

IMPACT OF *KINNOW* (MANDARIN) YIELD LOSSES ON SOCIO-ECONOMIC CONDITIONS OF THE FARMING COMMUNITY IN PUNJAB, PAKISTAN

Farhat Ullah Khan, Nowshad Khan and Zaibunnisa Abdullah*

ABSTRACT:-The present study was carried out in Tehsil Sargodha of Punjab province in 2010- 2011 to assess the impact of yield losses of *kinnow* (Mandarin) on the socio-economic conditions of the farming community of the area. In this study, 20 union councils from Tehsil Sargodha were selected on the characteristics important for higher production of *kinnow*. Then ten growers from each union council were chosen randomly. Total 200 respondents were interviewed through interview schedule. Simple percentage and chi-square techniques were used for analysis. According to analysis 91.5% respondents reported that yield losses of *kinnow* fruits have negative impact on socio-economic conditions of the majority respondents of the project area. Chi-square test also shows negative link of the *kinnow* fruits and socio-economic uplift of the farming community in the project area. Serious attention on scientific basis to yield losses through awareness and training of extension workers, can give economic benefits to communities of study area. The immediate benefit of this study will go to *kinnow* growers of Tehsil Sargodha and ultimately the economic growth of the country will be increased in future by improving the cultural practices and adopting modern post harvest technologies of *kinnow* throughout Pakistan.

Key Words:- Kinnow, Socio-economic Impact; Farming Community; Yield Losses; Pakistan.

INTRODUCTION

Citrus is a leading fruit of Pakistan. It comprises about 40 % of all fruits and is grown in all four provinces of Pakistan while Punjab produces over 95% of the whole of the Pakistan (PHDEB News, 2008). Around 80 % fruit of Pakistan's production is *kinnow*. Pakistan generates 95 % of the world's *kinnow* production. The country is an important global producer and, increasingly, exporter of the *kinnow* (Khursheed, 2007). Sharif and Ahmad (2005) reported that citrus significantly generate employment through various activities from

production to harvesting and international marketing. Marketing is estimated at about 23.48 million labour days or full time job for more than 75000 people. The soil and climatic conditions for *kinnow* is favorable in Pakistan and give unique flavor which distinguishes it from other comparable *kinnow* grown in the world. Ideal conditions for growing *kinnows* includes an abundance of water, rich nitrogen content in the soil and relatively cool weather. Winter in the plains of Punjab provides an excellent atmosphere for this fruit and the resulting fruit is sweet and has a very distinct taste (Ali, 2010). Citrus fruits

*Department of Agricultural Sciences, Allama Iqbal Open University, Islamabad, Pakistan.
Corresponding author: farhatkhan7@gmail.com (This is part of Ph.D. work of senior author)

in all shapes, size and colors are the most attractive, fragrant and appetizing besides having great nutritional value. They are one of the richest sources of vitamin C and contain 3-4% sugar and minerals such as calcium and magnesium in appreciable amounts essential for proper health and vigor (Shah, 2007). Low yield in crop affect the social and cultural life of the growers which is directly related to the economy of the growers such as food, education, and medical facilities, communication, transportation, social and cultural ceremonies such as wedding, death and cultural events. Shortage of water, decrease in cultivable area due to soil deterioration, extension of town and villages, rising costs of inputs, drought, non availability of different varieties of seeds to small farmers, unchecked population growth etc., have together affect the lives of the people and socio-economic status of the growers (GoP, 2001). Yasin et al. (2003) studied socio-economic factors affecting the adoption of pesticides on citrus trees in Sargodha division and concluded that the socio-economic factors that influenced farmer's receptivity to citrus spray were age (negatively correlated), education (positively correlated) social status (positively correlated), farm size (negatively correlated) and farming experience (negatively correlated).

The production of *kinnow* is lower than standard and therefore, it affected the socio-economic conditions of the growers, because the socio-economic conditions of the rural masses directly depend upon the *kinnow* (Mandarin) production. Higher the productions, higher would be the socio-economics status of the

kinnow (Mandarin) growers and vice versa. When the farmers harvest their *kinnow* (Mandarin) fruits they can earn more money from the *kinnow* which is further spent on their basic needs of living, cultural and social activities. Their living standard, health facilities, better schooling of children and social status depends on the yield of *kinnow*. Punjab has dominant share in its production. Under citrus fruits, *kinnow* area, production and export are at the top. It is primarily grown in the plain area of Punjab, Pakistan. Out of total area under fruits, 29.55% is under citrus and out of total area under citrus, 60% is under *kinnow* (Ahmad and Mustafa, 2006). The objective of the study was to see the *kinnow* yield losses impact on socio-economic condition of farming community of Tehsil Sargodha and to make recommendations for future policy implication.

MATERIALS AND METHOD

In Punjab province, district Sargodha is famous for *kinnow* production. Most of the *kinnow* production and processing industry fall in this district. On the basis of more production and processing industry, Tehsil Sargodha was selected for the study and 20 union councils from Tehsil Sargodha were selected. From each union council, 10 *kinnow* growers were taken on random basis. Total 200 respondents were interviewed through interview schedule. A pre- tested and validated interview schedule was designed. Before interview the respondents were briefed about the status of the information gathered from them. The data collected was tabulated

systematically and analyzed statistically. Statistical Package for Social Sciences (SPSS) was used for data analysis.

All the results were presented in counts and percentages were ascertained. To test the association between various socio-economic components and yield, chi-square test was applied at 5% level of significance to all data analysis.

RESULTS AND DISCUSSION

The data indicates the yield losses impact on socio-economic conditions of the respondents of Tehsil Sargodha (Table 1). According to data 91.5% respondents reported that yield losses have negative impact on the socio-economic conditions of the sampled respondents, while 8.5% told that it has no impact on the socio-economic conditions of the people of the farming community. In real sense yield losses decreases the income level of the farming community which affects the consumptions, productions, education drastically and thus causing the economic growth of the country.

Table 1. Yield losses impact on socio-economic conditions of the sampled respondents of the selected union councils of Tehsil Sargodha

Impact losses	Number	Percentage
Yes	183	91.5
No	17	8.5
Total	200	100

Yield losses impact on the social life of the sampled respondents in the project area revealed that in 31% respondents the interaction with family members are with great extent while 57% claim with some extent and 3% shows not at all. Chi-square value is 0.000 which shows the association of yield losses is highly significant with interaction with family members. About 27.5% respondents reported that participation in family functions are very frequent (with great extent), 56% reported it as quite often (with some extent), 3% have zero participation (not at all) and 2% had no idea about it (do not know). Highly significant association was found among each variable. According to data 24% respondents told that relationship link is with great extent, 61% have with some extent while 6.5% shows not all (Table 2). Chi-square value is 0.000 which shows the relationship and yield losses association was found highly significant. It appears likely from the data that all independent variables and dependent variable have inverse relationship and all are highly significant. Due to yield losses of *kinnow* social life activities are negatively affected and created problems for the communities of study area which affect consumption, production and education activities negatively.

Table 2. Yield losses impact on social life of the sampled respondents in the project area

Parameter	With great extent(50-100%)	With some extent (below 50%)	Not at all	Don't know	Total	Chi square significance value At 0.05
Interaction with family members	62(31.%)	115(57.5%)	6(3%)	-	183(91.5%)	0.000
Participation in family functions	55(27.5%)	113(56.5%)	13(6.5%)	2(1%)	183(91.5%)	0.000
Relationship	48(24.%)	122(61%)	13(6.5%)	-	183(91.5%)	0.000

The yield losses impact on livelihood of the sampled respondents in the project area shows mobility in 27.5% respondent was recorded with great extent; in 54.55% respondents, it was with some extent and in 9% respondents it was not at all (Table 3). Chi-square test was found significant at 5% level. Food situation reported by 30% respondent was a little bit better (with great extent); 52.5% respondent facing poor food situation (with some extent); very insufficient food situation was reported by 7.5% respondents (not at all) while 1.5% respondents have no concept about the sufficient food (don't know). This parameter shows significant chi-square test at 5% level. Availability of drinking water reported by 20.5% respondents was with great extent, 46.5% respondents mentioned it as with some extent, 15.5% respondents are of opinion it is not available (not at all) while 1% didn't know the situation. The chi-square test was found highly significant at 5% level. A better clothing was reported by 43.5% respondents with great extent, 43% respondents reported poor situation (with some extent), 3.5% respondents reported lack of proper

clothing (not at all) while 1.5% didn't know the situation. Chi-square test was found significant at 5% level. Living standard was recorded by 28% respondents with great extent, 52% respondents had reported it with some extent, 10% respondents had no proper living standard (not at all) while 1.5 respondents didn't know the situation.

The respondents were asked about the impact of low yield on children's education in terms of pick and drop to the school, uniform, tuition fee, stationery items, lunch and pocket money. Majority of the respondents reported that pick and drop to the school, uniform, tuition fee, stationery items, lunch and pocket money affected variably (to some extent) by low yield (Table 4). There were significance differences ($P < 0.05$) among pick and drop to the school, uniform, tuition fee, stationery items, lunch and pocket money and the yield.

The data of the impact of low yield on the farmers and their family health particularly on purchase of medicines; doctor consultancy and hospitalization depicted that the majority of the respondents reported that to some extent the low yield

Table 3. Yield losses impact on livelihood of the sampled respondents in the project area

Parameter	With great extent (50-100%)	With some extent (below 50%)	Not at all	Don't know	Total	Chi square Significance Value
Mobility	55(27.5%)	109(54.5%)	18(9%)	1(0.5%)	183(91.5%)	0.000
Food	60(30%)	105(52.5%)	15(7.5%)	3(1.5%)	183(91.5%)	0.000
Drinking water	57(28.5%)	93(46.5%)	31(15.5%)	2(1%)	183(91.5%)	0.000
Clothing	87((43.5%)	86(43%)	7(3.5%)	3(1.5%)	183(91.5%)	0.005
Living standard	56(28%)	104(52%)	20(10%)	3(1.5%)	183(91.5%)	0.000

Table 4. Yield losses impact on children's education of sampled Respondents in the project area

Parameter	To great extent (50-100%)	To some extent (below 50%)	Not at all	Dont know	Total	Chi square significance value
Pick and drop	50(25%)	123(61.5%)	7(3.5%)	3(1.5%)	183(91.5%)	0.001
Uniform	62(31.5%)	99(49.5%)	19(9.5%)	3(1.5%)	183(91.5%)	0.000
Tuition fee	61(30.5%)	98(49%)	21(10.5%)	3(1.5%)	183(91.5%)	0.002
Stationery	49(24.5%)	83(41.5%)	48(24%)	3(1.5%)	183(91.5%)	0.001
Lunch	51(25.5%)	91(45.5%)	36(18%)	3(1.5%)	183(91.5%)	0.016
Pocket money	54(27%)	112(56%)	14(7%)	3(1.5%)	183(91.5%)	0.005

Table 5. Yield losses impact on family health on the sampled respondents of the project area

Parameters	To great extent (50-100%)	To some extent (below 50%)	Not at all	Dont know	Total	Chi square significance value
Purchase of medicine	66(33%)	96(48%)	16(8%)	5(2.5%)	183(91.5%)	0.000
Doctor consultancy	60(30%)	17(8.5%)	6(3%)	-	183(91.5%)	0.011
Hospitalization	61(30%)	91(45.5%)	26(13%)	5(2.5%)	183(91.5%)	0.031

affect the purchase of medicines, doctor consultancy and hospitalization charges and children education (Table 4). There was a significance differences ($P < 0.05$) among purchase of medicines, doctor consultancy fee and hospitalization charges and the yield per acre.

From the results it is evident that yield losses drastically affect the social life and wellbeing of *kinnow* growers in the Tehsil Sarghoda . There are many factors responsible for low yield of *kinnow* production in Pakistan (Ahmad et al., 2006; Burhan et al., 2007; Gangwar et al., 2007 ; Sira, 2008) but information about impact of low production of *kinnow* on socioeconomic conditions of farmers of this area is scanty in literature. Farmers of this area have serious financial constraints. Therefore they are unable to use

capital intensive technologies or make timely purchase of the inputs. Yield losses in *kinnow* could also be due to poor linkages among the extension departments and farmers for transfer of technologies/ awareness as extension department is suppose to be mainly responsible for providing the technical assistance to the growers .

It is thus inferred that *kinnow* yield losses have inverse relationship with the socio-economic conditions of the farming community of growers in the Tehsil Sargodha of Punjab province. The possible causes of low yield of *kinnow* are responsible for low income of farmers which greatly influenced the livelihood of growers of the area. A joint venture is needed urgently with coordination of research organization, extension departments and policy makers for the

betterment of socio-economic conditions of these farmers on priority basis. The recommendation for livelihood of *kinnow* growers are:

Establishment of training centre for extension workers/farmers to get awareness/knowledge of modern cultural practices, pre and post harvest and storage technologies to reduce the yield losses of *kinnow*,

Strong linkages may be developed between extension workers-growers and researchers for exchange of knowledge/awareness and transfer of technologies to end users for enhancement of *kinnow* production; through organizing farmers days, quarterly meetings, seminars and workshops etc. by the research organization and extension departments at GoP level.

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