



Fruits Crops Cropping Pattern in Nashik District: A Geographical Study

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Abstract :

Agriculture is the backbone of Indian Economy. It provides livelihood, employment and agrarian raw material to agro-based industries. Major working force of India is engaged in agriculture, but the agriculture depends upon South-West monsoon, which is uncertain and gambles. Physiography, temperature, rainfall, soil and irrigation influence on the agriculture. The Nashik district is located North West part of Maharashtra state. It lies between 18°33' to 20° 53' North latitude and 73 °16' to 75°16' East longitude. The district has three important river basins i.e Godavari, Tapi and Damanganga, where agriculture is a dominant activity along with animal husbandry. In India, agriculture is the most important economic sector (Sucheta, 2019). Different types of soil and climate in India, which spans numerous agroecological areas, allow for the cultivation of a wide range of horticultural crops. Ten crops have been considered for crop combination analysis. Food grains, pulses, oilseeds, sugarcane and grapes etc. are the major crops cultivated in this district. Horticulture has been studied in related research according to 2011-12 total horticulture area was 86294 hecter likewise according to 2022-23 the total horticulture area is 75542. 29 hecter also. The crop data has been computed with the help of Cropping Pattern method, whereas for cartography ArcGis 10.2 was used. Total Geographical area of the district is 15530 sq. km. which is about 5.04 percent of total area of the state. The average height of the district is 565 meters from the mean sea level. In the present paper an attempt has been made to study the agricultural land use pattern and the crop combination of Nashik district. The entire district has identified six types of crop combination.

Key words : *Agriculture, Pattern, Cropping Pattern, Horticulture.*

Introduction :

Agriculture is the backbone of Indian economy. It is the primary activity along with dairy farming, poultry has been considered as a supplementary occupation in India. The physical, socio- economic factors influence on the agriculture and agricultural production of any area of the world. Agricultural land use is the basic structural unit of natural resources. Land is an important factor in agricultural sector and the yield of agricultural crops mainly depends upon fertility of land for raising

different crops. The cropping pattern is the central element of agricultural study. The appearance or pattern of crops depends on the choice of crops by the farmer. At the same time, the competition with other crops grown in that region also affects the cropping pattern. The specific purpose for which the crop is to be grown is also considered while selecting the crops. Horticulture has been studied in related research according to 2011-12 total horticulture area was 86294 hecter likewise according to 2022-23 the total horticulture area is 75542.29 hecter also. The farmers are Market oriented and traditional are understood with the help of how crops are ranked, how much percentage Land is occupied by that particular crop in that cultivated area. The Area of Nashik District is 15539 sq.kms. There are four subdivisions Nashik, Kalwan, Niphad and Malegaon. Total Population in Nashik is 61,07187. There are total 15 Talukas Nashik, Igatpuri, Peth, Dindori, Niphad, Devla, Trimbakeshwar, Sinner, Yeola, Malegaon, Nandgaon, Chandwad, Kalwan, Surgana, Baglan”.

Objectives : *To assess the cropping pattern regions in Nashik district.*

Study Area :

The Nashik district is located North– Western part of Maharashtra state. The area is extended in between 18°33' North to 20°53' North latitude and 73° 16 'East to 75° 16' East longitude at north west part of the Maharashtra state (fig:1.1). It has total fifteen tehsils and covers 15530 sq. km. geographical area, which is about 5.04 percent of the total area of the state. The average height of the district is 556 meters from the mean sea level. The western part of the district is represented by hilly rugged and dissected terrain of the Western Ghats with peaks like Brahmagiri in Trimbakeshwar and Saptshrungi in Kalwan taluka. A low lying plain marks the eastern southern parts. The eastern part of the district, which lies on the Deccan plateau, is open, fertile and well cultivated. The easterly flowing Godavari and Girna rivers with their tributaries constitute the main drainage system in this district.

Methodology :

The study is based on secondary data and field observations. The secondary data is obtained from the district socio economic review (2022-23) and district census hand books in Nashik district also referred to collected information. Topographical maps and survey of India sheets 1:50000 scales are used for physiographical inventory. For cartography ArcGis 10.2 is used.

the cropping pattern for the following formula:

$$Cp = \frac{Ca}{N} * 100$$

Cp = Cropping Pattern

Ca = Area Under Crop 'a' in the component areal unit

N = Total cropped area in the component areal unit.

Study Area

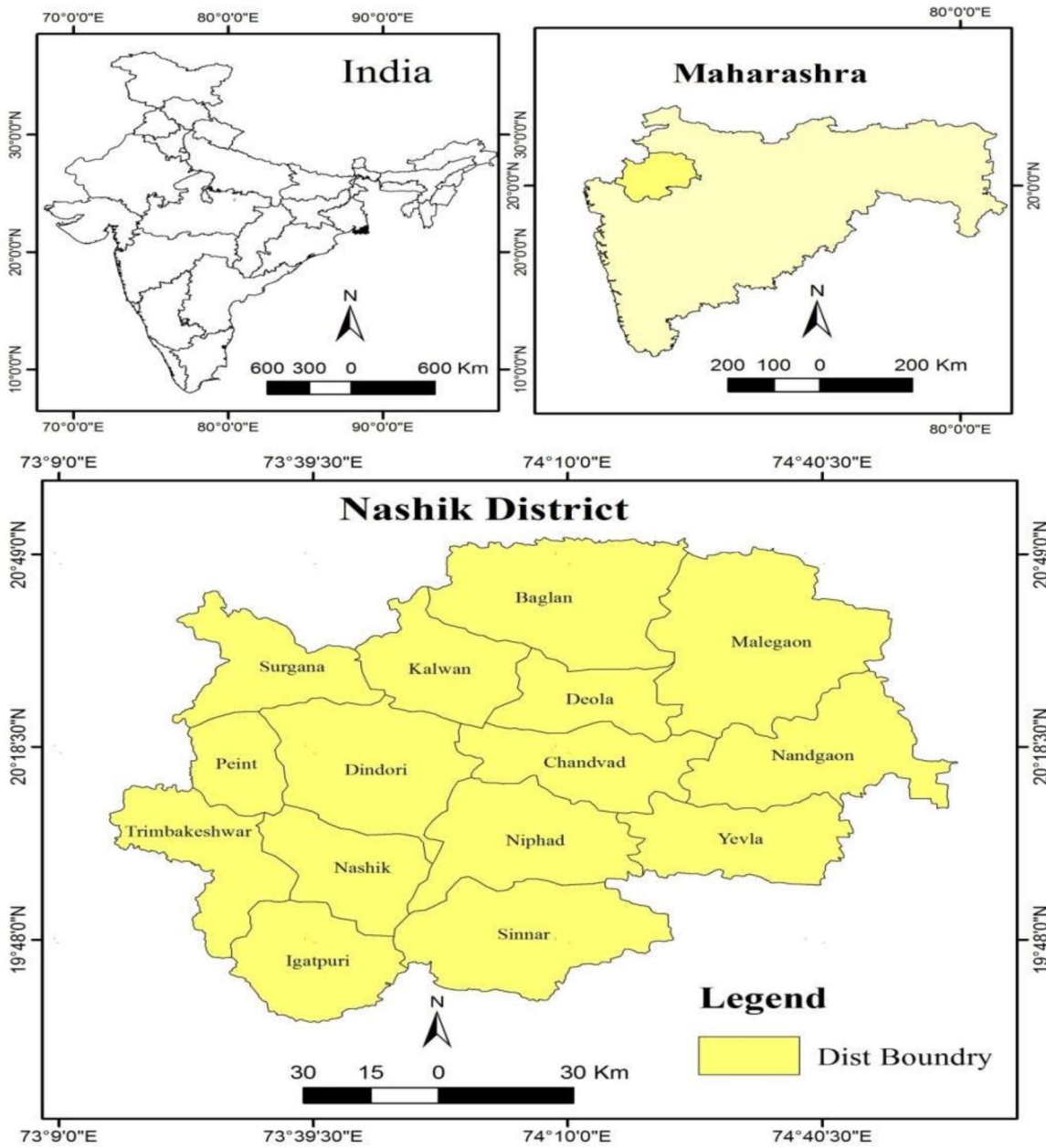


Table no: 1 Total Fruits Crops in study area

Sr.no	Tehsils	G.Area(sq.km)	Total cultivation Area (h)	T.F.C.A 2011-12	T.F.C.A 2022-23
1	Surgana	827.5	30254	0.6	7.2
2	Kalvan	886.7	47917	0.2	0.2
3	Dewala	370.5	35707	0.2	1.8
4	Baglan	846.6	74801	2.5	15.9
5	Malegaon	1937.7	93191	0.3	0.4
6	Nandgaon	1091.7	13281	0.2	0.8

Sr.no	Tehsils	G.Area(sq.km)	Total cultivation Area (h)	T.F.C.A 2011-12	T.F.C.A 2022-23
7	Chandwad	985	55160	5.9	12
8	Dindori	1323.2	49459	0	34.6
9	Peth	563.3	21040	2.7	5.8
10	Trambak	9087.3	27394	1.1	0
11	Nashik	921.3	38857	51.2	19.4
12	Igatpuri	1114.3	14918	9.2	2.2
13	Sinnar	983.6	74786	56.3	5.1
14	Niphad	1051	82170	19.3	27.3
15	Yewala	1060.4	85607	0.5	1.4
	District	14854.5	744542	11.6	10.1

Source : Socio-Economic survey Nashik District, 2011-12 to 2022-23

According to table no 1 when the total horticulture area of the study area is studied. It is observed that out of the total cultivated area in the district 744542 hecter. In 2011-12, 11.6% of the total area was under horticulture cultivation and in 2022-23, this area is found to decrease 10.1%. tehsil wise maximum fruit cultivation area in 2011-12 was sinnar tehsil 56.3% and lowest area was respectively devala 0.2% kalvan 0.2%,and nadgaon 0.2%. Also the highest fruit cultivated area is found in dindori tehsil and lowest area is kalvan tehsil also 0.2% in 2022-23 respectively.

During the observation period area from 2011-12 to 2022-23, there has been such an -1.5% in the total fruits cultivated area in sudy region

Graph No. 1

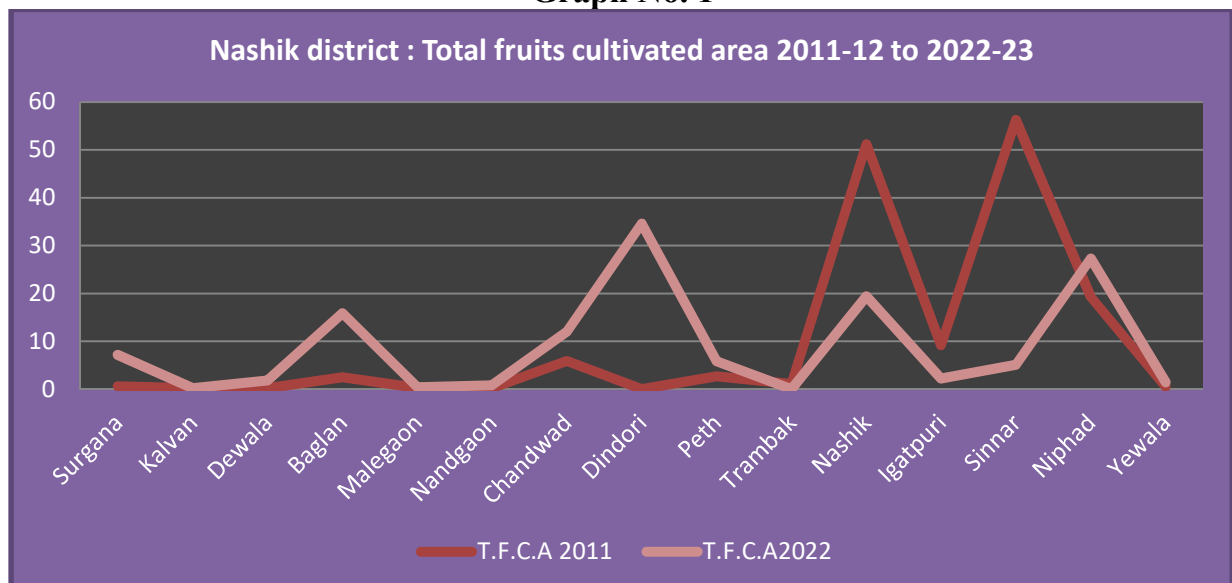




Table 2 - Tehsilwise Fruit Cultivation Area in Nashik District : 2011-12

Sr. no	Tehsils	Total Fruits area (h)	Mango	Grapes	Citrus Fruits	Banana	Other Fruits	percentage
1	Surgana	2173.64	90.9	0.0	0.1	0.0	9.0	100
2	Kalvan	106.49	85.5	6.2	1.1	0.0	7.2	100
3	Dewala	633.92	0.6	9.1	1.5	0.0	88.9	100
4	Baglan	11924.5	0.5	15.6	0.2	0.0	83.7	100
5	Malegaon	371.2	4.3	7.0	76.1	1.1	11.4	100
6	Nandgaon	112	31.3	10.7	40.2	7.1	10.7	100
7	Chandwad	6631.03	0.2	97.5	0.8	0.0	0.3	100
8	Dindori	17110	0.0	0.0	0.0	0.0	0.0	100
9	Peth	1221	97.9	0.0	1	1.1	1.1	100
10	Trambak	0	0.0	0.0	0	0.0	0.0	100
11	Nashik	7533	3.4	87.0	7.6	2.0	2.0	100
12	Igatpuri	324.81	93.0	1.2	5.5	0.0	0.0	100
13	Sinnar	3788.3	2.2	24.0	3.6	70.2	70.2	100
14	Niphad	22430.45	0.1	98.2	0	1.7	1.7	100
15	Yewala	1181.95	0.0	64.7	35.3	0.0	0.0	100
	District	75542.29	5.4	73.8	2.1	18.7	18.7	100

Source : Socio-Economic servey Nashik District 2011-12 to 2022-23

When the area under various fruit cultivation in the study area is studied, it is noticed that out of the total 75542.29 hecter. Total fruit area in the year 2011-12 among them mango 5.4%, grapes 73.8%, citrus fruits 2.1%, banana 18.7%, and other fruits was 18.7% a tehsil wise study of various fruits areas would have been done, highest area under mango cultivation is within peth tehsil 97.9%, and lowest area is found in yewala 0.0%. Similarly, grape cultivation was observed highest area under grape cultivation is niphad 98.2% and lowest proportion was dindori, peth, and trambak tehsils respectively. The proportion of citrus fruits is less in the study area and is 2.1% of the total district. Sinnar tehsil has the highest banana growing area in nashik district. Also the area under other fruits cultivation is highest in dewala tehsil according to 2011-12

Table 3 - Tehsilwise Fruit Cultivation Area in Nashik District: 2022-23

Sr. no	tehsils	Total Fruits area (h)	Mango	Grapes	Citrus Fruits	Banana	Other Fruits	percentage
1	Surgana	169	70.4	10.1	8.9	0	10.7	100
2	Kalvan	108	3.7	94.4	0	0	1.9	100
3	Dewala	87	1.1	60.9	0	0	37.9	100
4	Baglan	1834	0.2	84.5	1.9	0	13.5	100
5	Malegaon	251	2	91.6	6.4	0	0	100
6	Nandgaon	28	21.4	42.9	35.7	0	0	100

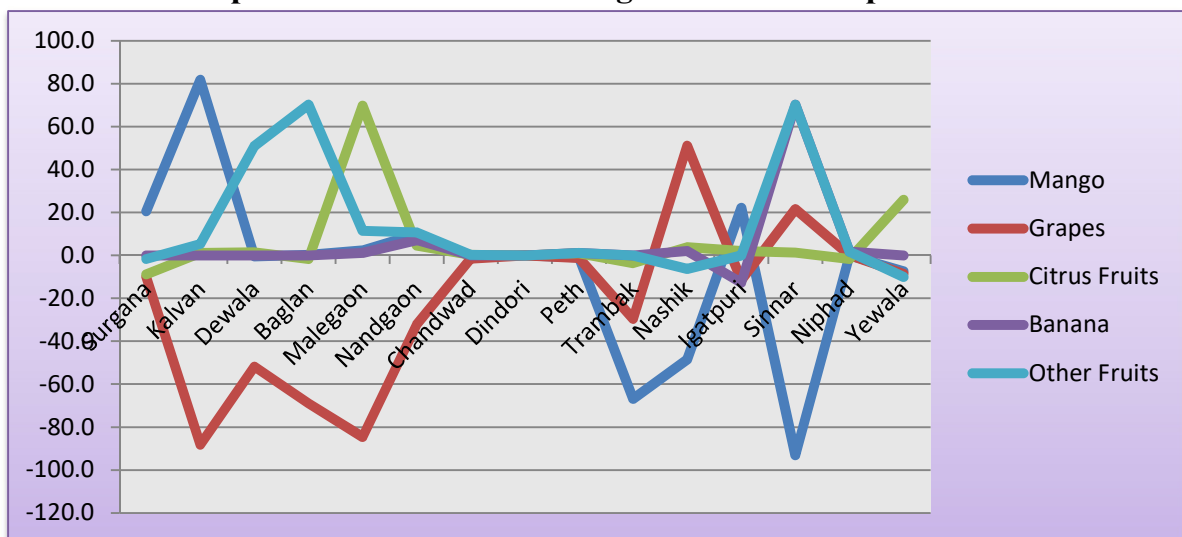


Sr. no	tehsils	Total Fruits area (h)	Mango	Grapes	Citrus Fruits	Banana	Other Fruits	percentage
7	Chandwad	3238	0.6	99	0.5	0	0	100
8	Dindori	0	0	0	0	0	0	100
9	Peth	560	98.8	1.3	0	0	0	100
10	Trambak	304	66.8	29.6	3.6	0	0	100
11	Nashik	19913	52	35.9	3.7	0	8.3	100
12	Igatpuri	1374	70.9	12.8	3.5	12.8	0	100
13	Sinnar	42122	95.3	2.4	2.3	0	0	100
14	Niphad	15891	0.2	98.1	1.7	0	0	100
15	Yewala	427	7.3	73.3	9.4	0	10.1	100
	District	86294	60.8	34.2	2.5	0.2	2.3	100

Source : Socio-Economic survey Nashik District 2011-12 to 2022-23

In the nashik district, the total 86294 hecter area under fruits cultivation in year 2022-23. The other fruit areas studied in the nashik region respectively mango 60.8%, grapes 34.2%, citrus fruits 2.5% banana 0.2% and other fruits are 2.3% According to the year 2022-23 the highest amount of mango cultivation is found in peth 98.8% and lowest proportion of mango cultivation is baglan tehsil 0.2% likewise an grapes fruit the highest cultivation area is chandwad tehsil 99.0% and lowest area also found in peth tehsil 1.3%. The area of banana crop is found to be the least in the district 0.2%

Graph No. 2 Tehsil wise Changes in Fruits Crop Cultivated Area



In the study area during the research period of 2011-12 to 2022-23, a change is observed in the area of fruits crops it is as follows. The highest decrease in the area under mango crop is observed in sinnar tehsil -93.1% and highest increase is kalwan tehsil 81.8% likewise when studying the cultivation highest proportion of grape



cultivation is in nashik tehsil 51.1% and lowest changes in kalvan tehsil -88.2% , district overall variation in citrus fruits is -0.4% and banana fruit variation in district is 18.5%, similarly there is a difference in other fruits crops area is 16.4% in nashik district.

Conclusion :

The total horticulture area of the study area is studied. It is observed that out of the total cultivated area in the district 744542 hecter. In 2011-12, 11.6% of the total area was under horticulture cultivation and in 2022-23, this area is found to decrease 10.1%. Tehsil wise maximum fruit cultivation area in 2011-12 was sinnar tehsil 56.3% and lowest area was respectively devala 0.2% kalvan 0.2%, and nadgaon 0.2%. During the observation period area from 2011-12 to 2022-23, there has been such an -1.5% in the total fruits cultivated area in study region. According to 2022-23 when studying the cultivation highest proportion of grape cultivation is in nashik tehsil 51.1% and lowest changes in kalvan tehsil -88.2% , district overall variation in citrus fruits is -0.4% and banana fruit variation in district is 18.5%, similarly there is a difference in other fruits crops area is 16.4% in nashik district. In the study area during the research period of 2011-12 to 2022-23, a change is observed in the area of fruits crops it is as follows. The highest decrease in the area under mango crop is observed in sinnar tehsil -93.1% and highest increase is kalwan tehsil 81.8% likewise when studying the cultivation highest proportion of grape cultivation is in nashik tehsil 51.1% and lowest changes in kalvan tehsil -88.2%, district overall variation in citrus fruits is -0.4% and banana fruit variation in district is 18.5%, similarly there is a difference in other fruits crops area is 16.4% in nashik district.

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