

## Export of Pomegranate from India: Opportunities and Constraints

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### ABSTRACT

*The present study was conducted with the objective to study the profile of the pomegranate exporting growers, to study the extent of technological gap in recommended and exporting growers, to find out the relationship between selected independent and dependent variables of the pomegranate exporting growers, to elicit the constraints faced by the pomegranate exporting growers, to obtain the suggestions made by the pomegranate growers.*

*The study revealed that 45.00 per cent respondents belonged to the middle age group (36 to 55 years). About 50.00 per cent respondents received secondary school level of education, and 57.50 per cent respondents belonged to the small size of family (up to 5 members), 52.50 per cent respondents had semi-medium size of land holding (2.01 to 4.00 ha), while 78.33 per cent respondents had medium area under pomegranate crop (0.49 to 1.85 ha), 61.67 per cent of the respondents were under the medium annual income category (Rs. 313396.3 to 677287.1). About 63.33 per cent of the respondent had medium social participation (2 to 3 score), while 55.00 per cent of respondents had used medium sources of information (10 to 14 score), and 56.66 per cent respondents belonged to the medium category of knowledge level (65 to 71 score). It was seen that 46.66 per cent of the respondent pomegranate exporting growers had exported their produce to United Arab Emirates (UAE).*

*The study observed that the independent variables viz., education, annual income, social participation, source of information, and knowledge were negative and significantly related with technological gap, whereas age, size of land holding, area under pomegranate had established positively significant relationship.*

**Key words** : Export, Technological gap, Adoption, Constraints.

### INTRODUCTION

India is the largest producer of pomegranates in the world. India produces finest varieties of pomegranate having soft seeds, very less acids and very attractive colour of the fruits and grains. With adoption of different "bahars", India can supply pomegranate almost throughout the year. Maximum cultivation of pomegranate is in the states of Maharashtra and North Western Karnataka which are very close to the western port of Mumbai for exporting to Gulf and European countries. Quality of pomegranate is much superior to Spain and Iran in edible quality and attractiveness.

Farmers play important role in agriculture production and productivity, which contribute to national productivity. So, the survey of Sangola and Pandharpur tahsil to study the export of pomegranate from India. By considering pomegranate growers regarding new technology, practices recommended by Agricultural and

Processed Food Products Export Development Authority (APEDA), Maharashtra State Agricultural Marketing Board (MSAMB), State Agricultural Universities, Research Stations, etc. have been studied to find out extent of adoption in export standards with following specific objectives.

1. To study the profile of the pomegranate exporting growers.
2. To study the extent of adoption of export standards by pomegranate exporting growers.
3. To find out the relationship between selected independent and dependent variables of the pomegranate exporting growers.
4. To elicit the constraints faced by the pomegranate exporting growers.
5. To obtain the suggestions made by the pomegranate exporting growers.

## METHODOLOGY

In Solapur district Sangola and Pandharpur tahsils were purposively selected for the study on the basis of highest area, production and export of pomegranate. In these tahsils the area pomegranate was 12918.80 ha and 6119.85 ha, respectively.

The list of pomegranate growing villages of Sangola and Pandharpur tahsil was obtained from Tahasil Agriculture Officer. Five villages from each tahsil that is 10 villages were purposively selected for the study on the basis of highest export of pomegranate.

The list of pomegranate growers from the selected villages was prepared with the help of village level functionaries namely Talathi, Gramsevak and Local leaders. A total to 12 pomegranate growers from each village were

selected by simple random sampling method on the basis of highest export of pomegranate. Hence, in 2 tahsils, 10 villages and 120 respondents were selected for the present study.

## RESULTS AND DISCUSSION

The information pertaining to the age of the pomegranate growers was collected, tabulated and analyzed. The results are presented in Table 1.

The results presented in above Table 1 revealed that 45.00 per cent of the respondent pomegranate exporting growers belonged to the middle age group (36 to 55 years), followed by 41.66 per cent of them in young age group (up to 35 years).

The information pertaining to the education of the pomegranate growers was collected, tabulated and analyzed. The results are presented in Table 2.

**Table 1**  
Distribution of the pomegranate exporting growers according to their age

Sr. No.	Age group (years)	No. of respondents (N=120)	Per cent
1	Young (Up to 35 years)	50	41.66
2	Middle (36 to 55 years)	54	45.00
3	Old (56 years and above)	16	13.34
	<b>Total</b>	<b>120</b>	<b>100.00</b>

**Table 2**  
Distribution of the pomegranate exporting growers according to their level of education.

Sr. No.	Education level	No. of respondents (N=120)	Per cent
1	Illiterate	02	1.67
2	Primary education (upto 4 <sup>th</sup> Std.)	07	5.83
3	Secondary education (upto 10 <sup>th</sup> Std.)	61	50.83
4	Higher Secondary education (upto 12 <sup>th</sup> Std.)	24	20.00
5	Graduation and Post Graduation	26	21.67
	<b>Total</b>	<b>120</b>	<b>100.00</b>

**Table 3**  
Distribution of the pomegranate exporting growers according to their size of family.

Sr. No.	Size of family (members)	No. of respondents (N=120)	Per cent
1	Small (upto 5)	69	57.50
2	Medium (6 to 10)	37	30.83
3	Large (11 and above)	14	11.67
	<b>Total</b>	<b>120</b>	<b>100.00</b>

The results presented in Table 2 revealed that 50.83 per cent of the respondent pomegranate exporting growers were educated up to secondary school level, while 21.67 per cent of the respondents had received graduation and post-graduation degrees.

The information pertaining to the size of family of the respondents was collected, tabulated and analyzed. The results are presented in Table 3.

The results presented in Table 3 revealed that 57.50 per cent of the respondent pomegranate exporting growers had small size of family (up to 5 members), while 30.83 per cent of them had medium size family (6 to 10 members).

The information related to the size of land possessed by the respondents was collected and analyzed. The results are presented in Table 4.

It is observed from the Table 4 that majority (52.50%)

of the pomegranate exporting growers had semi-medium size of land holding (2.01 to 4.00 ha), while 29.17 per cent of them had small size of land holding (1.01 to 2.00 ha) and 10.83 per cent of them had medium size of land holding (4.01 to 10.00 ha).

The data regarding area under pomegranate crop from pomegranate exporting growers was obtained and they were grouped into following three categories (Table 5).

The results presented in Table 5 revealed that majority (78.33%) of the respondent pomegranate exporting growers had medium area (0.49 to 1.85 ha) under pomegranate crop, while 20.00 per cent of them had large area (1.86 ha and above) under pomegranate crop.

The information about annual income of the respondent pomegranate exporting growers were collected, tabulated and analyzed. The results are presented in Table 6.

**Table 4**  
Distribution of the pomegranate exporting growers according to their size of land holding.

Sr. No.	Size of land holding (ha)	No. of respondents (N=120)	Per cent
1	Marginal (up to 1.00)	9	7.50
2	Small (1.01 to 2.00)	35	29.17
3	Semi-Medium (2.01 to 4.00)	63	52.50
4	Medium (4.01 to 10.00)	13	10.83
5	Big (10.01 and above)	0	0.00
	<b>Total</b>	<b>120</b>	<b>100.00</b>

**Table 5**  
Distribution of the pomegranate exporting growers according to their area under pomegranate cultivation.

Sr. No.	Size of family (members)	No. of respondents (N=120)	Per cent
1	Small (upto 0.48)	2	1.67
2	Medium (0.49 to 1.85)	94	78.33
3	Large (1.86 and above)	24	20.00
	<b>Total</b>	<b>120</b>	<b>100.00</b>

**Table 6**  
Distribution of the pomegranate exporting growers according to their annual income.

Sr. No.	Annual Income (Rs.)	No. of respondents (N=120)	Per cent
1	Low (up to Rs. 313396.2)	21	17.50
2	Medium (Rs. 313396.3 to 677287.1)	74	61.67
3	High (Rs. 677287.2 and above)	25	20.83
	<b>Total</b>	<b>120</b>	<b>100.00</b>

The results presented in Table 6 revealed that, 61.67 per cent of the pomegranate exporting growers had annual income between Rs. 313396.3 to 677287.1, while 20.83 per cent of them had annual income of Rs. 677287.2 and above.

The data pertaining to the level of social participation of the respondents were collected, tabulated and analyzed. The results are given in Table 7.

It is found from Table 7, that majority (63.33%) of the respondent pomegranate exporting growers were in medium social participation category, while 19.17 per cent of them were in low social participation and 17.50 per cent of the respondent pomegranate exporting growers in high social participation category.

The information regarding the different sources of information used by the respondent pomegranate exporting growers was collected, tabulated and analyzed. The results are presented in Table 8.

From the Table 8, it is observed that about 55.00 per cent of the respondents were using medium sources of information, whereas 24.16 and 20.84 per cent of them had used low and high sources of information, respectively.

The information regarding the knowledge about export standards of pomegranate of the respondents were collected, tabulated and analyzed. The results are presented in Table 9.

From the Table 9, it is observed that 56.67 per cent respondent pomegranate exporting growers had medium knowledge level, followed by 25.83 per cent respondents had low knowledge level and 17.50 per cent respondent pomegranate exporting growers had high knowledge level.

The information about marketing behavior of the pomegranate growers were collected, tabulated and analyzed. The results are presented in Table 10.

**Table 7**  
**Distribution of the pomegranate exporting growers according to their social participation.**

Sr. No.	Social Participation category	No. of respondents (N=120)	Per cent
1	Low (up to 1 score)	23	19.17
2	Medium (2 to 3 score)	76	63.33
3	High (4 and above scores)	21	17.50
	<b>Total</b>	<b>120</b>	<b>100.00</b>

**Table 8**  
**Distribution of the pomegranate exporting growers according to their source of information used.**

Sr. No.	Source of information	No. of respondents (N=120)	Per cent
1	Low (up to 9 score)	29	24.16
2	Medium (10 to 14 score)	66	55.00
3	High (15 and above scores)	25	20.84
	<b>Total</b>	<b>120</b>	<b>100.00</b>

**Table 9**  
**Distribution of the pomegranate exporting growers according to their knowledge level.**

Sr. No.	Knowledge level	No. of respondents (N=120)	Per cent
1	Low (up to 64 score)	31	25.83
2	Medium (65 to 71 score)	68	56.67
3	High (72 and above scores)	21	17.50
	<b>Total</b>	<b>120</b>	<b>100.00</b>

From the Table 10, it is observed that a majority (46.66 %) of the respondent pomegranate exporting growers had exported their produce to UAE, while 23.34 per cent of the respondents had exported their produce to Netherlands, whereas 17.50 per cent of them had exported their produce to UK, and only 12.50 per cent of them had exported to other countries i.e. Belgium, Saudi Arabia, etc.

Extent of adoption of export standards and technological gap for each practice was worked out and presented in Table 11.

It is observed from Table 11 that, high technological gap was observed in pre-cooling

(70.84%), cold storage (67.71%), residue analysis (43.34%), nose cleaning (41.14%), waxing and fungicide application (33.34%), grading (30.56%), characteristics of boxes (29.17%), drying wax coating (28.58%), sizing of fruits (28.34%), sorting (26.5%), maturity standards (24.80%), coding and labeling (23.62%), packing (21.53%), transportation (20.84%), washing (14.38%), 12.50 per cent in maturity, 11.36 per cent in harvesting and receipt at pack-house and 00.00 per cent in variety.

The correlation coefficient (r) between technological gap and various independent variables are presented in Table 12.

**Table 10**  
**Distribution of the pomegranate exporting growers according to their marketing behaviour.**

Sr. No.	Export to countries	No. of respondents (N=120)	Per cent
1	United Arab Emirates (UAE)	56	46.66
2	Netherlands	28	23.34
3	United Kingdom (UK)	21	17.50
4	Other countries (Belgium, Saudi Arabia, etc.)	15	12.50
	<b>Total</b>	<b>120</b>	<b>100.00</b>

**Table 11**  
**Distribution of the pomegranate exporting growers according to their adoption of export standards and technological gap.**

Sr. No.	Recommended practices	Extent of adoption (Percentage)	Technological gap (Percentage)	Rank
1	Pre-cooling	29.16	70.84	I
2	Cold storage	32.29	67.71	II
3	Residue analysis	56.66	43.34	III
4	Nose cleaning	58.86	41.14	IV
5	Waxing and fungicide application	66.66	33.34	V
6	Grading	69.44	30.56	VI
7	Characteristics of boxes	70.83	29.17	VII
8	Drying the wax coating	71.42	28.58	VIII
9	Sizing of fruits	71.66	28.34	IX
10	Sorting	73.95	26.05	X
11	Maturity standards	75.20	24.80	XI
12	Coding and labeling	76.38	23.62	XII
13	Packing	78.47	21.53	XIII
14	Transportation	79.16	20.84	XIV
15	Washing	85.62	14.38	XV
16	Maturity	87.50	12.50	XVI
17	Harvesting and receipt at pack house	88.64	11.36	XVII
18	Variety	100.00	0.00	XVIII
	<b>Total</b>	<b>70.66</b>	<b>29.34</b>	

The statistical method "Correlation coefficient" ( $r$ ) was used in order to find out the association between technological gap and independent variables viz., education, annual income, social participation, source of information and knowledge were negative and significantly related with technological gap, whereas age, size of land holding, area under pomegranate had established positively significant relationship and size of family was non-significantly associated with technological gap (Table 12).

Similar types of findings were observed by Singh *et al.* (1991), Bhati (2002), Maghade (2007), Howal (2008) and Hawale (2009).

The information pertaining to the constraints faced by the respondents in the adoption of export standards of pomegranate is presented in

Table 13.

From Table 13, it is observed that majority of the respondent pomegranate exporting grower faced the problem of fluctuation in the price of pomegranate (86.66%), unavailability of pre-cooling facilities (80.00%), unavailability of cold storage facilities (78.33%), lack of information about the International Standard Limit for residue content of insecticides, pesticides and fungicides (69.17%), high transportation charges (66.66%), high cost of packing materials (63.33%), electricity shortage (60.83%) and shortage of water availability (56.66%).

Suggestions were invited from the respondent pomegranate exporting growers to overcome constraints faced by them in adoption of export standards of pomegranate are presented in Table 14.

**Table 12**  
**Relationship between selected independent and dependent variable.**

Sr. No.	Independent variables	Correlation coefficient ( $r$ )
1	Age	0.1942*
2	Education	-0.2396*
3	Size of family	0.1254 <sup>NS</sup>
4	Size of land holding	0.2806**
5	Area under pomegranate cultivation	0.3609**
6	Annual income	-0.3442**
7	Social participation	-0.3968**
8	Source of information	-0.3755**
9	Knowledge	-0.6947**

\* Significant at 0.05 level of probability.

\*\* Significant at 0.01 level of probability.

NS = Non-significant

**Table 13**  
**Constraints faced by the respondents pomegranate exporting growers.**

Sr. No.	Constraints	No. of respondents (N=120)	Per cent
1	Fluctuation in the price of pomegranate	104	86.66
2	Unavailability of pre-cooling facilities	96	80.00
3	Unavailability of cold storage facilities	94	78.33
4	Lack of information about the International Standard Limit for residue content of insecticides, pesticides and fungicides	83	69.17
5	High transportation charges	80	66.66
6	High cost of packaging materials	76	63.33
7	Electricity shortage	73	60.83
8	Shortage of water availability	68	56.66

**Table 14**  
**Suggestions to overcome the constraints associated with adoption of export standards of pomegranate.**

Sr. No.	Suggestions	Frequency (N=120)	Per cent
1	Infrastructure facilities for pomegranate growers for storage, grading and packaging	104	86.66
2	Transformation system should be well developed for promotion of export	99	82.50
3	Training programme should be conducted at village level about export oriented practices of pomegranate	94	78.33
4	Provision of minimum support price for pomegranate	92	76.66
5	Market assurance	91	75.83
6	Strengthening of co-operative marketing link	90	75.00
7	Fruit processing industries should be started on co-operative basis	75	62.50

From Table 14, it is observed that majority (86.66%) of the respondent pomegranate exporting grower suggested about infrastructure facilities for pomegranate growers for storage, grading and packaging, while transformation system should be well developed for promotion of export (82.50%), training programme should be conducted at village level about export oriented practices of pomegranate (78.33%), provision of minimum support price for pomegranate (76.66%), market assurance (75.83%), strengthening of co-operative marketing link (75.00%) and fruit processing industries should be started on co-operative basis (62.50%).

### CONCLUSIONS

The study revealed that 45.00 per cent respondents belonged to the middle age group (36 to 55 years). About 50.00 per cent respondents received secondary school level of education, and 57.50 per cent respondents belonged to the small size of family (up to 5 members), 52.50 per cent respondents had semi-medium size of land holding (2.01 to 4.00 ha), while 78.33 per cent respondents had medium area under pomegranate crop (0.49 to 1.85 ha), 61.67 per cent of the respondents were under the medium annual income category (Rs. 313396.3 to 677287.1). About 63.33 per cent of the respondent had medium social participation (2 to 3 score), while 55.00 per cent of respondents had used

medium sources of information (10 to 14 score), and 56.66 per cent respondents belonged to the medium category of knowledge level (65 to 71 score). It was seen that 46.66 per cent of the respondent pomegranate exporting growers had exported their produce to United Arab Emirates (UAE). It was found that more than half (65.00%) of the respondents were in medium technological gap category. It was observed that major technological gap was found in pre-cooling (43.34%), grading (30.56%) and sizing (28.34%).

The study observed that the independent variables viz., education, annual income, social participation, source of information, and knowledge were negative and significantly related with technological gap, whereas age, size of land holding, area under pomegranate had established positively significant relationship and size of family was non significantly associated with technological gap.

The major constraints faced by the pomegranate exporting growers were fluctuation in the price of pomegranate (86.66%), unavailability of pre-cooling facilities (80.00%), unavailability of cold storage facilities (78.33%), lack of information about the International Standard Limit for residue content of insecticides, pesticides and fungicides (69.17%), high transportation charges (66.66%), high cost of packing materials (63.33%), electricity shortage (60.83%) and shortage of water availability (56.66%).

The majority (86.66%) of the respondent pomegranate exporting grower suggested about infrastructure facilities for pomegranate growers for storage, grading and packaging, while transformation system should be well developed for promotion of export (82.50%), training programme should be conducted at village level about export

oriented practices of pomegranate (78.33%), provision of minimum support price for pomegranate (76.66%), market assurance (75.83%), strengthening of co-operative marketing link (75.00%) and fruit processing industries should be started on co-operative basis (62.50%).

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