The Pharma Innovation

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Relationship between the profile of mandarin growers with knowledge about mandarin production technology

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Abstract
The present study was conducted on "Knowledge and adoption of mandarin production technology by the growers" was purposively conducted in Yavatmal district of Vidarbha region. The study was conduted in Digras, Babulgaon, Ner talukas. The sample constituted 120 mandarin growers from 12 villages. Ex-post facto research Design was used for present study. Data from the respondents were collected by personally interviewing with the help of structured and pretested interview schedule. Collected data were classified, tabulated and analysed by using statistical methods like frequency, percentage, mean, standard deviation, correlation coefficient. It was noticed that 55.00 percent of respondents belonged to middle age category. It was also observed that, 33.33 percent of the respondents were educated up to High school level category. It was reported that, less than, half of the respondents 44.17 percent possessed semi medium category of land holding. The findings also indicated that 83.33 percent possessed small size of orchard up to 2 ha. Maximum percentage of respondents 55.83 percent belonging to medium annual income category, 66.67 percent of the respondents belonged to medium extension contact category. It is revealed that 56.67 percent of the respondents had medium level of sources of information, Majority i.e. 68.33 percent of respondents were having medium level of risk orientation. More than half of the respondents 59.17 percent had belonging to medium social participation category; majority i.e. 65.83 percent of the respondents had medium level market orientation. It was observed that, the results of correlation of coefficient (r) showed that the independent variables namely age of respondents was negatively and significant relationship with knowledge of the mandarin growers regarding mandarin production technology. Variables like education, land holding, orchard size, annual income, extension contact, sources of information, risk orientation, social participation and market orientation had positively and significant relationship with knowledge of the mandarin growers regarding mandarin production technology.

Keywords: Knowledge, adoption, production, technology, mandarin

Introduction
The cultivation of mandarins (Citrus reticulata) plays a crucial role in the agricultural economies of many regions around the world. As the global demand for mandarins increases, optimizing production practices becomes essential. A key factor in achieving high productivity and quality in mandarin farming is the growers' knowledge of mandarin production technology. This research explores the relationship between the demographic and socio-economic profile of Mandarin growers and their level of knowledge regarding advanced Mandarin production technologies. Understanding this relationship is vital for developing targeted educational programs and extension services that can enhance growers' proficiency and adoption of best practices, ultimately leading to improved yields and sustainability in Mandarin production. This study aims to identify specific characteristics of Mandarin growers that influence their technological knowledge, including age, education, farming experience, farm size, and access to information resources. By elucidating these factors, policymakers and agricultural extension agencies can better tailor their support to address the needs of diverse grower profiles, fostering a more knowledgeable and efficient Mandarin.

Materials and Methods
The present study was conducted in Yavatmal district of Maharashtra state. In Yavatmal district. Out of sixteen talukas of Yavatmal district, three talukas namely Digras, Babulgaon and Ner was selected purposively as higher area under mandarin cultivation. Four villages were selected randomly from each taluka. Thus 12 villages from three talukas were selected for the study. From the selected village, ten (10) respondents from each village were selected randomly. In this way, from 12 villages 120 farmers selected for the present study.

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Ex-post facto research design will be used for present study. Data was collected by personally interviewing the respondents with the help of presented and structured interview schedule. The data collected was tabulated and the statistical tools namely mean, standard deviation, percentage, frequency, coefficient of correlation were employed for interpretation of the findings.

Specific Objective
1. To study the profile of Mandarin growers.

2. To find out the relationship between the profile of Mandarin growers with knowledge of mandarin production technology

Results and Discussion
1) The Profile of Mandarin Growers
Distribution of Mandarin growers according to their Profile variables or characteristics

Table 1: Distribution of Mandarin growers according to their Profile variables or characteristics

Sr. No.	Characteristics	Frequency	Percentage
1	**Age**		
i	Young (Up to 27 years)	31	25.83
ii	Middle (28 years to 52 years)	66	55.00
iii	Old (53 years & above)	23	19.17
2	**Education**		
i	Illiterate	08	06.67
ii	Can read & write only	00	00.00
iii	Primary school level	25	20.83
iv	Middle school level	27	22.50
v	High school level	40	33.33
vi	College level	20	16.67
3	**Land Holding**		
i	Marginal (Up to 1.00 ha)	09	07.50
ii	Small (1.01 to 2.00 ha)	39	32.50
iii	Semi-medium (2.01 to 4.00 ha)	53	44.17
iv	Medium (4.01 to 10.00 ha)	13	10.83
v	Large (above 10.01 ha)	06	05.00
4	**Orchard size**		
i	Small (up to 2 ha)	100	83.33
ii	Medium (2.01 to 4 ha)	14	11.67
iii	Large (above 4.01 ha)	6	05.00
5	**Annual Income**		
i	Low (Up to Rs.240000)	32	26.67
ii	Medium (Rs.250000 to Rs.440000)	67	55.83
iii	High (above Rs.450000)	21	17.50
6	**Extension Contact**		
i	Low (up to 23)	18	15.00
ii	Medium (24 to 34)	80	66.67
iii	High (35 & above)	22	18.33
7	**Sources of Information**		
i	Low (up to 13)	28	23.33
ii	Medium (14 to 20)	68	56.67
iii	High (21 & above)	24	20.00
8	**Risk Orientation**		
i	Low (up to 21)	24	20.00
ii	Medium (22 to 26)	82	68.33
iii	High (27 & above)	14	11.67
9	**Social Participation**		
i	Low (up to 5)	27	22.50
ii	Medium (6 to 9)	71	59.17
iii	High (10 & above)	22	18.33
10	**Market Orientation**		
i	Low (up to 13)	26	21.67
ii	Medium (14 to 21)	79	65.83
iii	High (22 & above)	15	12.50

The data pertaining to Table 1 depicts Profile variables or characteristics of mandarin growers (respondents) as following
1. Age
The age wise distribution of the respondents in Table 1 shows that maximum percentage of the respondents 55.00 percent were found in the middle age category, followed by 25.83

percent appeared in young age category and 19.17 percent of respondents were in the old age category. Similar results were observed by Mule (2012) [12].

2. Education
The education wise distribution of the respondents in Table 1 shows that 33.33 percent respondents were educated up to

higher school level. While 22.50 percent of the respondents were educated up to middle school level. Primary school level education was availed by 20.83 percent of the respondents followed by 16.67 percent of the respondents was educated up to collage level. Whereas, 6.67 percent of the respondents were Illiterate and No respondents were observed can read and write only category. Similar findings were reported by Dhole (2006) [5].

3. Land Holding
The data furnished in Table 1 indicated that 44.17 percent of the respondents possessed semi medium category of land holding, followed by 32.50 percent were belonged to small category, 10.83 percent were belonged to medium category, 07.50 percent were from marginal and 05.00 percent of respondents belonged to large category of land holding. The findings of the present study are similar with Kadu (2016) [9], Prashant et al. (2018) [15].

4. Orchard size
It shows from Table 1 that maximum percentage of respondents i.e. 83.33 percent had small size of orchard whereas, 11.67 percent respondents were having medium size of orchard followed by only 05.00 percent of the respondents were possessed large size of orchard under cultivation of mandarin crop. Similar result was found by Kadu (2016) [9].

5. Annual income
It is observed from Table 1 that 55.83 percent of the respondents were belonged to medium category of annual income followed by 26.67 percent of the respondents were from low annual income, whereas, 17.50 percent had high annual income. Thus, it was found from the result that majority of the respondents were having medium annual income. This finding is similar to the finding of Wankhede (2016) [18] and Kadu (2016) [9].

6. Extension contact
It was depicted from Table 1 that 66.67 percent of the respondents belonged to medium extension contact category, while 18.33 percent and 15.00 percent of the respondents belonged to high and low extension contact category,

respectively. The findings favours the findings of Bankar (2017) [3].

7. Sources of information
It was observed from Table 1 that 56.67 percent mandarin growers were using medium level of sources of information, while 23.33 percent and 20.00 percent of them uses low and high level of sources of information, respectively. The findings of the study are similar to the findings of Atar (2012) [1] and Gedam and Padaria (2014) [6].

8. Risk orientation
From the above Table 1, it was observed that majority 68.33 percent of respondents were having medium level of risk orientation, while 20.00 percent who were under low category of risk orientation whereas, 11.67 percent respondents were under high category. The findings are similar to the findings of Lad (2013) [10] and Meena (2014) [11].

9. Social participation
It is elucidated from Table 1 that more than half of the respondents 59.17 percent had medium social participation, while 22.50 percent of the respondent had low social participation and 18.33 percent of them had high social participation. This finding is similar to finding of Waghmare (2010) [17] and Bansode (2011) [2].

10. Market orientation
It is depicted from Table 1 that, majority 65.83 percent of the mandarin growers had medium market orientation followed by 21.67 percent in low market orientation category followed by 12.50 percent had high market orientation of the mandarin growers. The results in line with by Sawale (2011) [16] and Atar (2012) [1].

2) Relationship between profile of respondents with knowledge of mandarin production technology
The present investigation an attempt was made to find out the coefficients of correlation of the selected characteristics with their knowledge level of respondents about mandarin production technology. The data have been presented in Table 2.

Table 2: Relationship between profile of respondents with knowledge of mandarin production technology

Sr. No.	Independent variable	Coefficient of correlation (r)
1	Age	-0.231*
2	Education	0.383**
3	Land holding	0.276**
4	Orchard size	0.331**
5	Annual income	0.451**
6	Extension contact	0.386**
7	Sources of information	0.375**
8	Risk orientation	0.419**
9	Social participation	0.297**
10	Market orientation	0.353**

**Significant at 0.01 percent level
*Significant at 0.05 percent level

It was observed from Table 2 that, the results of correlation of coefficient (r) showed that the independent variables namely age of respondents was negatively and significant relationship with knowledge of the mandarin growers regarding mandarin production technology at 0.05 percent probability. Variables like education, land holding, orchard size, annual income,

extension contact, sources of information, risk orientation, social participation and market orientation had positively and significant relationship with knowledge of the mandarin growers regarding mandarin production technology.

1. Age and knowledge
The correlation coefficient indicated that, the negatively and significant correlation between age of respondents and knowledge level of the mandarin growers regarding mandarin production technology. It has been reported that young people tends to be more curious and receptive about new knowledge. The findings are similar with Kadu (2016) [9].

2. Education and knowledge
The correlation coefficient conspicuous that, there was positive and significant correlation between education and knowledge level of the mandarin growers regarding mandarin production technology. This means that higher the education, higher was the knowledge. Education has impact on every aspect of life of individual. It broadens the knowledge base of an individual. The possible logic could be that the educated persons are always curious to know the details of any new findings. This finding is in the line with the findings of Sawale (2011) [16] and Baswante (2016) [4].

3. Land holding and knowledge
The correlation coefficient pointed that, there was a positive and significant correlation between land holding and knowledge level of the mandarin growers regarding mandarin production technology Generally families having larger size of land holding have more income and have high socio-economic status. They could try the innovation at their situation and they accept change by modifying their behaviour. It was therefore assumed that mandarin growers with large size of land holding might have more knowledge about mandarin production technology. Similar results were also in the study of Sawale (2011) [16] and Kadu (2016) [9].

4. Orchard size and knowledge
The correlation coefficient revealed that, there was a positive and significant correlation between orchard size and knowledge level of the mandarin growers regarding mandarin production technology. It could indicate that, increase in orchard size, increased the level of knowledge of respondents Similar findings were indicating in the present study by Ghodeswar (2006) [7] and Nemade (2007) [13].

5. Annual income and knowledge
The correlation coefficient showed that there was a positive and significant correlation between annual income and knowledge level of the mandarin growers regarding mandarin production technology. It could be indicated that, mandarin growers from higher income group had relatively more knowledge. The rich persons may have wider contacts and they were favourably placed knowledge with respect to formal education. Therefore, it may have positive and significant relationship with the annual income and knowledge about mandarin production technology. Similar results were reported by Pawer (2008) [14] and Kadu (2016) [9].

6. Extension contact and knowledge
The correlation coefficient revealed that there was a positive and significant correlation between extension contact and knowledge level of the mandarin growers regarding mandarin production technology This reveals that higher the extension contact, higher the level of knowledge of the farmer about mandarin production technology. The people who had extension contact with scientist and agricultural officer had more knowledge than other. Therefore there was positive and significant relationship these two variables. Similar findings were indicated in the study of Atar (2012) [1] and Kadu (2016) [9].

7. Source of information and knowledge
The correlation coefficient indicated that there was a positive and significant correlation between source of information and knowledge level of the mandarin growers regarding mandarin production technology. An individual gains variety and more amount of knowledge if he has an opportunity to expose with more number of sources of information. Respondents those used more sources of information they have higher exposure and enriches the level of knowledge, the people who had more extension contact had greater source of information. Similar results were also noted in the study of Jadhav (2008) [8] and Sawale (2011) [16].

8. Risk orientation and knowledge
The correlation coefficient conspicuous that there was a positive and significant correlation between risk orientation and knowledge level of the mandarin growers regarding mandarin production technology. This indicates that, the higher the risk orientation also higher the level of knowledge of mandarin growers. This finding may be due to those mandarin growers who had high risk orientation are psychologically prepared to try new practices with a view to make progress in farming. It is therefore, risk orientation was found to be positively and significant relation to knowledge of mandarin production technology. Similar findings were indicated in the study of Pawar (2008) [14] and Sawale (2011) [16].

9. Social participation and knowledge
The correlation coefficient showed that there was a positive and significant correlation between social participation and knowledge level of the mandarin growers regarding mandarin production technology.Those respondents had greater social participation in the organization have more knowledge as compared to other. The findings of the study are similar to that of Nemade (2007) [13] and Atar (2012) [1].

10. Market orientation and knowledge
The correlation coefficient pointed that there was a positive and significant correlation between market orientation and knowledge level of the mandarin growers regarding mandarin production technology. This reveals that higher the market orientation, higher the level of knowledge of the mandarin growers about mandarin production technology. Therefore, there was positive and highly significant relationship between these two variables. The findings are supported by the study of Sawale (2011) [16] and Atar (2012) [1].

Conclusion
It was noticed that 55.00 percent of respondents belonged to middle age category. It was also observed that, 33.33 percent of the respondents were educated up to High school level category. It was reported that, less than, half of the respondents 44.17 percent possessed semi medium category of land holding. The findings also indicated that 83.33 percent possessed small size of orchard up to 2 ha. Maximum percentage of respondents 55.83 percent belonging to medium annual income category, 66.67 percent of the respondents

belonged to medium extension contact category. It is revealed that 56.67 percent of the respondents had medium level of sources of information, Majority i.e. 68.33 percent of respondents were having medium level of risk orientation. More than half of the respondents 59.17 percent had belonging to medium social participation category; majority i.e. 65.83 percent of the respondents had medium level market orientation. It was observed that, the results of correlation of coefficient (r) showed that the independent variables namely age of respondents was negatively and significant relationship with knowledge of the mandarin growers regarding mandarin production technology at 0.05 percent probability. Variables like education, land holding, orchard size, annual income, extension contact, sources of information, risk orientation, social participation and market orientation had positively and significant relationship with knowledge of the mandarin growers regarding mandarin production technology.

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