



## AN INVESTIGATION INTO THE PROBLEMS OF PEACH GROWERS IN DISTRICT SWAT

Inamullah Khalil<sup>1</sup>, Muhammad Idrees<sup>1</sup>, Fazal Rabi<sup>2</sup>, Shamsur Rehman<sup>3</sup> and Nadia Bostan<sup>2</sup>

<sup>1</sup>Department of Agricultural Extension Education and Communication, the University of Agriculture, Peshawar, Pakistan

<sup>2</sup>Department of Horticulture, the University of Agriculture, Peshawar, Pakistan

<sup>3</sup>Department of Plant Pathology, the University of Agriculture, Peshawar, Pakistan

E-Mail: [fazal\\_rabi10@yahoo.com](mailto:fazal_rabi10@yahoo.com)

### ABSTRACT

Peach is the most important stone fruit with temperate nature. District Swat enjoys the central position as producer of high quality and high production of peach fruit and as supplier in Pakistan. But some serious and considerable problems which are behind low production of Peach fruit in District Swat. This research study is conducted to point out the problems faced by Peach growers in District Swat. District Swat consists of 65 Union Councils. Four Union Councils were randomly selected as named Arkot, Ashary, Bar Thana and Baidara. From each Union Council 15 Peach growers were selected randomly and total sample size was 60 respondents. Software SPSS was used for data analysis. The results indicated middle age respondents above and majority with educational qualification were matric. Under research study area all of the respondents were owner growers of their piece of land. Results show that majority of the respondents face problems as non-availability of extension field services, lack of irrigation water, lack of cold storage facilities, extra commissions, distant markets, scab disease and fruit fly. These problems cause poor peach fruit productivity, in return, affecting the socio-economic study of the respondents. The research study by the recommendations of researcher, suggests the availability of inputs, provision of Agricultural Extension Field advisory services, improving the irrigation system, solution of market related problems with provision of storage and standard packing materials, and termination of pest disease and transportation problems to get high yield production in order to improve the socio-economic status of the respondents.

**Keywords:** peaches, swat, yield.

### 1. INTRODUCTION

Peach belongs to Rosaceae family with botanical name *Prunus persica* L. Peach in a wild form originated in China and was cultivated about 2000 B.C. there. It was taken westward to Persia and later on to Greece about 350 B.C. Cultivating Peach by Romans were about the duration of Christ (may Allah mercy on him) and from where it spread to the rest of the World (Hickey and King, 1981). Peach is the second most important fruit among the stone fruits of Pakistan localities over 950 meters above the Sea level. Peach is very popular fruit grown in K.P and are the ideal place for peach growing. (Muhammad, 2009). Malakand, Peshawar and Hazara Divisions are considered the best for growing of peach, plum, apricot and pear. Early grand, Florida King 6-A, Maria desiza, Indian blood are the most popular cultivars of peach. This locality have the minimum temperature about upto 2-5°C can fall about 0°C in the season of winter and humidity range about 20-30%. In rainfall the fluctuations in humidity can take place. In December to February the frost also occurs. In other situations temperature range to 45°C in the season of summer and about 80-90% of humidity in the months of July and August (Khan *et al.*, 1988). Fertile soils, irrigation systems and seasons are the vast natural resources of Pakistan. An agriculture contribution about 21% to GDP and work force of 43.4% employs (GoP, 2007). Horticulture sector has a tremendous potential, but not realized in Pakistan. Throughout the country on maximum area fruits and vegetables are grown. The duration of 2005-2006 the total land on which the fruits is cultivated was 0.8 million hectares. In that fruit cultivated land the Peach cultivated

land was 192274 hectares and total yield was 2458381 tones its production annually during 2005-06 (MINFAL, 2006). Khan *et al.* (2008) Peach is widely grown in the Swat District and enjoys a ready market nationally as well as abroad. A large part of this valuable crop is, however, lost at post-harvest stage. This study estimates the loss to be of the order of 23% on average for different varieties taken as a whole; the range being 18% to 31%. Bulk of the total loss (77%) taken place at peach picking stage, while 23% loss occurs during transportation. A substantial reduction in post-harvest losses is possible through training of growers and others engaged in farming, picking, crop handling operations etc. The net marketable produce can be increased substantially further by providing training and counseling to growers also in pre-harvest crop management. Most of the surveyed growers showed their willingness to adopt improved pre and post-harvest practices, and they also appeared capable of benefiting from training to these ends, which is the task to be performed on a larger scale, than now, by the public sector. Fruits are grown on 857060 hectares with a total production of 7051512 tones in Pakistan. In which the area of Peaches is 15774 hectares and the total production is 83670 tones. Whereas in Balochistan fruits occupy 254695 hectares with a total production of 1175737 tones. While in K.P, fruits are grown on 47364 hectares of land with a total production of 522412 tones, in which the area occupied by Peaches is 6191 hectares with a total production of 57834 tones. In case of Sindh the fruits occupied the area of 154865 hectares and its total production is 1015416 tones. In Sindh there is no cultivation of Peaches and hence no production (MINFAL,



2009). During 2011-2012, fruits were grown on 829616 hectares with a total production of 6796818 tones in Pakistan. In which the area of Peaches was 15409 hectares. According to the recent Agricultural statistics of Khyber Pakhtunkhwa Pakistan (2008-2009) the total settle District area of Khyber Pakhtunkhwa is 7452100 ha out of which Agricultural area is 8441695 hectares. Fruit Orchard (Kharif Fruit) occupies 857060 hectares which form 0.41% of Agriculture land. In K.P Peach is grown on 19% land of total fruit land. In Malakand Division, the average peach production is 12.53 tons/hectare. Peaches are mainly grown in Swat (4195 hectares) and Mardan (376 hectares) with its production 43935 tones, 3635 tons respectively (Agricultural Statistics of Pakistan, 2008-2009). Internal Breakdown or Chilling damage the physiological trouble is characterized by soft tissue inside browning, flesh meatiness, flesh blood loss, crash to develop and taste defeat. These symptoms build up at some stage in ripening later than a cold storage phase, thus, are generally detected by consumers. Fruit stored contained by the 2.2-7.6°C (36-46°F) temperature series are additional subject to this disorder. Black Staining is a cosmetic difficulty disturbing only the skin of peaches and nectarines. It is characterized by black or brown spots or stripes. These symptoms come into view normally 24-48 hours after harvest. Inking occurs as a outcome of abrasion injure in mixture with heavy metals (iron, copper and aluminum) contamination. This occurs regularly for the time of the harvesting and hauling operations, although it may take place in other steps for the period of postharvest handling. Fruit should be handled and transported carefully, do not apply any spray within 15 days previous to harvest fruit. Only follow the pre-harvest recommended fungicides which are supposed to decrease lose (Crisosto *et al.*, 1996).

### Objectives of the study

The objectives of the study were:

- To find out the problems being faced by Peach growers in the study area.
- To find out the effects of these problems on the production and socio-economic status of growers in the study area.
- To suggest policy recommendations for further enhancements in peach production of the study area.

## 2. MATERIALS AND METHODS

To carry out the research study the methodology is discussed in this chapter. District Swat was the area where the research was conducted. The Methodology consists of universe of the study, study sample, data collection and analysis of the data.

### 2.1. The Universe of the study

Swat is an important district of the Malakand Division with value to peach cultivation. The climatic situations are relevant to peach production. District Swat was taken as universe of the study area. All peach Farmers who were registered under the fruits and vegetables

development project in district Swat constituted the research population.

### 2.2. The study sample

District Swat consists of two Tehsils, namely Swat and Matta. Tehsil Swat consists of 52 union councils and Tehsil Matta consists of 13 union councils. So the total union councils in district Swat are 65. Tehsil Matta was selected for data collection. Tehsil Matta has 13 union councils out of which four union councils namely Arkot, Ashary, Baidara and Bar Thana were randomly selected. From each union council 15 growers of peach were randomly chosen. Hence the respondent's size reached to 60 respondents.

### 2.3. Data collection

Following techniques were used to collect the required data from the respondents in the study area. This includes preparation of interview schedule, pre-testing of interview schedule and interviewing the respondents. So from these, the data was collected for the study.

#### 2.3.1. Preparation of interview schedule

In order to gather the necessary information an interview schedule was developed to collect the data for future procedure. After the preparation of interview schedule the data was collected from the respondents.

#### 2.3.2. Pre- testing of interview schedule

To find out the validity of the interview schedule it was pre-tested on 10 respondents. After its validity essential amendments were taken. The interview schedule was tested on five common people to find out the errors, and then to correct them for the adequate data collecting for research to make sure that it was the required interview schedule.

#### 2.3.3. Interviewing the respondents

The respondents were interviewed in their local language and their working place for convenience.

### 2.4. Analysis of data

The data was analyzed in SPSS after transferring the data on MS. Excel sheet to make simple tabulation. In order to investigate the association between any two selected variables of the study, Chi-square test was applied. The significance of the chi-square test was decided by using 5% level significance.

## 3. RESULTS AND DISCUSSIONS

### 3.1. Age

Table-1 illustrates the detail of the age of the sample respondents. It shows that 40% of the respondents lie in the group of middle (36-50 years); followed by the 31.6% old and the least were the 28.3 belongs to young group. It was also observed that majority of the people belonging to the middle age group were actively involved in agriculture activities. It was also noticed that the peach farming was their main income sources.

**Table-1:** Distribution of the respondents on the basis of ages.

Union council	Young (Up to 35) years		Middle (36 -50) years		Old (above 50) years		Total	
	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	10	66.6	1	6.6	4	26.6	15	25
Ashary	4	26.6	7	46.6	4	26.6	15	25
Barthana	3	20	7	46.6	5	33.3	15	25
Baidara	0	0	9	60	6	40	15	25
Total	17	28.3	24	40	19	31.6	60	100

### 3.2. Education standing

Table-2 shows that 25% of the total respondents were illiterate and 75% were literate. Of literate 25% were above matric, 23.3% matric, 15% middle and 11.6% primary respectively. In union council Arkot 40% respondents were above matric which is high amongst all

the union councils, while union council Ashary has maximum illiterate sample respondents. The Table also reveals that the majority of the respondents were educated resultantly will help in understanding the use and knowledge of latest techniques in their profession.

**Table-2:** Distribution of the respondents on the basis of Education level.

Union Council	Illiterate		Primary		Middle		Matric		Above Matric		Total	
	No.	% age	No.	% age	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	4	26.6	1	6.6	1	6.6	3	20	6	40	15	25
Ashary	5	33.3	2	13.3	3	20	3	20	2	13.3	15	25
Barthana	2	13.3	3	20	0	0	5	33.3	5	33.3	15	25
Baidara	4	26.6	1	6.6	5	33.3	3	20	2	13.3	15	25
Total	15	25	7	11.6	9	15	14	23.3	15	25	60	100

### 3.3. Tenancy prestige

Table-3 shows the tenure status of the respondents. Interestingly in this study, all the respondents were the owner operator of their peach orchards. Experts

says that doing something by own hands gives good results rather doing it by other people. It gives more pleasure to the owners on getting their fruits by themselves.

**Table-3:** Distribution of the respondents on the problems regarding tenure status.

Union Council	Owner cultivators		Owner cum tenant		Tenant		Total	
	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	15	100	0	0	0	0	15	25
Ashary	15	100	0	0	0	0	15	25
Barthana	15	100	0	0	0	0	15	25
Baidara	15	100	0	0	0	0	15	25
Total	60	100	0	0	0	0	60	100

### 3.4. Area

Table-4 shows the data regarding the area under peach cultivation. The respondents grouped in four categories on the basis of their farm size. The 38.3% respondents lie in the group of 16-25 acre, 31.6% holding up to 10 acre orchard size, 20% having 11-15 acre and

10% of total respondents having above 26 acre farm size. The Table also says that the distribution on the basis of area under peach farming varies among the union council. In Ashary, the maximum respondents belong to first category.

**Table-4:** Distribution of the respondents regarding area under peach in acres.

Union Council	upto 10 acres		11-15 acres		16-25 acres		above 26 acres		Total	
	No.	% age	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	3	20	4	26.6	7	46.6	1	6.6	15	25
Ashary	8	53.3	3	20	3	20	1	6.6	15	25
Barthana	5	33.3	3	20	7	46.6	0	0	15	25
Baidara	3	20	2	13.3	6	40	4	26.6	15	25
Total	19	31.6	12	20	23	38.3	6	10	60	100

**3.5. Yield**

Table shows the information regarding the yield in selected union councils of District Swat. According to

Table, 35% respondents lie in the group having 51-100 tones production of peach followed by 26.66% with above 151 tones, 23.33% with 101-150 tones.

**Table-5:** Distribution of the respondents on the basis of yield (tones).

Union Council	up to 50 tones		51-100 tones		101-150 tones		above 151 tones		Total	
	No.	% age	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	1	6.6	8	53.3	3	20	3	20	15	25
Ashary	4	26.6	6	40	2	13.3	3	20	15	25
Barthana	2	13.3	6	40	4	26.6	3	20	15	25
Baidara	2	13.3	1	6.6	5	33.3	7	46.6	15	25
Total	9	15	21	35	14	23.33	16	26.66	60	100

**3.6. Income**

The respondents were grouped on the basis of income illustrated in Table-6. 33.3% respondents have

income of 11-20 lac, 23.3% have above 31 lacs and 21.6% have 21-30 lacs and 1-10 lacs, respectively. Maximum income was recorded in union council Baidara.

**Table-6:** Distribution of the respondents on the basis of Income.

Union Council	1-10 lacs		11-20 lacs		21-30 lacs		above 31 lacs		Total	
	No.	% age	No.	% age	No.	% age	% age	No.	% age	No.
Arkot	1	6.6	5	33.3	4	26.66	6.6	5	33.3	4
Ashary	7	46.6	6	40	0	0	46.6	6	40	0
Barthana	5	33.3	5	33.3	4	26.66	33.3	5	33.3	4
Baidara	0	0	4	26.6	5	33.33	0	4	26.6	5
Total	13	21.6	20	33.3	13	21.6	21.6	20	33.3	13

**3.7. Information access**

Table-7 reveals the details about the information of respondents' access to the knowledge about the peach from the existing extension system and their efficacy. In the developed countries other communication system i.e. electronic media regarding the knowledge sharing is working efficiently. In our case study these modern

systems were noticed as poor working so all the respondents lies in the first group. About 51.6% of the total respondents claimed about the non-availability of extension field staff and remaining 48.3% reported the non-cooperation of extension worker. The poor information access results in low yield and less income of the farmers.

**Table-7:** Distribution of the respondents on the Problems regarding information about Peaches.

Union Council	Non-cooperation of extension field staff		Non availability of extension field staff		No focus on Peach in electronic media		Total	
	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	10	66.6	5	33.3	0	0	15	25
Ashary	6	40	9	60	0	0	15	25
Barthana	6	40	9	60	0	0	15	25
Baidara	7	46.6	8	53.3	0	0	15	25
Total	29	48.3	31	51.6	0	0	60	100

**3.8. Inputs availability**

Table-8 shows the inputs problem of respondents regarding the peach farming. Lack of irrigation water was the major input problem among the 38.3% respondents. About 36.6% respondents called the lack of finance and the remaining 25% respondents claimed high input prices.

46.6% respondents of bar thana union council rated the lack of irrigation water as the major issue. It was noticed that enterprise running did not work without good or sufficient inputs. Less or non-availability of inputs can also reduce the interest of the farmers towards the peach farming.

**Table-8:** Distribution of the respondents on the basis of problems of Inputs availability.

Union Council	Lack of finance		High price of inputs		Lack of irrigation water		Total	
	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	7	46.6	3	20	5	33.3	15	25
Ashary	5	33.3	5	33.3	5	33.3	15	25
Barthana	6	40	2	13.3	7	46.6	15	25
Baidara	4	26.6	5	33.3	6	40	15	25
Total	22	36.6	15	25	23	38.3	60	100

**3.9. Post-harvest**

Post-harvest problems are showed in Table-9. Respondents were distributed in two groups. About 53.3% respondents claimed the lack of cold storage facilities and

46.6% reported about the disease problem in paper box. These results showed poor cold storage facilities and improper packing problems in the research area.

**Table-9:** Distribution of the respondents on the basis of problems of post-harvest Technologies about Peaches.

Union Council	Lack of cold storage facilities		Disease problem in Paper Box		Total	
	No.	% age	No.	% age	No.	% age
Arkot	9	60	6	40	15	25
Ashary	7	46.6	8	53.3	15	25
Barthana	9	60	6	40	15	25
Baidara	7	46.6	8	53.3	15	25
Total	32	53.3	28	46.6	60	100

**3.10. Marketplace**

Four types of markets related constraints were identified Swat as illustrated by Table-10. The 48.3% respondents claimed extra commission, 36.66% claim less

price of peach in market and remaining 15% reported the problem of loss during transportation. Findings show that market is a big problem among the peach growers due to its perishability.

**Table-10:** Distribution of the respondents on the basis of problems of Markets.

Union Council	Losses during transportation		Less price of Peach in market		Lack of storage facilities		Extra commission		Total	
	No.	% age	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	2	13.3	8	53.3	0	0	5	33.3	15	25
Ashary	3	20	6	40	0	0	6	40	15	25
Barthana	2	13.3	5	33.3	0	0	8	53.3	15	25
Baidara	2	13.3	3	20	0	0	10	66.6	15	25
Total	9	15	22	36.66	0	0	29	48.3	60	100

**3.11. Transportation**

Table-11 shows transportation constraints. Among 36.6 % respondents reported the problem of

distant markets. 35 % of the respondents reported high taxes and 28.3 % claimed high transportation costs as the major problem.

**Table-11:** Distribution of the respondents regarding problems of transportation to markets.

Union council	High transportation cost		Distant markets		High taxes		Total	
	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	6	40	8	53.3	1	6.6	15	25
Ashary	5	33.3	6	40	4	26.6	15	25
Barthana	3	20	5	33.3	7	46.6	15	25
Baidara	3	20	3	20	9	60	15	25
Total	17	28.3	22	36.6	21	35	60	100

**3.12. Peaches diseases**

Most of the Biotic and abiotic diseases comes on peach worldwide. Table-12 shows the important peach diseases of respondents. The 41.6% of the total

respondents claimed the scab disease of the peach, 36.6% reported leaf curl and 21.6% reported brown rot of peach respectively. These diseases cause the huge loss in the crop.

**Table-12:** Distribution of the respondents on the basis of Peaches diseases problems.

Union council	Leaf curl		Brown rot		Scab disease		Total	
	No.	% age	No.	% age	No.	% age	No.	% age
Arkot	4	26.6	2	13.3	9	60	15	25
Ashary	0	0	8	53.3	7	46.6	15	25
Barthana	9	60	2	13.3	4	26.6	15	25
Baidara	9	60	1	6.6	5	33.3	15	25
Total	22	36.6	13	21.6	25	41.6	60	100

**3.13. Pest of peaches**

Table-13 shows the data regarding insects/pests attack on peach. The data says that majority of respondents (98.3%) orchards were affected by fruit fly

attack. The 1.7 % respondents reported another sucking pest as Aphid. This does show that fruit fly is the main pest which destroys the peach fruit.



**Table-13:** Distribution of the respondents on the basis of problems of insects/pests of Peaches.

Union Council	Aphid		Fruit fly		Total	
	No.	% age	No.	% age	No.	% age
Arkot	1	6.6	14	93.3	15	25
Ashary	0	0	15	100	15	25
Barthana	0	0	15	100	15	25
Baidara	0	0	15	100	15	25
Total	1	1.7	59	98.3	60	100

#### 4. CONCLUSION AND RECOMMENDATIONS

##### 4.1. Conclusions

The present study concludes that the peach growers faced various problems regarding the Peach fruit farming. The respondent faced various pre harvest and post-harvest problem. Most of the problems were the non-availability of agriculture extension field services, lack of irrigation water, lack of income, lack of cold storage facilities, low quality packing materials that cause diseases, distant markets, transportation problems, and disease and pest infestation. It is also concluded that these problems ultimately affect the socio-economic status of the peach growers in District Swat.

##### RECOMMENDATIONS

On the basis of results, the following recommendations are suggested by the researcher.

- Strengthening the relationship between Agriculture Extension Department and Peach fruit growers in order to know their problems, with a feedback as a solution to them, at the growers door step.
- Use of local Radio Stations, electronic and print media regarding farmer's education to improve their Agriculture productivity, is the dire need of the time.
- Agriculture researchers must suggest measures to control diseases and pests problems.
- Training, workshops, field demonstrations with field days must be conducted in order to create awareness to control pests and diseases.
- Government should take steps to make easier agriculture loan schemes policies, ensuring the availability of quality Agriculture inputs with control and reasonable subsidized prices, to improve conditions of roads to solve the transportation problems and provision of funds to agriculture extension department in order to carry out their activities related to farming community development.
- Irrigation department must concentrate to look into the problems relating to irrigation. Because irrigation is the basic input for every crop whether vegetables or fruits for the high production and increase the income of farmers.

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**INTERVIEW SCHEDULE**

An investigation to the problems of Peach growers in District Swat

- a) Name of the respondents \_\_\_\_\_  
 b) Union Council \_\_\_\_\_

Age of the respondents (years)

- Young (up to 35) \_\_\_\_\_  
 A. Middle (35-50) \_\_\_\_\_  
 B. Old (above 50) \_\_\_\_\_

Education

- a) Illiterate \_\_\_\_\_  
 b) Primary \_\_\_\_\_  
 c) Middle \_\_\_\_\_  
 d) Matric \_\_\_\_\_  
 e) Above Matric \_\_\_\_\_

Tenancy status

- A. Owner cultivation \_\_\_\_\_  
 B. Owner cum tenant \_\_\_\_\_  
 C. Tenant \_\_\_\_\_

Area under peach fruit (Acres)

- a. Up-to 10 \_\_\_\_\_  
 b. 11- 15 \_\_\_\_\_  
 c. 16 - 25 \_\_\_\_\_  
 d. Above 26 \_\_\_\_\_

What is the total yield you obtain from your peach fruit (tones)?

- Up-to 50 \_\_\_\_\_  
 a) 51- 100 \_\_\_\_\_  
 b) 101 - 150 \_\_\_\_\_  
 c) above 151 \_\_\_\_\_

What is yours total income in laces

- A. 1-10 \_\_\_\_\_  
 B. 11-20 \_\_\_\_\_  
 C. 21-30 \_\_\_\_\_  
 D. Above 31 \_\_\_\_\_

What are the main problems do you face as Peach grower regarding information about peach?

- a) Non-cooperation of extension field staff  
 b) Non availability of extension field staff  
 c) No focus on Peach in electronic media

What are the main problems do you face as Peach grower regarding availability of inputs for peach production?

- a. Lack of finance  
 b. High price of inputs  
 c. Lack of irrigation water

What are the main problems do you face as Peach grower regarding post-harvest technologies of peach?

- a. Lack of cold storage facilities  
 b. Disease problem in Paper box

What are the main problems do you face as Peach grower regarding peach marketing?

- a) Losses during transport  
 b) Less price of peach in market  
 c) Lack of storage facilities  
 d) Extra commission

What are the main problems do you face as Peach grower regarding Peach transportation to markets?

- a) High transportation cost  
 b) Distant markets  
 c) High taxes