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STUDY OF SPATIAL DISTRIBUTION AND MORPHOLOGY OF WEEKLY MARKETS USING SYSTEMATIC APPROACH METHOD AND GIS IN BARAMATI TAHSIL, PUNE DISTRICT

Dr. Rajaram H. Choudhar
Vidya Pratishthan's ASC College, Baramati.

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ABSTRACT :

Market is the place where people gathered to buy or sale their commodities in appointed hours. Its helps to increase social interaction among the people and become important for economic and political activities for human being. The present study focuses on spatial distribution and morphology of weekly market in Baramati tehsil of Pune district. This investigate by fieldwork which include interview and questionnaires for three time in a year and the data presented in tabular format. Using various statistical and GIS techniques further processing, mapping and analysis carried out. In this area total commodities and marketwise number of stalls are 7599. By calculating proportion of commodity to total stalls, averagely out of 100% stalls 41.10% are vegetables, 9.91% are outsiders and remaining 49% are other commodities.This study depicts that the weekly market played important role in development of rural areas viz. social, economic, cultural and political.

KEYWORDS : *Sambhaji tank, Water hyacinth, Cow dung, Nutrient status.*

INTRODUCTION

Market centres and their infrastructures have importance in regional development. It depends upon the spatial organizations and their behaviors and also their temporal changes. As per 2011 census,11,23,72,972 populations have reached in Maharashtra. About 6,15,45,441 population belongs to rural areas of Maharashtra. It means more than 50 per cent of population has living in rural areas. Generally, these rural based people are exchanging some goods and daily things to each other at the nearest weekly market. It means, such weekly market centres are their main base of communication. Rural areas of India have well connected by such weekly and periodic markets, on their special day market and other socio-cultural events. The Indian small farmers have been selling the vegetable and other food grains in such local market centres. Actually, even today's modern marketing base also, Indian small farmer's economy is mainly based on these markets. Tounderstand basics of the selected weekly market some systems should follow i.e. marketing phenomena, morphology, structure, behavioral patterns, social aspects and role in marketing development (*Saxena, 2004)*. These all thinks are very useful for the present study, to build the design of the investigation by understanding the basics of the selected weekly markets. Likewise, many scholars have studied the rural marketing system viz. *Deshmukh (1990), Rajagopal (1998), Saxena (2004), Verma et al (2006)*, etc. Scholars like *Malshe (1979), Saxena (1982), Srivastava (2000), Niadu (2004), Khan and Khan (2012)* and many others have highlighted the problems of rural market.

The present research paper is an in-depth study of market place and periodic marketing systems followed by study of spatio-temporal aspects. The study has a main object to investigate the

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spatial distribution and morphology of weekly market and its problems. It helps to understand the arrangement and planning for the particular markets in a village. It has also provided the nature of market system and their strengths and weaknesses. For this the following research methods and techniques have been applied with comparative and micro level multifaceted approach.

STUDY AREA

Baramati tahsil is located in the southeast part of Pune district (Maharashtra, India). The tahsil bounded by 18°2'44" N and 18°23'19" N latitude and 74°13'8" E and 74°42'47" E longitude. Average height of the tahsil is about 538 m. above mean sea level (Figure 1). The river Nira, tributary of River Bhima, flows west to east, forming southern boundary of the tahsil and the district also. The river Karha, a tributary of river Nira, flows northwest to southeast through the tahsil. The tahsil is bounded by Purandar, Daund and Indapurtahsils of Pune district towards west, north and east respectively. The tahsil have common boundary with Satara district of Maharashtra state towards its south side.

The tahsil has an area of 1382 sq.km. The tahsil has 117 villages according to 2001 report, out of these 18 were selected to study (Figure 3). Recently about 4 villages are merged into the urban. The tahsil is one of the few tahsils of Pune district showing both rural and urban development with about 60 per cent area under irrigation, three sugar factories with maximum cursing capacity, about 48 per cent of working population to total population, establishments of industrial area attracting corporate, establishments of higher educational institutes, etc. The tahsil may definitely be considered as developed one.
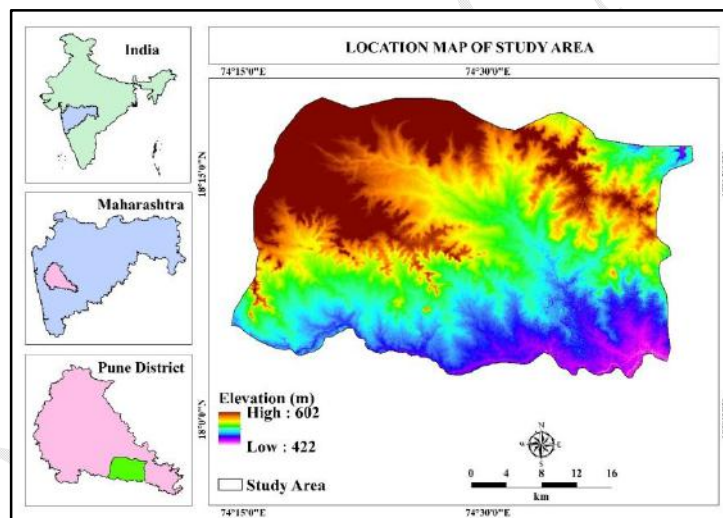

Figure 1 Location Map of Study Area

METHODOLOGY

To understand weekly market morphology of the tehsil systematic survey methods and approaches used, for this following skeleton followed (Figure 2).Primary data were collected from the various interactions made with sellers and buyers in the field. This is followed by the interpretation of maps, diagrams, tables and the description of the phenomenon observed. The data for some parameters like population, location, road network, etc. is availed from the secondary sources like village dictionary, SOI toposheets, village records, etc. Using this data maps are created for each market using GIS techniques.
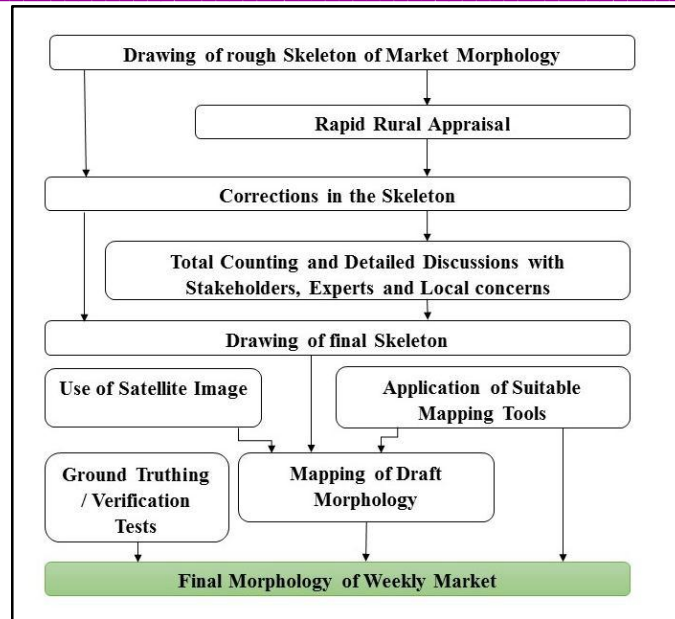
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Figure 2 Methodology Chart

Figure 3 Selected Market Locations

Dot Density Map Method has been used to understand stalls and their respective commodity. All 12 classes of commodities have presented with dot methods. The number of stalls is as average figure of 3 actual counting of stalls. That's why; the ratio of dot to number of stall has given nearest value to suitable and it shows using different colors, all the stalls have been presented for understanding of micro- levelled morphology of market.
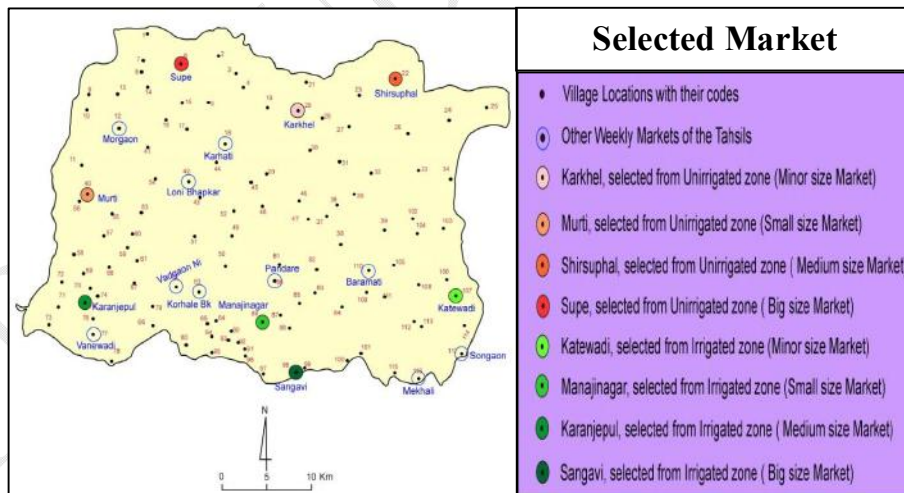
RESULT AND DISCUSSION
Special Distribution and Morphology of Markets

Traditionally established places act as small central places and provide different services to the rural areas, to serve the primary needs of the population (*Diddee and Dikshit, 1979)*. Slowly the places have created its own relation with the depending population and influenced on some socio-economic parameters like culture, education, age-sex structure, density, dependency ratio, agrarian economy and

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allied activities etc. The density of population of a village is dependent upon the distance for the market place to some extent (*Kadam and Saptarshi, 1999*). Brief description of the morphological pattern has been shown and discussed as below. The whole discussion has based on comparative approach, which is supported for understanding the relationships between the market and geographical set up of the region at micro level. The number of vegetable commodities and their proportion of stalls are categories like vegetables (Vg), onion-potato (OP), farmer (Fr), grain and pulses (GP), spices and dry chilly (SD), etable i.e. bhel, pedha etc. (Et), kirana and stationary (KS), cloths (Cl), shoes and shoes repair (Sh), utensils (Ut), Fish and dry fish (FDf) and outsider (Ot) (Table 1 and 2).

Baramati

This weekly market of the study region is serves all necessary services to the entire tahsil and also majority of villages of surrounded tahsils. As results, that the weekly market of Baramati clearly represents an ideal pattern of the morphology of a large weekly market. A weekly market is held on every Thursday from 8 am to 6.30 pm. Number of stalls ranging more than 1000 and categorized as major market. According to the field visits, average number of stalls enumerated at the weekly market day at Baramati is 1241. The arrangement of the stalls within a square is in lines parallel to each other (Figure 4(1)). One dot equal to four dots is a ratio, which is used in the map. Out of all commodity stalls, about 580 have vegetable stalls.

Supe

Supe market centre is biggest weekly market of rural Baramati tahsil.It is situated near the junction of Purandar, Daund and Baramati tahsil of Pune district.The market is held on every Wednesday between 9 am and 5 pm approximately. Number of stalls ranging between 600 and 850 have classified as the big markets (Figure 4(2)). The number of stalls enumerated at the weekly market of Supe has observed about 827. There are some vegetables, tea stalls, eatable stalls and related permanent stalls or mini shops which are daily opened.

Vadgaon Nimbalkar

This is the second biggest weekly market of the tahsil. The market is located in the highly irrigated zone. It is one of biggest market place from the irrigated tract in the tahsil. It held on every Sunday between 2 pm and 6 pm. The village is located on the junction of Nira-Baramati and Phaltan-Shirur state highway. The number of stalls enumerated in this weekly market is around 720. Out of this around 310 are vegetables stalls (Figure 4(3)).

Sangavi

Sangavi is second and third biggest weekly market of the irrigated tract and rural Baramati tahsil respectively.The place of market is situated at the back side of ST bus stand. It is very close to the river bank. Sangavi weekly market is holding on every Friday between 2 and 6 pm. The morphology of market is represented with the map (Figure 4(4)). The stalls are setting in a circular from along the boundary of market place. In the middle area, there are three North-South rows. According to the in depth surveys the number of stalls enumerated at the market are about 640 (Table 1), and about 42 per cent stalls are belongs to vegetables (Table 2).

Pandare

Pandare is the fourth biggest market of rural Baramati tahsil, which is held on every Tuesday between 1 pm and 6 pm. This market is an open space with some well-designed constructed platforms. The arrangement of stalls is in rectangular shape (Figure 4(5)). This market is also having about 625 stalls averagely. Pandare market has observed highest fruit stalls in the tahsil remaining markets (Table 1). In addition to this the proportion of fruit and eatable stalls are also maximum as compare with other markets (Table 2).

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1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	1. Baramati, 2. Supe, 3. Vadgaon Nimbalkar, 4. Sangavi, 5. Pandare, 6. Morgaon, 7. Karkhel BK.,8. Shirsuphal, 9. Karanjepul, 10. LoniBhapkar, 11. Murti, 12. Manajinagar, 13. Vanewadi, 14. Karhati, 15. Songaon, 16. Mekhali, 17. Karkhel, 18. Katewadi	
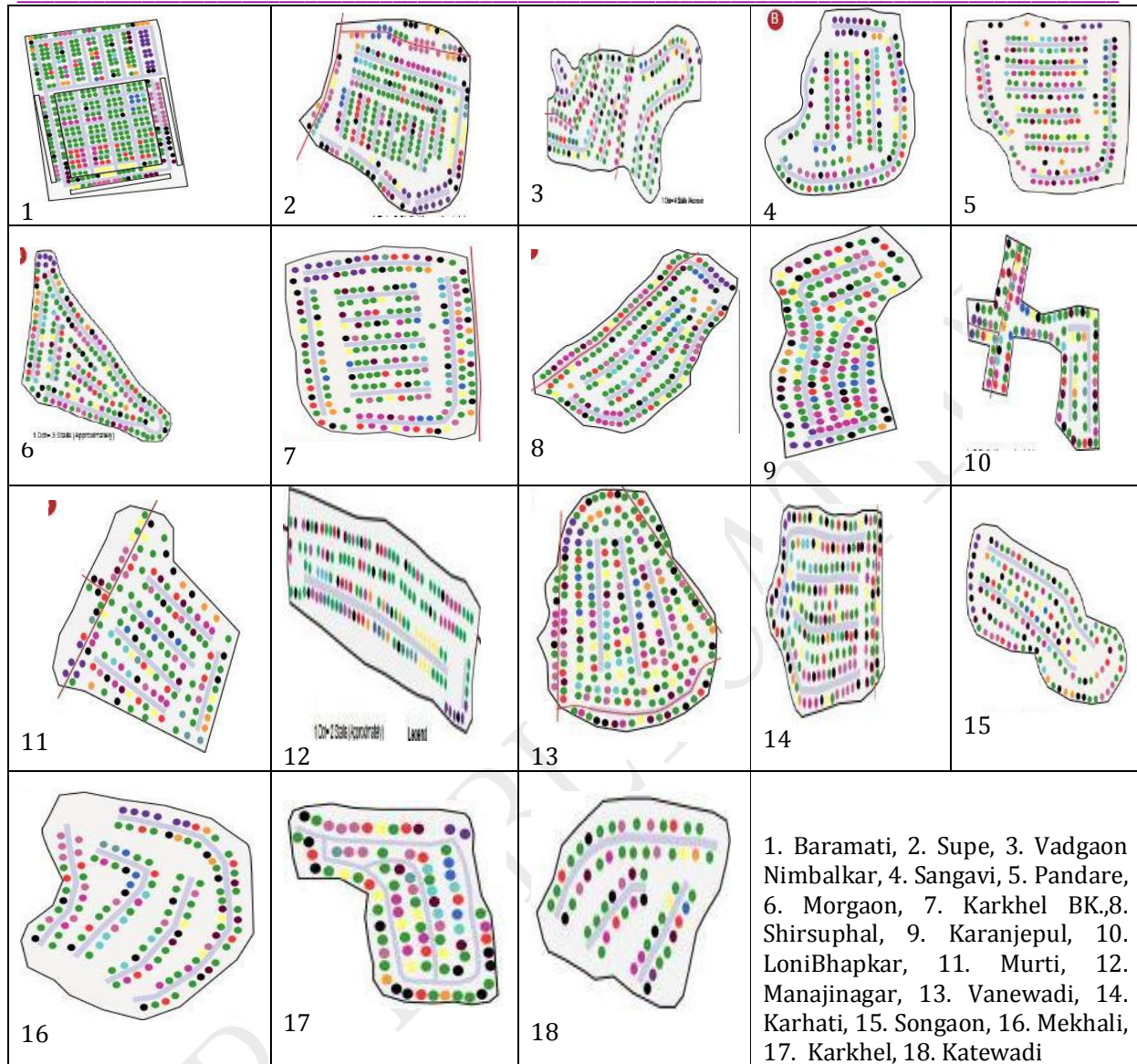
Figure 4. Morphology of Market

Morgaon

It is a religious and oldest place. This Morgaon market is categorized as a medium sized market and is a biggest medium sized market of the tehsil (Figure 4(6)). About 560 stall with various commodities have been observed at the time of field visits (Table 1). In this market, stalls concerned with vegetables are observed about 250. The proportion of stalls is more or less same with all average values of total markets of the tahsil.

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5

Table 1: Commodity and Market Wise Number of Stalls

Sr. No.	Market	Commodity and Market wise Number of Stalls												
		Vg	OP	Fr	GP	SD	Et	KS	Cl	Sh	Ut	FDf	Ot	Total
1	Baramati	581	88	73	54	49	117	16	21	33	46	59	104	1241
2	Supe	328	57	52	47	34	69	27	31	22	33	39	88	827
3	Vadgaon Ni	316	49	57	31	24	68	17	18	21	15	31	73	720
4	Sangvi	267	39	46	33	31	56	16	19	20	22	36	53	638
5	Pandare	221	41	78	37	42	81	14	15	14	19	13	48	623
6	Morgaon	253	35	41	28	25	49	15	17	17	13	19	45	557
7	Korhale Bk.	206	38	25	19	28	34	12	15	17	11	23	38	466
8	Shirsuphal	198	25	36	23	16	31	11	10	8	13	11	27	409
9	Karanje	141	23	42	21	15	27	14	12	10	9	13	34	361
10	LoniBhapkar	137	31	21	19	24	26	11	13	10	11	10	26	339
11	Murti	126	25	19	17	15	24	7	8	11	10	9	31	302
12	Manajinagar	133	16	28	19	13	20	6	9	9	7	9	27	296
13	Vanewadi	104	19	18	13	11	19	9	7	6	5	6	20	237
14	Karhati	57	13	9	11	8	22	11	4	5	7	3	33	183
15	Songaon	48	12	7	5	6	15	7	3	5	6	6	21	141
16	Mekhali	51	10	8	3	6	13	6	3	3	2	6	13	124
17	Karkhel	21	9	5	7	4	9	5	3	2	2	2	9	78
18	Katewadi	29	4	5	2	3	5	0	1	1	0	1	6	57
	Sum	3217	534	570	389	354	685	204	209	214	231	296	696	7599
	Average	179	30	32	22	20	38	11	12	12	13	16	39	422
	Minimum	21	4	5	2	3	5	0	1	1	0	1	6	57
	Maximum	581	88	78	54	49	117	27	31	33	46	59	104	1241

Table 2: Proportion of Commodities to total Commodities of the Market

Sr. No.	Market	Proportion of Commodity (Stall) to Total Stalls												
		Vg	OP	Fr	GP	SD	Et	KS	Cl	Sh	Ut	FDf	Ot	Total
1	Baramati	46.82	7.09	5.88	4.35	3.95	9.43	1.29	1.69	2.66	3.71	4.75	8.38	100
2	Supe	39.66	6.89	6.29	5.68	4.11	8.34	3.26	3.75	2.66	3.99	4.72	10.64	100
3	Vadgaon Ni	43.89	6.81	7.92	4.31	3.33	9.44	2.36	2.50	2.92	2.08	4.31	10.14	100
4	Sangvi	41.85	6.11	7.21	5.17	4.86	8.78	2.51	2.98	3.13	3.45	5.64	8.31	100
5	Pandare	35.47	6.58	12.52	5.94	6.74	13.00	2.25	2.41	2.25	3.05	2.09	7.70	100
6	Morgaon	45.42	6.28	7.36	5.03	4.49	8.80	2.69	3.05	3.05	2.33	3.41	8.08	100
7	Korhale Bk.	44.21	8.15	5.36	4.08	6.01	7.30	2.58	3.22	3.65	2.36	4.94	8.15	100
8	Shirsuphal	48.41	6.11	8.80	5.62	3.91	7.58	2.69	2.44	1.96	3.18	2.69	6.60	100
9	Karanje	39.06	6.37	11.63	5.82	4.16	7.48	3.88	3.32	2.77	2.49	3.60	9.42	100
10	LoniBhapkar	40.41	9.14	6.19	5.60	7.08	7.67	3.24	3.83	2.95	3.24	2.95	7.67	100
11	Murti	41.72	8.28	6.29	5.63	4.97	7.95	2.32	2.65	3.64	3.31	2.98	10.26	100
12	Manajinagar	44.93	5.41	9.46	6.42	4.39	6.76	2.03	3.04	3.04	2.36	3.04	9.12	100
13	Vanewadi	43.88	8.02	7.59	5.49	4.64	8.02	3.80	2.95	2.53	2.11	2.53	8.44	100
14	Karhati	31.15	7.10	4.92	6.01	4.37	12.02	6.01	2.19	2.73	3.83	1.64	18.03	100
15	Songaon	34.04	8.51	4.96	3.55	4.26	10.64	4.96	2.13	3.55	4.26	4.26	14.89	100
16	Mekhali	41.13	8.06	6.45	2.42	4.84	10.48	4.84	2.42	2.42	1.61	4.84	10.48	100
17	Karkhel	26.92	11.54	6.41	8.97	5.13	11.54	6.41	3.85	2.56	2.56	2.56	11.54	100
18	Katewadi	50.88	7.02	8.77	3.51	5.26	8.77	0.00	1.75	1.75	0.00	1.75	10.53	100
	Average	41.10	7.42	7.45	5.20	4.81	9.11	3.17	2.79	2.79	2.77	3.48	9.91	100
	Minimum	26.92	5.41	4.92	2.42	3.33	6.76	0.00	1.69	1.75	0.00	1.64	6.60	100
	Maximum	50.88	11.54	12.52	8.97	7.08	13.00	6.41	3.85	3.65	4.26	5.64	18.03	100

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Korhale BK.

The village Korhale Bk. is located 18 kms from Baramati towards west. The market place of this village is an open space and covered with trees. This market is held on every Saturday between 2 pm to 5 pm. The number of stalls enumerated at this weekly market has observed more than 460. The arrangement of stalls is "J" and "I" shaped at eastern and western side respectively (Figure 4(7)).

Shirsuphal

Shirsuphal is a religious place and market located at the centre of the village. This market is held on every Friday between 9 am and 5 pm. This is the third medium sided market of the tahsil. Averagely, about 410 stalls have enumerated in the weekly market at the time of field surveys. The overall arrangement of stalls is like "D" shaped (Figure 4(8)).

Karanjepul

This market has a long historical background. Still 1971, the market was known as a Karanje Market or Somayya'sKaranje Market. The number of stalls enumerated at this market has been observed about 360. In the sugar factory season, this number goes up to 450 to 470 stalls. The arrangement of the stalls is shows as "U" shaped at road side and "F" at opposite side (Figure 4(9)).

Loni Bhapkar

Loni Bhapkar is situated in semi irrigated drought-prone zone. It has a historical background and has old structures in the village. This market is held on every Friday between 9 am and 5 pm. As mentioned in the table 1, it is categorised as a small market. Number of stalls ranging between 200 and 350 have classified as the small markets. Averagely 339 stalls are enumerated in this market. The arrangement of stalls is fixed in the core part of market place (Figure 4(10)). There is a circular shape which is slightly changing with availability of space.

Murti

This market has 330 stalls, from which about 42% stalls belongs to vegetables. The proportion of onion-potato sellers and eatables are also on higher side compare with other such small markets from irrigated zone. Vegetables stalls are observed mainly in two rows of central part of the market other all commodities are mixed types arrangements (Figure 4(11)).

Manajinagar

The number of stalls at the market has been observed about 300.Majority of buyers of this market are mainly dependent on such big markets for their needs like cloths, monthly Kirana, shoes, etc. The arrangement of stalls in the market is linear one (Figure 4(12)). There are two rows along the road side in ground.

Vanewadi

Village Vanewadi is located in the highly irrigated tract of the tahsil. The place of Vanewadi market is an open triangular shaped space between the village and its two sub villages (Figure 4(13)). It is last market from the small categories of markets. The number of stalls and also verity of commodities are very less in number. Average of three field studies has just 237 stalls in the market. This market is also serving for immediate surrounding villages like Manajinagar Market.

Karhati

Karhati is the biggest market among the minor categories of markets.Among all these minor markets, Karhati is oldest market established between 1951 and 1961. The nature of morphology is observed as mixed stalls (Figure 4(14)). Some stalls like Onion-Potato, eatables and grains-pulses are occupying separate and permanent place in the market.

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Songaon

The village is located near the meeting point of river Karha and river Nira. The market has changing its internal structure and pattern frequently. It results, there is not observed the unique and fixed arrangement of stalls (Figure 4(15)). This market has also having higher numbers of stalls of rare and specialised services like Karhati. It has shared about 14 per cent of stalls to the total stalls of the market.

Mekhali

This market is third minor weekly market of the tahsil. The market has "D" shape, having 2 major and 2 small rows (Figure 4(16)). The total number of stalls has been observed about 155 for all the commodities. About 41 per cent stalls are concerns with vegetable, which has major share in all the commodities. Eatables and stalls related to specialise rare commodities have sharing about 11 per cent each to all stalls.

Karkhel

This market is second last minor market of the tahsil. Total number of stalls has been observed averagely just about 80 (Table 1). Proportion of vegetable stalls is very less in per cent. It is lowest proportion in all the markets of the tahsil of vegetable commodity. On the other hand, stalls of Onion-Potato have highest proportion in the tehsil (Figure 4(17)).

Katewadi

The market of Katewadi is the smallest and youngest market. The market is developed from a small daily mundi to weekly market and total stalls have not observed more than 60. About 51 per cent stalls are vegetable stalls. The arrangement of stalls is simple and mixed (Figure 4(18)). Fruits, eatables and onion-potato stalls have similar proportion. Eatable and onion-potato sellers are mostly fixed and regular sellers. Majority of fruit sellers are local farmers and therefore the variety of fruits belonging to the seasonal fruits and local produce of agriculture.

CONCLUSION

Out of eighteen weekly market centres, ten rural with one urban weekly markets are established in this highly irrigated or developed zone and some drought prone. The present study is mainly deals with rural markets, but for comparative study, Baramati Urban weekly markets have also been understood with micro levelled approach. About 7599 stalls are there in all these 18 markets. All the eighteen weekly markets places reveals that there are two main types of commodities sold at weekly markets. First, goods of local origin and second goods obtained from outside areas. Thus, such weekly market serves as place for the peasant to sell what the region produces and purchase what the region needs to consume. Their socio-economic situations, its relation with such markets, impact of market on their overall life, etc. aspects are essential to study at micro level.

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