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Adoption of Grape Cultivation Practices by the Grape Growers

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Abstract

The study was conducted with the specific objective of "Adoption of the grape growers" in Nashik and Sangli districts of Maharashtra state considering the larger area and production of grape. The leading talukas of grape cultivation in Nashik districts were Niphad, Dindori, Satana & in Sangli were Tasgaon, Kavathe-Mahankal, and Palus. All six talukas were selected purposively. For the selection of grape growers, the purposive sampling method was used. Three villages from each talukas having maximum area under grape cultivation were selected for the study Ten grape growers from the list of farmers growing grape were randomly selected from each chosen village. Thus, a total of 180 grape growers were selected. Grape is important fruit crops and having good prospects in Maharashtra. However, the area under grape is increasing day by day. It is necessary to find out the knowledge level and adoption of their recommended grape cultivation For study, the variables taken namely as Age, Education, Farming Experience, Annual income, Family Size, Land holding, Social participation, Extension contact, and Adoption of grape growers It is observed that Maximum number of the respondents had (52.78%) of the respondent had 'medium' level of adoption regarding grape cultivation practices i.e 17 to 17.

Keywords: Grape, Adoption, Maharashtra, Cultivation, Soil and Climate.

Introduction:

Agriculture enterprise is the way of life in India. Agriculture sector is the backbone of the Indian economy. India is the second largest producer of fruit in the World after China. The major fruit growing states in India are Maharashtra, Tamilnadu, Karnataka, Andhra Pradesh, Gujarat, Bihar and Uttar Pradesh. Grape (Vitis Vinifera L.) is a temperate fruit crop and also cultivated under tropical and subtropical regions in the world. It is originated in Asia Minor in the region between Black Sea and Caspian Sea which belongs to the family vitiaceae.

The grape is fairly good source of minerals like calcium, phosphorus, iron and vitamins like B1 and B2 also one of the most delicious, refreshing and nourishing fruit. Ripe grapes are easily digestible. Grape juice is a refreshing drink, a stimulant to kidneys and laxative. Ripe fruits are supposed to be the best table fruit. Wine making from grapes is a flourishing industry in many countries. Maharashtra, Karnataka, Punjab, Andhra Pradesh, Tamil Nadu and Haryan are the major grape growing states in India. Maharashtra is the leading grape producing state, where the total area under grape cultivation is 10,398 ha with annual production of 21.37 lakh million tons (2017). It stands very low as compared to other fruit crops. This is a challenging task for the scientists and the farmers.

Material and Methods:
Methodology
Selection of tahsils

Niphad, Dindori, Baglan tahsils of Nashik district and Tasgaon, Kavathe-Mahankal, Palus tahsils of Sangli district were selected purposively for study because having maximum area under cultivation of grape orchard.

Selection of villages

For the present study random sampling method was used and villages were selected on the basis of maximum area under cultivation of grape crop. Nine villages each from nashik and sangali district were selected randomly.

Selection of respondents

From the selected villages, the list of grape growers who grow grape from last three year were obtained from village level worker and form that list, proportionate number of farmers per village were selected by adopting proportionate random sampling method. Thus, in all 180 grape growers were selected as respondents who constituted the sample for the purpose of present study.

The two districts in Maharashtra that produce the most grapes are Nashik and Sangli. Together, these two districts accounted for over 50 percent of the state's grape output and area. Therefore, the districts of Nashik and Sangli were chosen for the study based on Maharashtra's largest area and output. The primary unit of the sample was talukas of these two districts. The leading talukas of grape cultivation in Nashik districts were Niphad, Dindori, Satana & in Sangli were Tasgaon, Kavathe-Mahankal, and Palus. All six talukas were selected purposively. The secondary unit of the sample was villages. Three villages from each talukas having maximum area under grape cultivation were selected for the study.

For the selection of grape growers, the purposive sampling method was used. Ten grape growers from the list of farmers growing grape were randomly selected from each chosen village. Thus, a total of 180 grape growers were selected and personal interviews with structured schedule was developed for the present study. Data were collected from primary sources to achieve the stated objectives. For this study, the dependent variables taken namely Knowledge and adoption.

The respondents were classified on the basis of adoption index into following three categories with the help of mean and standard deviation (X ± 1 SD) as below:

Sr. No.	Category	Index range
1.	*Low*	Upto 16
2.	*Medium*	17 to 27
3.	*High*	Above 28
Mean=22.14		**S.D= 5.10**

Result

Overall adoption level of grape growers

Table No. 1: Distribution of the grape growers according to their level of adoption (N=180)

Sr. No.	Category	Frequency	Percentage
1.	Low (up to 16)	62	34.45
2.	Medium (17 to 27 years)	95	52.78
3.	High (28and above)	23	12.77
	Total	**180**	**100**
Mean=22.14			**S.D= 5.10**

The data in Table 1, indicates that majority (52.78 %) of the grape growers belonged to medium level adoption of recommended grape cultivation practices as 34.45 per cent grape growers belonged to low level of adoption category. Only 12.77 per cent of the grape growers were found to have high level adoption of recommended grape cultivation practices.

Table No. 14: Practice wise adoption of recommended cultivation practices of grape growers

Sr. No.	Particulars	Extent of Adoption					
		Full		**Partial**		**No**	
		F	%	F	%	F	%
A. Soil and Climate							
1.	Soil Analysis	89	49.44	86	47.78	5	2.78
2.	Water Analysis	74	41.11	96	53.33	10	5.56
3.	Petiole analysis	68	37.78	24	13.33	88	48.89
B. Plant spacing and Variety							
4.	Recommended spacing for grape crop 9x6 ft	79	43.33	98	45.56	33	11.11
5.	Use of planting material of recommended variety- Sonaka, Manik Chaman, Thompson Seedless	88	48.89	92	51.11	0	0
C. Selection of planting material and Land preparation							
6.	Selection of planting material from certified nursery.	63	35.00	109	60.56	8	4.44
7.	Propagation method used - (Dogridge or Polsan rootstock etc.)	172	95.56	8	4.44	0	0
8.	Treatment on cuttings before planting	67	37.22	106	58.89	7	3.89
D. Time of Planting							
9.	Planting time of Dogridge – (Dec-Jan)	41	22.78	123	68.33	16	8.89
10.	Pit size- 0.60 x 0.60 x 0.60 m	65	36.11	98	54.44	17	9.44
11.	Methods of planting recommended for grape crop - Rooted cuttings	34	18.89	114	63.33	32	17.78
12.	Treatment on graft after grafting	81	45.00	96	53.33	3	1.67
E. Training and Pruning							
13.	Training method used to support grape vines- (T method, Y method)	62	34.44	74	41.11	44	24.44
14.	Drenching insecticide around each stem	79	43.89	65	36.11	36	20.00

| 15. | Time of pruning in grape crop - April and Oct. pruning | 180 | 100 | 0 | 0.00 | 0 | 0.00 |
| 16. | Chemicals used for sprouting of new eye buds - (Hydrogen Cynamide) | 50 | 27.78 | 88 | 48.89 | 42 | 23.33 |

Discussion

The study revealed from table 14, that grape farmers are adopting soil analysis practice, 49.44 per cent grape farmer has full adoption, followed by 47.78 per cent of farmer had partial adoption and only few of them 2.78 per cent had no adoption regarding the soil analysis. Whereas 41.11 per cent farmer had full adoption regarding water analysis with it 53.33 per cent had partial adoption and only 5.56 per cent had no adoption regarding water analysis. In this study it is also found that 48.89 per cent grape farmer had no adoption of petiole analysis followed by 37.78 per cent had full adoption, only 13.33 per cent had partial adoption.

Regarding plant spacing and variety, 9x6-foot planting was used, and 45.56 percent of grape growers adopted the practice partially, followed by 43.33 percent who adopted it fully, and a small percentage (11.11%) who did not accept the practice. Sonaka and Manik Chaman, two popular grape varieties grown by the majority of farmers, had a partial adoption rate of 51.11 percent, while 48.89 percent of grape orchard growers had a full adoption rate.

The adoption regarding planting material from certified nursery, maximum number of respondent 60.56 per cent were observed under partial adoption this was followed by 35.00 per cent comes under full adoption and only 4.44 per cent observed under no adoption. While studying the adoption for treatment on cuttings, 58.89 per cent grape grower had partial adoption, 37.22 per cent and 3.89 per cent had full adoption and no adoption respectively.

Regarding time of planting 68.33 per cent of grape growers had partial adoption followed by 22.78 per cent has full adoption and only 8.89 per cent has no adoption of dogridge planting. The recommended size of pit in grape orchard more than fifty per cent (54.44 %) has partial adoption and 36.11 per cent were in full adoption category and 9.44 per cent has no adoption in it.

In case of planting distance maximum numbers of respondents 63.33 per cent had partial adoption of the recommended plant distance in grape, whereas 18.89 per cent and 17.78 per cent of respondents were observed under full and no adoption respectively. About adoption of treatment on graft 53.33 per cent has partial adoption followed by 45.00 per cent and 1.67 per cent has full adoption and no adoption.

In training system for the grape crop, it was found that more than two fifth (41.11%) of respondents partially adopted the suggested training method on grape plant, while 34.44% and 24.44% of respondents adopted the practice as 'full' and 'no' adoption respectively. Regarding the practice of drenching each stem of the grape plant with insecticide as a means of improving grape production and keeping it healthy, only one fifth of respondents (43.89%) were found to have adopted it fully, whereas 36.11 percent and 20.00 percent of respondents adopted it partially and did not adopt it at all.

When it comes to pruning techniques, farmers start pruning soon after the harvesting period ends. This is because it is a suitable time for pruning the grape crops, as indicated by the fact that cent per cent of respondents has 'full adoption' about this practice, indicating that all producers known to it. Regarding the use of chemical in the technique of sprouting new eye flower buds the majority of respondents (48.89%) adopted it partially, whereas 27.78% had full adoption and few of the respondents (23.33%) were categorized as having 'no adoption' at all.

Conclusion:

Table 15 showed that, of the grape growers, the majority (52.78%) belonged to the medium level adoption category of the recommended grape cultivation practices, while 34.45% belonged to the low level adoption category. It was discovered that just 12.77 percent of grape growers had a high level of adoption of advised grape cultivation techniques. Knowledge of the individual, as it is fundamental for any individual to weigh the benefits and drawbacks when deciding whether to adopt or reject a practice. For this reason, the majority of respondents had high knowledge, which contributed to the fact that more grape growers fell into the medium adoption category. An additional significant observation is that individuals have a propensity to exclusively embrace those behaviors, which they feel are simple, involve low cost and are effective in getting good yield.

Conflicts of Interest
The authors declare that there are no conflicts of interest regarding the publication of this paper

References:
1. Ahire, R.D., (1997). A study on the adoption of improved management practices by the grape growers. M.Sc.(Agri.) Thesis, submitted to Marathwada Krishi Vidyapeet, Parbhani.

2. Ankush, G.S. and Kolgane, B.T., (2008). "Reasons for non-adoption of recommended Technology in grape cultivation" Research Review Committee Social Sciences subcommittee report the Department of Extension Education, Marathwada Krishi Vidyapeeth, Parbhani, submitted to Research Review Committee Social Sciences Sub-committee.

3. Anonymous (2017). Horticultural Statistics at a Glance 2017.

4. Atar R.S, (2012). Knowledge and adoption of recommended grape cultivation practices by the grape growers. M.Sc.(Agri.) Thesis, submitted to Marathwada Krishi Vidyapeet, Parbhani.

5. Bhoyar, S. D., R. D. Ahire and Kapse, P. S. 2020. Study Profile of the Pomegranate Growers. *Int.J.Curr.Microbiol.App.Sci.* 9(12): 2006-2011.

6. Chavan, S.S. (2005) A study on adoption of recommended package of practices in grape cultivation by the growers in sangli district of maharashatra state M.Sc. (Agri.)Thesis, MPKV, Rahuri.

7. Hinge, R. B. (2009). "A study on diffusion and adoption of wine grape production technology in Maharashtra". *M.Sc. (Agri.), Thesis*, (*unpublished),* University of Agricultural Sciences, Dharwad.

8. Raut, P. N. (2006)."Production constraints of orange cultivation in Nagpur district of Maharashtra", *Asian Journal of Extension Education*, 25 (1&2):1-4.

9. Kharade., P.P. (2011) Study Of Adoption Of Post Harvest Technology Practices Along With Constraints Faced By The Grape Growers In Sangli District *Agriculture Update Vol. 6 Issue 1 February, 2011page no.137-141.*

10. Kharde ,D.P., (2003). "Knowledge and adoption of POST HARVEST TECHNOLOGY BY grape growers of Tasgaon thasil of sangli districit M.Sc. (Agri.) Thesis submitted to MPKV, Rahuri.