Problems Faced by Rice Growing Farmers and Their Behavior to the Government Policies: A Case from Pakistan

Muhammad Abdullah[-1], LI Cuixia, Sidra Ghazanfar[-1], Abdur Rehman[-2], Bushra Ghazanfar[-2], Shah Saud[-3]

College of Economics and Management, Northeast Agriculture University Harbin, China.
College of Horticulture, Northwest Agriculture & Forestry University, Yang ling 712100, China
Department of Horticulture, Northeast Agriculture University Harbin, China.
Corresponding author: licuixia@neau.edu.cn, jiali@neau.edu.cn

Abstract

Importance of rice in agricultural crops cannot be ignored as it is the staple food for more than fifty percent population of the world and a big source to cope with the food security issues of the world. Considering the importance of rice the year 2004 was declared as the international year of rice by FAO .Rice is cultivated over one hundred countries in the world. During 2011-2012, rice production in the world was 718.345 million tons and it was cultivated over an area of 163.463 million hectares. In Pakistan, rice also enjoys a prominent status among cereal crops as in terms of area it is the third largest crop of Pakistan. In 2011-2012 rice was cultivated on 2.571 million hectares with production of 6.16 million tones and the average yield remained 2396 kg/ha. In the year 2012-2013, Per capita rice consumption in Pakistan is 15.30 kg/year. Since rice is not a staple food in Pakistan so every year a considerable quantity of rice produce is exported to earn foreign exchange. This present study was conducted in 2013 in two tehsils; namely Daska and Pasroor of Sialkot district of Punjab province of Pakistan. The main purpose of the study was to inquire the problems faced by rice farmers at different stages of rice cultivation i.e. rice production, rice crop protection and rice marketing stages. Out of the four tehsils of districts Sialkot, two tehsils were purposely selected due to the excessive cultivation of rice in these areas. Out of each tehsil, ten villages were randomly selected and out of each village, six farmers were randomly selected. Hence a sample of 120 farmers was selected. The selected farmers were interviewed and data were collected and analyzed. In terms of production related problems the findings showed that farmers perceived high price of fertilizer, shortage of canal water, high price of agricultural input, high rent charges of agricultural machinery, lack of consultancy facilities and lack of credit/finance as the major problems during the rice crop production stage. In terms of rice crop protection related problems, costly pesticides/weedicide and ineffective fungicide were identified by the farmers and in terms of marketing related problems of rice crop, unsatisfactory price offered of the produce, poor transportation, storage issues and lack of knowledge about market prices were identified by the farmers. The farmers also showed great dissatisfaction over the initiatives taken by government authorities to resolve the problems faced by them

Keywords: Rice farmer's problems; production related issues; crop protection related issues; marketing related issues; dissatisfaction level on government policies.

Introduction:

Importance of agriculture cannot be ignored as it is providing food to 7 billion population of the world and the most important source to cope with the food security issues of the world. Agriculture serves as the means of revenue for almost 50% of the world's population (Abdullah et al., 2005). Agriculture is one of the most important sectors of the economy of Pakistan as its contribution to GDP is 21.4% and it provides employment to 45% of the total labor force (Govt. of Pakistan, 2012-13). 63% population of Pakistan living in rural areas is directly or indirectly dependent on agriculture for their livelihood (World Bank 2012). Agriculture is also a major source of input for Agro based industries of Pakistan but the average per hectare yield of various crops of Pakistan is far less than that obtained in many other countries of the world (FAO, 2008). Rice in Pakistan is facing the same situation as the national level yield of rice is 73% lower than the highest average obtained in other countries of the world (PCST, 2003).

In the year 2011-2012, rice was cultivated on an area of 2.571 million hectares with a production of 6.16 million tones. The average yield remained 2396kg/ha (GOP, 2011-12). In terms of area, after wheat and cotton, rice is the 3rd largest crop cultivated in Pakistan and it is an important source of earning foreign exchange. In the year 2011-2012, the total export of Pakistan rice remained 2.08 billion US dollars (Pakistan bureau of stats).The share of rice in the value added in agriculture is 2.7% and 0.6% in GDP (Govt. of Pakistan, 2012-13). The average yield of Pakistan rice is very low as compare to its potential yield. (GOP) .Poor rice production practices are the main reasons for the existing yield gaps. There are many other causes for lower yield i.e. problems faced by farmers during production process of rice, crop protection issues and problems faced during the marketing of the rice produce.

The aim of this study was to identify and pinpoint the problems which the rice growers in Sialkot district of

Pakistan are confronting in terms of production, crop protection and marketing process. The specific objectives of the study are below.

- To find out the socio-economic characteristics of the rice producers in Sialkot district
- To inquire about the problems faced by rice producers from production to marketing stages of rice crop.
- To find out the satisfaction level of the rice growers about the initiatives taken by the government authorities.

In terms of socio economic characteristics, the information from the respondents was collected regarding their age, gender, marital status, family size, education level, experience of involvement in rice production and farm size while in terms of the problems faced by them regarding the production, crop protection and marketing problems; farmers were asked to mention the problems in terms of severity felt/perceived by them and the responses were recorded. To investigate about the perception of farmers regarding their satisfaction level, they were asked to give their opinion on a five degree Likert scales stating the satisfaction level from strongly disagree to strongly agree.

Materials and Methods:

Punjab is the biggest province of Pakistan with respect to population and area under cultivation. Major crops of Punjab province are rice, wheat, sugarcane and cotton. This province is divided into five cropping zones named as barani (arid) zone, Cotton zone, rice zone, central mixed and semi irrigated zone.

The present study was conducted in 2013 in Sialkot district of Punjab province which falls in rice zone of Punjab. Sialkot is famous for its rich and fertile soil and production of Basmati and other verities of rice. In the year 2010-11, rice in Sialkot was cultivated on an area of 154 thousand hectares with production of 312 thousand tons. Sialkot has four tehsils named as Sialkot, Pasroor, Sambrial and Daska. In Pakistan, tehsil is a sub-administration unit of district. For the survey, two tehsils named as Daska and Pasroor were purposely selected because rice is excessively grown in these areas. From the two selected tehsils, 20 villages were randomly selected (10 villages from each tehsil).From each village, 6 farmers were randomly selected. Hence a sample of total 120 rice growers was selected. While making the selection of villages, in order to attain maximum geographical coverage; it was considered that selected villages are located at a considerable long distance from each other. Information from selected rice growers was collected through pre designed questionnaires and interview scheduled. Hence both quantitative and qualitative data was collected. The questionnaires were prepared in English language but considering the illiteracy rate among respondents and lack of proficiency in English, local language named *Punjabi* was used for communication with farming community in order to get effective results. The feedback of farmers in terms of qualitative approach was recorded and discussed in results and the quantitative data was displayed by using statistical tools i.e. The simple percentages and farmers counts were used to display the results.

Results and Discussion:

Objective 1:

Socio economic-characteristics:

The findings about the socio-economic characteristics of the respondents are given below as well as shown in the tables.

 Age: The farmers' age ranged from 26 to 67 years. As compare to adults, the youth looks less involved in rice farming activities. It was due to the reason that interviews were done with the head of family who spend much time at farm land and have much decision making power because they are owners of land but their other youth family members were also actively involved in farming activities along with them.

Gender: All the respondents were male in the survey conducted. Although in some cases females were also participating in the farm activities but they were just playing a supportive role with men. They were involved in helping the men at nursery growing stage and harvesting stage of rice crop. Due to the help of women and other family members the farmers were able to reduce labor cost.

Marital status: Only 5% respondents were unmarried and rests of the farmers were married. This thing shows that most of the farmers were able to utilize the presence and support of family members to cover the labor costs. In addition to this, it is also due to the reasons that in Pakistan, at rural areas, people get marry at an early age.

Family Size: Majority of the farmers participating in the survey were having large family size. The large family structure was also a source of assistance for them in farming activities.

Socio- economic characteristics of selected farmers:

Variables of socio-economic characteristics	Farmers (N=120)	
Age group(Measured in year)	**Frequency**	**%age**
Up to 30	5	4.17
31-40	21	17.50
41-50	45	37.50
51-60	35	29.17
Above 60	14	11.66
Gender		
Male	120	100
Female	0	0
Marital Status		
Bachelor	6	5
Married	114	95
Family Size		
1-4	16	13.33
5-7	72	60
8-11	24	20
Above 11	08	6.67

Source: Survey data, 2013

Education Level: The results show that a significant number of farmers i.e. 35% were having no formal education and 10.83% farmers were having education up to primary level. 34.17% respondents were having education up to middle class. 15% respondents were having education up to matriculation. 2.5% respondents had education level up to intermediate (senior high school) level and the same percentage of respondents was having bachelor degree. Due to lack of education, farmers may not be able to learn modern agricultural techniques, methods and they have to dependent upon traditional farming practices.

Socio- economic characteristics of selected farmers:

Variables of socio-economic characteristics	Farmers (N=120)	
Education level	**Frequency**	**%age**
Illiterate	42	35
Primary(1-5 grades)	13	10.83
Middle (6-8 grades)	41	34.17
Matriculation (10th grade)	18	15
Intermediate (12th grade)	3	2.5
Bachelor degree and above	3	2.5

Source: Survey data, 2013

Experience in farming activities: 75% farmers had an experience of 21-30 years and 11.66% farmers had experience of 11-20 years. While 9.17% and 4.17% farmers had experience of up to 10 years and above 30 years respectively. Based upon these results we can conclude that most of the farmers had a considerable experience in farming activities. The result shows that mostly farmers adopted this profession of rice farming long time ago and due to profitability, they carried out this profession on continues basis.

Socio- economic characteristics of selected farmers:

Variables of socio-economic characteristics		Farmers (N=120)	
Framing Experience (in year)	**Frequency**	**%age**	
Up to 10	11	9.17	
11-20	14	11.66	
21-30	90	75	
Above 30	05	4.17	

Source: Survey data, 2013

Size of cultivated land: Survey data shows that the most of the farmers were having small land holdings; 60.83 % respondents were cultivating 1-6 acres land and 30 % farmers were cultivating 7-12 acres land. Due to small land holdings, small farmers were facing problems in acquiring agricultural machinery and loans. Alamu *et al* (2002) found that those farmers, who have more resources i.e. land, have more opportunities to avail new technology. So we can conclude that rice was being cultivated by small farmers who were in majority in the study area.

Socio- economic characteristics of selected farmers:

Variables of socio-economic characteristics		Farmers (N=120)	
Size of cultivated land (acre)	**Frequency**	**%age**	
1-6	73	60.83	
7-12	36	30	
Above 12	11	9.17	

Source: Survey data, 2013

Objective 2:

Problems faced by rice growers:

Problems faced by rice growers were classified under three heads; Rice production related problems, Rice crop protection related problems and Rice crop marketing related problems. The details about the findings are below.

(A) Production related problems faced by rice growers:

The survey revealed following problems related to production of rice faced by rice growers in district Sialkot

(i)   High price of fertilizer and counterfeiting issues:

Majority of the farmers i.e. 85% respondents; 102 farmers declared the high price and counterfeit issues of fertilizer as a very big challenge faced by them during the production process of rice. Since the severity of problem was perceived by a huge number of respondents so this problem was ranked number one among the rice production related problems. The farmers were of the view that high prices of fertilizer has increased their total cost of production and hence reduced their profit margins as well as the counterfeiting issues in fertilizer along with increased cost is causing an adverse effect on the health of crop. Niazi (1993) also found the high price of fertilizer as a big problem faced by the respondents of the survey conducted in Pakistan.

(ii)   Shortage of canal water

Rice is a crop which needs excessive supply of water and the shortage of water can cause a very negative impact on its growth and yield. Out of 120 selected farmers for inquiry, 65.83% respondents; 79 farmers declared the shortage of water as a severe problem faced by them during production process of rice. This problem was ranked as 2nd most severe problem faced by farmers. The farmers mentioned that in order to cover the shortage of water they have to depend upon the ground water through tube wells. The ground water quality is not very good as well as the expensive electricity and increased fuel (diesel) prices have made the use of tube wells very costly. Those farmers who did not have their own tube wells, they were irrigating their rice crop by depending upon other tube wells owners by purchasing water from them by paying money on hourly basis but they also had to pay additional money as profit of tube wells owners hence their cost of production was increasing and this factor was causing a negative impact on their profit margins.

(iii)   High price of inputs:

High price of inputs was ranked as 3rd biggest problem as 61.66% respondents; 74 farmers pinpointed this issue faced by them during rice production process. The increased prices of seeds, chemicals (used for cleaning the seeds) and fertilizer were causing an increase in the cost of production; the farmers mentioned that everything was getting expensive. The reason behind their opinion may be the increasing inflation rate in Pakistan which is

now 8.4% as per government stats (Govt. of Pakistan, 2012-13). Due to the location i.e. Remote areas away from urban areas, the transportation cost charged by retailers and other channel members is also a source of increase in the prices of agricultural inputs.

(iv)   High rent charges over borrowed agricultural machinery:

During initial stage of rice cultivation, the farmers have to prepare the land. Land preparation and leveling process required machinery i.e. tractors and other equipment installed with the tractors. Most of the farmers of the study did not have their own equipment and machinery so they have to hire tractors on rent along with the service provider (driver of tractor who also has expertise in preparing and leveling the land). The increased price of fuel has also increased the rent charges of such services. The same situation was being faced by the farmers at the harvesting stage of rice crop. The existence of this problem was identified by 58.33% respondents; 70 farmers of Sialkot district and was ranked as 4th most severe problem among the rice production related problems.

(v)   Lack of consultancy services/extension services:

Extension services have an aim to provide guidance at different stages of crop but farmers were unable to utilize these services from public sector extension providers. In order to acquire consultancy services, the farmers had no other choice but to visit the private fertilizer/pesticide dealers who were operating in the area with an aim of earning profit so their consultancy was usually based upon their motives of increasing sales of fertilizer and pesticide. This thing was causing an over use of fertilizers and pesticides which was harmful for environment as well as causing loss to farmers as their cost of production was increasing. This problem was mentioned by 45% respondents; 54 farmers of the study area and was ranked 5th most severe problem among the rice production related problems.

(vi)   Lack of credit/finance:

Lack of credit and finance problem was ranked as 6th biggest problem during rice production process as 40% respondents; 48 farmers reported this problem faced by them during production stage of rice crop. The farmers were facing shortage of finance because of increased production cost and as a result they were depending upon the input dealers who were involved in the practices of selling fertilizer/pesticide and other material on credit basis and in return of provision of input on credit basis they receive additional money from farmers after harvesting the rice crop. Many farmers were depending upon the agents who extend the credit to farmers and in return purchase the rice crop at lower price than the price offered by market. Although government institutions/banks are also extending agricultural credit on subsidized markup but since loan on interest base is prohibited in the religion of Islam so mostly farmers were unwilling to avail loan facility provided by financial institutions. Some farmers were willing to get credit from agricultural and commercial banks but they perceived the high markup/interest rate as a hurdle to do this.

Rice grower's problems at crop production stage, a graphical presentation
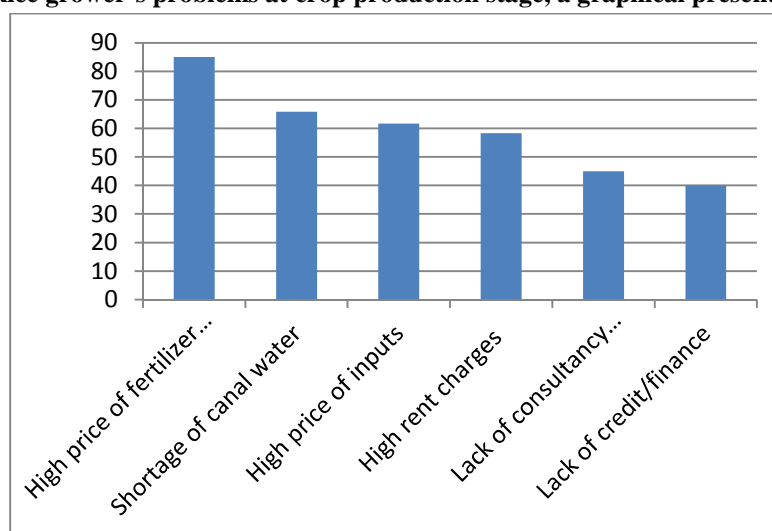
Source: Survey data, 201

(B) Crop protection related problems faced by rice growers:

The survey revealed following problems related to crop protection stage of rice faced by rice growers in district Sialkot.

**(I) Costly pesticides/herbicides/weedicides:**

Farmers of rice in Sialkot like other rice farmers were facing a lot of threats from weeds, herbs and diseases like

foot root, paddy blast, brown leaf spot and leaf blight. To treat such threats, farmers were using various techniques i.e. to handle the weeds; the farmers were relying on weedicides and crop rotation technique and to handle the insects they were relying on pesticides. The presence of weeds can cause colossal loss to the rice crop in the form of reduction of yield from 25% to 50% (*(Ahmed & Akhtar, 2011)*.). To keep the crop safe and to reduce the losses due to insects, farmers have to rely on pesticides/weedicides. The high prices and adulteration issues in pesticides and weedicides were considered by the farmers very common and 90% respondents; 108 farmers in the study area declared these issues as the most serious problems while crop protection process. At the plant protection stage of rice crop the farmers must have up to date information to identify symptoms of diseases and their respective methods of controlling such diseases. Over and under use of pesticides/weedicides can also cause a loss to crop even sufficient money is spent on pesticide/weedicide but lack of knowledge about the required quantity needed of pesticides/weedicides was also seen among farmers.

(i)   Ineffective fungicide:

70% respondents; 84 farmers pointed out the ineffectiveness of fungicide .According to them it was due to the adulteration done by the manufacturers and distributors of fungicide. Due to this factor the farmers were facing difficulties to tackle with fangs and it was causing a negative impact on the growth of their rice crop.

Rice grower's problems at crop protection stage, a graphical presentation
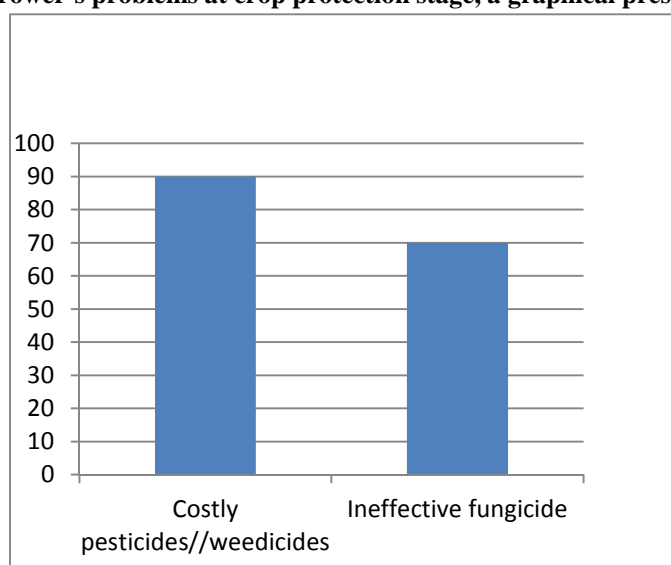
Source: Survey data, 2013

(C) Marketing related problems faced by rice growers:

The survey revealed following problems related to marketing of rice faced by rice growers in Sialkot district.

(i) Unsatisfactory price offered of the produce:

Since the markets are located at urban areas so the farmers of study area usually try to sell the produce at farm gate to avoid the transportation and other costs. As a result they have to depend upon the commission agents who make payments to farmers at the spot or make promise to pay money within a stated time period. These middlemen pay lower price as compare to market price. Similar result was found by Paul Omolo (2011) who found that the low price offered to farmers was the biggest problem faced by most of the respondents of survey. According to the farmers of the study area the middle men were involved in charging higher money for the services provided by them i.e. services provided in terms of carriage, handing and transportation. This problem in terms of market related problems was ranked number 1st as it was reported by most of the respondents 78.33%; 94 farmers of survey.

(ii) Poor transportation:

Farmers who were willing to sell their crop at markets, they have to bear the transportation and other costs and due to increase prices of fuel and rented vehicle they have to bear high cost of moving the produce from farm gate to the markets located at urban areas. 62.5% respondents; 75 farmers declared it 2nd biggest problem while marketing of their produce.

(iii) Storage issues:

There was found no government storage facility available in the study area and as a result the farmers were facing storage issues of the rice crop. In order to protect the crop from various postharvest losses they had no other option but to sell the produce as early as possible. This problem was raised by 49.16% respondents; 59 farmers.

 (IV) Lack of knowledge about market prices:

Farmers of the study area were of the view that they don't have up to date information about market prices. For this purpose they have to depend upon the other channel members of rice marketing and the other farmers. In an investigation made on the agricultural marketing problems of farmers, Tana.P, (2011) also provided the same results that farmers have to depend upon different sources like co-workers and other channel members of marketing. As per the farmers of the current study, the monopoly of middlemen and cartels farmed by them were causing fluctuations in prices. This problem was identified by 40 % respondents; 48 farmers and was ranked 4th biggest problem faced by rice growers of the study area.

Rice grower's problems at crop marketing stage, a graphical presentation
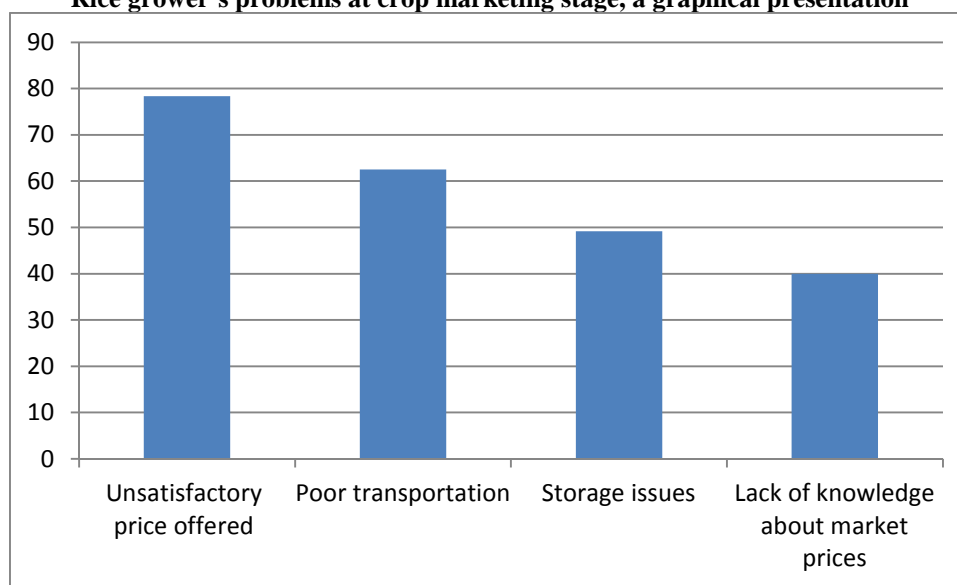
Source: Survey data, 2013

Objective 3:
Satisfaction level among farmers about Government policies:

The farmers were inquired their feedback about the effectiveness of the steps taken by the government of Pakistan in order to resolve the issues faced by farmers. The responses of farmers were recorded on five degree Likert scale i.e. strongly dissatisfied, dissatisfied, Neutral, satisfied and extremely satisfied. Results showed that the 11.66% and the 77.50% farmers were strongly dissatisfied and dissatisfied respectively with the initiatives taken by concerned government authorities to solve their problems. Only 1.66% respondents gave neutral opinion and 9.16% respondents believed that government authorities are taking positive and solid steps to solve their problems while no farmer in the study showed extremely satisfied opinion toward the initiatives of government authorities. Findings are also shown in the below table and graph respectively.

Rice grower's satisfaction level about governmental policies and initiatives taken towards their problem solving.

Variables	# of farmers	%age
strongly dissatisfied	14	11.66
Dissatisfied	93	77.50
Neutral	2	1.66
Satisfied	11	9.16
extremely satisfied	0	0

 Source: Survey data, 2013
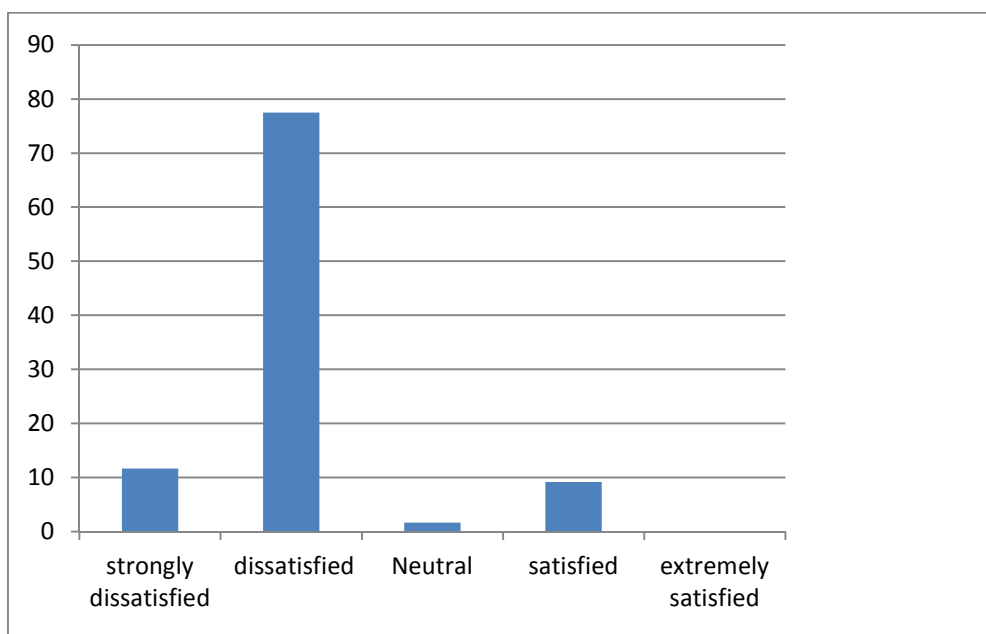
Source: Survey data, 2013

Conclusion and Recommendation:

From above study it can be concluded that rice growers in Sialkot are facing a lot of problems which varies with respect to severity of their existence. The increased price of fertilizer, high cost of pesticide/weedicide were perceived the most severe problems by the farmers while at the marketing stage of the produce, the unsatisfactory price offered by the middle men was perceived as the most severe problem by majority of the farmers.

Other problems like shortage of water for irrigation, high input price, high rent amount charged for the use of agricultural equipment, transportation issues while moving the produce from farm gate to market and the absence of the storage facilities were also perceived as Substantial problems which were causing a negative impact on the production and profit margins of farmers.

Due to lack of education, the farmers were unable to adopt new methods of cultivation of rice crop and were involved in practices of traditional agricultural techniques. Farmers had no information which is usually disseminated by the agriculture extension department. Farmers were also growing those verities of rice which are prohibited to grow by the rice research institutes of Pakistan and this thing reveals the severe needs of effective extension services.

Government should take measures to reduce the various costs of farmers which they have to bear during rice production and crop protection stages. The provision of adulteration free and the in time availability of fertilizer and other input at subsidized rates should be ensured by government. The government can also announce a support price (minimum price set by government) for different verities of rice in order to bring stability in prices. Such steps would be very useful to create a sense of protection and as a result the farmers would be able to devote and exert their full efforts to get maximum production and resultantly the export of rice from Pakistan can increase.

References:
1- Abdullah, A., W. A. Gillani, S. Naveed, K. Amanullah and H. Kashif. 2005. Computerized farm guide: Using ICT for better dissemination of agriculture extension information. Center for Agro-Informatics Research, National Univ. of Computer & Emerg. Sci., Islamabad, Pak.

2-   Ahmed, A. & Akhtar, M. (2011, July 15). Weeds of rice crop and their control. *Zaraat Nama,* pp. 6-9.

3- PCST (2003) Report of the National Commission on Agriculture ,Pakistan Council of Science and Technology , Islamabad

4- FAO. 2008. FAOSTAT. Available at: http://faostat.fao.org/site/567/default.aspx#ancor

5-   Govt. of Pakistan. 2012-13. Economic Survey of Pakistan. Ministry of Food, Agriculture and Livestock, Islamabad.

6- http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS   accessed on 17-08-2013

7- http://sialkot.dc.lhc.gov.pk/?page_id=1335

8- Niazi, A. Q. K. 1993. To determine the extent of adoption of recommended Hort practices by mango growers of Tehsil Muzaffargarh. Master Thesis, Dept. of Agri. Ext., Univ. of Agri., Faisalabad.

9- Paul. O, Tana. P, Mutebi. C , Okwach. E, Onyango. H, and Okach .O.K., 2011. Analysis of avocado marketing in Trans-Nzoia district, Kenya. J. of development and Agri Eco. 3(7): 312-317

10- PCST (2003) Report of the National Commission on Agri, Pak Council of Sci and Tech, Islamabad.

11- Tana. P, Okwach. E, Mutebi .C , Okach .O. K and Onyango. H., 2011. Analysis of avocado marketing in Trans-Nzoia district, Kenya .J.of development and Agri Eco. 3(7): 312-317

12- Alamu, J. F., and Rahman, S. A. (2002): Agricultural Supply Response Evidence from four cereal crops in Nigeria. The Nasarawa Journal of Humanities, 1(1): 198- 203.

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** http://www.iiste.org/journals/   The IISTE editorial team promises to the review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Recent conferences: http://www.iiste.org/conference/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar