

Production and Marketing Constraints Faced by Kinnow Growers In Haryana

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ABSTRACT

The present study seeks to identify the constraints that threaten the growers' direct involvement in marketing of their produce and inefficient cultivation practices that influence yields of grower. The study has revealed that growers' returns from kinnow crops are deeply influenced by production and marketing constraints faced by them. It has also been found that growers' ignorance and unawareness and unorganized market structure are prime responsible factors that influence their yield. The sample of 270 growers is selected on the basis of consecutive sampling method and data is analyzed through frequency distribution, tabular analysis and percentage. The present study makes a significant contribution to the literature on kinnow growers' practices in Haryana. It can be helpful to develop appropriate price policy for inputs and outputs of kinnow fruit, regulation of market charges, wage policy, initial investment in food processing units, and infrastructure that assures significant returns for growers. The adequate policies for scientific storage and fruit processing plants, transportation and infrastructure etc. are required for increment of agricultural GDP and income of growers. The growers should be imparted production and marketing practices through training and sufficient resources.

1. Introduction

Fruit cultivation is a diversified agriculture activity significantly generating employment throughout the year, enhances farm economy and also earns foreign exchange by enhancing export (Parkash, 2000). Fruits are essential for human diet as main source of nutrition, indirect diversity, ecological sustainability and fight against hunger (Kumar *et al.*, 2016). Citrus is one of the most relevant fruit crops grown across the globe and has a tremendous social, cultural and economical influence on our society (Vijaya *et al.*, 2017). Citrus fruit has second rank after grapes in respect of both area and production in the world. About 7.13 million tonnes of citrus is produced annually throughout the world (Khalid, 2013). India being the home of many citrus fruits, and their cultivated area is spread more than 0.953 million hectares with the production of 11.66 million tonnes (Vijaya *et al.* (2017). Along with citrus cluster, kinnow fruit occupies a distinctive position in fruit industry of India (Parkash, 2000). Kinnow has large globular in shape and orange in colour, is a hybrid of two citrus cultivars-kings and yellow leaf, thus, its uniqueness is assortment between mandarin fruit and sweet orange with neither tight nor loose skin (Goyal *et al.*, 2012). It was developed by Dr. H.B. Frost in the year 1915 at citrus research centre, university of California, U.S.A. and Prof. Dr. J.C. Bakhshi PAU (Punjab Agriculture, university) brought it into India at Regional Fruits Research Centre, Abohar (Gill and Mahindra, 2010). The cultivated area under kinnow fruit is being stretched from arid and semi-arid regions due to its growing demand in domestic and international consumer markets (Vijaya *et al.* (2017). The commercial values of kinnow fruit in terms of direct consumption, processing and trade have risen continuously in recent years. Now, it is commercially cultivated in Punjab, Haryana, north-western

parts of Rajasthan and Uttar Pradesh of India (<http://www.krishisewa.com>). Haryana is a progressive agricultural state, has only 1.4 per cent cultivatable geographical areas of India. Haryana has 13th rank in citrus fruit production (Kumar, 2011). The cultivated area under citrus fruits was 3,189 hectares in the year 1991-92 which increased to 5,041 hectares in the year 2005-06 (Horticulture anonymous, 2005-06). In the year 2014, citrus was grown on 19.4 thousand hectare area with the production of 235.4 thousand MT in Haryana (Horticulture anonymous, 2014-15). Kinnow covers majority (more than 80 percent) of cultivated area under citrus fruits in Haryana (Horticulture experts, DHO Panchkula). The cultivation of kinnow crop (non conventional crop) as compare to other annual food crop is presently not developed as required for improving farm income and shifting the trends of conventional crops. Exceptional care is required for development of kinnow fruit potential and prospective due to natural and other external constraints like perishability, bulkiness, socio economic status of growers, government policies and lack of systematic approach of supply chain management etc in the path of production and its marketing. Therefore, the present study is carried out in two foremost kinnow cultivating districts Sirsa and Fatehabad of Haryana. The present study is undertaken to know the growers efficiency in production and marketing of kinnow. Do the existing available sources of growers sufficient for kinnow cultivation? Why do the growers avoid kinnow cultivation?

2. Review of literature

This section discusses various literatures linked to understanding the various production and marketing constraints faced by growers to establish a framework for the study which is given below:

Kumar et. al., (2016) studied the masumbi cultivation constraints faced by the farmers of Haryana. A sample of 120 responds was collected by multistage sampling and analysed through frequency, weighted frequency, weighted mean and mean score. The study identified that high price of pesticides, non-availability of inputs were major inputs constraints while absence of agro-processing units, absence of support price were serious marketing constraints while knowledge of balanced fertilizer and their application time were also important constraints faced by growers. The results revealed that lack of post-harvest technology and cultivation technologies also were major technical constraints. The study suggested that government should deal with the problem of cultivation and post harvest techniques, credit facilities and availability of sources at proper time while awareness among farmers are also required.

Mavi et. al. (2012) studied the efficiency and problems of different kinnow farmers in Punjab. The data of 120 growers were selected through multistage random sampling and Acharya's & Aggarwal model, correlation coefficient, percentage and average etc. statistical tools were applied to analyze the data. The study results revealed that most of growers choose pre-harvester contractor for disposal of their produce and also to avoid loss of price fluctuations. Due to inefficient transportation, shortage/absence processing system, improper marketing services, losses in post harvest handling and malpractices of middlemen were main constraints faced by growers. The study recommended that involvement of government and non government institutions and organizations, self help groups and cooperative societies etc. are required for improving the share of growers in consumer rupees.

Sharan and Singh (2002) conducted a research on marketing of kinnow in Rajasthan. The research findings revealed that selling of kinnow through growers self was found profitable as comparison to contract sell. The study revealed that lack of support price, unorganized market and involvement of intermediaries were major constraints faced by growers in marketing of their produce; and other associated constraints were lack of competition among buyers, improper marketing infrastructure, shortage of cold storage facilities, postponement of payment, and lack of effective and economical packing material. The study suggested that there is urgent need of organized consumer and capital market for growers, support prices, proper and efficient infrastructure and strict regulation for marketing malpractices also, growers self help groups with tie up with emerging channels of disposal.

Jhahhria (2009) examined the economic appraisal of production and marketing of kinnow in district Sirsa, Haryana. The data of research was collected from 60 farmers on multistage random sampling basis and analysed through frequency distribution tools and modified marketing models. The study concluded that orchard landlords suffered from losses during initial three years without production and also suffered losses by giving out their orchards on contract at harvest time. The results of study expressed that unusual weather conditions, unavailability of good seedling, lack of technical knowledge, unavailability and costly credit are major

constraints faced by farmers during production while lack of support price, inefficient market structure, absence of processing plants, imperfect competition and delay in payment were major marketing hindrances faced by farmers. The study recommended that efficient price policy through government, technical awareness of growers and private investment in infrastructure and cooperative societies are required to attain sustainable development of kinnow growers.

3. Objectives of the study

- 1) To identify the constraints faced by growers in production and marketing of kinnow fruit crop.
- 2) To suggest corrective measures for resolving the constraints.
- 3) Hypothesis:
- 4) H₁: Constraints related to labour, irrigation and availability of desired packing size of pesticides are most common among all category growers
- 5) H₂: Growers are well known about how to produce but they do not know how to sell.
- 6) H₃: Usually marketing malpractices threaten growers' direct involvements.
- 7) H₄: Except production and marketing other constraints are not significant for growers.

4. Research methodology

Research design

The present study primarily exploratory cum descriptive research in nature as it seeks to study constraints faced by kinnow growers in Haryana.

Scope of the study

The study covers Sirsa and Fatehabad districts because these districts hold majority of area (nearly 65 percent) under kinnow crop in Haryana. The data is analyzed through frequency distribution, percentage and tabular analysis.

Sample

A sample of 270 growers (150 growers from district Sirsa and rest 120 from Fatehabad) is selected on the basis of consecutive sampling method. Further, sample of growers is categorized in three parts such as marginal land holders (hold land up to 1.0 hectare), small land holders (hold land from 1.01 hectare to 2.0 hectare) and other category land holders (hold land above 2.0 hectare). The primary data are collected through well designed and pre-tested questionnaire, designed with the help of academicians, review of literatures and horticulture scientists etc. The questionnaire containing questions related to production and marketing constraints faced by growers on three point liker scale ranging between disagree to agree (Disagree = 1, Unsure = 2, Agree = 3)

5. Data analysis and interpretation

The extensive analysis of kinnow growers problems will help in searching the opportunities for enhancing the production and increasing marketing efficiency. The constraints related to production and marketing of kinnow crop are given below.

Production constraints faced by kinnow growers

The cultivation process of orchards is lengthy, costly and scientific. The growers use different types of inputs and materials at the time of establishment of orchards thus, input

and material prices and their availability along with other variables deeply affect the cost of cultivation. These production constraints are given below.

Table 1: Production constraints faced by all category kinnow growers during cultivation process

Sr. no.	Particulars of constraints	Disagree (%)	Unsure (%)	Agree (%)	Total growers
1	Lack of required capital	65 (24)	38 (14)	167 (62)	270 (100)
2	Unavailability of input and materials at the time of cultivation	35 (13)	30 (11)	205 (76)	270 (100)
3	Ill regular and costly irrigation system	38 (14)	19 (7)	213 (79)	270 (100)
4	Untrained and costly labour	25 (9)	24 (9)	221 (82)	270 (100)
5	Unavailability of desired packing and costly fertilizers, pesticides and fungicides	25 (9)	5 (2)	240 (89)	270 (100)
6	Unexpected weather changes	59 (22)	70 (26)	140 (52)	270 (100)

Source: Field survey. Note: The figures in parentheses are percent of total growers.

Table 1 indicates various production constraints faced by kinnow growers in Haryana. The results of the table show that 62 percent growers are agree that they face problem of insufficient capital. They have no regular source of finance therefore, interest on debts is charged greater than market rate through local money lenders due to shortage of rural financial institutions. In case of inaccessibility of inputs and materials at the time of cultivation, 76 percent growers are agreed while rest of 24 percent growers are uncertain and disagree. The causes behind this indeterminate perception of growers may be their large holding size and control over sources. Majority of growers (79 percent) agree that they are facing ill-regular supply and high cost of irrigation problem while rest of 21 percent growers are disagree and uncertain. The constraint of untrained and costly labour is faced by 82 percent growers

while rest of 18 percent growers are disagree and unassertive. It is perceived that 89 percent growers are agree that they have problem of unavailability of desired packing, costly pesticides and fungicides while only 11 percent growers are ignorant of it. The unexpected weather changes constraints are faced by 52 percent growers while rest of them are unsure and disagree. The growers perceive that weather changes are uncontrolled factor and this does not happen regularly. Weather fluctuations are not a regular feature. It is perceived that among all constraints; unavailability of desired packing, costly pesticides and fungicides are major constraints faced by growers during establishment and regular maintenance of orchards which are further followed by unskilled and costly labour, ill-regular supply, high cost of irrigation, cost of inputs and materials used etc.

Table 2: Comparison of different category land holders on the basis of production constraints faced by kinnow growers in Haryana

Particulars of production problems	Marginal land holders (mean score)	Small land holders (mean score)	Other land holders (mean score)
Lack of required capital	2.96	2.35	2.16
Unavailability of input and materials at the time of cultivation	3.10	2.96	2.90
Ill regular and costly irrigation system	3.26	3.04	3.06
Untrained and costly labour	3.0	3.28	3.69
Unavailability of desired packing and costly fertilizers, pesticides and fungicides	3.96	3.73	3.56
Unexpected weather changes	2.91	2.0	2.19

Source: Field survey. Note: the value of mean is calculated on the basis of three point scale: Disagree = 1, Unsure = 2, Agree = 3). Total number of the respondents = 270 (Marginal land holder = 90, small land holders = 90, other land holders = 90).

The mean score of production constraints faced by kinnow growers are identified during field survey which is presented in the table (2). The problem having mean value greater than 3 is measured as serious problem (Goyal *et.al.*, 2012; Ohlan, 2016 and Kumar *et. al.*, 2017). The mean score of unavailability of inputs and materials at the time of cultivation, ill regular and costly irrigation facilities and unavailability of desired packing and costly fertilizers, pesticides are found greater than three and noted as serious constraints for all category land holders of district Sirsa as well as Fatehabad. The mean score of unavailability of inputs and materials at the time of cultivation

are found greater than three and highest for marginal category land holders as compare to other category. It indicates that they face more challenges in assembling all required inputs and materials at the time of cultivation and it may be due to lack of financial resources and their credit worthiness. The mean score of untrained and costly labour is found three but least for marginal land holders because they generally manage cultivation with the help of family members and their family members are semi skilled to do the cultivation operations. The problems of sufficient capital and unexpected weather are found insignificant as compare to other constraints as sudden

unexpected changes in weather is probably not found in area and financial requirements are completed through KVC (Kisan vikas card), money lenders and private banks of area and sometimes also through intercropping etc. Hence, hypothesis H₁: constraints related to labour, irrigation and availability of desired packing size of pesticides are most common among all category growers gets accepted as costly and untrained labour, ill regular and costly irrigation and shortage and unavailability of desired packing of pesticides etc. have three or more than three mean score for all category growers.

Marketing constraints and kinnow growers

Marketing of fruits and vegetables are a complex process as it involves component of risks like perishability, seasonality and bulkiness in size. Growers know how to produce significantly at lower cost but they do not know how to sell efficiently with significant share in consumer rupees. Therefore, the constraints faced by growers during marketing of produce are given below.

Table 3: Marketing constraints faced by different category kinnow growers in Haryana

Sr. no.	Particulars of problems	Disagree (%)	Unsure (%)	Agree (%)	Total Growers
1	Problem of harvest	76 (28)	19 (7)	175 (65)	270 (100)
2	Post harvest handling	46 (17)	11 (4)	213 (79)	270 (100)
3	Loss during handling	43 (16)	5 (2)	221 (82)	270 (100)
4	Low price and absence of MSP	27 (10)	3 (1)	240 (89)	270 (100)
5	Lack of price awareness and price fluctuation	73 (27)	30 (11)	167 (62)	270 (100)
6	Ill regular mode of payments	70 (26)	51 (19)	148 (55)	270 (100)
7	Inadequate transportation	30 (11)	57 (21)	184 (68)	270 (100)
8	Lack of awareness regarding channels of distribution	35 (13)	86 (32)	148 (55)	270 (100)
9	Inadequate cold storage and processing plants	40 (15)	8 (3)	221 (82)	270 (100)
10	Credit facilities	70 (26)	35 (13)	165 (61)	270 (100)
11	Lack of awareness and access to consumer market	62 (23)	54 (20)	154 (57)	270 (100)

Source: Field survey, Total number of respondents = 270. The figures in parentheses are percent of total growers.

Table no 3 shows the major restraints faced by growers during marketing of their produce. It is found that 65 percent growers face problems during harvest while rest of 35 percent growers are disagree and unsure. The problem of post harvest handling is faced by 79 percent growers whereas rest of growers do not take it as a serious obstacle. It is observed during survey that harvest and post harvest handling operations are mainly depended on skilled and trained labour but, availability of trained and skilled labour are not available. Low price produce and absence of MSP is another major constraint faced by 89 percent growers while rest of 11 percent growers are uncertain and disagree. MSP is not available and it is major reason that growers are not receiving remunerative prices of their produce moreover there is larger involvements of intermediates absorb major percent of market margins on growers produce. The lack of price awareness and price fluctuations problem is faced by 62 percent growers while rest of 38 percent growers are not sure and disagree. It is observed during survey that growers' ignorance and unawareness are major cause behind this problem. It is identified that 55 percent growers agree that they are not getting payments for their produce at right time while rest of 45 percent growers take it not a serious problem. The inadequate transportation problem is faced by 68 percent growers while rest of 32 percent growers have owned transport facilities and easy access on sources. It is also ascertained that 55 percent growers are agree that the distribution channels they adopt are not significant while rest of them are disagree and unassertive. It is because other channels of distribution are risky and complex to understand. 82 percent growers are agree that insufficient cold storage and processing plants are major constraints for them while only 18 percent growers do not consider it as a major

problem. Kinnow fruit is seasonal glut and perishable in nature therefore cold storage and processing plants are required. Some growers are not capable of keeping their produce in cold storage because they do not have sufficient finance. The constraint of credit facility is faced by 61 percent growers while rest of them are not taken it as serious problem. The problem of access to consumer market and awareness of market constraints is faced by 57 percent growers while rest of 43 percent growers are not taken it as serious issue for them. The results of table conclude that low price of produce and absence of MSP is found a major problem faced by growers followed by inadequate cold storage and processing plant constraints, losses during handling, post harvest handling, inadequate transportation and problem of harvest etc.

The marketing constraints faced by kinnow growers are identified during the course of investigation which is presented in table no 4. The major marketing constraints are found such as harvest technique, post harvest handlings, losses during handling, low price and absence of MSP, lack of awareness regarding market information, transportation and absence of cold storage and fruit processing plants etc. respectively. It is found that post harvest handlings, low price and absence of MSP, inadequate transportation, shortage of cold storage and processing plants are considered as serious problems for all categories of land holders having more than 3 value of mean. The value of mean score of the problems are comparatively high for marginal land holders because they have less quantity of produce to sell as compare to rest of land holders and does all harvest activities themselves with the help of family members, also tackle post harvest handling through semi skilled family members, improper and inefficient packing

material due to lack of financial assistance, poor transportation facilities and credit facilities.

Table 4: Comparison of different category land holders on the basis of marketing constraints faced by kinnow growers in Haryana

Particulars of marketing problems		Marginal land holders (mean score)	Small land holders (mean score)	Other land holders (mean score)
Product	Problem of harvest	2.96	2.35	2.16
	Post harvest handling	4.10	3.96	3.90
	Loss during handling	4.16	4.0	4.04
Price	Low price and absence of MSP	4.24	4.18	4.29
	Lack of price awareness and price fluctuation	2.96	2.73	2.60
	Ill regular mode of payments	1.91	2.0	2.09
Place	Inadequate transportation	3.51	3.30	3.11
	Lack of awareness regarding channels of distribution	2.80	2.42	2.16
Promotion	Inadequate cold storage and processing plants	4.34	4.40	4.32
	Credit facilities	3.00	2.91	2.94
	Lack of awareness and access to consumer market	2.96	2.24	2.26

Source: Field survey. Note: the value of mean is calculated on the basis of three point scale: Disagree = 1, Unsure = 2, Agree = 3). Total number of the respondents = 270 (Marginal land holder = 90, small land holders = 90, other land holders = 90).

Another major problem for all category land holders is absence of brand recognition of their produce as they do not have brand name thus do not get fair price. It is also found that marginal land holders bargaining power is less effective as they have less quantity of produce to sell thus they obtain comparatively low price for their produce in comparison to other category growers. These results are indicating significance of various constraints which are similar those obtained by kumar *et al.* (2017), Jhajharia (2009), Porwal (2012) and Goyal *et. al.* (2012) regarding production and marketing of kinnow in in different states of India. Hence, hypothesis H₂ and H₃ gets accepted as problems of low price, post harvest handling, post harvest losses of fruit and storage of infrastructure etc. have more mean value as compare to production constraints.

6. Conclusion

It is found that growers are facing more problems of marketing of kinnow produce in comparison of production. The study found that majority of growers are facing constraints of unavailability of desired packing and costly pesticides, fungicides and fertilizers, untrained and costly labour, ill regular supply and costly irrigation and shortage of inputs and materials during cultivation of kinnow fruit. Whereas low price, losses during handling and absence of nearest cold storage and fruit processing plant, post harvest handling of produce and inadequate and costly transportation etc. constraints' are faced by them throughout the marketing of their kinnow produce. It is observed that growers' awareness, education

level, technical knowledge, and inactive efforts in marketing of their produce are major responsible factors for incurring these constraints. On the other hand shortages of investment in different fields like infrastructure and processing plants and absence of organized market for growers are also responsible for growers' low yields. The study observed that the participation of growers in any training programme, workshops and experts talks organized through government and non government sector is almost nil.

7. Recommendations and suggestions

It is found that kinnow growers don't know about the improved cultivation practices hence, collective efforts should be made to educate the growers about the improved practices through experts, training programmes and workshops. The proper planting material is unavailable thus government should provide quality planting material to the growers through any private agencies, government nurseries and KVK. The growers' problem of credit should be recognized as serious problem, and government should be directed towards expansion and strengthening of credit institutions to meet growers' requirements. The marketing constraints are serious because no nearby fruit market exists. So, government should provide better marketing facilities to growers by opening of more regulated markets. The nature of kinnow is perishable and absence of cold storage, processing etc. stress growers to sell their produce immediately on current market rates. Thus, the creation of storage facilities and processing plants are required to safeguard the interest of growers.

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