric (5.49 %) area of gorses cropped area.

In *Rabi* season, gram, maize and *Rabi* jowar recorded sizeable area *i.e.* 6.15 per cent, 2.42 per cent and 1.10 per cent, respectively.

Sr. No.	Particulars	Marginal (n=24)		Small (n=52)		Medium (n=59)		Large (n=25)		Overall average (n=160)	
		Ave. area	(%)	Ave. area	(%)	Ave. area	(%)	Ave. area	(%)	Ave. area	(%)
1.	<i>Kharif</i> season										
a	Soybean	0.38	27.14	0.58	20.59	0.83	17.73	1.37	15.49	0.77	16.91
b	Cotton	0.21	15.00	0.50	17.75	0.77	16.45	1.16	13.11	0.66	14.49
c	Tur	-	-	0.10	3.55	0.31	6.62	0.81	9.16	0.27	5.93
d	Mung	0.01	0.71	0.04	1.42	0.08	1.70	0.35	3.96	0.10	2.20
e	Urid	-	-	0.04	1.42	0.08	1.70	0.35	3.96	0.10	2.20
f	<i>K.</i> Jowar	0.09	6.44	0.15	5.32	0.31	6.62	0.69	7.80	0.28	6.14
g	Sugarcane	0.04	2.86	0.07	2.48	0.33	7.05	0.74	8.36	0.27	5.93
h	Turmeric	-	-	0.007	0.25	0.01	0.21	0.12	1.36	0.25	5.49
i	Other	0.01	0.71	0.01	0.36	-	-	-	-	0.004	0.09
2.	<i>Rabi</i> season										
a	Wheat	0.36	25.71	0.61	21.65	0.83	17.73	1.32	14.92	0.76	16.69
b	<i>R.</i> Jowar	0.08	5.71	0.01	0.36	0.06	1.28	0.15	1.70	0.05	1.10
c	Gram	0.08	5.71	0.22	7.82	0.29	6.20	0.55	6.21	0.28	6.15
d	Safflower	-	-	0.03	1.06	0.06	1.28	0.08	0.90	0.04	0.87
e	Other Sugarcane	-	-	-	-	0.03	0.64	-	-	0.01	0.22
f	Maize	-	-	-	-	-	-	0.07	0.08	0.11	2.42
3.	Summer season										
a	Groundnut	0.10	7.15	0.36	12.78	0.63	13.50	0.96	10.85	0.51	11.20
b	Sunflower	0.04	2.86	0.08	2.84	0.11	2.35	0.34	3.84	0.13	2.85
c	Others	-	-	-	-	-	-	-	-	-	-
4.	Perennial										
a	Banana	-	-	0.03	1.06	0.02	0.43	0.07	0.79	0.03	0.66
b	Others	-	-	-	-	-	-	-	-	-	-
5.	Gross cropped area	1.40	100	2.82	100	4.68	100	8.85	100	4.55	100
6.	Net cropped area	0.75	-	1.62	-	2.47	-	5.37	-	2.40	-

In summer season, sunflower and groundnut recorded area of 2.85 and 11.20 per cent of gross cropped area. Gross cropped area of marginal, small, medium, large size group were 1.40, 2.82, 4.68 and 8.85 ha, respectively. Overall average of gross cropped area was 4.55 ha in all sized group.

Net cropped area of marginal, small, medium and large sized group were 0.75, 1.62, 2.47 and 5.37 ha, respectively. Overall average of net cropped area was 2.40 ha in all size group.

#### Conclusion :

In short, it is concluded that at overall average level, the total land holding of borrowers under marginal, small, medium and large farmers were 0.84, 1.67, 2.79 and 5.56 ha. for category I, 0.79, 1.71, 2.74 and 5.70 ha. for category II and 0.80, 1.69, 2.77 and 5.61 ha. for category III, respectively.

In case of cropping pattern at overall average level, wheat occupied highest area (17.01 %) of the gross cropped area followed by soybean (15.98 %), cotton (13.93 %) and groundnut (12.50 %). Whereas in category II soybean occupied highest area *i.e.* 20.37 per cent of the gross cropped area followed by wheat (19.01 %), cotton (17.38 %) and groundnut (11.14 %). Similarly, in category III, soybean occupied highest area (16.91%) of the gross cropped area followed by wheat

(16.69%), cotton (14.49 %) and groundnut (11.20 %).

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