

Myths of intermediaries' in citrus supply chain in Pakistan

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Abstract: *Citrus is number one fruit of Pakistan having profound contribution in livelihoods and economic development as “Kinnow” cultivar is major export item. Citrus marketing system for consistent supply chain is essential. Research on intermediaries' role in Pakistan is scanty. This research is an attempt to bridge research gap soliciting intermediaries' role in citrus marketing process. Total 120 randomly selected citrus growers were interviewed face to face and collected data were analysed using Statistical Package for Social Sciences. Findings confirmed that middleman, processing factories and friends/relatives were the foremost intermediaries in citrus marketing. Majority of growers (94.16%) preferred selling their pre-harvest produce to intermediaries like processing factories (55.75%), middleman (30%) and friends and neighbours (14.25%). Educational level and area under citrus cultivation were prominent variables influencing growers harvesting behaviour and accessing citrus marketing opportunities. Constraints analysis unveiled that high prices of inputs (84.3%), small lands (82.6) and monopoly of middleman (76%) were prominent factors limiting benefits. Number of constraints impeding growers' benefits were inter-correlated. This implies that resolving one barriers could limit another. Therefore, study harness the need to regulate middleman in citrus marketing through legislation and government should document fruit oriented policy, subsidies, interest free loans and effective marketing channels.*

Keywords: *Intermediaries, middleman, commission agents, retailers*

Introduction

The Citrus is levered fruit of Pakistan graced with 1st rank among all fruits in terms of area and nationwide production (Mahmood et al., 2014). This esteemed fruit was originated in tropical areas around Southern Himalayas South-East Asia and Indonesia Archipelago. However, citrus widespread across the world on both sides of equator constructing 35 degree latitude in South Australia in Southern hemisphere. Citrus quality diverges in different areas. The regions of semi-tropical climate adjacent to southern and northern latitude limits are vital source of commercial production (Mahmood and Akhtar, 1996). Climatic conditions of Pakistan are susceptible for quality production of citrus. Therefore, today in global world “Kinnow Mandrin” of Pakistan is widely preferred and demanded cultivar (Naz et al., 2014). Kinnow is cultivated in plain areas of the Punjab province and its production is on rise overtime. During the year 2016 about 2.5 million tonnes of citrus was produced from 206,569 hectares area (Gov. of Pakistan, 2017).

Production of major fruits including citrus and mango in Pakistan is productive. However, marketing system of major fruits under criticism. Inefficient marketing structure is prime constraint in limiting production of fruits which also results poor price signals. Excessive involvement and emergence of intermediaries in marketing chain spoiled the benefits of growers. Similarly, inadequate marketing management spoil fruit before reaching consumer. Old and traditional practices, non-availability of cold storage and poor packing limit export margin. Government in the report (2006) had reported that despite of profitability, sound irrigation system, favourable climatic conditions production and marketing of citrus fruit was varied due to inadequate access to access and sluggish system of marketing.

Sabir et al. (2010) summarised that open marketing of citrus gives profit to each intermediary. Consumers' intentions to purchase fruit directly from producer could grab benefits but this happens rarely. Therefore, contractors earn Multifood benefits and margins through marketing fruit in adjacent areas. Similarly contractors or middleman is not imposed with marketing cost while selling fruit to factories, thus contractor earns benefits again. Factories earn double benefits in direct purchase of unharvest fruit and export of fruit. Mahmood and Sheikh (2006) had revealed a direct purchase of factories from producers and beoparies. In a recent research study Ullah et al. (2017) iterated that marketing intermediaries take away a considerable marketing margin while profit margin of citrus growers narrows badly. For well-being of producers and sustainable production of citrus, effective marketing is imperative. Sabir et al. (2000) suggested that number of intermediaries involved in citrus marketing should be reduced, this will enrich producers' benefits.

Role of intermediaries in citrus marketing is imperative. This study was planned and executed to unveil intermediaries' role and growers' behaviour towards harvesting and opportunities of marketing. Of the total production of citrus, about 98% is produced in Punjab province and 70% contribution is from Kinnow cultivar. Therefore, this study was planned in Sargodha district of the Punjab. As geographical distribution of citrus growing areas in Punjab is alike, hence, the findings of this research may generalise on entire growing regions. This study is first of its kind focusing on intermediaries' role in citrus marketing, hence this will bridge research gap and present insight to formulate future directions on government level.

Methodology

There are total four provinces in Pakistan including Punjab, Sindh, Baluchistan and Khyber Pakhtunkhawa. Of the total provinces, Punjab is prominent in terms of population, infrastructure and agriculture growth. There are total 36 districts across the Punjab province. Geographical distribution of Punjab province is so blessed that major and minor crops are cultivated at full strength pertinent to susceptible environment and one of the best canal irrigation system.

Of the total 36 districts, this study was conducted in purposively selected District Sargodha which is largest citrus producer district of the Punjab and graced with distinct position regarding citrus production across the country. Sargodha City is located in longitude 72° – 38" to 72° – 43" and latitude of 32° – 3" to 32° – 7". The city is situated at a distance of about 180 km towards north-west of Lahore. Climate of the area varies from extreme heat and cold with maximum temperature 50° C (122 F) in the summer while the minimum temperature as low as freezing point in the winter. Therefore, it is the Pakistan's best and leading citrus producing area. The city is well connected to the other major cities Faisalabad (90Km) and Jhang (126 Km), Sheikhpura (143 Km), Khushab (45Km), Gujrat (210 Km) and Sialkot is 214 km by metalled road. The city is also connected with Lahore, Faisalabad, Jhang and Rawalpindi by rail. This wide network of different transportations give an ample opportunity of citrus marketing across the province. Citrus is the leading crop of study area. Hence, citrus growers of the District served as population and typical growers of citrus were selected respondents.

There are seven sub-districts (Tehsils), viz, Bhera, Sargodha, Silanwali, Kot Momin, Bhalwal, Shahpur and Sahiwal in the district. Considering time and resources study was further restricted to sub-district Kot Momin. All sub-districts were homogenous in characteristic, so, sample selected from selected sub-district tend to generalise on entire district. Multistage random sampling was employed to select sample. On first stage, one tehsil (sub-district) was selected. Selected tehsil was further divided into 24 Union Councils. Of the total Union Councils, 22 were rural and 2 were urban by nature. On second stage, 05 union councils were selected at random and on third stage from each selected Union Council 02 Villages were selected at random. On fourth stage, 12 citrus growers were selected from each selected village through random selection thereby making a sample size of 120 citrus growers. For preparation of sampling frame, Office of Deputy Director Agriculture (Extension) Sargodha was consulted. The office coordinated well and provided district profile, list of

tehsils, Union Councils, Villages and list of registered citrus growers. The list consisted of more than 3000 citrus growers. This detailed list served as sampling framer and provided a base for random selection of respondents.

For collection of data, questionnaire was developed as research instrument. Validity of questionnaire was checked through content validity technique. Two Assistant Professors of Agricultural Extension department and one Assistant Professor from Horticulture Department of University of Agriculture Faisalabad, Pakistan checked the contents of the questionnaire. Prior final data collection, questionnaire was pre-tested on 20 citrus growers other than sampled growers. On basis of pre-testing, questionnaire was finalised for final data collection. Questionnaire was administered through face-to-face interview technique. Collected data were coded in Statistical Package for Social Sciences (SPSS) for analysis. Descriptive statistics technique i.e. frequency and percentages was applied on data. Multivariate regression and correlation techniques were applied for meaningful interpretation of data.

Table 1. Demographic attributes of the respondents

Demographic Attributes		Frequency %
Age (Year)	Young (<35)	46(38.3)
	Middle (36-50)	58(48.4)
	Old (> 50)	16(13.3)
Educational Level	Illiterate	29(24.2)
	Up to primary	23(19.2)
	Primary to middle	36(30)
	Middle to matriculation	17(14.1)
	Above matriculation	15(12.5)
Size of land holding (acres)	< 5	47(39.1)
	5-10	39(32.5)
	> 10	34(28.3)
Tenancy Status	Owner	98 (81.7)
	Owner cum tenants	18(15)
	Tenant	4(3.3)
Area under citrus cultivation	< 5	6(5)
	5-10	84(70)
	> 10	30(25)
Cultivar under cultivation	Kinnow	120(100)
	Other than Kinnow	23(19.16)

Numbers: Data depicted in Table 1 reflects that of the total respondents almost half (48.4%) were in age bracket of 36-50 years followed by 38.3% young respondents with productive age of not more than 35 years. Of the total respondents, one fourth (24.2%) were illiterate while 75.8% were literate bearing different years of schooling. About one fifth respondents (19.2%) were having minimum qualification of up to primary level and slightly greater than one tenth (12.5%) possessed highest academic certificate of more than matriculation. Primary level refers to 5 years of schooling while matriculation shows 10 years of schooling. Among more than matriculate respondents some were bearing high education degrees and to some extent they were innovative in citrus production and marketing. Approximately, 71.6% respondent were small farmers having less than 12.5 acres of land in possession. However, 81.7% respondents were owner of their lands which makes them confident and persuade to take risks and practice recent innovations. As for as cultivation of citrus was concerned, cultivation was mainly commercial but predominantly on less than 12.5 acres of land. About one fourth (25%) respondents had cultivation of citrus on more than 10 acres. Earning income was the sole purpose of practicing citrus, therefore, Kinnow was the leading cultivar being cultivated and marketed. It is noteworthy to mention that Kinnow is the widely exported cultivar of Pakistan and across the globe Pakistan is graced with 1st rank in terms of quality of Kinnow mandarin. The summarised outlook illustrates sound picture of growers in stud area. Being young, educated, possessing lands, owner of their lands and growing globally acclaimed cultivar showcase them as productive growers.

Harvesting and Marketing Behaviour

Majority of the growers (94.16%) do not harvest their own orchards, instead they prefer selling their pre-harvest produce to intermediaries like processing factories and marketing agents. After getting the possession these factories or marketing agents get the produced harvest with help of their own managed labour. Most of the factories perform harvest mechanically following the strict rules and regulations of export. Only 5.84% respondents harvest their own orchards (Table 2). These growers were usually small land holders and had enough access to labor to harvest orchard. Post-harvest, they used to sell produce to friends, neighbors, marketing agents and retailers.

Data depicted in Table 2 further states that among intermediaries, role of processing factories, middleman and fellow farmers was prominent. Ullah et al. (2017) have reported that commission agents, middleman and processing factories are leading intermediaries in citrus marketing system. About 55.75% respondents unveiled their preference to sell their pre-harvest produce to processing factories. Once the unharvest fruit has been sold, processing factories are responsible for harvesting, transportation and storage. Usually these operations are undertaken mechanically by processing factories. As research area is globally renowned in terms of citrus production, there is wide network of processing factories which export fruit to Middle East and associated countries. Selling fruit to these factories gets good price for the growers. Of the total respondents, 30% sell their unharvest fruit to middleman who are usually brokers and marketing agents some time. This group is mainly profit making group. This group buys the pre-harvest fruit at low price from growers and after harvesting sells fruits to processing factories and earn double benefits. Sometime this middleman works on commission with processing factories as well. About 14.25% growers reported selling their unharvest fruits to fellow farmers and friends. This business is carried out merely on basis of relationship.

Table 2. Harvesting and Marketing Behaviour of citrus growers

Harvesting and Marketing Behaviour of citrus growers	f	%
Harvesting Behaviour of citrus growers (n=120)		
Harvest fruit from orchard at own	113	94.16
Do not harvest fruit from orchard at own	07	5.84
To whom growers sell unharvest fruit from citrus orchard (n=113)?		
Processing Factories	63	55.75
Middleman	34	30
Friends & Fellow Farmers	16	14.25

Socio-economic characteristics and marketing opportunities

Table 3. Socio-economic impact on marketing opportunities

Socio Economic Attributes	Harvesting Behavior	Processing Factory	Middleman	Friends/neig hbors
Age of growers	0.123	0.290	0.161	0.046*
Education of growers	0.007**	0.091*	0.363	0.234
Land possessed by growers	0.799	0.001**	0.100	0.822
Tenancy status	0.686	0.104	0.867	0.999
Area under citrus cultivation	0.085*	0.078*	0.015*	0.016*
Cultivar cultivated	0.996	0.063*	0.461	0.999

*P<0.05 **P<0.01

Data mentioned in Table 3 is representation of impact of demographic characteristics of the growers in their harvesting and marketing behaviour. Association of growers' age, land holding, tenancy status and cultivar under cultivation was non-significant with harvesting behaviour of citrus growers. Relationship of educational level of respondents appeared highly significant (P<0.01) with harvesting behaviour of growers. This relationship implies that with

the increasing level of education harvesting behaviour tend to be more positive. Growers would be in good position to decide proper mode of harvesting with purpose of reducing losses, ensuring quality and observing more outcomes. Highly educated respondents were in better position to get harvesting done through skilled labor or by means of mechanized harvesting. Educated individual can manage and understand mechanized harvesting. Area under citrus cultivation was another variable which reflected significant association with harvesting behavior of citrus growers. Results implies that with unit increase in area under citrus cultivation, there will be positive change in behavior of growers to market unharvest orchard to commercial processing factories.

Within sphere of marketing options to citrus growers, age and tenancy status were non-significant variables with selling unharvest fruit to processing factories.

Educational level embarked significant association with marketing with processing factories ($P < 0.05$) followed by area under citrus cultivation and cultivar cultivated reflecting significant relationship ($P < 0.05$). Results implies that grower having higher qualification, large land holdings, area under citrus cultivation and type of cultivar being cultivated were more curious and urged to market their unharvest fruit to processing factories. Selling fruit to processing factories was easy and cost effective option, as unveiled by growers during informal discussion.

Area under citrus cultivation was also significant with selling fruit to middleman ($P < 0.05$). It may be stated that growers having citrus cultivation on small areas tend to market their fruit to middleman and friends and neighbors. Age of the grower and area under citrus cultivation also reported significant relationship with selling fruit to friends and neighbors ($P < 0.05$). Results summarized that, marketing behavior was more influenced by area under citrus cultivation. As the area and production increases, growers will be more concerned and focused to choose effective marketing options.

Constraints Analysis

Table 4. Constraints analysis.

Constraints	Percentage impact
Inadequate awareness	25.8
Middleman Monopoly	76.0
Non-adoption of mechanized operations	31.4
Small land holdings	82.6
Water Shortage	28.9
High Prices of inputs	84.3
Finance shortage	60.3
Poor quality of fruit	39.7

Data mentioned in Table 4, illustrates some prominent constraints perceived by the growers. High prices of inputs appeared leading constraint as perceived by 84.3% growers. In Pakistan, inflation is on rise and inflations rate is troubling farming sector as well. The prices of inputs are on rise in result sector is turning to cost intensive. Bearing higher cost of production among small landholder is difficult. It is also true that farming masses not only in study area but also across the country are predominantly small farmers. Ultimately, these small farmers seek financial support from middleman for crop management operations. Small land holdings were reported a significant constraint by 82.6% respondents. Monopoly rendered by middleman and agents of different intermediaries was criticised by the growers and they acclaimed their monopoly while purchasing fruit. Respondents argued that they are compelled to sell their fruits to this commission mafia because there is no direct marketing system or legislation cemented by government for fruit growers. In this way, growers were victimised to monopoly of middleman and commission agents as perceived by 76% respondents. During discussion it was unveiled by the growers that, we cannot prevent middleman as in most of the cases, this middleman is the source of loan and inputs providers for those growers who lack in finance. Middleman fulfil growers loan requirement with

condition of selling fruit to him once the fruits have gain maturity. This commitment cuts the benefits of growers and doubles the profits of middleman. In other case, this middleman destabilise the marketing with storing fruits in cold storage and not selling to processing factories. Ultimately, preventing a major loss processing factories offer higher prices resulting multi-fold benefits to middleman. Finance shortage obstacle about 60.3% growers. Poor quality of fruit pertinent to various issues like inadequate supply of nutrients and climatic variability was reported a one of the serious constraints by 39.7% growers. This below average quality was also a reason of generating poor rated rendering an opportunity of monopoly and blackmailing of intermediaries. Water scarcity and inadequate awareness were additional constraints highlighted by 28.9 and 25.8% growers. Results infer that, most of the constraints are interlinked and impact varies with the variation in collateral constraint. Inter-correlation analysis of constraining variables was run to unveil the association as depicted in Table 5.

Table 5. Inter-correlation of variables.

	Limiting factors							
	Inadequate awareness	Middleman monopoly	Non-adoption of mechanized operations	Small land holding	Water shortage	High prices of inputs	Finance shortage	Poor quality of fruit
Inadequate awareness								
Middleman monopoly	-0.031							
Non-adoption of mechanized operations	-0.017	-0.006						
Small land holding	0.111	0.018	-0.128					
Water shortage	-0.003	0.007	0.903*	-.107				
High prices of inputs	0.105	-0.066	-0.166	.939**	-.141			
Finance shortage	0.127	-0.079	0.032	.466**	.064	.428*		
Poor quality of fruit	-0.058	0.008	-0.117	.365**	-.112	.343**	.376**	

*P<0.05

**P<0.01

Data arbitrated in Table 5 reflects the correlation between constraining factors. Findings unveiled a significant association ($P<0.05$) between water shortage and non-adoption of mechanized operations. Results infer that, in light of water shortage adoption of mechanized operations i.e. latest water conservation irrigation technique is imperative. Similarly, there was a highly significant correlation between high prices of inputs and small land holdings ($P<0.01$). Affording high prices of inputs for small land holders is critical and increasing prices create difficulties for small land holders. High prices prevent small growers to undertake latest orchard management techniques. Shortage of finance showed highly significant correlation with small land holdings ($P<0.01$) and significant correlation with high prices of inputs ($P<0.05$). Finance is inevitable for managing farms and ensuring inputs. Shortage of finance restrict growers to avail and utilise inputs which are important for potential production and sustained quality. On most of the small farms coupled with inadequate finance production less than potential is achieved. Scanty provision of inputs also hamper the plant growth and quality of fruit ultimately. Poor quality of fruit was highly significantly correlated with small land holdings ($P<0.01$), high prices of inputs ($P<0.01$) and shortage of finance ($P<0.01$).

Conclusion

This research concluded that citrus is significant fruit for national economy and livelihoods of the growers. Among various cultivars of citrus, Kinnow is the leading one and fortunately Pakistan is graced with unique taste, extended quality, size and extensive demand across

the world. Within citrus supply chain, marketing of citrus is noteworthy stage and various intermediaries are involved in entire marketing process. Processing factories, middleman and friends/neighbours were prominent intermediaries to whom growers sell unharvest fruit. Majority of growers behaviour was more focused on selling unharvest produce to appropriate intermediary offering higher rates. However, citrus marketing system in research area appeared crashed with strong dominance of middleman who is making multi-fold benefits on cost of growers. Small landholding, finance shortage and monopoly of intermediaries were other barriers cutting growers benefits. Most of the constraints impeding growers' benefits were inter-correlated. Study concludes that there is need to regulate middleman role in citrus marketing. In addition, government should document fruit oriented policy, subsidies, interest free loans and strengthening marketing channels.

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