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SPATIAL DISTRIBUTION OF CONSUMPTION OF CHEMICAL FERTILIZERS AND HYVs OF SEEDS IN SAMPLE SELECTED VILLEGES OF SANGLI DISTRICT OF MAHARASHTRA: A GEOGRAPHICAL STUDY

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Abstract:

The increases in agricultural products mainly depend on the use of fertilizer along with HYV of seeds, irrigation, mechanization of agriculture, etc. In order to meet the objectives of the relevant data collected through primary data sources. In the present study, the collection of data from the field have been compiled, processed and investigated with the help of some statistical methods represented with the help of maps. The high consumption of fertilizer is found in Shirate, Tujarpur, Burli and Kavathe Piran villages due to the fertile soil, high development of irrigation facilities. The low fertilizer consumption is recorded in Hategaon, Nimsod, Bhalwani, Renavi, Dighnchi, Nelkaranji, Manerajuri, Salgare, Karoli (T), Agalgaon, Dafalapur, and Sankh villages. Because, these villages are located in hilly area, drought-prone area and low development of irrigation. The high proportion area under HYV of seeds of all crops to the total cultivated area is found in Shirate, Burli, Shivani, Savalaj and Kavathe Piran villages due to the extensive development surface irrigation resulted in high area under the sugarcane cultivation, high area under the grape cultivation. The low proportion of area under HYVs of seeds is registered in Hategaon, Nimsod, Renavi, Nelkaranji, Manerajuri, Salgare, Agalgaon, and Sankh villages. Because low development of surface irrigation and underdeveloped the development of farm technology.

Key words: Selected Sample Villages, Consumption of Chemical Fertilizers, Improved seeds

Introduction:

Fertilizer is one of the important key and perhaps the expensive input in modern agricultural technology. It is viewed as an important component of the Green Revolution. The fertilizer can be defined as "the manufactured material containing one or more essential plant nutrients in immediately or potentially available forms in commercially valuable amounts". The fertilizer provides one or more of the essential nutrients, nitrogen, phosphorus, potassium, sulphur, and magnesium (Tandon, 1995). Agricultural productivity depends on a great amount upon the use of the quality of seeds. All other inputs like fertilizers, pesticides and improved implements will go for nothing unless complemented by improved and quality of seeds (Jalan, M.L., 1987).

Study Area:

Figure No. 1

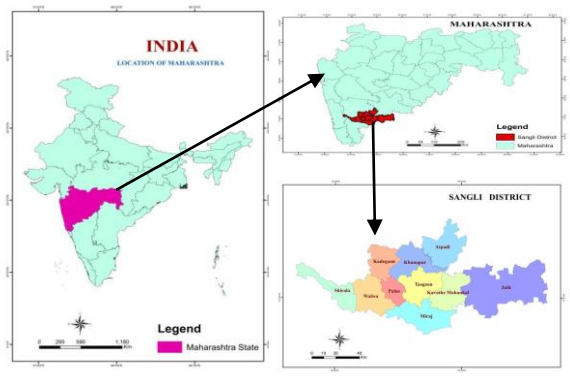
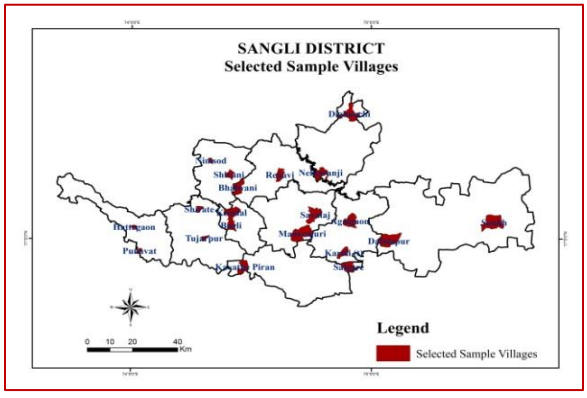


Figure No. 2



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In the present study, an attempt has been made to analyze the same characteristics at micro level. For the micro level study, 20 villages are selected by using stratified random sampling technique.

Objectives:

1. To examine the micro-level study of consumption of chemical fertilizers and Improved seeds at the selected villages.

Database and Methodology:

In the present study, selected villages have been considered as an a real component unit of investigation.

1. Concentration Index Values of Fertilizer Consumption:

$$Ife = \left(\frac{Rf}{Df}\right) \times 100$$

Where,

Ife = Index of fertilizer consumption.

Rf = Kg per hectare consumption of fertilizer in the component areal unit.

Df = Kg per hectare consumption of fertilizer in the entire region.

The first stage basically deals with the post field works. The collection of data from the field have been compiled, processed and investigated with the help of some statistical methods represented with the help of maps.

Consumption of Chemical Fertilizer:

The consumption of chemical fertilizers is an important component in the agricultural productivity. Now-a-days, farmers prefer to use of organic fertilizer which is eco-friendly and sustainable for the agriculture. It is applied by all the farmers having very small size of operational holdings to large size of operational land holders. But, there is difference between the types of crops in terms of proportion of crops in kg per hectares.

Table 1
Distribution of Fertilizers kg per hectare in Sample villages

Sr. No.	Name of Tahsil	Name of Village	Consumption of Fertilizers per ha
1	Shirala	Punavat	882
2		Hategaon	603
3	Walwa	Shirate	1078
4		Tujarpur	1064
5	Palus	Burli	1195
6		Kundal	965
7	Kadegaon	Shivani	867
8		Nimsod	603
11	Khanapur	Bhalwani	712
12		Renavi	356
9	Atpadi	Dighnchi	602
10		Nelkaranji	586
13	Tasgaon	Savalaj	755
14		Manerajuri	701
15	Miraj	Kavathe Piran	1145
16		Salgare	578
17	Kavathe Mahankal	Karoli (T)	633
18		Agalgaon	286
19	Jath	Dafalapur	346
20		Sankh	210
Mean			**709**
SD			**280**

Source: Computed by researcher based on field work

The proportion use of fertilizers are based upon the type crops and availability of irrigation facilities because some corps like sugarcane, fruits having occupied more fertilizers, whereas some crops like jowar, bajra, pulses having fewer requirement of fertilizers.

Spatial Pattern of per Hectare Fertilizer Consumption:

Table 1 shows that the spatial distribution of per hectare consumption of fertilizer in the selected sample villages of the study area. It varies from village to village. The district can be divided into three categories on the basis of mean and standard deviation viz. high (i.e. above mean +SD), moderate (i.e. ranging from mean to mean +SD), and low (i.e. below mean).

The high consumption of fertilizer i.e. above 989 kg per hectare is found in Shirate, Tujarpur, Burli and Kavathe Piran villages due to the fertile soil, high development of irrigation facilities resulted in the high development of agriculture and agro-base industries. The moderate consumption of fertilizer i.e. ranging from 709 to 989 kg per hectare is noted in Punavat, Kundal, Shivani, and Savalaj villages. The low fertilizer consumption i.e. below 709 kg per hectare is recorded in Hategaon, Nimsod, Bhalwani, Renavi, Dighnchi, Nelkaranji, Manerajuri, Salgare, Karoli (T), Agalgaon, Dafalapur, and Sankh villages. Because Hategaon, Renavi and Nelkaranji villages are located in a hilly area, rugged topography, shallow soil while Nimsod, Bhalwani, Dighnchi, Manerajuri, Salgare, Karoli (T), Agalgaon, Dafalapur and Sankh villages are located in the drought-prone area, low development of surface irrigation resulted in low development of agriculture and agro-base industries.

Improved Seeds:

Improved seeds play an important role for the increasing agricultural productivity. It is based on the availability of irrigation facilities in region. It has been observed that the HVVs of seeds are mainly used for the crops of wheat, maize, fruits and vegetables, sugarcane etc. This type of seeds are generally not used for the crops jowar, some of the pulses i.e. udid, matki, mung, etc. From the field work the collecting information about the percentage of area under HYVs of seeds cultivation to total cultivated area of the farmers. It is analysed average use of HYVs of seeds in the farm. Table 2 exhibit that the spatial distribution of HYVs of seeds in selected villages in sample villages in the study region.

Spatial Distribution of HYVs of Seeds:

Table No.2 exhibit that the area under HYVs of seeds as an average has 72.28 per cent in the selected sample villages of the study area, but the spatial distribution varies from village to village. The high proportion area under HYV of seeds of all crops to the total cultivated area i.e. above 83.64 per cent is found in Shirate, Burli, Shivani, Savlaj and Kavathe Piran villages due to the extensive development surface irrigation resulted in high area under the sugarcane cultivation in Shirate, Burli, Shivani, and Kavathe Piran villages while shallow soil, limited surface irrigation but high area under the grape cultivation in Savalaj village. Therefore, there is a considerable income level of the farmers' leads to increasing the spread of modern farm implement resulted in high agricultural productivity.

Table No 2

Distribution of Percentage of Area under HYVs of seeds in Sample villages

Sr. No.	Name of Tahsil	Name of Village	Area Under HYVs of Seeds in %
1	Shirala	Punavat	77.27
2		Hategaon	64.37
3	Walwa	Shirate	86.62
4		Tujarpur	76.14
5	Palus	Burli	87.34
6		Kundal	79.19
7	Kadegaon	Shivani	84.62
8		Nimsod	57.14
11	Khanapur	Bhalwani	75.68
12		Renavi	55.20
9	Atpadi	Dighnchi	76.56
10		Nelkaranji	58.75
13	Tasgaon	Savalaj	85.91
14		Manerajuri	66.67
15	Miraj	Kavathe Piran	88.70
16		Salgare	58.93
17	Kavathe Mahankal	Karoli (T)	74.74
18		Agalgaon	58.78
19	Jath	Dafalapur	76.32
20		Sankh	56.67
Mean			**72.28**
SD			**11.36**

Source: Computed by researcher based on field work

The moderate proportion of area under HYVs of seeds i.e. ranging from 72.28 to 83.64 per cent is recorded in Punavat, Tujarpur, Burli, Kundal, Bhalwani, Dighnchi, Karoli (T) and Dafalapur villages. The low proportion of area under HYVs of seeds i.e. below 72.28 per cent is registered in Hategaon, Nimsod. Renavi, Nelkaranji, Manerajuri, Salgare, Agalgaon, and Sankh villages. Because high variations of the water table and low development of surface irrigation have underdeveloped the development of farm technology resulted in lower the use of HYVs of seeds leads to lower agricultural productivity.

Conclusion:

The high consumption of fertilizer i.e. above 989 kg per hectare is found in Shirate, Tujarpur, Burli and Kavathe Piran villages due to the fertile soil, high development of irrigation facilities resulted in the high development of agriculture and agro-base industries. The low fertilizer consumption i.e. below 709 kg per hectare is recorded in Hategaon, Nimsod, Bhalwani, Renavi, Dighnchi, Nelkaranji, Manerajuri, Salgare, Karoli (T), Agalgaon, Dafalapur, and Sankh villages. Because Hategaon, Renavi and Nelkaranji villages are located in a hilly area, rugged topography, shallow soil while Nimsod, Bhalwani, Dighnchi, Manerajuri, Salgare, Karoli (T), Agalgaon, Dafalapur and Sankh villages are located in the drought-prone area, low development of surface irrigation resulted in low development of agriculture and agro-base industries.

The high proportion area under HYV of seeds of all crops to the total cultivated area i.e. above 83.64 per cent is found in Shirate, Burli, Shivani, Savlaj and Kavathe Piran villages due to the extensive development surface irrigation resulted in high area under the sugarcane cultivation in Shirate, Burli, Shivani and Kavathe

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Piran villages while shallow soil, limited surface irrigation but high area under the grape cultivation in Savalaj village. Therefore, there is a considerable income level of the farmers' leads to increasing the spread of modern farm implement resulted in high agricultural productivity.

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