DETERMINANTS OF MANGO EXPORT FROM PAKISTAN

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ABSTRACT

Mango, *Mangifera indica,* is second important fruit crop in Pakistan after citrus. Pakistan stands fourth in the list of mango producing and exporting countries. Although there exists a lot of potential for mango exports from Pakistan but many factors hinder its development that mainly include poor infrastructure, fluctuating production system, high and unpredictable marketing cost, lack of compliance to international standardization, unfavorable government policies and fruitfly infestation. The present study was conducted in the Faculty of Agricultural Economics and Rural Sociology, University of Agriculture, Faisalabad during 2005-06. The objective was to quantify the impact of those factors that affect mango export from Pakistan. Primary data were collected through a survey of 40 mango exporters selected purposively from the list obtained from Pakistan Horticulture Development and Export Board. The information collected from these exporters was thus modeled using double log form of regression analysis. The results showed that education of mango exporters, experience of mango exporters, average purchase price, average marketing cost, average sale price and ISO certificate significantly affected mango exports whereas government policies, fruitfly effect and hot water treatment were found to be non-significant variables. The coefficient of determination was found to be 0.83 and F-value was also found to be significant. The findings suggested that an integrated and holistic approach should be adopted in mango export policy by strengthening domestic base, targeting high priced markets and diversifying mango exports through value addition.

KEYWORDS: *Mangifera indica*; export; aleyrodes; Pakistan.

INTRODUCTION

Among major fruits of Pakistan, mango occupies the second position after citrus in terms of area and production i.e. 192 thousand hectares are under citurs with 2458 thousand tons production and 156 thousand hectares are under mangoes with 1753 thousands tons production. Pakistan stands fourth in ranking of mango producing and exporting countries.

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Mango is mainly produced in Punjab and Sindh. Punjab contributes 67 percent whereas Sindh shares 32 percent to total production (3). Harvesting begins in Sindh in late May and finishes in Punjb in late August. Sindhri is the major variety grown in Sindh while in Punjab Chaunsa dominates. Other major varieties grown in Punjab and Sindh are Began Pali, Langra and Anwar Retaul. Both Chaunsa and Sindhri are considered as excellent varieties for industry. Sindhri has better post harvest attributes in terms of taste and demand for export markets (4).

Major export markets of Pakistani mango include Dubai, Saudi Arabia, Oman, United Kingdom, Kuwait, Bahrain, France and Germany, contributing about 41, 16, 11, 10, 3, 2, 1 and 0.90 percent of total mango exports from Pakistan, respectively. These markets collectively contribute 85 percent of total mango export from Pakistan (2). So Gulf and Saudi Arabia are traditional export markets and consume major volume of Pakistan's mango exports whereas England is the major market in Europe. China and Iran are likely to emerge as future prominent markets (4). Large number of Pakistani immigrants, increased availability of shipping facilities, old traditional relations with importers and special likeliness of people of importing countries towards Pakistani mangoes (in terms of taste, colour, aroma, size, etc.) are the major contributing factors for trading transactions with these countries.

Although there is a lot of potential in exporting mango from Pakistan yet only a nominal amount is being exported. Mango export system in Pakistan is not efficient and systematic to an extent that could utilize full potential of mango economy. Most of the efforts to export mango are self centered and individual based with very little utilization of centrally organized platforms. The progressive exporters having large financial sources, personal contacts with importers, a better supply source, informative knowledge and better export management practices, are in a position to exploit the opportunities in international mango market but most exporters suffer due to poorly organized mango export system. Majority of the established exporters having their set up in Karachi, purchase both from Punjab and Sindh and then prepare the produce in their processing centers. They use their own brand name and packaging material. In the absence of an established common platform, some of seasonal traders have also entered in this business. Dreaming of high profit in a short duration, they often use some unethical means in their export business, which give a bad name and reputation to Pakistani exports.

Pakistani mangoes being cheap with average quality are dumped by exporters in the export markets such as UAE. Sales of Pakistani fruit in many

export markets are targeted mainly to the local expatriates (Pakistani/Indian) communities (9). Irrespective of all these factors Pakistani mango exports are increasing which show that demand for Pakistani mango is increasing and there exists a good market at international level. During past years, share of mango exports in total fruit exports from Pakistan has increased from 1.75 percent in 1975-76 to 30.62 percent in 2004-05. Mango exports as a percent of total mango production is quite nominal but an increasing trend in this regard has been noted in recent past years. The share of mango exports in total mango production in Pakistan increased from 0.19 percent in 1975-76 to 7.53 percent in 2004-05 (1).

Mango is a perishable commodity, which needs speedy, effective and careful handling during export process. Cargo arrangements at exit points do not qualify these criteria. Long delays, rough handling and inappropriate behaviour of staff make the export process quite cumbersome. Time schedule is often disturbed due to limited space in cargo and airlines severely affecting the quality of export consignment making it difficult. Domestically over 90 percent of freight and passenger traffic moves by road. However, 50 percent of Pakistan's national highway network is in a poor condition, significantly adding to transportation costs and reducing export competitiveness in the country (5).

In case of mango export from Pakistan, fruitfly infestation issue has now been a commonly understood by all stakeholders but still no serious action has been taken. Govternment of Japan donated vapour heat treatment plant that has been confined only to the laboratory of Plant Protection Department and still is not available for commercial use. Existing facilities of hot water treatment are also quite limited and not upto the standard. Hot water treatment requires scientific handling and specifications which if not observed may lead to undesirable results.

Standardization of exporting firms is another critical factor, which affect exports particularly to those countries which demand it. Lack of compliance to these standards is another factor responsible for weak performance of Pakistani mango exports.

In view of current status and importance of mango in national economy of Pakistan, the study in hand was designed to explore those factors which directly or indirectly affect mango exports from Pakistan.

MATERIALS AND METHODS

This study was conducted in the Faculty of Agricultural Economics and Rural Sociology, University of Agriculture, Faisalabad during 2005-06. A sampling frame is a list of all sampling units available for selection at a given stage of sampling process (7). In this regard, list of mango exporters was obtained from Pakistan Horticultural Development and Export Board (PHDEB). The list consisted of 100 mango exporters in Pakistan. During this process consultations were made with the experts from PHDEB and only those mango exporters were considered who were exporting to eight dominating markets (Dubai, Saudi Arabia, Oman, United Kingdom, Kuwait, Bahrain, France and Germany) because these constitute 85 percent of the total mango export from Pakistan. In addition to this, regularity, progressiveness and overall attitude of the exporters were the other elements, which were considered during the short-listing of exporters. The short-listed 60 exporters were the sampling frame for this study and then a total sample of 40 exporters was selected randomly from given sampling frame.

Primary data were collected through survey of selected mango exporters using a pre-tested questionnaire containing both structured and unstructured questions. Personal interviews method was used to collect information from primary sources. Data from primary sources were collected for the export season of 2005-06 and then were converted into uniform units for analysis. Frequency distribution regarding important traits of mango exporters was calculated using following formula.

$$F = \frac{X}{N} \times 100 \ldots \ldots \ldots (1)$$

F = Frequency distribution
X = The observed observations
N = The total observations

Major focus of this study was to explore the effect of those variables, which affect mango exports from Pakistan. A regression model was estimated in this context to delineate the impact of some micro variables on the export of mango from Pakistan. In the present research, dependent variable was the quantity of mango exports (tonnes) for each respective exporter for exporting year 2005-06. Major independent variables considered for this exercise included education of respective exporters (number of schooling years), professional experience (years), average purchase prices of mango (Rs. per

tonne), average marketing costs (Rs. per tonne) and average sale prices for exported mangoes (Rs. per tonne).

In regression analysis it frequently happens that dependent variable is not only affected by the variables which can readily be quantified on some well defined scales but also by variables which are essentially qualitative in nature like government economic policy. Since such variables usually indicate the presence or absence of a quality or attribute, one method of quantifying such attributes is by constructing artificial variable which takes on the values of 1 and 0, 1 indicating the presence of that attribute and 0 indicating absence of that attribute. Such variables are known as dummy variables (10). In the present study, in addition to above-mentioned quantitative variables, certain qualitative variables were also used in the form of dummy variables. These variables included exporter's perceptions about support of government policies, endorsement of exporting firms with ISO certificate, effect of fruitfly issue on mango exports and treatment of mango export consignments with hot water.

For this purpose following functional form was established.

$$X = f\left(S, B, D\right) \dots (2)$$

The specific form of the regression is

$$X = A\, S_i^{\alpha_i} B_j^{\alpha_j} e^{\alpha_k D_k} e^{\varepsilon} \dots (3)$$

S_i = is a vector of socio economic variable of mango exporters, i = 1
B_j = is a vector of business variables of mango exporters, j = 2 . . . 5
D_k = is a vector of qualitative (dummy) variables, k = 6 9
Equation (3) can be rewritten as

$$X = A\, S_i^{\alpha_1} B_1^{\alpha_2} B_2^{\alpha_3} B_3^{\alpha_4} B_4^{\alpha_5} B_5^{\alpha_6} e^{\alpha_6 D_1} e^{\alpha_7 D_2} e^{\alpha_8 D_3} e^{\alpha_9 D_4} e^{\varepsilon} \dots (4)$$

X	=	Mango exports (tonnes)
S_1	=	Education of the exporters (schooling years)
B_1	=	Experience in export business (years)
B_2	=	Average purchase price of mango (Rs./tonne)
B_3	=	Average marketing cost (Rs./tonne)
B_4	=	Average sale price of mango (Rs./tonne)
D_1	=	Dummy for Govt. policy
		If favorable then D_1= 1, otherwise=0
D_2	=	Dummy for fruitfly effect
		If affected by fruitfly then D_2=1, otherwise=0

$D_3 =$ Dummy for hot water treatment
            If treated with hot water then $D_3=1$,   otherwise=0
$D_4 =$ Dummy for ISO certification
            If endorsed with ISO certification then $D_4=1$, otherwise=0

The specific form of the equation - 4 is

$$X = \ln A + \alpha_1 \ln S_1 + \alpha_2 \ln B_1 + \alpha_3 \ln B_2 + \alpha_4 \ln B_3 + \alpha_5 \ln B_4 + \dots (5)$$

$$\alpha_6 \ln D_1 + \alpha_7 \ln D_2 + \alpha_8 \ln D_3 + \alpha_9 \ln D_4 + \varepsilon$$

Micro Soft Excel was used for feeding the data whereas Statistical Package for Social Scientists (SPSS) was used for data analysis.

RESULTS AND DISCUSSION

Quantity of mango exports

Information was obtained from exporters about their business activities including quantity of mango export for the season 2005-2006. According to data, exporters were divided into three categories and their respective percentage distribution in each category was explored. Fifty percent of total respondents exported quantity less than 1000 tonnes, 45 percent exported from 1000 to 2000 tonnes of mangoes and only 5 percent of total exporters exceeded 2000 tonnes (Table 1).

Table 1.   **Percentage distribution of exporters regarding quantity of mango exports.**

Export quantity (tonnes)	Frequency	Percent
Below 1000	20	50.0
1001 – 2000	18	45.0
Above 2000	2	5.0
Total	40	100.0

Education of exporters

Minimum education of exporter was matric and the highest qualification was master's degree. However, majority of exporters got education upto graduate level. According to specific findings of study 10 percent of total exporters got education upto matric level, 30 percent upto intermediate level whereas 40 percent and 20 percent got education upto Bachelor and master's level, respectively (Table 2).

Table 2. Percentage distribution of exporters regarding their education level.

Schooling years	Frequency	Percent
Matric	4	10.0
F.A./F.Sc.	12	30.0
B.A./B.Sc.	16	40.0
M.A./M.Sc.	8	20.0
Total	40	100.0

Professional experience of exporters

Professional experience is an important element of any business activity and this becomes more important in export business where one has to deal with customers across the borders. According to findings, 25 percent of total exporters had professional experience less than ten years whereas 62, 10 and 2.5 percent of total exporters had professional experience in the range of 10 to 20 years, 21 to 30 years and above 30 years, respectively. So a large majority of the exporters had experience more than ten years in mango export business (Table 3).

Table 3. Percentage distribution of exporters regarding their experience.

Experience (years)	Frequency	Percent
Less than 10 years	10	25.0
10-20 years	25	62.5
21-30 years	4	10.0
Above 30 years	1	2.5
Total	40	100.0

Average purchase prices of mangoes

Majority of the respondents (52.5) purchased mangoes between an average price range of Rs. 29001 to Rs. 31000 per tonne whereas another 40 percent of total exporters purchased mangoes at average price range of Rs. 27501 to Rs. 29000 per tonne (Table 4). Only 8 percent of total exporters purchased for an average price range of Rs. 26000 to Rs. 27500 per tonne. So a dominating share of total exporters i.e.(92.5%) purchased mangoes for price range of Rs. 27501 to Rs. 31000 per tonne. These purchase prices were calculated considering both sources of purchase (Punjab and Sindh) for two dominating varieties i.e. Chaunsa and Sindhri.

Table 4.   Percentage distribution of exporters regarding average purchase prices for mangoes.

Average price (Rs./tonne)	Frequency	Percent
26000-27500	3	7.5
27501-29000	16	40.0
29001-31000	21	52.5
Total	40	100.0

Average marketing cost

Average marketing cost was calculated considering charges for processing, storage, packaging, clearing agent, freight, custom clearance, pellet, etc. According to results, majority of the respondents i.e. 42.5 percent of total exporters incurred Rs. 44001-47000 as average marketing charges followed by 32.5 and 25 percent who incurred Rs. 47001-50000 and 41000-44000, respectively.

Table 5. Percentage distribution of exporters regarding average marketing charges.

Marketing changes (Rs/tonne)	Frequency	Percent
41000-44000	10	25
44001-47000	17	42.5
47001-50000	3	32.5

Average sale prices

Average sale prices were calculated considering destination markets, methods of sale and mode of payment[1]. According to present results, average sale prices of mangoes ranged from Rs. 79500 to Rs. 93500 per tonne. It was found that almost 12.5 percent of the total exporters got an average price ranging from Rs. 79500 to Rs. 84500 per tonne whereas a fair majority (52.5%) got a price range of Rs. 84501 to Rs. 89000 per tonne and 35 percent of total exporters got price between Rs. 89001 to Rs. 93500 per tonne (Table 6).

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[1]Only 18% of total exporters were working on cash basis whereas 33% were working on credit basis and rest 49% were using both these sources.

Table 6. Percentage distribution of exporters regarding average sale price.

Sale price range (Rs. tonne)	Frequency	Percent
79500-84500	5	12.5
84501-89000	21	52.5
89001-93500	14	35.0
Total	40	100.0

Model for mango exports

The regression equation was estimated using Ordinary Least Square (OLS) estimates method. Various forms of regression models were tried but based upon the model fitness criteria, double log form of the regression model was found as the most appropriate. Following the assumption of linearity for classical regression models, data of model were first checked for linearity and it was found through the scatter diagram between dependent and independent variables that data did not show linearity in its original form. Literature on regression analysis suggested a solution to this problem where data, if did not show linearity in its original form, could be transformed into its log form to attain linearity. Another beauty of using double log form of the regression analysis is that coefficient of each independent variable measures the partial elasticities of dependent variable with respect to that independent variable (8,10).

Overall significance of the estimated regression model can be tested through a joint hypothesis that all coefficients are equal to zero. This can be done through analysis of variance (ANOVA). If the calculated F-value is greater than corresponding tabulated F-value then null of joint hypothesis can be rejected and it may be concluded that model is correctly specified or all included variables do have explanatory power (10). In this empirical investigation F-value was 40.81, which was highly significant (Table 7). This showed that estimated model was correctly specified and independent variables included in this study did have explanatory power to explain variation in the dependent variable i.e. mango exports.

The next model fitness criterion is coefficient of determination (R^2). R^2 may be interpreted as the proportion of total variability in the dependent variable that can be accounted for by the set of independent variables (8). A quantity related to R^2 known as adjusted R^2 is also used for judging the goodness of fit. It is good practice to use adjusted R^2 rather than R^2 as it tends to give an overall optimistic picture of the fit of regression, particularly when the number of independent variables is not very small compared with number of

observations (12). In our estimated model, R^2 was 0.83 which stated that all independent variables in our estimated model explained 83 percent variation in the dependent variable i.e. mango exports whereas rest 17 percent variation in the dependent variable was caused by some other factors which these independent variables could not capture. The figure of adjusted R^2 was 0.81 which stated that all independent variables were responsible for 81 percent of total variation in the dependent variable i.e. mango exports (Table 7). So the estimated model did have good explanatory power for the dependent variable.

The goodness of fit regarding estimated coefficients may be assessed through three different elements, which include (i) consistency of coefficients signs with economic theory, (ii) value of the coefficients, which must be rationale in interpretation, and lastly (iii) significance level of individual coefficients. While interpreting the value of individual coefficients in multiple regression models, it is necessary to keep effect of all other independent variables constant. In double log model, estimates produce partial elasticities of dependent variables regarding each independent variable so partial elasticity of each independent variable for dependent variable can be explained by keeping the partial elasticities of all other variables constant.

Table 7.   Summary of mango export model.

Model variables	Coefficients	T-value	Significance
Constant	32.932	2.664	0.012*
LnS_1 (log of education)	0.507	2.123	0.042*
LnB_1 (log of experience)	0.696	7.171	0.000**
LnB_2 (log of average purchase price)	-0.958	-2.450	0.021*
LnB_3 (log of average marketing cost)	-1.035	-1.978	0.057*
LnB_4 (log of average sale price)	1.310	2.927	0.007**
D_1 (Dummy for Govt. policies)	0.044	0.553	0.585
D_2 (Dummy for fruitfly effect)	-0.101	-1.644	0.111
D_3 (Dummy for hot water treatment)	0.037	.375	0.710
D_4 (Dummy for ISO certificate)	0.118	1.854	0.074*
R^2	0.83		
Adjusted R^2	0.81		
F-value	40.81		
Durbin Watson Statistics	2.07		

It is also a common practice in regression analysis that researchers only keep those variables, which significantly affect the dependent variable and drop those variables, which do not affect dependent variable significantly. In this way estimates of regression coefficients that do not significantly differ from zero, are most commonly replaced by zero in equation but sometimes such variables are retained in the equation because of their theoretical

importance in a given research problem. The variables thus retained should give a meaningful process description and help ensure the contribution of independent variables to dependent variable (8).

Data collected from sampled mango exporters revealed that 90 percent of total mango exporters in our sample got education upto or above intermediate level and 60 percent of them were having education upto bachelor or above bachelor level. This seemed to be a good base for exporters as budding generations were taking over mango export business from their ancestors and at the same time they were also focusing on their educational achievements. The good performance of highly educated exporters in our sample was a good example and proof to justify a positive relation between education and better performance in their business and this practice was also consistent with economic logic and rationale as an educated person could take care of business activities in a better way. The coefficient of education showed a positive sign with mango exports, which proved above mentioned fact that education contributed towards mango exports positively. The impact of education on mango exports was also significant at 5 percent level of confidence. The value of this coefficient stated that for every one percent change in education there would be 0.50 percent change in mango exports. So there was a positive sign between mango exports and education of exporters, keeping all other factors constant.

Professional experience of exporters was another important factor helping them to perform their business activities effectively. According to results of frequency distribution of sampled exporters regarding their professional experience, it was concluded that cumulatively, almost 88 percent of total mango exporters had professional experience upto 20 years. It was also noted during the survey that more experienced exporters were among leading exporters of mango from Pakistan. The coefficient of this variable in estimated model showed positive sign with mango exports and was highly significant. The value of this variable was 0.69, which explained that for every one percent change in professional experience mango exports volume increased by 0.69 percent. Average purchase price was one of the important components of mango export process as it affected the preparation costs of mango export consignment which might increase the prices of product in international market ultimately reducing the competitive advantage. Keeping all other factors constant, for every one percent increase in average purchase prices there might be 0.95 percent decrease in mango export volume.

It has been said earlier that average marketing cost included the average prices of different marketing services performed between exporters and importers. Economic theory suggested that there should be a negative sign between the average marketing cost and mango exports as increasing average marketing cost may reduce the international competitiveness. In our estimated model, coefficient of average marketing cost showed negative sign with mango exports and was significant at 5 percent confidence level. The coefficient and sign of average marketing cost was found elastic which stated that for every one percent change in average marketing cost, mango exports changed inversely by 1.03 percent. Average sale price of mango in international market is another important determinant especially when one is expecting a higher return from the sales abroad. There is probability that increasing and high average sale prices in international market may attract exporters to sell their products in larger quantities. In our estimated model, a positive relationship was found between the mango exports and average sale prices. The coefficient of average sale prices was found to be highly significant and elastic as the value of this coefficient was 1.31 which stated that for every one percent change in average sale prices in the international market, mango exports changed by 1.31 percent positively in the same direction. As mango exports from Pakistan were found to be highly responsive to average sale prices in international prices, it once again confirms the economic theory and logic.

Mango exporter's overall satisfaction over government policies was investigated and was used in the form of dummy variable that whether exporters thought existing government policies as favorable to their export business or not. In our estimated model sign of this variable was positive suggesting that mango exports could increases in response to favorable government policies but this variable was found non-significant. This might be due to the fact that in Pakistan, government did not make separate export policy for mango and it came under overall agricultural policy. Coefficient of this variable stated that keeping the effect of other variables constant, government policies, if favorable, might enhance mango exports more by a factor of 0.04 percent as compared to a situation where government policies were declared unfavorable.

The second dummy variable was used to check exporter's perceptions about effect of fruitfly issue on their mango exports. As Pakistani mangoes are allegedly labeled as fruitfly infested product in some markets which had blocked entry of Pakistani mango in major high priced markets, so it was considered necessary to explore the effect of this variable on mango exports from Pakistan. This variable showed negative sign with mango exports

suggesting that if mango exports were labeled as infested with fruitfly that could reduce mango exports from Pakistan. This variable was also found non-significant which may be due to the fact that Pakistani mango exports were highly concentrated in those markets which did not notice this issue much resultantly causing a little negative effect on mango exports from Pakistan. The value of this variable suggested that mango exports, if infested with fruitfly, might show 0.10 percent reduction and vice versa.

The third dummy variable used was treatment of mango exports with hot water, an easily available cure technology to remove the effects of fruitfly infestation, before sending those to markets abroad. It has been reported earlier that a little quantity of Pakistani mangoes go to those markets which demand strict compliance to issues like fruitfly infestation. So in our estimated model, this variable was non-significantly affecting mango exports and showed a positive sign with mango exports. The value of this variable suggested 0.03 percent increase for treated mangoes with hot water as compared to non-treated mangoes.

The last dummy variable was used to check the status of standardization in Pakistan's mango industry and its effects on exports. Regarding compliance to international standards, most of the exporters did have certificate of International Organization for Standardization (ISO) and a few had advance certificates like Hazard Analysis and Critical Control Point (HACCP) and Eurepgap. This variable showed positive sign with mango exports and was significant at 7 percent confidence level which stated that having an ISO certificate affected positively and significantly mango exports from Pakistan. The value of this variable suggested that there were 0.11 percent more exports for firms having an ISO certificate as compared to those who did not have.

Summarizing above discussion, the results of estimated model were found consistent with economic theory and rationale and also confirmed the already collected applied insight in mango export industry of Pakistan.

SUGGESTIONS

The findings of the study highlighted many issues responsible for the poor performance of mango export sector. In this context following suggestions are proposed to improve the export economy of mango in Pakistan.
- Efforts should be made to capitalize the experience of senior mango exporters to nurture the budding mango exporters. In this context

government with the help of private mango exporters associations should arrange meetings and seminars where senior mango exporters should share their experiences to inculcate informative knowledge to the new mango exporters.

- Pakistani mango is considered as a low priced product in international markets as compared to mangoes from other competing countries. Secondly most of the mango exports are targeted to relatively low price markets like Dubai, Saudi Arabia, Oman, etc. So more organized and collective efforts should be made by the associations responsible for this to fetch a good price in international market.

- Average marketing cost showed significant impact on mango exports. Freight is an important element of marketing cost, which may be considerably reduced by shifting air lifting of mangoes to shipment through sea. This objective may be attained by increasing shelf life of mangoes, so research efforts should be directed to develop new mango varieties with more shelf life.

- Pakistan is missing some of the high price markets like United States of America, Japan and some of the European countries due to the allegation of fruitfly infestation. In order to comply with fruitfly issue, hot water treatment should be adopted keeping in view the tolerance of mangoes, their quality and shelf life. If importing countries accept irradiation, this should be adopted for post harvest treatment of mangoes but over and above the ultimate practical solution in this regard is vapor heat treatment. There is only one 50 kg capacity machine (donated by Japan over ten years ago) for this purpose and is still under trials. So efforts in this regard should be enhanced and government should come ahead to facilitate the exporters by declaring import of all cure technologies not only zero rated but also subsidized one. This particular act may enhance the acceptability of use of fruitfly cure technologies in Pakistan.

- ISO certificate significantly affected mango exports but currently a small proportion of total mango exporters have this type of certificates. So efforts should be made to mobilize our mango export industry to get certified by ISO. In addition to this, emerging requirement regarding standardization in international market like Hazard Analysis and Critical Control Point (HACCP), Eurepgap, etc. should also be promoted.

In nutshell, we need more sophisticated diplomatic efforts to develop a good image of Pakistani mango by arranging seminars, workshops and mango festivals in Pakistan and also by participating in such activities at international level more aggressively. A business move towards more value added products might be another good option to fetch higher prices in international market.

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