# THE SPATIAL DISTRIBUTION OF LIVESTOCK IN KHATAV TAHSILOF SATARA DISTRICT (MAHARASHTRA)

**Dr. Tembare Uttam S.**
*Associate Professor,*
*Department of Geography,*
*Arts, Commerce College, Mayani.*

**ABSTRACT:**

Agricultural is the key sector of Indian economy, where, maximum human population is engaged in agricultural activities. But, agriculture has become from not only growing crops but also raising livestock. As Report of Livestock Sector Brief (2005), livestock shows a big role in Indian economy which contributes 4.10 percent GDP of India. Also, more than 2 crore Indian population of India is engaged in livestock. It also affords work or job to about 8.8 % of the population. As per Livestock Population, 2012, about 3.3 crore number of livestock is reared in distinct district of Maharashtra which has seventh ranked livestock population among all states and union territories in India. The Khatav tahsil has taken for research study which is located in Satara district of western Maharashtra. As report of Livestock Population, 2012, about150802 number of livestock is distributed in Khatav tahsil of Satara district. Due to drought prone region as well as plateau region, the Pusesawali circle and Khatav circle are distributed lower population of livestock in tahsil. The present paper is an attempt to assess the spatial distribution of livestock in Khatav tahsil. The analysis reveals that the region has random to regular distributional pattern of livestock.

**Key Words:** Agriculture, Livestock, Distribution, Rural, Satara.

## INTRODUCTION:

Agricultural is the key sector of Indian economy, where, maximum human population is engaged in agricultural activities. But, agriculture has become from not only growing crops but also raising livestock. As Report of Livestock Sector Brief (2005), livestock shows a big role in Indian economy which

contributes 4.10 percent GDP of India. Also, more than 2 crore Indian population of India is engaged in livestock. It also affords work or job to about 8.8 % of the population. As per Livestock Population, 2012, about3.3 crore number of livestock is reared in distinct district of Maharashtra which has seventh ranked livestock population among all states and union territories in India.

The Khatav tahsil is vital tahsil of Satara district which is severe drought prone region in western part of the Maharashtra. As report of Livestock Population, 2012, about 1,50,802 number of livestock is distributed in Khatav tahsil of Satara district. Besides that, Buffalo livestock has highly reared 56,077 number of Buffalo and sheep is less reared 14,775 number of sheep in tahsil. The circle village of tahsil- Pusesawali circle and Khatav circle are distributed lower population of livestock in tahsil.

## OBJECTIVE:

Following are the certain objectives of the present research work
1. To analyze the spatial distribution of livestock.
2. To analyze the livestock relationship to physiography, area, population, household, inhabited village, net sown area etc.
3. To analyze the concentration of livestock in district.

## DATABASE AND METHODOLOGY:

Present research work is manly based on extensive field work which supplemented by the secondary data sources from district livestock census (2012). The appropriate questionnaire and best interview technique has been utilized for collection of data relating of livestock. The different statistical techniques like- mean, standard deviation, livestock concentration etc. are used for investigate relationship of livestock and spatial distribution respectively. The data's are presented with the help of maps as well as tables.

## STUDY AREA:

The Khatav tahsil of Satara district selected as a study area for the present research, which is located in part of Maharashtra Deccan Plateau south-

western part of Maharashtra. It covers 1377.79 Sq. k. m. geographical areas with its elevation of600 m from the sea level. Where, about 2, 75,274 persons are habited as per district census, 2011 including 143 number of villages also. It is dominant drought-prone regions and hilly-rain shadow area, of Maharashtra state, where more than 65 % people involved in agricultural activities. Due to drought-prone regions drought- prone, rainless crops or minimum water needed crops such as Wheat, Jowar, Bajara, Potato, Onion, etc. in tahsil
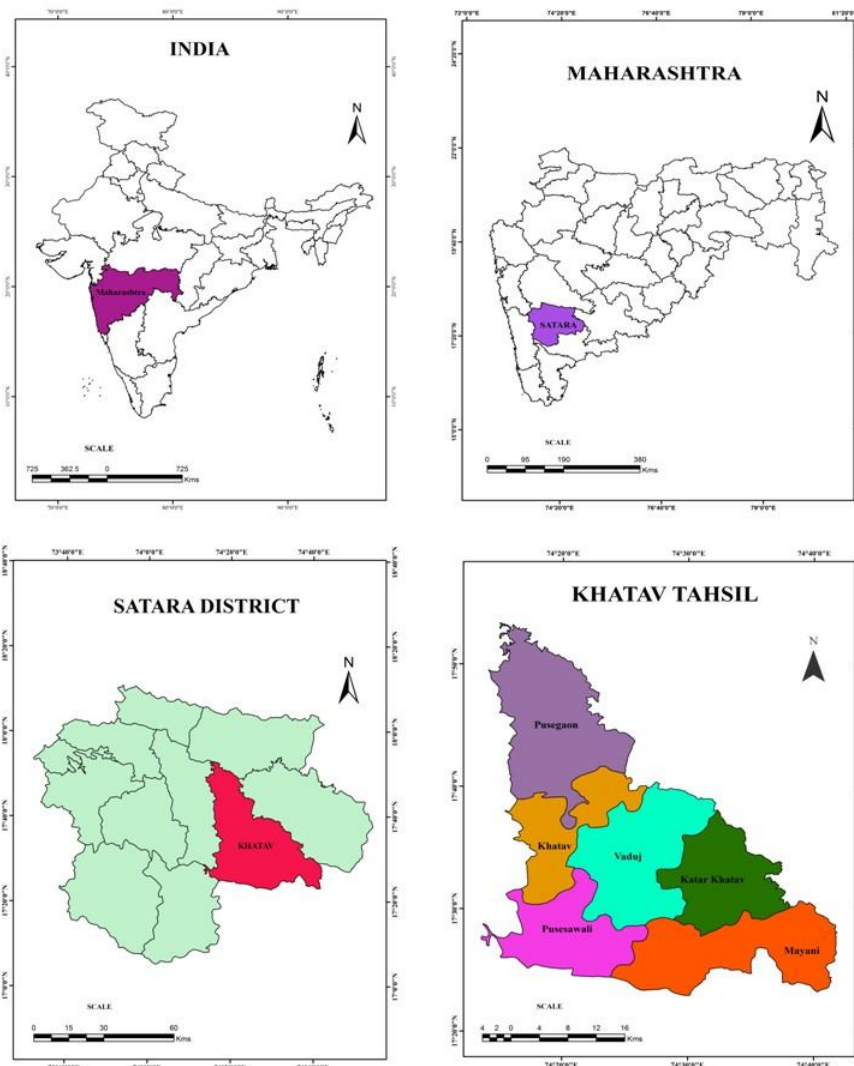
Fig. 1

## ANALYSIS OF LIVESTOCK:

The livestock is vital in Khatav tahsil which is unequally distributed and varied to circle village level. Especially, Buffalo, Cattle, Goat, Sheep, etc. livestock's are reared in the tahsil. Besides that, Buffalo population is highly reared (56,077) which is followed by, Goat (44,380), Cattle (35,555) and Sheep

(14,775) in tahsil. The geographical, economic, cultural, social etc. factors have affected on the distribution of livestock.

It is observed that, the three circle fall in the classes above mean (X̄) 25134. Among that Pusegaon circle and Katar Khatav circle come in the class mean (X̄) +1S.D. (Standard Deviation) and Vaduj circle come in the class X̄ +2S.D. Remaining three circles are below X̄, of them Mayani circle come in the class X̄ -1S.D. and rest of circles fall in the X̄ -2S.D.

**Table No. I**

**KHATAV TAHSIL: LIVESTOCK- DISTRIBUTIONAL RELATIONSHIP**

| Sr. No. | Name of Circle Village | Livestock | Livestock Per 1 Km$^2$ | Livestock Per 10 Popu. | Livestock per household | Livestock Per 1 Inhabited villages | Livestock Per 10 Hect. Net Sown Area |
|---|---|---|---|---|---|---|---|
| | | X̄=25134 | X̄=111.87 | X̄=6 | X̄=3 | X̄=1092 | X̄=14 |
| | | S.D.=4489 | S.D.=18.03 | S.D.=1.41 | S.D.=1.1 | S.D.=255 | S.D.=2.56 |
| 1 | Pusegaon | 29093 | 94.62 | 5 | 2 | 856 | 15 |
| 2 | Khatav | 20463 | 119.01 | 6 | 2 | 758 | 11 |
| 3 | Pusesawali | 19311 | 109.83 | 6 | 2 | 920 | 10 |
| 4 | Vaduj | 31372 | 118.77 | 5 | 3 | 1426 | 17 |
| 5 | Katar Khatav | 27576 | 142.22 | 9 | 5 | 1313 | 16 |
| 6 | Mayani | 22987 | 86.79 | 5 | 2 | 1277 | 13 |
| | Total | 150802 | 109.42 | 6 | 3 | 1055 | 14 |

**Source: Compiled by Researcher**

**AREA AND LIVESTOCK RATIO:**

The number of livestock per 1 sq. km. area is 109.42 for the all tahsil. Hence, this spatial variation at circle level is notable. In Katar Khatav circle, the ratio is 142.22 which considerably decreased to 94.62 in Pusegaon and 86.79 in Mayani circle. It is also seen that three circles come in the classes above X̄ among that Khatav and Vaduj circle come in the class X̄ +1S.D. and Katar Khatav circle fall in the class X̄ +2S.D.. Remaining three circles are below X̄. Among that, Pusesawali circle come class X̄ -1S.D. and Pusegaon circle and Mayani circle come in the class X̄ -2S.D. However, correlation between these

*Dr. Tembare Uttam S.*

two variables is insignificant (0.17). It is simple because there is widely area for rearing livestock.

## HUMAN POPULATION AND LIVESTOCK RATIO:

The number of livestock per 10 population comes to 6 for the tahsil as a whole. However, the spatial variation at tahsil level are remarkable. This ratio fall to 9 in Katar Khatav circle which decreases to 5 in Pusegaon, Vaduj and Mayani circle. The two circles have their value the mean 6. The one circle Katar Khatav comes in the class X +2 S.D. The remaining tahsils are below the mean. Among that Pusegaon, Vaduj and Mayani circle come in the class X -1S.D. The correlation analysis between the two variables indicates very low negative relationship (-0.02). It is vital because unequal distribution of human population is negatively affected on livestock.

## HUMAN HOUSEHOLD AND LIVESTOCK RATIO:

The number of livestock per 1 human household comes to just 3 for the tahsil. However, the spatial variations at circle level are important. This ratio fall to 5 in Katar Khatav circle which decreases to 2 in Pusegaon, Khatav, Pusesawali, Mayani etc. circles. The Vaduj circle has their value the mean 3. Only one circle Katar Khatav comes in the class X +2S.D. The remaining tahsils are below the mean3 including Pusegaon, Khatav, Pusesawali, Mayani etc. circles. The correlation analysis between the two variables indicates high positive relationship (0.46). Where, every human household has reared and sustained the livestock for complete daily need of milk as well as need of money.

## INHABITED VILLAGES AND LIVESTOCK RATIO:

The number of livestock per 1 inhabited villages is 1055 in the tahsil. But, there is also, spatial variation at circle level. This ratio fall to 1426 in Vaduj circle which decreases to 758 in Khatav circle and 920 in Pusesawali circle. It is also seen that three circles come in the classes above X among that Katar Khatav and Mayani circle come in the class X +1S.D. and Vaduj circle fall in the class X +2S.D.. The remaining three circles- Pusegaon, Khatav and

*Dr. Tembare Uttam S.*

Pusesawali are below the mean 1092. Among that, Pusesawali circle come in the class X -1S.D.and Pusegaon circle and Khatav circle come in the class X -2S.D. The correlation analysis between the two variables indicates high positive relationship (0.56). It shows that, different livestock has reared and sustained in the each inhabited villages.

## NET SOWN AREA AND LIVESTOCK RATIO:

The number of livestock per 10 hectares of net sown area comes to 14 for the tahsil whole. But, there is spatial variation at circle level. This ratio fall to 17 in Vaduj circle which decreases to 10 in Pusesawali circle. It is also seen that three circles come in the classes above X among that Pusegaon and Katar Khatav circle come in the class X +1S.D. and Vaduj circle fall in the class X +2S.D.. The remaining three tahsils-Khatav, Pusesawali and Mayani circles are below the mean 14. Among that, Mayani circle come in the class X -1S.D. and Pusesawali circle and Khatav circle come in the class X -2S.D. The correlation analysis between the two variables indicates very high positive relationship (0.97). Because, the net sown area is fundamental fodder source of livestock.

## CONCENTRATION PATTERN OF LIVESTOCK:

According to Livestock Census 2012, about 150787 numbers of livestock observes in tahsil. This number of livestock to 31,372 in Vaduj circle which decreases to 19311 in Pusesawali circle. But the circle level livestock is varies from circles to circles. All 6 circles are categorized into three groups as follows: (in table no. II and Fig. 2)

*Dr. Tembare Uttam S.*

## Table No. II: THE CONCENTRATION PATTERN OF LIVESTOCK IN KHATAV TAHSIL

| Sr. No. | Tahsil | Cattle in % | Buffalow in % | Sheep in % | Goat in % | Livestock per 10 Hect. Agricultural Area | Livestock per 10 Hect. Geographical Area | Livestock |
|---|---|---|---|---|---|---|---|---|
| 1 | Pusegaon | 20.29 | 15.12 | 38.5 | 17.38 | 17 | 9 | 29093 |
| 2 | Khatav | 12.33 | 15.73 | 5.37 | 14.53 | 11 | 12 | 20448 |
| 3 | Pusesawali | 11.61 | 16.03 | 12.3 | 9.86 | 10 | 11 | 19311 |
| 4 | Vaduj | 24.8 | 20.81 | 14.61 | 19.66 | 19 | 12 | 31372 |
| 5 | Katar Khatav | 19.79 | 16.84 | 9.02 | 21.99 | 14 | 14 | 27576 |
| 6 | Mayani | 11.18 | 15.46 | 20.19 | 16.58 | 12 | 9 | 22987 |
| | Total/Avg. | 35555 | 56077 | 14775 | 44380 | 14 | 11 | |

**Source: Compiled by Researcher**



Fig.No. 2
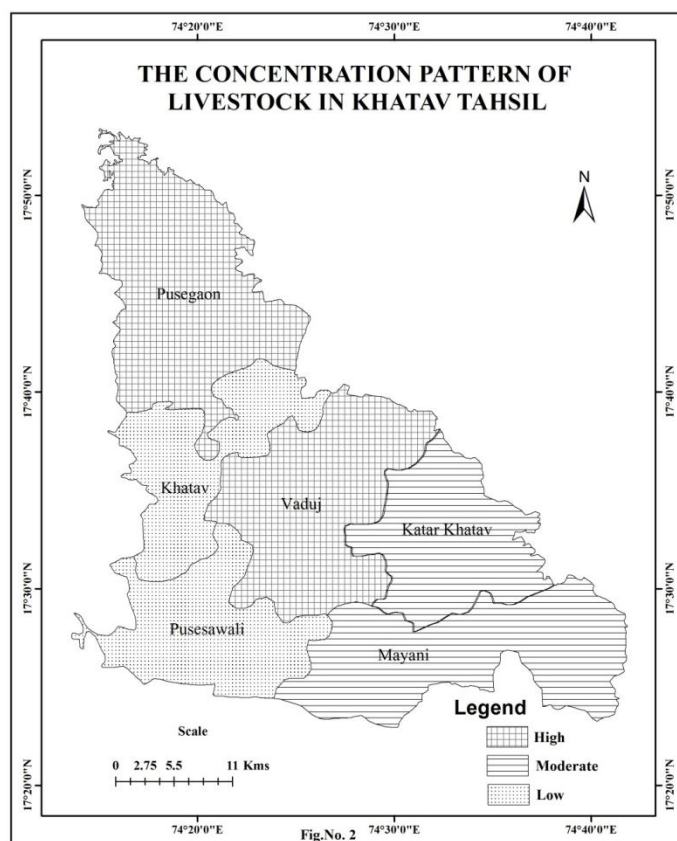
**High Livestock Concentration:**

The tahsils which have the livestock per 10 hect. agricultural area above 15 included into high category. High livestock per agricultural area was observed in the circles of Vaduj (19) and Pusegaon (17). Among that, in Vaduj circle, 31372

*Dr. Tembare Uttam S.*

numbers of livestock rearing, Out of  that dominantly cattle livestock (24.80 percent) is seen which is followed by Buffalo (20.81 percent), Goat (19.66 percent) and Sheep (14.61 percent) respectively.

In Pusegaon circle, 29093 numbers of livestock rearing, Out of that dominantly Sheep livestock (38.50 percent) is seen which is followed by Cattle (20.29 percent), Goat (17.38 percent) and Buffalo (15.12 percent) respectively.

### Moderate Livestock Concentration:

The circles which have the livestock per 10 hect. agricultural area ranges from 15 to 13 are included in the moderate category. Moderate livestock per 10 hect. agricultural area was observed in the circles of Katar Khatav (14) and Mayani (12). Among that, in Katar Khatav circle, 27576 numbers of livestock rearing, Out of that dominantly Goat livestock (21.99 percent) is seen which is followed by Cattle (19.79 percent), Buffalo (16.84 percent) and Sheep (9.02 percent) respectively.

In Mayani circle, 22987 numbers of livestock rearing, Out of that dominantly Sheep livestock (20.19percent) is seen which is followed by Goat (16.58percent),  Buffalo  (15.46 percent) and Cattle (11.18 percent) respectively.

### Low Livestock Concentration:

The circles which have livestock per 10 hect. agricultural area below 13 are included in low category. Low livestock per agricultural area was observed in the circles of Khatav (11) and Pusesawali (10). Among that, in Khatav circle, 20448 numbers of livestock rearing, Out of that dominantly Buffalo livestock (15.73 percent) is seen which is followed by Goat (14.53 percent), Cattle (12.33 percent) and Sheep (5.37 percent) respectively.

In Pusesawali circle, 19311 numbers of livestock rearing, Out of that dominantly Buffalo livestock (16.03 percent) is seen which is followed by Sheep (12.30 percent), Cattle (11.61 percent) and Goat (9.86 percent) respectively.


### CONCLUSION:

The foregoing research analysis reveals that- the spatial distribution of livestock is characterized by their uneven distribution into tahsil. There are 150787 numbers of livestock in tahsil, among that, dominantly Buffalo livestock

(56077) is seen which is followed by Goat (44380), Cattle (35555) and Sheep (14775) respectively. Due to, maximum area is covered by plateau region in tahsil, Buffalo livestock is highly reared in tahsil. Also, Goat is significant livestock reared in eastern part of tahsil especially in Katar Khatav and Vaduj circle. And remaining Cattle livestock and sheep livestock is highly reared in Pusegaon circle. At circle level, different correlation- area and livestock (109.42 livestock per 1 sq. km. area), human population and livestock (6 livestock per 10 population), human household and livestock (3livestock per human household), inhabited villages and livestock (1055livestock per 1 inhabited villages), net sown area and livestock (14 livestock per 10 hect. net sown area) etc. observed in study area. While, the high livestock concentration is found in circle of Vaduj (19) and Pusegaon (17)as per agricultural area. Moderate livestock concentration is reached in circles of Katar Khatav (14) and Mayani (12) as per agricultural area. Low livestock concentration is seen in circles of Khatav (11) and Pusesawali (10)as per agricultural area. Due to, highly plateau region and least plain area, low livestock concentration is observed in Khatav and Pusesawali circles of tahsil.

**REFERENCES:**

1. Husain, Majid (2012): book "Agricultural Geography". Published by Rawat Publication.
2. Ramesh Babu, G. (2008): Research methodology in Social Sciences, Concept Publishing Company, New Delhi, pp.164-165.
3. Nanvare, A. H. (2010): Dairy Farming and Economic Condition of Farmers in Drought Prone Area-A Case Study of Village Kavhe in Solapur District, Shodh Smiksha Aur Mulyankan, Vol. 2, Issue-18, pp. 8-10.
4. Agricultural Department, Satara District (2012).
5. District Livestock Census handbook – Satara district (2012)
6. Livestock Sector Brief, India, 2012.
7. Socio – economic review and district abstract of Satara district (2012-13).
8. Gazetteer of Satara district, 2001.
9. Karhde, B.M. (2007): book "Research Methodology" Pimpallapur and Co-Publisher, Nagpur.
10. Chandana, R. C. (1986): 'A Geography of Population', Kalyani Publishers, New Delhi. pp. 217. Das, M.M. and Datta, L. (1986): Regional Variation in Land Use and Agriculture in N.E. India, North Eastern Geographer, Vol. 18. No.1-2, Pp. 28-48.

*Dr. Tembare Uttam S.*