

Diversification of Crops in Nashik District: A Spatio Temporal Analysis

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Abstract

The Present investigation aims in studying the crop diversification in Nashik District. The present study is based on sundry data collected from different government organizations. The data covers 30 years i.e. from 1980-81 to 2011-12. All the types of crops were considered for the study. In order to study the economics of crop diversification, land concentration was computed for selected years. Talukawise study showed that area under kharif crop has found to be decreased in all the Tehsils of Nashik District. The area under Igatpuri, Trimbakeshwar & Peth have high production of Rice. The diversification from subsistence crop to more commercial crops to more commercial crops were took place in selected Tehsils. In Nashik Districts main horticultural Crops are mango, Pomegranate and Grapes. Because of wine made of Grapes Nashik is known as Wine Capital of India.

Keywords: Crop diversification, Cropping pattern, Cropping Method, Crop Combination

Introduction

Crop diversification is becoming important as farmers are facing multiple problems. The market imbalance between demand and supply and farmers do not get desired price for their crops therefore farmers must get aware of market trends.

Crop diversification is addition of new crops or cropping system agricultural production. It can also be defined as producing increased variety of agricultural commodities. The study of diversification assumes a great importance as it is one of the important path for balanced development of agriculture to meet requirement.

Crop diversification has emerged as an important alternative to attain objectives of output growth, employment generation and natural resources sustainability in developing countries. The recent experience in Asia, particularly Southeast Asia, Middle East and North Africa indicates that policy makers and Planners are increasingly focusing on crop diversification to promote agricultural development. (Petit and Barghouti, [1972])

Bhatia (1965) in his study on “Pattern of crop concentration and diversification in India” has observed that physical socio-economic and technological factors have affected the magnitude of crop diversification. He also evolved a new technique of measuring crop diversification in India. He has taken all the crops which having 10% or more that 10 % of cropped area. He summed up the total area under those crops and divided the sum of number of crops.

The crop diversification having following objectives to study the extent of crop diversification and study benefits, crop productivity and intensity of cropping.

Selection of Area

The Nashik District of Maharashtra has been selected for this study. The Nashik lies in 73° 35' N and 20° 52' latitude and 73° 16' E and 74° 56' E longitude and total area 15,582 kilo meter square and total population of district is 6, 109, 05 which is third largest in Maharashtra. Nashik district is bounded by Dhule district to North, Jalgaon district to East, Aurangabad district to Southeast. Nashik is well known for production of wines. Godavari reiver passes through Nashik. In Nashik District Malegaon is a largest district and Peth is smallest district and other districts are Igatpuri, Sinner, Chandwad, Nandgaon, Surgana, Kalwan, Yeola, Buglan, Dindori, Niphand, Deola and Trimbak.

Map of Nashik District



<https://nashik.gov.in/about-district/map-of-district/>

Aims and Objectives

1. To investigate Tehsil wise crop diversification change.
2. To identify temporal crop diversification.

Data base and Methodology

The present study is mainly based on secondary data sources collected from Agricultural Department and Statistical Department of Nashik District. Simple statistical method was used and calculates the crop ranking for crop combination. Bahtia's Method (1965) has been applied to crop diversification for following formula:

Bhatia's Method

Formula

$$\text{Index of crop diversification} = \frac{\% \text{ of sown area under 'X' crop}}{\text{Number of 'X' crops}}$$

Interpretation

(A) Crop Diversification in Nashik District Year 1980-81

Sr. No.	Name of Tehsil	Crop Diversification Index	Crops	Area in Hectors	% of total Area
1	Nashik	18.66	B/R/J/Tp/To	4784	6.82
2	Peth	28	Ra/R/Tp	35648	5.08
3	Dindori	24.33	Ra/R/Tv	22789	3.25
4	Surgana	28.2	Ra/R/Tv	59874	8.54
5	Kalwan	16.33	Ra/Tp/O/R	34561	4.93
6	Baglan	11.24	B/R/J/Tp/To	52361	7.47
7	Malegaon	9.25	B/J/R/W/V/ M/S/O/Co	87456	12.47
8	Chandwad	14.35	R/B/J/W/ Ra/S	49561	7.07
9	Nandgaon	7.33	R/W/R/J/ Ra/S/F/Tp/ Tv/S	58974	8.41
10	Yeola	11.2	W/Tp/Ra/ Tv/O/B/R/J	70124	10
11	Niphan	13.22	Tp/S/O/F/ B/J/Tv	71245	10.18
12	Sinner	14.5	Tv/F/Tp/R/ W/O/S	62546	8.95
13	Igatpuri	24	Ra/R/Tp	47895	6.83
Total				700888	100

R-Rice, W-Wheat, J-Jawar, B-Bajara, V- Vari, Tp-Total Pulses, Ra-Ragi, M-Maize, S-Sugarcane, Tv-Total Vegetable, F-Fruits, O-Oil Seeds, C-Condiments, D-Drugs & Narcotics, Co-Cotton.

(B) Crop Diversification in Nashik District Year 1990-91

Sr. No	Name of Tehsil	Crop Diversification Index	Crops	Area in Hectors	% of total Area
1	Nashik	14.22	R/B/J/W/ Ra/S/F	57412	7.99

2	Peth	26	R/Ra/W/O	38945	5.42
3	Dindori	23	Ra/Tv/W/B	59846	8.33
4	Surgana	25.3	R/Ra/O	34561	4.8
5	Kalwan	15.22	B/R/J/Tp/ To/F	37645	5.24
6	Baglan	9.66	B/J/R/W/V/ M/S/O/Co	54126	7.53
7	Malegaon	8.22	B/J/R/W/V/ M/S/O/Co	84579	11.78
8	Chandwad	11.33	B/R/J/Tp/ To/F	52143	7.26
9	Nandgaon	6.66	R/J/B/F/ Tv/Tp/S/C/ Co/D/W	60124	8.4
10	Yeola	10.3	W/Tp/Ra/B/ J/R/S/C	68457	9.53
11	Niphad	12	Tv/F/Tp/R/ W/O/S	67548	9.4
12	Sinner	12.66	R/B/J/W/ Ra/S	58461	8.16
13	Igatpuri	23.33	Ra/Tv/W/B	44127	6.16
Total				717884	100

R-Rice, W-Wheat, J-Jawar, B-Bajara, V- Vari, Tp-Total Pulses, Ra-Ragi, M-Maize, S-Sugarcane, Tv-Total Vegetable, F-Fruits, O-Oil Seeds, C-Condiments, D-Drugs & Narcotics, Co-Cotton.

(C) Crop Diversification in Nashik District Year 2000-01

Sr.No	Name of Tehsil	Crop Diversification Index	Crops	Area in Hectors	% of total Area
1	Nashik	12.43	R/Ra/B/J/M/S/	36457	4.7
2	Peth	19.36	B/J/Tp/Tv/O	33478	4.32
3	Dindori	22.11	R/Ra/B	60478	7.8
4	Surgana	21.23	Ra/Tp/O/R	32471	4.19
5	Kalwan	12.96	R/Ra/B/J/M/S	33415	4.3
6	Baglan	9	B/W/R/J/ Ra/S/F/Tp/ Tv/S	58978	7.6
7	Malegaon	8.21	R/J/B/F/ Tv/Tp/S/C/ Co/D/W	88790	11.45
8	Chandwad	11	Tv/B/W/J/F/ Tp/OM/V	54781	7.07
9	Nandgaon	7	Tp/B/V/S/W/ Ra/R/O/Tv/F	60002	7.74
10	Yeola	12.33	Tp/Tv/F/B/ J/S/O	70478	9.1

11	Niphad	13.22	R/B/J/W/Ra/S	72589	9.37
12	Sinner	18.33	Ra/R/B/F	65813	8.5
13	Igatpuri	20.54	Ra/Tp/O/R	47812	6.2
14	Trimbak	25.33	Ra/R/Tv	28412	3.66
15	Devala	18.22	Ra/Tv/w/b	30468	4
Total				774422	100

R-Rice, W-Wheat, J-Jawar, B-Bajara, V- Vari, Tp-Total Pulses, Ra-Ragi, M-Maize, S-Sugarcane, Tv-Total Vegetable, F-Fruits, O-Oil Seeds, C-Condiments, D-Drugs & Narcotics, Co-Cotton.

(D) Crop Diversification in Nashik District Year 2011-12

Sr.No	Name of Tehsil	Crop Diversification Index	Crops	Area in Hectors	% of total Area
1	Nashik	11.33	Tp/Tv/F/B/ J/S/O	40784	5
2	Peth	18.66	Ra/R/B	38451	4.7
3	Dindori	23	R/Ra/B/O	61783	7.6
4	Surgana	20.11	R/Ra/B/O	33471	4.1
5	Kalwan	12	Tp/Tv/F/B/ J/S/O	34157	4.18
6	Baglan	8.66	Tv/B/W/J/F/ Tp/O/S/M/V	61478	7.52
7	Malegaon	8.33	Tv/B/W/J/F/ Tp/O/S/M/ V/S	91457	11.19
8	Chandwad	10.96	B/Ra/Tp/F/ Tv/O/C/S	58147	7.11
9	Nandgaon	7.33	Tp/B/V/S/W/ Ra/R/O/ Tv/F	62457	7.64
10	Yeola	12.66	Tp/Tv/F/B/J/ S/O/W	71457	8.74
11	Niphad	12	Tp/Tv/F/B/ J/S/O	74581	9.12
12	Sinner	17.84	Ra/R/B/F	74581	8.38
13	Igatpuri	20	B/J/Tp/Tv/O	51249	6.27
14	Trimbak	24.54	Ra/R/B	34512	4.22
15	Devala	16.66	R/Ra/B/J/ M/S	34561	4.23
Total				817017	100

R-Rice, W-Wheat, J-Jawar, B-Bajara, V- Vari, Tp-Total Pulses, Ra-Ragi, M-Maize, S-Sugarcane, Tv-Total Vegetable, F-Fruits, O-Oil Seeds, C-Condiments, D-Drugs & Narcotics, Co-Cotton.

1. Areas of High Crop Diversification

- a. 1980-81 b. 1990-91
-
- c. 2000-01 d. 2011-12

2. Areas of Moderate Crop Diversification

- a. 1980-81 b. 1990-91
-
- c. 2000-01 d. 2011-12

3. Areas of Low Crop Diversification

- a. 1980-81 b. 1990-91
-
- c. 2000-01 d. 2011-12

Index

0-10	High Crop Diversification
11-20	Moderate Crop Diversification
21-30	Low Crop Diversification

1) Crop Diversification in the Year of 1980-81

Degree of Crop Diversification		Number of Tehsils	Name of Tehsils
0-10	High Diversification	02	Nadgaon, Malegaon
11-20	Moderate Diversification	07	Baglan, Yeola, Niphad, Sinner, Chandwad, Kalwan, Nashik
21-30	Low Diversification	04	Igatpuri, Dindori, Surgana, Peth

2) Crop Diversification in the Year of 1990-91

Degree of Crop Diversification		Number of Tehsils	Name of Tehsils
0-10	High Diversification	04	Nadgaon, Malegaon, Baglan, Yeola.
11-20	Moderate Diversification	08	Niphad, Sinner, Chandwad, Kalwan, Nashik, Peth, Yeola, Devla.
21-30	Low Diversification	04	Igatpuri, Dindori, Surgana, Trimbak.

3) Crop Diversification in the Year of 2000-01

Degree of Crop Diversification		Number of Tehsils	Name of Tehsils
0-10	High Diversification	03	Nadgaon, Malegaon, Baglan.
11-20	Moderate Diversification	08	Niphad, Sinner, Chandwad, Kalwan, Nashik, Peth, Yeola, Devla.
21-30	Low Diversification	04	Igatpuri, Dindori, Surgana, Trimbak.

4) Crop Diversification in the Year of 2011-12

Degree of Crop Diversification		Number of Tehsils	Name of Tehsils
0-10	High Diversification	03	Nadgaon, Malegaon, Baglan.

11-20	Moderate Diversification	10	Niphad, Sinner, Chandwad, Kalwan, Igatpuri, Nashik, Peth, Surgana, Yeola, Devla.
21-30	Low Diversification	02	Igatpuri, Dindori, Surgana, Trimbak.

Conclusion

Nashik District is still subsistent in nature. Among all crops the vegetables and the Grapes are the main crops of this district. In our investigation we found that major area is covered by grain crops like Bajra, Wheat, Rice, etc. we have also found that the farmers of Nashik District give primary preference to the food crops and secondly prefers to grapes and vegetable cash crops. The present study shows that in the year between 1980-2011 Tehsils Malegaon, Nandgaon, Baglan of Nashik District High Diversification found and Low Diversification found in the Tehsils Dindori, Ingatpuri, Trimbak, Surgana of Nashik District. In our survey we have also found that Nashik District lacks monoculture.

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