



Attitude of farmers towards grape cultivation and export

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ABSTRACT

Adoption behavior of farmers is affected by the attitude they possess for particular technology. Many grape growers became successful exporters by associating themselves to Mahagrapes, necessitating need to study their attitude scientifically and empirically. Study of 90 grape growers who were members of cooperatives linked to Mahagrapes, from Nashik, Sangli and Pune districts of Maharashtra found that members had long association with Mahagrapes with average of 15 years. They earned average ₹ 13.3 lakh per annum by exporting their produce. Average land holding was 10 acres and productivity of grapes obtained was 11.7 tonnes/acre. Farmers had more favourable attitude towards grapes cultivation as result of their association with Mahagrapes. Total annual income, risk taking behavior and achievement motivation of members were positively and significantly related to attitude towards grape cultivation and export. Thus, study implied that farmer's organization like Mahagrapes helped in developing positive attitude among farmers towards grape cultivation and export, motivating them to earn more income annually by exporting their produce.

Key words: Attitude, Grape cultivation, Grape export, Mahagrapes

Grape cultivation is unique in India and is grown under a variety of soil and climatic conditions (Shikhamany 2001). The area under grape cultivation in India is about 111 000 ha, with annual production of about 12.35 lakh metric tonnes (NHB 2012). Maharashtra occupies the top slot in cultivation and production of grapes in the whole country having 86 000 ha area under cultivation (about 62% of the country) with production of 7.74 lakh metric tonnes (NHB 2012). This is attributed to the geographical situation with amazing diversity in micro as well as macro climates in different grape growing regions of Maharashtra (Patil 2011). Out of total production only seven per cent is exported to the Europe and other countries (NHB 2012).

More number of small and marginal farmers (82%) pose serious challenge to Indian agriculture (Bhalla *et al.* 2012) as it brings problems like land fragmentation, poverty (Chand *et al.* 2011), low bargaining power to farmers, low risk bearing ability, low productivity, low extension contact etc. (Hegde 2010). In India more number of grapes growers are small and marginal farmers. Owing to their limited resource base and lack of collective bargaining power they cannot withstand strong competitors from abroad (Roy *et al.* 2008). Smallholder dominated agriculture restricts the number of farmers able to adopt sophisticated farm practices

and undertake the investments (like cold storage) to meet stringent international food safety standards (Narrod *et al.* 2006).

Herlehy (2012) emphasized that when farmers come together through cooperatives or member-owned businesses, they can pool their resources and maximize the value of whatever work they do. Cooperatives link farmers to markets, input suppliers, new technologies and sound farm management techniques. In this way some grape growers from Maharashtra overcame the constraints by linking themselves to international market through cooperatives and organization like Mahagrapes. Mahagrapes was established in the year of 1991 and acts as marketing partner to group of fifteen producers' cooperatives in Maharashtra. It was formed with the objective of elimination of middlemen in marketing process and encouragement and development of agricultural export.

Narrod *et al.* (2006) observed that Mahagrapes has helped in increasing export competitiveness of small Indian farmers. Mahagrapes has established chain of cold storage at cooperative societies. It has provided EUREPGAP certificate (Good agricultural practices standards in the world) to these societies which have reduced the cost of individual certification. Mahagrapes provides materials and technical help along with infrastructural support to facilitate the implementation of the standards. It was envisioned that bringing together farmers under one umbrella would give better visibility and greater accessibility in foreign markets. In addition, they would be able to gain from economies of scale (Working Group Report 2007).

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Mahagrapes is considered as a success story because it has shown acumen as well as agility and has linked grape growers to international markets and has compressed the supply chain (Roy *et al.* 2008). In this way it also has helped in changing grape growers' attitude towards grape cultivation, grape export and GAP standards. Therefore considering these aspects in mind a study was conducted to know the attitude of Mahagrapes members towards grape cultivation and export of grapes.

MATERIALS AND METHODS

Study was carried out with the farmers who were members of cooperatives linked to Mahagrapes, from Nashik, Pune and Sangli district of Maharashtra. These districts are located between 16.4° and 20.53° N latitude and between 73.16° and 75.16°E longitude. Nashik and Pune district forms a part of the tropical monsoon land and therefore shows a significant seasonal variation in temperature as well as rainfall conditions while some parts of Sangli district experience semi-arid type of climate. Bajra, jowar, wheat, rice, gram, and sugarcane are the major crops grown in these districts. Besides these fruit crops like grapes, pomegranate, *ber* and guava are also grown (GOM 2014).

The study was carried out in scientific, systemic and planned way, consisting of identification of research problem, devising objectives, development of questionnaire, pilot testing of the questionnaire, data collection, data analysis and interpretation of the results (Kerlinger 1978). For proper representation of the farmers and reliability in the data set, a systemic and ethical protocol was followed (Singh *et al.* 2011). A triangulation approach using both qualitative and quantitative methods was followed. A multistage sampling procedure was followed. Nashik, Sangli and Pune districts of Maharashtra were selected purposively. From each district 30 grape growers, who were members of cooperatives linked to Mahagrapes were selected randomly, making total sample of 90.

Personal interview and focused group discussion were used to collect data from the selected farmers. A well structured interview schedule with both closed ended and open ended questions was constructed. It was then pilot tested with fifteen farmers from non-sampled area to avoid ambiguity in response by the farmers. Attitude was operationally defined as the degree of positive or negative effect of the members towards grape cultivation. The modified 'attitude scale' based on the technique of equal appearing interval (Thurston 1946) with 20 statements was developed using scientific procedure (Shashi 1986). The responses were recorded on a five point continuum, viz. strongly favourable, favourable, undecided, unfavourable and strongly unfavourable.

Collected data were first subjected to coding followed by entry into the MS excel spreadsheet for statistical analysis. Tools like frequency and average were used to analyse the central tendency and variability present in socioeconomic aspects of the farmers. For attitude, the responses strongly favourable, favourable, undecided, unfavourable and strongly

unfavourable were scored 5,4,3,2, and 1 respectively for each positive statement and their reverse order for each negative statement. Pearson correlation coefficient was used to find out correlation of attitude score with various socioeconomic aspects of the farmers.

RESULTS AND DISCUSSION

Results of the study are presented and discussed under the broad topics of biophysical and socioeconomic profile of the selected farmers; attitude towards grape cultivation; and correlation of attitude with different biophysical, socioeconomic and psychological characteristics of the members.

Biophysical and socioeconomic profile of the farmers

Average age of farmers (Mahagrapes members) was 42 years (Table 1). Members had been associated with Mahagrapes for average of 15 years, and most of them were founding members of Mahagrapes since its establishment in 1991. Average land holding of the members was 10 acres and about 65.5% had semi medium type of land holding of less than 10 acres. They earned average of ₹ 13.3 lakh income per year (Table 1). Another study on Mahagrapes also found that members earned significantly higher income than non members (Roy and Thorat 2008). Similar study on cooperatives also found that members got higher revenues than non-members by associating themselves with cooperatives (Calkins and Ngo 2005). Productivity of grapes was 11.7 tonnes/acre for the studied farmers.

Attitude of farmers towards grape cultivation and export

Attitude statements and their scores are given in Table 2. The statement "Grape cultivation is simple and easy to adopt" was ranked at first position by Mahagrapes members with mean score of 4.23 on five point continuum. Continued experience with grapes cultivation and association with organization like Mahagrapes has resulted into accumulated knowledge and wisdom which made them perceive grape cultivation simple and easy and developed positive attitude towards it. It was found that the statement "Small and marginal farmers can become exporters by joining organizations like Mahagrapes" was ranked second (mean score 4.17) by Mahagrapes members. Mahagrapes is based on cooperative principle, small and marginal farmers can export their grapes through cooperative societies which

Table 1 Biophysical and socioeconomic profile of the farmers

Particulars	Mean	Standard deviation
Age (Years)	42	8.2
Association with Mahagrapes (Years)	15	4.8
Annual income (Lakh rupees)	13.3	5.9
Land holding (Acres)	10	3.93
Productivity of grapes (tonnes/acre)	11.7	1.65
Material possessions (Lakh rupees)*	33.8	11

*Value of material and livestock possession expressed in rupees.

otherwise would have been impossible for them as individual. Findings are supported by the study, which found that about 15% of Mahagrapes members were small and marginal farmers, and no selection bias was found in selection of members by the Mahagrapes (Roy and Thorat 2008).

The statement “Grape cultivation is not suitable for your district” ranked third by the farmers. As statement is negative and scored in reverse order than positive statement, more score here indicates more positive attitude towards grape cultivation. As study was conducted in Nashik, Sangli and Pune districts of Maharashtra where climate was more conducive for grapes cultivation (Patil 2011), making them leading producer of grapes in Maharashtra and showing more positive attitude towards grape cultivation. The statement “In grape cultivation return is more per unit area of land than other crops” was ranked fourth by Mahagrapes members. Grape is one of the most remunerative crops for the farmers. In our study it was found that Mahagrapes members could get 4 to 6 lakh gross annual income per acre by exporting grapes. Similar findings were also reported by Roy *et al.* (2008).

The statement “Export of grapes helps in increasing income of small and marginal farmers” was ranked number five by the members (Table 2). Study on “Mahagrapes, a successful case of high value horticulture export market for small and marginal farmers” revealed that within the class of small farmers, Mahagrapes members earned significantly higher amount of profit per hectare than non members, which resulted into more income to small and marginal farmers by facilitating export of their grapes (Roy *et al.* 2008). Statement “Adequate training facilities are available for grape cultivation” was ranked sixth by Mahagrapes members. Adequate training was provided by Mahagrapes to members and also it had appointed consultant for each district, which provided technical help to members during various stages of grape cultivation and harvesting.

Further, these farmers were classified into five categories, viz. strongly favourable, favourable, undecided, unfavourable and strongly unfavourable based on mean and standard deviation of the total score. It was observed that most of Mahagrapes members (46.7 %) had neutral attitude towards grape cultivation. Only 3.3% Mahagrapes members had strongly unfavourable attitude while 5.56% Mahagrapes members had strongly favourable attitude towards grape cultivation, followed by 32.22% having favourable attitude. Similar findings were also reported from studies on other crops (Kumaresan 2001 and Shukla 2011). Graphical presentation of the classification of members is given in Fig 1.

Correlation between attitude of farmers and bio-physical, socio-economic and psychological variables

Correlation of attitude of farmers towards grape cultivation and export with their bio-physical, socio economic and psychological variable was obtained using Pearson correlation co-efficient, which is given in Table 3.

All the variables had positive correlation with the attitude of members towards grapes cultivation. However, socio

Table 2 Attitude of farmers towards grape cultivation and export (N=90)

Attitude statement	Total score	Mean score	Rank
Export of grapes has become a real boon to the farmers	353	3.92	IX
Grape cultivation is not beneficial to the small and marginal farmers	330	3.67	XIV
Grape cultivation is the best way of increasing the income of the farmers	341	3.79	XIII
Family members do not give their help in grape cultivation	308	3.42	XVII
The economic conditions of small farmers can improve to a great extent by export of grapes	322	3.58	XVI
Grape cultivation is not highly profitable	357	3.97	VIII
In grape cultivation return is more per unit area of land than other crops	369	4.10	IV
Grape cultivation requires large investment and money therefore small and marginal farmers cannot cultivate it	328	3.64	XV
Grape cultivation is simple and easy to adopt	381	4.23	I
Grape cultivation is not suitable for your district	370	4.11	III
Most of the grape varieties are suitable to your area	357	3.97	VIII
Other crops are better than grape cultivation in terms of marketing	351	3.90	XI
Export of grapes helps in increasing income of small and marginal farmers	367	4.08	V
Small Indian farmers cannot export grapes	353	3.91	X
Small and marginal farmers can become exporters by joining organizations like Mahagrapes	375	4.17	II
There is more disease and pest attack on grapes than other crops	358	3.98	VII
Adequate training facilities are available for grape cultivation	363	4.03	VI
Grape cultivation is a time consuming job	328	3.64	XV
Export of grapes is more profitable because Government pays more attention to it	322	3.58	XVI
Grape cultivation is a risky vocation	343	3.81	XII

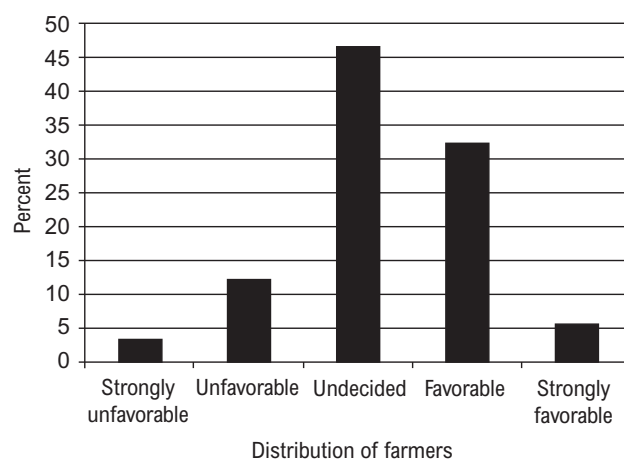


Fig 1 Distribution of farmers based on attitude (Mean=77.5, SD=5.39)

Table 3 Correlation of attitude of farmers with bio-physical, socio economic and psychological variables

Variable	Correlation coefficients (r)
Age	0.055
Education	0.091
Household	0.098
Total annual income	0.266*
Land holding	0.01
Social participation	0.182
Material possession	0.092
Risk taking behavior	0.332**
Achievement motivation	0.386**

**Significant at 0.01 level of probability. *significant at 0.05 level of probability.

economic variable 'total annual income' was significantly correlated with attitude with 0.05 level of significance. This reflects that more the income farmers get from grapes and their export, more favourable attitude they develop about grape cultivation and export. Psychological variables like risk taking behavior and achievement motivation also were significantly correlated with attitude of members towards grapes cultivation, with 0.01 level of significance. This suggests that those members who had high level of achievement motivation level and risk taking behavior also had highly favourable attitude towards grapes cultivation and export.

More number of farmers possessed favourable attitude towards grape cultivation and export of grapes which was positively and significantly correlated with the total annual income, risk taking behavior and achievement motivation of the farmers. Association with Cooperatives and Mahagrapes helped in developing more positive attitude towards grape cultivation and export, which in concordance with risk taking ability and high achievement level enabled them to produce grapes exportable to European markets. Thus, there is need to establish farmers based organization in other crops and areas of the country to organize and mobilize farmers, giving them more economics of scale and bargaining powers along with strengthening their cognitive factors like attitude which influence their adoption behavior.

REFERENCES

Bhalla G S and Singh, Gurmail. 2012. Economic liberalisation and Indian agriculture: a district-level study, pp 361. SAGE Publication India Ltd, New Delhi.

- Calkins P and Ngo A T. 2005. Impacts of cocoa cooperatives on well-being society for cooperation and International development, Québec, Canada.
- Chand R, Prasanna P A L and Singh A. 2011. Farm size and productivity: Understanding the strengths of smallholders and improving their livelihoods, *Economic and Political Weekly* 46(26 & 27).
- GOM. 2014. Government of Maharashtra, Department of Agriculture, Agro Climatic Zones in Maharashtra [Internet]. [cited 2014 Dec 10]. Available from: [http:// www.mahaagri.gov.in/CropWeather/AgroClimaticZone.html](http://www.mahaagri.gov.in/CropWeather/AgroClimaticZone.html).
- Hegde Narayan G. 2010. Small holders and role of NGOs in improving their livelihood. Paper presented at the NAARM workshop, Hyderabad, Sept 2010.
- Herlehy T. 2012. Linking smallholder farmers to markets: the power of farmer-based organizations. Global Food for Thought, Global Agriculture Development Initiatives. Guest Commentary, Global Food for Thought Blog, Oct 5.
- Indian Horticulture Database. 2012. National Horticulture Board, Ministry of Agriculture, Government of India, New Delhi.
- Kerlinger E N. 1978. *Foundation of Behavioral Research*, pp 741. Surjeet Publication, Delhi.
- Kumaresan P and Vijayaprakash N B. 2001. Economics of sericulture vis-à-vis competing crops in Erode district of Tamil Nadu. *Indian Journal of Sericulture* 40(2): 142–6.
- Narrod C and Roy D. 2006. The role of public-private partnerships and collective action in ensuring smallholder participation in high value fruit and vegetable supply chains. CAPRI Working Paper No.70, October 2007.
- Patil A. 2011. 'A study on constraints analysis of grape exporting farmers of Maharashtra state.' Ph D thesis, University of Agricultural Sciences, Dharwad.
- Roy D and Thorat A. 2008. Success in high value horticultural export markets for the small farmers: the case of Mahagrapes in India. *World Development* 36(10): 1 874–90.
- Shashi. 1986. A study on acceptance of mulberry sericulture by farm families in Udaipur region. M Sc thesis, Sukhadua University, Udaipur.
- Shikhamany S D. 2001. Grape production in India. (In) *Grape Production in the Asia-Pacific Region*, pp 28-38. Minas K Papademetriou and Frank J Dent (Eds). FAO Regional Office for Asia and The Pacific, Bangkok, Thailand, July 2001.
- Shukla R and Sharma O P. 2011. A study on attitude of farmers towards mulberry sericulture in Udaipur district of Rajasthan. *Agricultural Science Digest* 31(1): 66–9.
- Singh R K Turner N J and Pandey C B. 2011. Tinni rice (*Oryza rufipogon* Griff.) production: an integrated sociocultural agroecosystem in eastern Uttar Pradesh of India. *Environmental Management* 49: 26–43.
- Thruston L L. 1946. Comment. *American Journal of Sociology* 52: 39–50.
- Working Group Report. 2007. Agricultural marketing infrastructure and policy required for internal and external trade. Agriculture Division, Planning Commission, Government Of India.