

A note on the Grapevine cultivation in Solapur District of Maharashtra

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Abstract- Apart from fruit crops, grapevine is one of the main fruit crops of cropping pattern of Solapur District. In Solapur District, the main fruit crops are pomegranate, ber and grapevine and their production has been rising over the past few years. Recently, grapevine has been introduced in the district and is gaining popularity amongst farmers. In 1980-81, it was introduced launching a programme for its production, but during that period the results were not encouraging. But after the development of new varieties, Solapur District has achieved a major break-through in production and productivity of grapevine. However, present time grape is produced for raisin, wine and table grapes. It is dependent on physical environment and farmers' attitude. District's grapes are exported to North India and European and American markets. So in the present research paper, the major objective is to understand the growth and spatial distribution of grapevine. For these, 1987 to 2007, the twenty-year period is selected to understand the growth and spatial distribution.

Keyword- spatio-temporal, Growth Rate, ranking variety,

Introduction

Recently few years, especially 1990 the Solapur District is a grape producer and exporter in Maharashtra state. After 1995/96, the grape share is large in exporting among all fruit crops in Solapur District. Grape is a very sensitive climate fruit crop and it needs large capital for plantation. However, the common farmers' trend is to increase the grape plantation on a large scale. Therefore, it is essential to understand the spatio-temporal change in grape plantation. Grapevine is basically a cold tropical fruit crop. It originated from Armenia near the Caspian sea in Russia and it spread from Afghanistan, Iran and Europe. Then it came to India from Afghanistan and Iran in 1300 A.D. In India, there are 1000 varieties of grapevine. Nevertheless, very few varieties are planted to be used for table grapes, wine, raisin and juice. Of these 77 to 80 percent are used for fresh eating, 2 percent for export, 17 to 20 percent for raisin and 1.5 percent for juice and only 0.5 percent used for wine. Solapur district has adopted grapevine cultivation on a large scale in 1960. The development of grapevine cultivation took place from 1980. The progressive grape growers of the region have innovated some new varieties like Tas-A-Ganesh, Manikchaman, and Sonaka by selection method from Thompson Seedless. Temporal development of grapevine cultivation in this area is the testimony of the gallant, innovative and industrious farmers. The semi-arid climate of the zone promoted the development of grapevine cultivation. During the last decade, Solapur district has attained a significant position in respect of area under grapevine production and quality of grapes. Grapevine cultivation has established credibility in providing productivity of land, generating employment opportunities, improving socio-economic conditions of grape growers, changing export potential and above all providing nutritional security. So this crop and region are selected for present research paper. For these, twenty years (1987 to 2007) period

are selected to study the spatio-temporal changes in grape cultivation.

Objectives

The major object of this paper is to analyze the spatio-temporal changes in grape cultivation in Solapur district. An attempt is made here to examine, analyze and to map the major grape varieties, area and production growth rate.

Study Area

The present study deals with the geographical perspectives of the agriculture in Solapur district. The Solapur district is bounded by 17°05' North latitudes to 18° 32' North latitudes and 74° 42' East to 76° 15' East longitudes. The total geographical area of Solapur district is 14895² K.m. divided into eleven tahsils. All tahsils are selected for the present study. (Fig No 1)

Database

Present study mostly relies on the secondary data collected through Agriculture Department and District Statistical Department of Solapur, Maharashtra Drakshya Bagayatdar Sangh Solapur and District socio-economic abstract of Solapur District.

Methodology

For the present investigation, District is selected as in general and tahsils in particular. Firstly, the tahsilwise grape area is collected during investigation period (1987 to 2007). The statistical equation is used to understand growth rate. The figures and district maps are used for comparative study of spatial distribution (Fig. 1-).

Explanation

The social and economical status of farmers increased after growing grape area because grape is a cash crop. Expecting grape, jowar, bajara, sugarcane, ber, pomegranate are

practiced in the district. But all the crops depend on rainfall and pomegranate crop affected telya disease. At that time grape is well alternative cash crop of farmers.

Temporal Growth of Grapevine Cultivation

The area and plantation of grapevine and its growth ratio is of immense importance. It reflects the spatial dimension of this particular crop controlled by a number of variables like physical and nonphysical determinants. The area and plantation of grapevine increased from year to year in the study region and this growth rate is measured by the following equation:-

Formula-

$$GR = \frac{P2-P1}{P1} \times 100$$

Where_

GR= Growth Rate

P1= Grapevine area/ plantation in the present year.

P2= Grapevine area/ plantation in the previous Year.

Fig No 2 and Table No 1 reveal that the temporal growth in the area under grapevine cultivation is 876 hectares in beginning of 1987-88, which jumped to 1789 hectares in 1988-99. In these two years, the growth rate is 99 percent. In the same period the production increased from 9210 tons to 266 tons and the growth rate is 188 percent. In the period form 1989-90 to 1994-95, the area and production are not increase more and the growth rate is 5 to 15 percent. In the period from 1994-95 to 1997-98, the area of grapevine decreased from 2070 hectares to 1365 hectares and the decrease rate is 34 percent. The production of grapevine of also decreased from 43570 tons to 32000 tons in the same period and the decrease rate is 26 percent. The main reason is decreasing annual rainfall. Then, there was a continuous increase in the production of grapes and area under grapevine cultivation up to 2006. But the rate of growing area is only 1 -2 percent and the production growth rate is 2-4 percentage in the study region.

Varietywise and Talukawise Grape area

Grapevine cultivation started in 1960 with the variety of Fakadi and Bhokari as alternative fruit crops. After 1980, it has been practised as a traditional commercial fruit crop in a large extent of area. Presently, in Solapur district the new varieties like Sonaka, Manikchaman, Tas-A-Ganesh and Thompson Seedless are more practiced than other varieties. The analysis of variety wise area under grapevine cultivation at tahsil level reveals that more than 57.58 percent of the under Thompson Seedless variety is followed by Sonaka and Tas-A-

Ganesh are sharing 14.37 and 20.35 percent. Variety wise area under grapevine cultivation in each tahsil is different. a) **Thompson Seedless**:- It is vinifera grape, which originated in Asia Minor and was first grown in California by Willam Thompson near Yuba city. It is also call oval Kishmish in the Eastern Mediterranean region and Sultana in Australia and South Africa (Winkler 1974). It is believe to be grown in every viticulture country of the world. Large quantities of white desert wines are also made from this variety. However, it can not be used for producing high quality table vine. The area of Thompson Seedless is highest (9950 hectares) in all varieties area, which shares 57.18 percent of the total grapevine area of the study region. The highest proportion of this variety is in Pandharpur i.e. 6000 hectares followed by S Solapur and Barshi (1000 hectares), N Solapur (800 hectares) and the remaining tahsil are found to have only 100 to 300 hectares area under this variety. b) **Tas-A-Ganesh** :- Tas-A-Ganesh is similar to Thompson Seedless in all respect except in the size of the berries and the clusters are larger than those of Thompson seedless. This mutant responds more to grapevine area application and girdling, resulting into a better quality fruit than Thompson Seedless. This variety was identified by the late Vasantrao in his vineyard at Borgaon in Sangli district. The area under this variety is 3540 hectares and it constitutes 20.35 percent of the total area under grapevine in the study region. This variety is largely planted in Pandharpur and Barshi tahsil which cover 1500 and 750 hectares and in S Solapur 600hectares. This variety is not planted in more than 100 hectares in all over the study region. c) **Sonaka/ Manik chaman**:- Sonaka is also similar to Thompson Seedless in all respect expect it responds to grapevine area application better than Tas-A-Ganesh and Thompson Seedless. As a result , the berry elongation is better and the berry skin is thin but it is more susceptible to berry cracking and rotting if it rains at the harvest. It was identify by Shri Nanasahab Kale in his vineyard at Nanaj in Solapur district. Manik chaman is like a variety of sonaka invented by Shri T R Dabhade at Nanaj in the study region . This is the third ranking variety, which constitutes 2500 hectors area and 14.37 percent of total grapevine area of the study region. It is planted all over the region in the area between 100 to 300 hectares. Other coloured varieties like Sharad Seedless and Flame seedless are also planted in the entire region . These varieties cover 8.10 percent area of total area of the these crops. However, at the tahsil level variations are observed. The area under grapevine cultivation is highest in Pandharpur i.e. it shares 48.85 percent of the total area of the study region. Then follow Barshi (14.37 percent), S Solapur (11.49 percent) and N Solapur(8.62 percent) .

Conclusion

The grapevine cultivation in Solapur District analysed by using these statistical methods. Following Conclusion has made. The growth rate of grape area is flexible from region-to-region and time to time according to environmental factors. The area of grapevine cultivation increasingly very slowly in study region and it decrease in the last decade. After the development of Thomson seedless, Sonaka and Tas-A-Ganesh varieties, the grape area increasing continuously. Thomas seedless is major grape variety practiced in district for table grape and raisin production. Grapevine is very sensitive climatic fruit crop, so it is largely influenced by disease (Mealy Bugs' powdery mildew, downy mildew and anthracnose)when climate change. At that time better pest and disease control 'Integrated Pest Management' programme will be implemented. Water is the main problem for vineyard during the scarcity period. So 'Anti-Tress' (spray) will be used to protect the grapevine during severe drought condition. The farmers of the region faced problem of poor quality and market problem

solved by the full reliance on the production of fresh grapes and raisin , this is the right time to think of other grape product such as Jam, Jelly, wine, Medicines and sprays.

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Table 1- Solapur District: Growth of Area and Production in grapevine

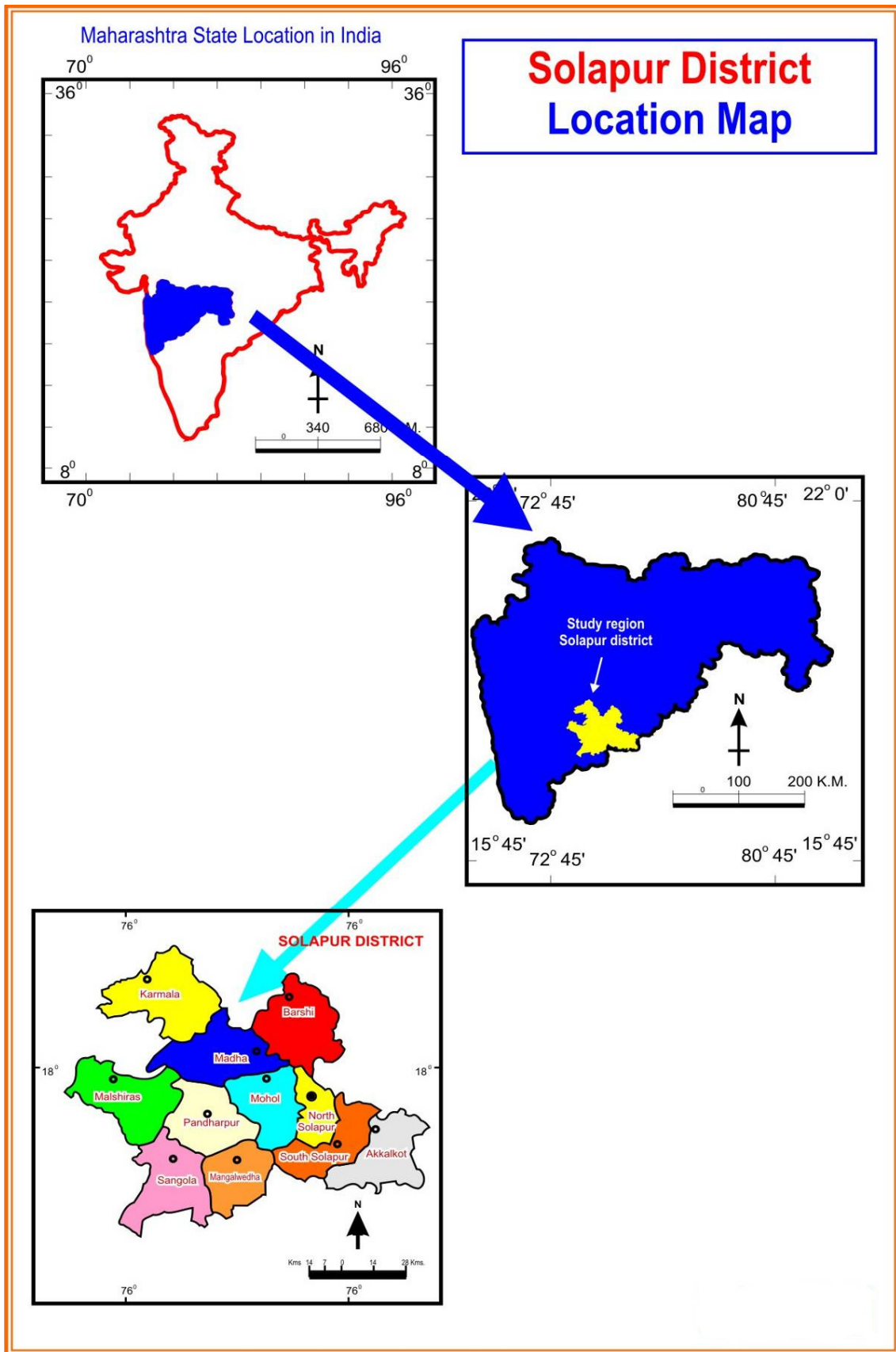
Year	Area Growth in percentage	Production Growth in percentage
1987-88	-	-
1988-89	1.83	188.9
1989-90	99.7	16.94
1990-91	1	12.88
1991-92	-1	13.97
1992-93	6.2	8.81
1993-94	0	-13.72
1994-95	9.35	-9.81
1995-96	-12.46	5.28
1996-97	1.66	-9.66
1997-98	-25.89	-0.74
1998-99	7.69	12.44
1999-00	18.57	31.93
2000-01	0	-4.39
2001-02	0.4	1.03
2002-03	0.51	4.74
2003-04	0.34	0.89
2004-05	2.49	3.39
2005-06	0.61	1.18

Source:- Agriculture Statistical Information of Maharashtra State (part II) p.p.- 148 & Report of Draksha Bhavan Solapur

Table 2- Solapur District: Talukawise area under grapevine cultivation (area in hectars)(2004-05)

Taluka	Sonaka	Coloured varieties	Thompson Seedless	Tas-A-Ganesh	Total	Percentage to total
N Solapur	250	150	800	300	1500	8.62
S Solapur	200	200	1000	600	2000	11.49
Barshi	500	250	1000	750	2500	14.37
Pandharpur	500	500	6000	1500	8500	48.85
Sangola	100	50	300	50	500	2.87
Malshiras	100	30	100	70	300	1.72
Mangalwedha	150	50	150	50	400	2.30
Mohol	100	30	200	70	400	2.30
Karmala	100	50	100	50	300	1.72
Madha	200	50	200	50	500	2.87
Akkalkot	100	50	100	50	300	1.72
Total	2500	1410	9950	3540	17400	100

Source: - Maharashtra state Draksha Bagayatdar Sangh Pune Branch Solapur Report of 2004-05



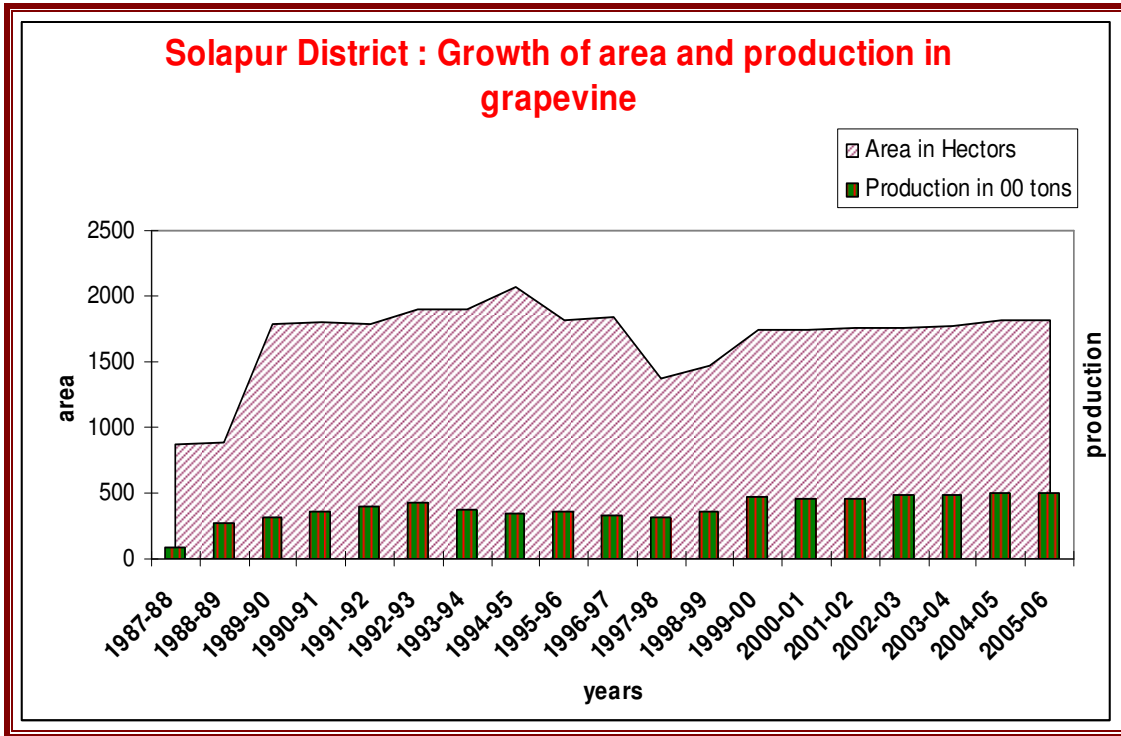


Fig. 2

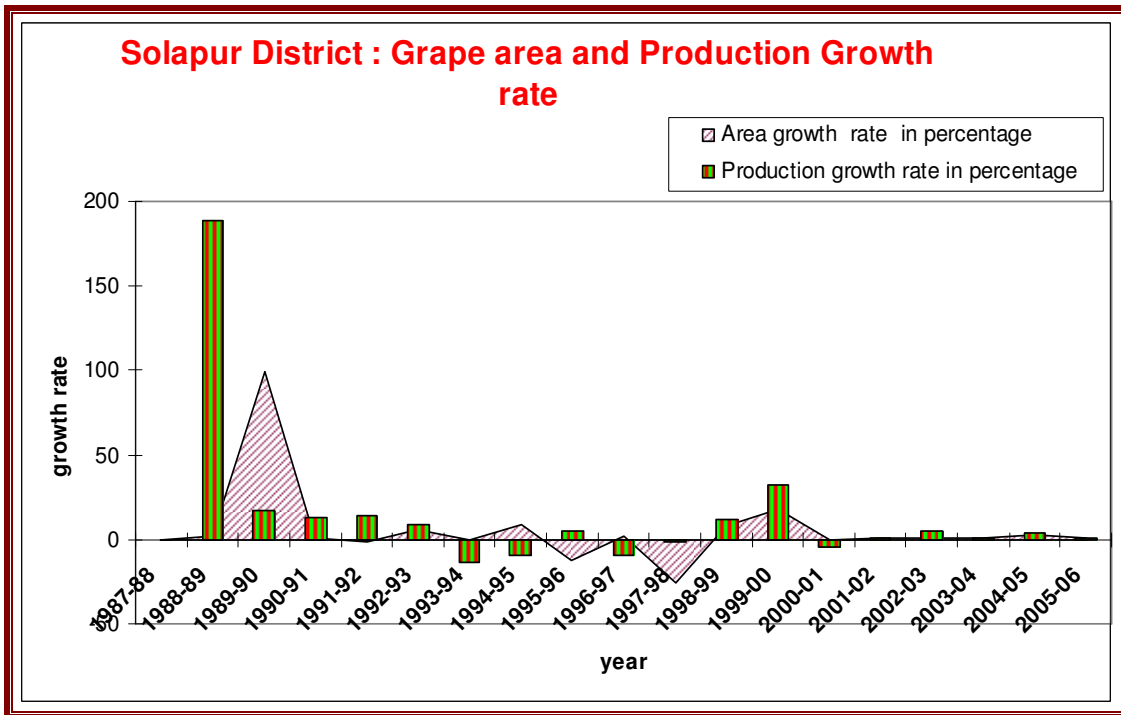
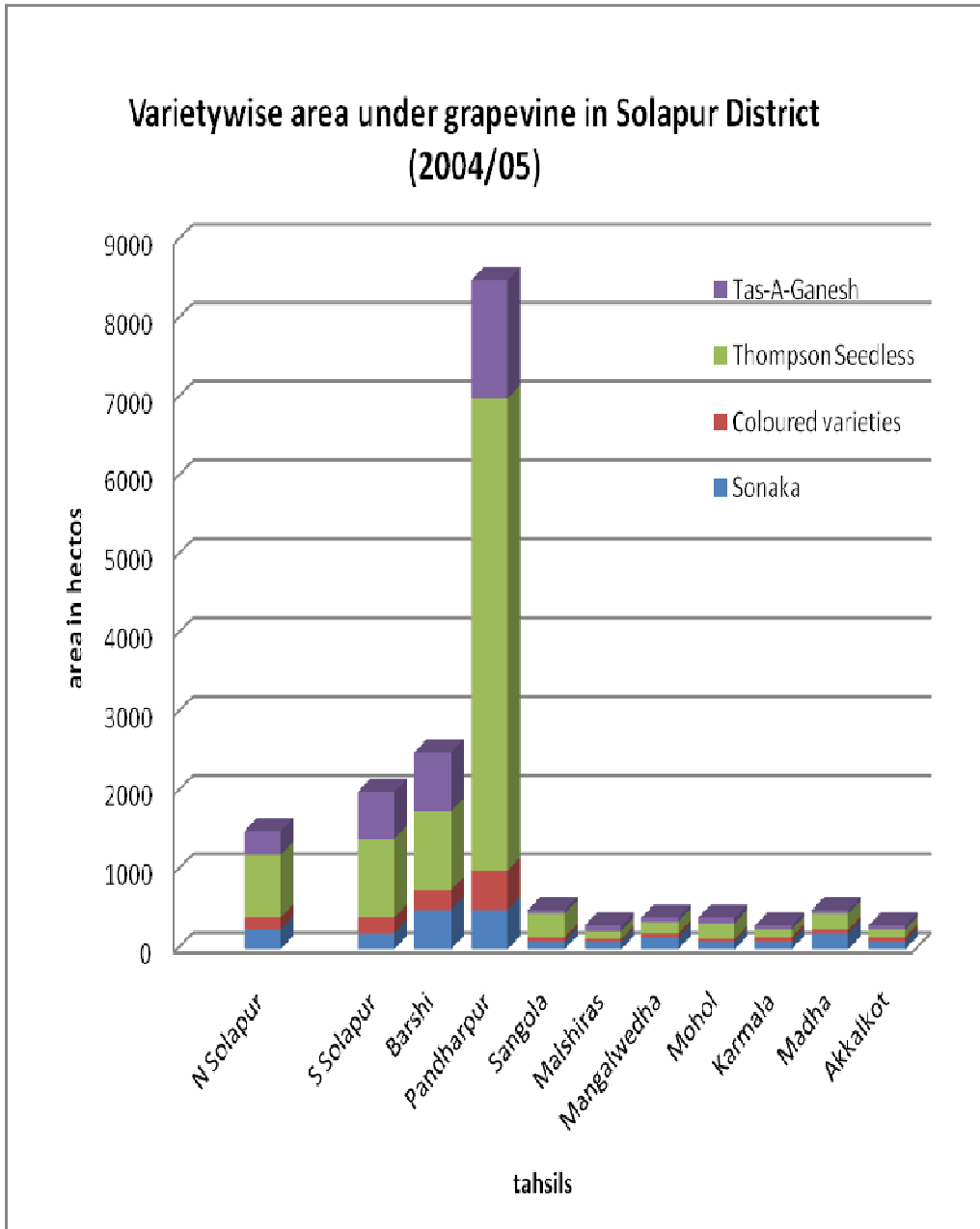


Fig. 3



Source :- Compiled by the Researcher

Fig. 4