



Farmland Suitability Assessment of Cash Crops in Khatav Tahsil: A Geographical Approach

*Dr.Arjun Wagh¹ & Dr. Lingade V. B.²

¹Assistant Professor and Head Department of Geography P.D.V.P. Mahavidyalaya Tasgaon, Dist.-Sangli

²Assistant Professor Department of Geography, K.B.P. Mahavidyalaya Pandharpur, Dist.-Kolhapur

DOI: 10.5281/zenodo.6391484

Submission Date: 09th Oct. 2021 | Published Date: 30th Oct. 2021

*Corresponding author: Dr.Arjun Wagh

Abstract

Agriculture is the key of human development which rise of sedentary human civilization. It may include cultivating the soil, growing and harvesting crops and raising livestock. The distribution of agriculture is determined by the some suitable factors. Generally, suitability is the quality of having the properties that are right for a specific purpose. These are essential for informed strategic decision- making (Steiner et al., 2000). The farmland suitability concept is indicated to that area which is suitable for farming activities. It comprises availability of irrigation facilities, soil fertility, market centre, industries, farming practices and techniques etc. Khatav tahsil is the cereal tahsil of Satara district, where are seen the mostly problems for agriculture especially for cash crops. Due to water scarcity and the low rainfall, wells and tube wells are the basic source of fresh water. Just 7-8 percent farmland sows the cash crop. Economically, the cash crops are mostly beneficial than traditional crops- cereal crops. Hence, there is need to study the agricultural development indicators for growth in cash crop production.

Present paper is an attempt to assessment of suitability of cash crop in Khatav tahsil. The crops, irrigation facilities, soil fertility, market centre, industries etc. data have been collected from the village records as well as ZP office. All data have been showed in the form of tables and using GIS technique maps. The analysis reveals that Pusegaon and Vaduj circle seen high suitability for cash crop. Besides, traditional crops like, Jawar, Wheat, Bajara, Onion, Pottato etc. crops have majorly sown in the tahsil.

Keywords: Farmland, Cash Crops, Khatav, Suitability, GIS

INTRODUCTION

“The discovery of agriculture was the first big step toward a civilized life” -Arthur Keith

The food, water and shelter are the basic need of human. Among that, need of food completes from agriculture; so, this activity is the key development rise of sedentary human civilization. The traditional farming has completed just need of food of farmer family. But, modern agriculture is one of the commercial agriculture, is completed need of food of all over world. And the cash crop is the part of modern agriculture. But, cash crops have necessity of availability of irrigation facilities, high soil fertility, market centre, industries, farming practices and techniques etc. for better production as well as for benefits. All these are the controlling factors for cash crop cultivation. Hence, farmland suitability assessment of cash crop is vital for research purpose.

FARMLAND SUITABILITY

Farmland Suitability concept is concern to that which is suitable for farming activities.

“Farmland Suitability is the land of well or fair for farming activities”

“The better site for agriculture refers to farmland suitability”

In general, land suitability describes “the fitness of a given parcel of land for specific uses” (FAO, 1976).

OBJECTIVES

The specific objective is the to assessment of suitability of cash crop in study region and to suggest and recommend suitable suggestions for increase the cash crop cultivation in study region.

STUDY AREA

The study area is occupied the south-western part of Maharashtra, is located between 17°22'48" (17.38) to 17°53'24" (17.89) north latitude and 74°13'12" (74.22) to 74°42'00" (74.7) east longitude which surrounded by the east- Man tahsil of Satara district, to the south- Sangli district, to the west-Karad and Koregaon tahsil of Satara district, to the north-Phaltan tahsil in Satara district. Total area is 1377.79 sq. km., comprising about 143 no. of villages. According to Census 2011, total population of tahsil is about 2, 75,274 persons

The area under study is one of the drought-prone comprises regions of the state of Maharashtra, where above 75% people engaged in agricultural activities. There is sown highly the rainless crops or minimum water needed crops such as Bajara, Kharif Jowar, Rabbi Jowar, Wheat, Onion, Potato etc.

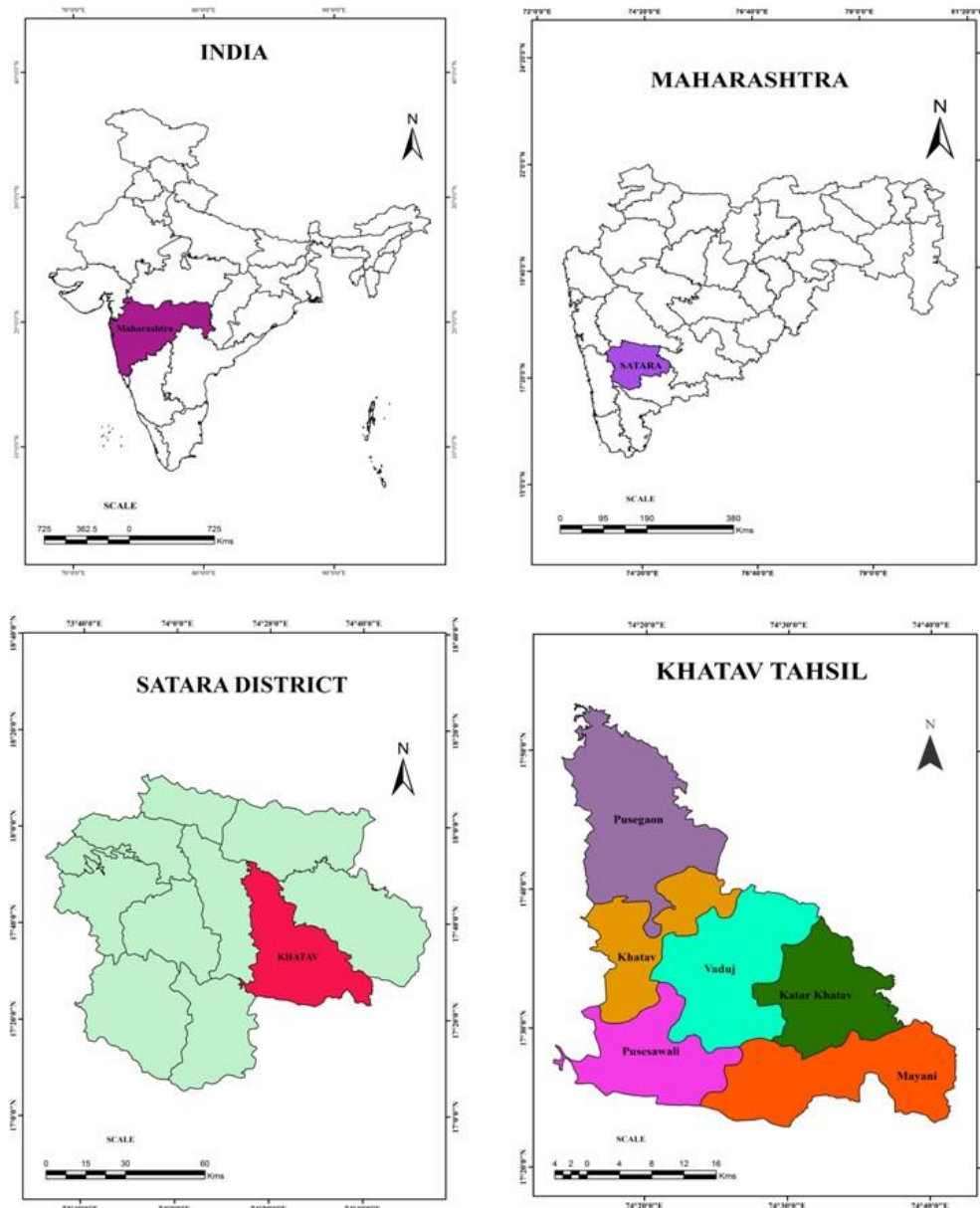


Fig. 1

DATA BASE AND METHODOLOGY

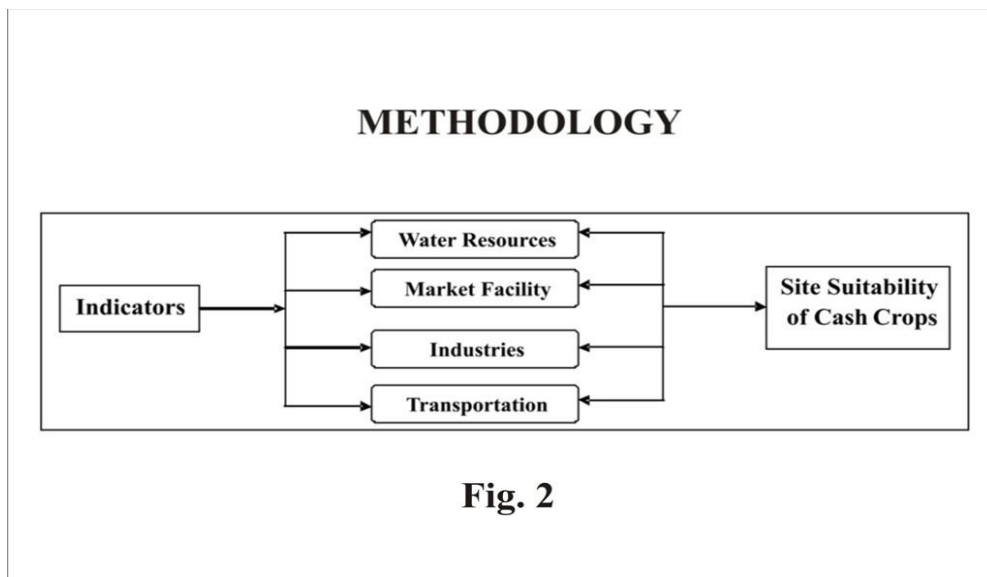
Geography is a science, based on empirical which require data collection from various sources. Since it is not possible for individual to conduct cash crop data and collect detailed data from farm to farm. The cash crop data is reliable and accurate the same has been used for this study. The required secondary data was collected from following sources-

1. The district Gazetteer of Satara.
2. Groundwater Survey and Development Agency (GSDA).
3. Socio-Economic Abstracts of Satara Districts.
4. Agricultural Office Report, Khatav Tahsil
5. Esro-Bhuvan RS Satellite Imagery data

In the present study, tahsil has been considered as a basic unit of investigation. The collected data will be tabulated and analyzed by using various statistical techniques, wherever, necessary data will be presented with the help of suitable cartographic GIS techniques like line graph, bar graph etc.

The processed data has been presented in the form of maps and tables.

For farmland suitability assessment we have choose certain indicators and make the rank determine from percentage, where, the highest percentage involves first rank and after this, ranks are taken in decreasing order, it includes, first, second, third and so on ranking of crops.



SELECTED INDICATORS

1. Water Resources

Basically, Water is the essential for any crops production. About the cash crops, most of the water needs in farming and growing processes. In Khatav tahsil, water resources available in different sources like well, tubewell, lake, dam, lake etc. But, Wells is the major irrigation traditional source of water. The Jowar, Bajara, Sugarcane, Maize, Banana, Pomegranate, Onion, Ginger, Turmeric, Tomato, Potato, etc. cash crops cultivates on minimum level or on less farmland in the tahsil.

Table-1: KHATAV TAHSIL: CIRCLE VILLAGE-WISE WELLS

Sr. No.	Name of Circle	Area in Hectares	No. of Villages	Net Sown Area (in hectares)	No. of Wells	Rank
1	Pusegaon	30746.24	34	1814	990	1
2	Khatav	17195.26	27	1711	554	6
3	Pusesawali	17582.35	21	1780	566	5
4	Vaduj	26415.40	22	1745	851	3
5	Katar Khatav	19390.83	21	1569	624	4
6	Mayani	26486.42	18	1677	853	2
Total		137816.50	143	10296	4438	--

Source: Irrigation Department, Khatav Tahsil. (2019-20)

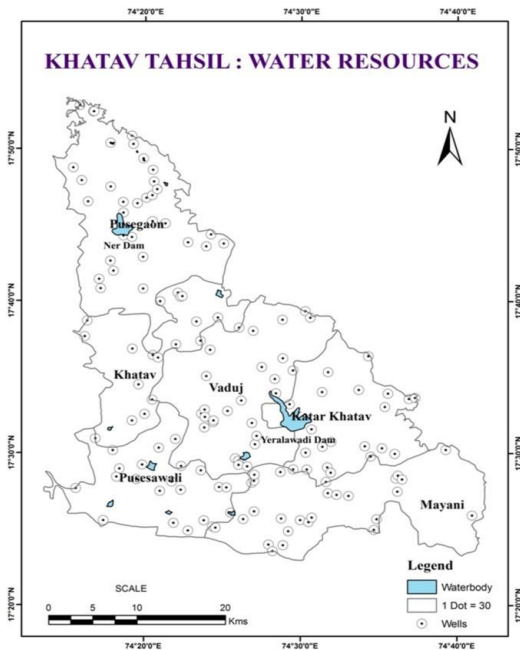


Fig. 3

Khatav tahsil is the drought prone area, there, Ner and Yeralawadi is the two important big water bodies which supplies water for surrounding agriculture (fig. no. 3). Also, well is major water source in all circles. In table no. 1, shows the rank wise wells distribution, there, Pusegaon circle is seen maximum and Khatav circle is indicates minimum distribution of well in tahsil. The Yerala basin is distributed maximum wells in the tahsil. The Pusegaon circle has first rank in data of number of wells. And Next one is Mayani, Vaduj, Katar Khatav Pusesawali, Khatav etc. villages respectively.

2. Market Centres

The Market refers to a place where goods and services are bought and sold. There frequently meets buyers and sellers. Markets are spatial unit. The Buying and Sold activities are done in any market. The role of market is significant for cash crop, having money exchange. Actually, cash crops is the market oriented crops. In Khatav tahsil, locates 6 market centres- Budh, Pusegaon, Vaduj, Pusesawali, Mayani etc. villages. Out of this, Pusegaon and Vaduj are the big daily market centres in the tahsil as well as cash crop market centres. Only that both villages involved chemical fertilizer shops. Besides, market centres are weekly having specific days for market, where, does not exchange (bought and sold) the cash crop products

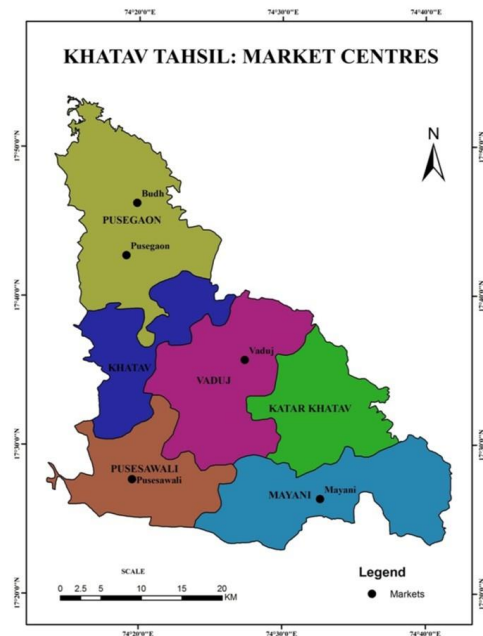


Fig. 4

3. Industries

The processing and manufacturing is significant in cash crop sold. The Grapes, the pomegranate, the cotton, Sugarcane etc. cash crops are mostly concern to the Industries. The Khatav tahsil is the drought prone area, where, is located the small cloth industries i.e. cotton textile and other small agro based footloose industries. Pusegaon, Khatav, Gopuj, Yeliv etc. villages are the located the industries. The Sugarcane industries- i) Nagnath Sugar Industries Limited locates in Khatav village. ii) The Cotton carded and combed yarn industries - Harnai Sahakari Soot Girni Ltd locates in Yeliv villages. iii) Green power sugar limited is locates in Vaduj villages. The Pusegaon and Vaduj are the two major centres of Industries in the tehsil.

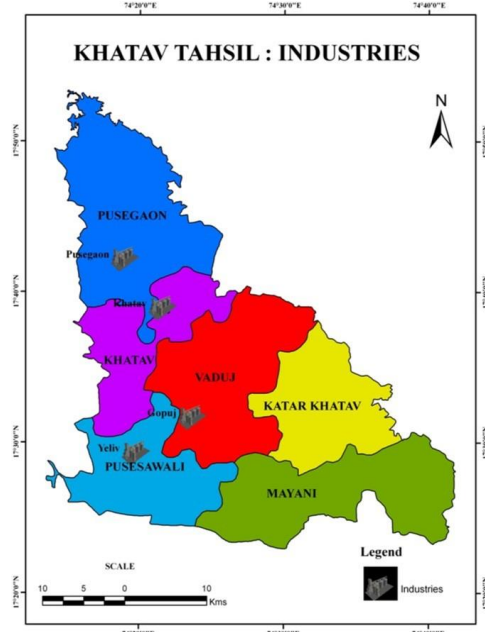


Fig. 5

4. Transportation Network

Transportation is basic need for agricultural purpose. Therefore, development of transportation facilities plays a vital role in agricultural development. In tahsil, about 559.73 kms road connect distinct big villages. Those big villages are Budh, Mayani, Khatav, Katar Khatav, Pusegaon, Vaduj, Aundh, Pusesawali, Nimsod, Chitali, Kaledhon, Kurle etc.

Table-2: KHATAV TAHSIL: TRANSPORTATION NETWORK

Sr. No.	Name of Circles	State Highway	Other Roads	Total	Total in %	Rank
1	Pusegaon	15.26	88.08	103.34	18.46	3
2	Khatav	-	59.65	59.65	10.66	5
3	Pusesawali	27.59	60.91	88.5	15.81	4
4	Vaduj	23.6	105.96	129.56	23.15	1
5	K. Khatav	-	50.29	50.29	8.98	6
6	Mayani	33.02	95.37	128.39	22.94	2
Total		99.47	460.26	559.73	100	

Source: Socio-Economic Review and District Statistical Abstract of Satara District (2019-20).

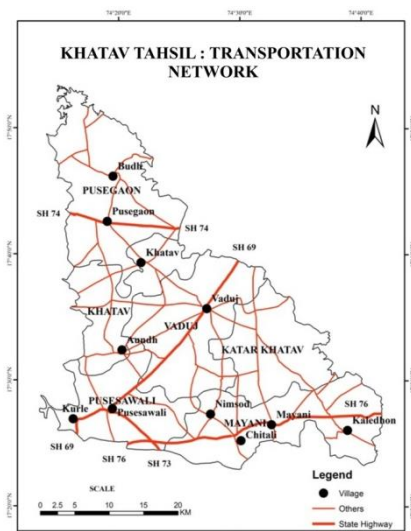


Fig. 6

In Khatav tahsil, Vaduj and Mayani circle is dominantly seen the roads (above 20 percent) in 2019-20 (Table 2 and fig no. 6). The Pusegaon and Pusesawali circle is indicated about 15 percent roads. Whereas, Khatav and Katar Khatav circle are shown about 10 percent roads.

SUTAIBILITY ASSESSMENT

Their ranks are assigning by considering suitability between 0-10.

After computing rank of Indicators for the entire areas categories are made as

- High suitability (< 12)
- Medium suitability (12 – 17)
- Low suitability (> 17)

Table-3: KHATAV TAHSIL: INDICATORS RANKING OF CASH CROPS

Sr. No	Name of Circles	Water Resources	Markets	Industries	Transportation	Total
1	Pusegaon	1	1	2	3	12
2	Khatav	6	-	-	5	20
3	Pusesawali	5	4	-	4	20
4	Vaduj	3	2	1	1	12
5	K. Khatav	4	-	-	6	17
6	Mayani	2	3	-	2	16

Source: Compiled by the Researcher

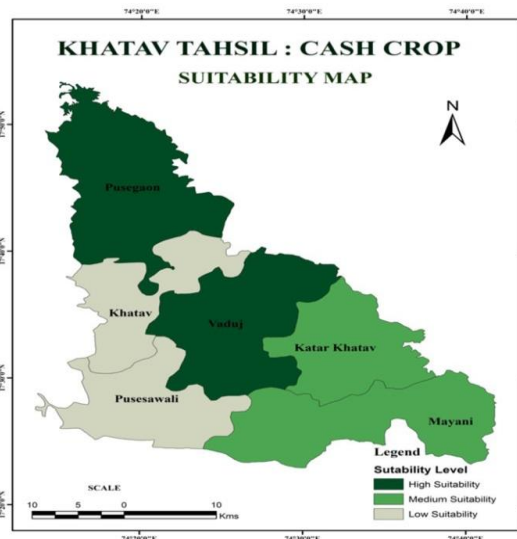


Fig. 7

High suitability (< 12)

Pusegaon and Vaduj circle seen high suitability (fig. no. 7), because, both Pusegaon and Vaduj villages are main administrative big town villages of the tahsil. Pusegaon is the religious famous station which is famous for Sevagiri Maharaj temple, where comes more than 2 lakh peoples in December from all over Maharashtra. Also, few peoples comes daily to religious purpose hence, this is big market centre of cash crops like Pomegranates, Grapes, Cotton etc.

Also Vaduj is the tahsil place, where locates all administrative and banking offices. Therefore, Vaduj suitable for cash crops.

Medium suitability (12 – 17)

Katar Khatav and Mayani circle comes in medium suitability (fig. no. 7) due to lack of water resources. Also, another some reasons are medium educational facilities, transportation problems and lack of market facilities. Mayani circle have high groundwater level in pre-monsoon and post-monsoon. So, there is lack of water for agriculture.

Low suitability (> 17)

Khatav and Pusesawali circle comes in the (fig. no. 7) low suitability, due to, problems in all parameters i.e. Water Resources, Markets Facility, Industries, Transportation. Both circles have problems in water resources. There is not available the markets and industries for cash crops. There, peoples goes to Karad tahsil for Market.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Khatav tahsil comes in rain shadow area. Where, rainfall has decreasing from west to east. This part has every 3-4 years drought-prone condition, having yearly normal rainfall between 450 mm to 550 mm. Therefore, cash crops sow minimum distribution.

- The tahsil is drained by the river Yerala and her small tributaries- river Nani, river Karpur and river Chand. All these rivers are not permanent and are flowing in the deep and low land areas. Water of this sources does not use for irrigation because of highland area. For this area, lift irrigation is economically very costly.

2. Ner and Yeralawadi are the two important big water bodies in the tahsil.
3. Maximum part of tahsil comes under the Brown soil.
4. Pusegaon circle is seen maximum and Khatav circle is indicates minimum well distribution in tahsil.
5. Groundwater is main water source in all circles for drinking as well as agriculture.
6. The total lengths of roads are 1256.54 km having an average density of 91.20 km of road length per 100 sq. km in tahsil.
7. Khatav tahsil is the “Cereal Granary” of Satara District because Cereal crops are predominant crops of tahsil, has 27,307 hectares, i.e., 73.55 percent sown area under cereal crops. Besides, 15.38 percent, 7.57 percent, 3.50 percent area under the pulse crops, cash crops, oilseed crops have sown in the tahsil respectively.
8. Availability of water for irrigation, soil pattern, climate, physiography, rainfall, market price of crops, economic status of farmer etc. are the responsible factors for minimum distribution of cash crops.
9. There are 6 market centres- Budh, Pusegaon, Vaduj, Pusesawali, Mayani etc. villages. Out of this, Pusegaon and Vaduj are the big market centres in the tahsil as well as cash crop market centres.
10. In Khatav tahsil, Pusegaon Khatav, Gopuj, Yeliv etc. villages have located industries.
11. Pusegaon and Vaduj circle seen high suitability, because, both Pusegaon and Vaduj villages are main administrative big town villages of the tahsil. Katar Khatav and Mayani circle comes in medium suitability due to lack of water resources. Khatav and Pusesawali circle comprising the low suitability.

SUGGESTIONS

The research paper is discussed the cash crop that is minimum distributed in the study area. This study analyses the cash crop suitability, have mostly valuable suggestions:-

1. People should give stress on Group Farming Agriculture, which has benefited to cash crop.
2. People should mostly cultivates the cash crops cause of benefits of these crops
3. Government should establish at least one Agricultural Mahavidyala at tahsil level.
4. Government should have different useful policies to increase agro-based industries like cold storage, cotton industries, sugar industries, grains and fruit processing industries and milk products and milk chilling centers etc. at the tahsil level by considering local resources.
5. Government should organize agricultural exhibitions for farmers at tahsil level.
6. Government should educate and train the farmers about better exploiting the available resources of land and water, so as to enhance crop yields. This could be better organizing through agricultural Schools and Colleges. Agricultural extension workers should motivate the farmers to attend such training camps.
7. The smaller water conservation structures like percolation tanks, cement bandharas, bunds and ponds, can effectively substitute for large dams, therefore, government should concentrated on their built up.
8. Govt. should promote watershed development programme in mostly rural areas by giving subsidies to the farmer for following such practices ponds.

REFERENCES

1. District Census Handbook of Satara (2011)
2. Maharashtra State Gazetteers, Satara District.
3. Socio-economic Review and District Statistical Abstract of Satara District- 2019-20
4. GSDA Satara Survey Report 2011
5. Ling Yun-chuan, Study on Land suitability evaluation theory and method. Modern agricultural science and technology, Vol.18, 2007.
6. Jiao Li-min, Liu Yao-lin, Application of Fuzzy Neural Networks to Land Suitability Evaluation. Geomatics and Information Science of Wuhan University. Vol.29-NO.6,2004
7. Shi Tong-guang etc, Progress in Research on Land Suitability Evaluation in China. Progress in Geography, Vol.26-NO.2, March, 2007.129

CITE AS

Dr.Arjun Wagh, & Dr. Lingade V. B. (2021). Farmland Suitability Assessment of Cash Crops in Khatav Tahsil: A Geographical Approach. Global Journal of Research in Humanities & Cultural Studies, 1(2), 18–24.
<https://doi.org/10.5281/zenodo.6391484>