



Knowledge of Farmers towards Adoption of Grape Cultivation for Wine Making in Champhai District, Mizoram

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Grape cultivation plays a significant role in India, contributing to its economy, nutrition, and employment opportunities. Specifically, grape cultivation for wine production holds great importance, both economically and in terms of farmers' attitudes. This study was conducted in Champhai town, Mizoram, to explore the social and psychological factors that influence the acceptance of large-scale wine making. Descriptive research design was followed for the present study. The findings of this research showed that the majority of respondents in the study belonged to the middle age group (36-55), had a basic level of education, predominantly from nuclear families and farming was their primary occupation. The study found that most respondents had moderate levels of scientific orientation, mass media exposure, progressiveness, and extension contacts. In terms of knowledge, 15% of respondents demonstrated a high level, while 52.50% had a moderate level, and 32.50% had a low level of knowledge about grape cultivation practices. Age,

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education, occupation, extension contacts, mass media exposure, family type, family size, source of information utilized, progressiveness, and scientific orientation were identified as factors influencing knowledge. The major constraints identified were the heavy attack of pests, diseases, nematodes, and weeds, as well as inadequate management of fertilizers and pesticides.

Keywords: Knowledge; adoption; progressiveness; grape.

1. INTRODUCTION

Grape (*Vitis vinifera* L.) is one of the perennial deciduous woody vines cultivated in the temperate, tropical and subtropical regions of the world. It belongs to the family Vitaceae and are an important fruit crop in India. They are grown in various regions across the country, with major grape-producing states including Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, and Telangana. Grapes are not only consumed as table fruits but are also used for making wines, juices, and raisins [1-3]. Grape cultivated for wine making hold great importance in India, both in terms of its economic value and the attitude of farmers towards grape cultivation for wine production [4-8]. The wine industry has significant economic potential, contributing to the country's economy through domestic consumption and exports. Indian wines have gained recognition in the global market, leading to an increased demand for high-quality grapes specifically grown for wine making [9,10]. This has spurred the expansion of vineyards and wineries in regions such as Maharashtra, Karnataka, Tamil Nadu and among the north-eastern states like Mizoram, where favourable agro-climatic conditions support grape cultivation [11-14]. The present study aims to provide scientific information on the necessary social and psychological factors that would influence the attitude and knowledge of the farmers about the adoption of grape for wine making.

2. METHODOLOGY

The present study was conducted in Champhai town of Champhai District, Mizoram where Champhai RD block is selected on the basis of maximum area under cultivation of grape. For selection of respondents, a comprehensive list of grape growers was prepared from each identified village from the block with the help of Grape Growers Society members and Horticulture Officers of the village, grape growers were selected proportionately from each village, and respondent were selected randomly. Thus, all 120 farmers were included in the sample for the

present investigation. The selected independent variables were age, education, land holding, family type, family size, occupation, extension contacts, mass media exposure, source of information utilized, progressiveness, scientific orientation and risk orientation, while the dependent variables were knowledge and attitude. Descriptive research design was followed for the present study. The data was analyzed using Excel Spreadsheet and the categories of low, medium and high were computed on the basis of mean and standard deviation. The relationship of selected independent variables with the dependent variables was analysed with the help of Pearson's product moment correlation coefficient (r).

3. RESULTS AND DISCUSSION

3.1 Socio-economic Profile of Grape Growers

The majority 54.17 per cent of the respondents were found in middle age group (35-55 years) and most of them were high school educated (36.67%). Approximately 89.17 per cent owned a land which are under grape cultivation and the largest portion of respondents, comprising 69.17 per cent of the total sample, belonged to nuclear family households. 58.34 per cent of the respondents had a family size of up to 5 members. The primary occupation of the majority of respondents 43.34 per cent were in the category of farming plus any other work. The majority of farmers, comprising 53.34 per cent of the total sample, demonstrated a medium level of exposure to mass media. About 59.17 per cent of the respondents had a high source of information and was observed that 46.67 per cent of the respondents had a medium level of progressiveness, maximum farmer had medium level of Scientific orientation i.e., 70.83 per cent, the risk orientation or risk bearing capacity of farmers was observed and it shows that 65.84 per cent of farmers belonged to the low-risk orientation category.

3.2 Knowledge of the Respondents towards Grape Cultivation Practices

Knowledge is a crucial factor influencing behavior and the adoption of innovations. With this perspective in mind, the level of knowledge among farmers concerning grape cultivation practices was evaluated. According to the data presented in Table 1 and Fig. 1, a fair number of the respondents (32.50%) exhibited a high level of knowledge, while major respondents (52.50%) had medium level of knowledge and (15%) of the respondents demonstrated a low level of knowledge towards grape cultivation practices. Such findings were also observed by Adityan et al. [15].

Table 1. Distribution of respondents according to their overall level of knowledge (n-120)

S. No.	Categories	Frequency	Percentage
1	Low (36-39)	18	15.00
2	Medium (40-42)	63	52.50
3	High (43-46)	39	32.50
Total		120	100.00

3.3 Relationship between Knowledge and Independent Variables

To find out the relationship between the selected variable of grape growers, viz. age, education,

size of land holding, family type, size of the family, occupation, extension contacts, mass media exposure, source of information utilized, progressiveness, scientific orientation, risk orientation with their knowledge and attitude towards grape cultivation practices, “Pearson’s coefficient of correlation (r)” measurement is used in this study. Therefore, null hypothesis was rejected.

Table 2. Correlation co-efficient (r) between different independent variables and the knowledge in grape cultivation practices

S. No.	Independent Variables	Correlation Coefficient
1.	Age	0.981*
2.	Education	0.953*
3.	Land Holding	0.792 (NS)
4.	Family type	0.466**
5.	Family size	0.825**
6.	Occupation	0.658*
7.	Extension contacts	0.998*
8.	Mass media exposure	0.888*
9.	Source of information utilized	0.111**
10.	Progressiveness	0.983*
11.	Scientific Orientation	0.932*
12.	Risk Orientation	0.139(NS)

*= Correlation is significant at the 0.01% level of probability

**= Correlation is significant at the 0.05% level of probability, NS= non-significant

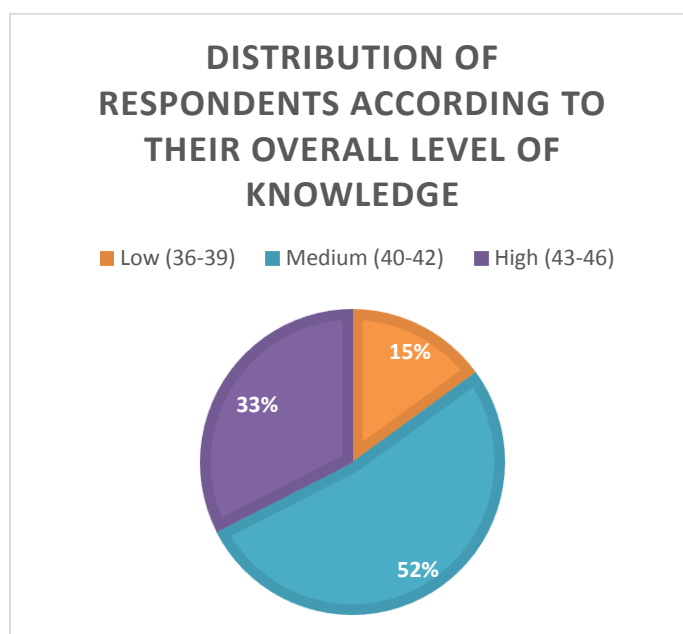


Fig. 1. Distribution of respondents according to their overall knowledge towards grape cultivation practices

According to Table 2, it can be concluded that independent variables age, education, family type, family size, occupation, extension contacts, mass media exposure, the source of information utilized, progressiveness, and scientific orientation are all positively correlated with knowledge. Land holding and risk orientation do not show significant correlations with knowledge in this study.

Age ($r = 0.981$) and education ($r = 0.953$) show strong positive correlations with knowledge, while land holding ($r = 0.792$, NS) and risk orientation ($r = 0.139$, NS) do not significantly affect knowledge levels. Family size ($r = 0.825$), occupation ($r = 0.658$), extension contacts ($r = 0.998$), mass media exposure ($r = 0.888$), progressiveness ($r = 0.983$), and scientific orientation ($r = 0.932$) all display positive associations with knowledge. Information sources ($r = 0.111$) have a minor impact. These findings are aligned with the observations made by Jayasankar et al. (2019).

3.4 Constraints Faced by Respondents

Heavy attack of insect pests, diseases, nematodes and weeds accounted as a major constraint (89.17%) followed by inadequate management of fertilizers and pesticides (76.67%) and lack of government concerns (67.50%). Unavailability of fertilizers, pesticides, and insecticides (65.83%), lack of skilled labour (50%), poor storage facilities (52.50%), lack of irrigation facility (48.33%), lack of finance (47.50%), lack of technical guidance (30%) were also reported. Minor constraints like lack of training (29.17%), fluctuation in market price (20%) and inability to cope with climate (16.67%) were also reported. These findings were in similarity with Dhakane [16] and Hinge et al. [17].

3.5 Suggestions Made by the Respondents

The suggestions provided by respondents for improving grape cultivation include increasing awareness and education regarding pesticide and fertilizer management (94.17% of respondents, 113 individuals) which can overcome one of the main constraints faced by them.

4. CONCLUSIONS

It was concluded that majority of the respondent in the study area belonged to the middle age group (36-55), maximum respondents were

literate, having nuclear families and farming was their main occupation. The maximum number of respondents were having medium level scientific orientation, mass media exposure, progressiveness and extension contact in the study area. Majority of respondent were having medium level of knowledge. The factors influencing knowledge were age, education, occupation, family type, family size, extension contacts, mass media exposure, source of information utilized, progressiveness and scientific orientation. The major constraints were heavy attack of insect pests, diseases, nematodes and weeds as well as inadequate management of fertilizers and pesticide.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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