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ON FARM ANALYSIS OF COTTON GROWERS HANDICAPS: EVIDENCE FROM COTTON BELT OF PAKISTAN

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A B S T R A C T

Man has utilized cotton for his assistance since ancient times. The importance of cotton crop can hardly be over emphasized in the Pakistan's economy. Cotton is an export-earning crop and it provides raw material for the local textile industry as well. Over 1000 ginning factories and 400 textile mills (which is a yawning investment) closely depends upon cotton. The livelihood of millions of farmers & of those employed along the complete cotton value chain is dependent on this single crop. Certain threats to cotton crop in the fields of production, protection and marketing are under discussion now a days because of likelihood of huge production as well as economic loss. According to the estimate cotton is dropping off some 10-15% of its value due to low quality pertinent to certain threats. In this context present study was conducted in Sub-District Jampur of District Rajanpur. Total 120 cotton growers were selected as respondents through multistage random sampling technique. Data were collected using well-structured, validated and pre tested interview schedule. The collected data were statistically analyzed with the help of Statistical Package for Social Sciences (SPSS). Findings revealed that high price of diesel, agricultural inputs and pesticides were the prominent problems raised by the growers regarding production and protection aspects of crop. Marketing appeared one of the significant problems and middle man monopoly was the leading constraints affecting the growers directly it is need of hour to remove these constraints from the grass root level and in this regard government should initiate interventions like provision of incentives, lowering the rates of agricultural inputs and fixed rate of cotton for a season foe direct benefit of growers. In addition, middleman should be regularised in the system so that farmers may be saved from their monopoly.

Keywords: Cotton, production, protection, marketing, middleman

INTRODUCTION

Pakistan is one of the prehistoric homes of the cotton (White Gold) cultivation, 4th largest producer of cotton, the 3rd largest exporter of raw cotton and a top exporter of yarn in the world (Anwar and Hussain, 2011). The role of cotton industry and cotton related services are up to the mark (63.9% of total export earnings). Its contribution to value added share in national agriculture and GDP is 8.2 and 3.2% respectively (Naheed & Rasul, 2009). About 1.3 million out of 5 millions of Pakistani farmers are dependent on this crop directly and through cotton value chain, from weaving to textile and garment export (Adnan & Azmat, 2009). Thus, the livelihood of millions of farmers & of those employed along the complete cotton value chain is dependent on this single crop (Hassan, 2011). Cotton production is concentrated into two provinces with Punjab holding a share of 75% and Sindh 25% area (Forrester, 2009). Southern Punjab is famous for cotton production in Pakistan and from southern Punjab, district Rajanpur contributes more in area as well as production of cotton crop (Osakwe, 2009). In Pakistan the yield and the quality of cotton is low as compared to other countries. A difference of opinion persists among researchers regarding the decreased yield and quality of cotton. Improper picking, poor insecticides spraying methods, improper time of irrigation and weeds might be the reasons for low yield/hectare (Khan & Iqbal, 2005). Two factors which have a great impact on cotton production are extensive

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use of agro-chemicals and yield stagnation. From all these agro-chemicals, fertilizers and insecticides have significant importance. From these synthetic fertilizers cotton get nutrients in the form of inorganic fertilizers which are more effective for the increase in production. This group of agro-chemicals (Fertilizers and Pesticides) is widely used on cotton to enhance the cotton production in wide area. Their extensive use is adversely affecting the economics of cotton production because growers cannot afford these chemicals due to increasing cost of these chemicals day by day (Khan, 2011). Cotton is an important cash crop. Two factors mainly affect the yield of cotton, one is environment and other is the management practices by the grower. Yields of cotton have been stopped at a point from many years of past (Ali & Khan, 2011). High prices of inputs (seed, pesticide, fertilizer), shortage of high quality seeds, pest attack, deficiency of irrigation water, lack of agri. expertise, adulteration in seed, fertilizer and pesticide are the main reasons of low yield of cotton crop in Pakistan (Rao, 2011). Social and economic problems of the cotton growers which are also effecting production including illiterate farming community, small landholdings, high cost of inputs, less adoptability of innovations by the farmers, high cost of production, lack of guidance to farmers and the cost of production being the most significant among them (Ali &Khan, 2011). Substandard and unapproved seeds are also contributing in low cotton production (Bokhari, 2009). Cotton productivity is being affected by, mainly socio-economic, biological, physical and managerial factors. These factors account a great loss in productivity of cotton (Bakhsh *et al.,* 2005).

Khan (2010) argued that according to officials of the Punjab Agriculture Department, there had never been fungus attack in cotton crop, but due to really high humidity and persistent rains, bolls are now rottening, which is causing fungus on them. The problem may be specific to this year only because of extraordinary conditions, but it is new trend that has alarmed official circles. It may also cause reduction of 10-15% production of cotton crop in the affected areas. Haung *et al.* (2003) investigated that exhaustive cultivation is the main reason of widespread of pest infestation. In china different pest related diseases affects the production many times during two decades of broad adoption of fertilizer. Crop pest management had increased due to increase of market growth and availability of recommended pesticides. Bellindder *et al.* (2002) concluded in their research that incorrect dosage and application techniques have greatly affected the cotton crop. Davidson *et al.* (2001) concluded that the contamination in inputs agriculture by agrochemical is also a severe problem, particularly for non-contact farmers who are dependent on pesticide dealers for information. Many farmers regularly claim that product which pesticide dealers recommended for the pest attacking their cotton field are adulterated or expired. Researchers' also observed that when the farmers complain, the dealers argue that they have not followed the instructions accurately and sometimes dealer deceive the farmers by saying: wait and see, the pesticide will work but it may take some time to remove the pest completely. Marketing of the agricultural produce is the need of the hour. Usually the prices of the produce would be low after the harvesting if growers have facilities to store those products for some time then they can get better prices but they have a problem for storage due to which they sell their product with loss at the spot to the middleman. During purchasing the products from the growers, middlemen play the games with growers which they do not understand because of improper information and knowledge about market prices. The middleman without any asset and with their compromise skills transfer products immediately from the farmers field by buying at low prices and selling at higher prices to the other end (Prahalad, 2008). Cotton is dropping off some 10-15% of its value due to low quality. Improper picking, adulteration of cotton, mixed grades, contaminated seed varieties; improper packing, storage and lack of transportation are factors responsible for the poor quality of the fiber (Ahmad & Razi, 2011). Farmers are facing lots of problems in marketing system, because of the introduction of new and technologically sophisticated tools which can predict the moisture containing cotton, Bad weather conditions and high rain fall increase the moisture content in the products, due to the moisture in the cotton ginners give the low rate to the farmers, that create the financial problems for the farmers (Jackson, 2010). There are many marketing problems such as monopoly of the middleman, false weighing, illegal dues and deductions, involvement of local contractors, lack of marketing loans to small farmers (Basra & Farooq, 2006).

Khan (2011) reported that marketing system of Pakistan is facing lot of problems. He conclude that Lack of

awareness, costly transport facilities, low quality of produce were the problems which are facing by the cotton growers in the market. Marketing system have lot of weaknesses due to which farmers become discourage to grow cotton, mentally upset and get economic loss. Ali & Khan (2011) also reported the problems of the cotton growers which are affecting the cotton production in which the significant factor was insecurity in the market (Hussain, 2010).

MATERIALS AND METHODS

Southern Region of Punjab is famous for the cotton production and generally denoted as cotton zone or cotton belt of the Punjab. District Rajanpur is the part of this cotton zone producing significant amount of cotton production. District Rajanpur consists of three tehsils names as Rajhan Mazari, Jampur and Rajanpur. All tehsils are sharing almost equal production of cotton and socio-economic conditions were similar hence multistage random sampling technique was preferred for the selection of study area and respondents. List of farmers and details of tehsil Jampur were obtained from the office of Deputy District Officer Agriculture Jampur. List of farmers served as sampling frame developing implication of simple random sampling technique. On first stage Tehsil Jampur was selected as study area by using simple random sampling technique. There were total 19 UCs in Tehsil Jampur (17 Rural and 2 Urban UCs). On second stage five rural union councils were selected using simple random sampling technique. On third stage, two villages were selected from the each selected union councils at random thereby selecting total 10 cotton cultivating villages. On fourth stage, 12 cotton growers were selected from the each selected village randomly making a total sample size of 120 cotton growers.

For the sake of data collection interview scheduled was used as research instrument. Literacy level of the district was not up to the mark and it was preferred to interview the growers personally. Considering the objectives of the study, interview scheduled was prepared. Interview scheduled was mix of close ended and open ended questions. Validity of interview scheduled was checked through face validity technique. For the purpose, interview scheduled was checked by two professor of agricultural extension at University of Agriculture Faisalabad, Pakistan. Reliability was checked by using Cronbach alpha with the help of SPSS. Before final data collection, instrument was pre-tested on 15 cotton growers other than study respondents. Necessary changes were made on behalf of findings originated in outcome of pre-testing. Final data collection was undertaken using face to face interviews and observations were also made to validate the results. Collected data were analysed using Statistical Package for Social Sciences (SPSS). Descriptive statics technique was used for the data analysis.

RESULTS AND DISCUSSION

Production problems faced by the cotton growers: Cotton growers are facing many social and economic problems which can affect their overall productivity of cotton including quality of fertilizer and high cost of inputs are basic problems for the growers. Illiterate farming community, small landholdings, less adoptability of innovations by the growers, high cost of production, lack of guidance are also some cotton production related problem (Ali & Khan, 2011). High prices of inputs, adulteration in chemicals and fertilizers, lack of technical knowledge, non-co-operation of agricultural extension field staff, non-availability of fertilizers at proper time and lack of finance, were the major difficulties faced by the growers (Niazi, 1993).

Therefore, the respondents were asked about various production problems faced by them on focusing Likert scale. The data collected in this regard is presented in the Table 1 In order to know the relative rank order of various problems faced by the cotton growers regarding the production of cotton, their relative scores were computed by multiplying score value allotted to each category of the scale with the frequency counts, which shows that respondents identified a number of problems but intensity varied from very low to very high.

The Table 1 shows that high diesel prices, high prices of inputs (seed, pesticide, fertilizer), high cost of machinery were ranked perceived to be the top most problems and inclined towards very high category with mean values of 4.98, 4.95 and 4.62 respectively. The results are more or less similar to those of Ghafoor & Naseer (2007) revealed high diesel prices, rising cost of inputs, shortage of electricity and least know-how about latest techniques of raising production are the important production problems faced by the growers. Salinity & water logging and soil erosion problem was ranked in the low category with mean value of 1.98 and 1.38 respectively.

Table 1. Rank order, weighted score, mean value and standard deviation of the production problems faced by the cotton growers.

Problems	Rank order	Weighted score	Mean	SD
High diesel prices	1	597	4.98	0.20
High prices of inputs (seed, pesticide, fertilizer)	2	595	4.95	0.20
High cost of machinery/mechanization	3	591	4.62	0.29
Electricity problem for tube well	4	538	4.48	0.59
Unskilled labor	5	482	4.02	0.66
Effect of high temperature at flowering	6	472	3.93	0.66
Lack of technical education	7	444	3.70	0.62
Inadequate financial resources	8	438	3.65	0.76
Lack of farm implements/ machinery	9	426	3.55	0.87
Shortage of irrigation water	10	413	3.44	0.76
Improper linkage b/w extension and farmer	11	413	3.44	0.83
Seed contamination/adulteration	12	399	3.33	0.66
Losses due to late picking	13	390	3.25	0.71
Non-availability of high quality seed	14	369	3.07	0.69
Shortage of labor for sowing and picking practices	15	360	3.00	0.74
Adulteration of fertilizers	16	357	2.97	0.70
Poor germination due to poor seed	17	347	2.89	0.59
Non-availability of fertilizers	18	313	2.61	0.66
Salinity & water logging problem	19	238	1.98	0.97
Facing soil erosion problem	20	166	1.38	0.60

Protection problems faced by the cotton growers: Cotton is prone to a number of insect pests and diseases. According to a rough estimate, about 15 to 20% of the crop is lost every year due to pests attack and about 10.0% due to diseases. Pesticides have remained the most dominant means of pest control in Pakistan (Shahid, 2003). About 80.0% of total pesticides are now being used on cotton plants; the remaining 20.0% is applied to other crops (Javed, 2011). Production and quality can be increase by adding agrochemicals inputs with required ratio but high level of pesticide use have been linked with negative externalities such as short and long-term human health effects, ecological consequences on non-target plants, animals and damage to soil and water quality of the agro-ecosystem (Asfaw *et al.,* 2009). It is important to understand the hazards of chemical use and also know the available preventive measures by the farmers.

It is clearly observed by the majority of farmers' behavior leads us to believe that farmers have lack of knowledge about the risks of pesticide usage and do not take preventive measures. The results indicate that farmers' knowledge of protective stuff and health risks related with pesticide use is very low (Jones *et al.,* 2009). Therefore, the respondents were asked about various protection problems faced by them. The Table 2 shows the high prices of pesticides for crop protection was ranked as 1st perceived to be the top most problems and inclined towards very high category with mean value of 4.97, while shortage of technical labor for pest scouting, pest resistance against pesticides, pesticides creates health problems and use of chemical without safety measures were ranked from 2nd to 5th and perceived under high category with mean values of 4.17, 3.85, 3.66 and 3.50, respectively.

The results are more or less similar to those of Rao (2011) who concluded that high prices pesticide, pest attack, lack of knowledge about usage of pesticides, health problems from pesticides were the main reasons of low yield of cotton crop in Pakistan.

While non-availability of pesticides, fungicide and herbicide when needed were more inclined towards low category with mean values of 2.46, 2.43 and 2.36, respectively. The results are more or less similar to those of Iqbal (2009) who found that expensive labor for plant protection measures, lack of knowledge about use of pesticides, adulteration in pesticides, herbicides and fungicide were the problems faced by the growers.

Table 2. Rank order, weighted score, mean value and standard deviation of the protection problems faced by the cotton growers.

Problems	Rank order	Weighted score	Mean	SD
High prices of pesticides	1	596	4.97	0.18
Shortage of technical labor for pest scouting	2	501	4.17	0.56
Pest resistance against pesticides	3	462	3.85	0.67
Pesticides creates health problems	4	440	3.66	0.64
Use of chemical without safety measures	5	420	3.50	0.67
Shortage of labor for plant protection measures	6	400	3.33	0.68
Lack of information about chemical usage	7	384	3.20	0.68
Adulteration in pesticide	8	376	3.13	0.68
Repeatedly usage of same pesticides	9	366	3.05	0.93
Over dosage of pesticides	10	361	3.00	0.68
Adulteration in fungicide	11	353	2.94	0.70
Adulteration in herbicide	12	353	2.94	0.68
Non availability of pesticides when needed	13	296	2.46	0.71
Non availability of fungicide when needed	14	292	2.43	0.69
Non availability of herbicide when needed	15	283	2.36	0.59

Table 3. Rank order, weighted score, mean value and standard deviation of the marketing problems faced by the cotton growers.

Problems	Rank order	Weighted score	Mean	SD
Inadequate loan facility	1	525	4.37	0.59
High carriage and other handling charges	2	516	4.30	0.63
Limited storage capacity	3	509	4.24	0.74
Unavailability of road facility	4	501	4.17	0.84
Variation in price	5	499	4.16	0.73
Improper transport facilities	6	473	3.94	0.66
Poor storage facility	7	458	3.81	0.75
Distant market	8	456	3.80	0.83
Low quality of packing material	9	446	3.72	0.75
Lack of scientific weighing machine facility	10	441	3.67	1.05
Lack of organized marketing system	11	439	3.66	0.69
No quality standard maintained while picking	12	431	3.59	0.64
Improper sales system	13	422	3.52	0.67
Inappropriate unloading services	14	420	3.50	0.66
Less price than fixed	15	407	3.39	0.58
Monopoly of middle man	16	399	3.32	0.64
Lack of awareness about market	17	370	3.08	0.69
Unauthorized deduction by the dealer	18	339	2.82	0.69
Late payments by the middle man	19	330	2.75	0.65
Lack of secure cotton selling documentation	20	303	2.52	0.66

Marketing problems faced by the cotton growers: The Table 3 shows that inadequate loan facility, high carriage and other handling charges, limited storage capacity, unavailability of road facility, variation in price and improper transport facilities were inclined towards high category with mean values of 4.37, 4.30, 4.24, 4.17, 4.16 and 3.94, respectively. The poor storage facility, distant market, low quality of packing material, lack of scientific weighing machine facility, lack of organized marketing system, no quality standard maintained while picking, improper sales system and inappropriate unloading services were perceived to be in the high category with mean values of 3.81, 3.80, 3.72, 3.67, 3.66, 3.59, 3.52, and 3.50, respectively. The results are more or less similar to those of Ghaffar (2006) who concluded that growers faced lots of problems in the market and out of market during selling their produce. He observed that poor storage facilities, high transport rates, middle man's monopoly and shortage of storage capacity are the very high problems.

Table 4: Ranking of the suggestions given by the growers to overcome the marketing problems.

Sr. No.	Suggestions	Frequency	Percentage
1	Role of middle man should be reduced.	115	95.8
2	Transport & storage facilities should be given by the Govt.	108	90.0
3	High market fee should be reduced.	95	79.2
4	Govt. should give scientific weighing machine facility to cotton growing areas.	89	74.2
5	For high quality of cotton better packing material should be provided.	75	62.5

The Table 4 indicates that an over whelming majority (95.8%) of the respondents suggested about marketing problems that role of middle man should be reduced. A vast majority (90.0%) of the respondents suggested that transport & storage facilities should be given by the Govt. and about 79.0% of the respondents suggested that high market fee should be reduced while majority (74.2 and 62.5%) of the respondents suggested that Govt. should give proper scientific weighing machine facility to the cotton growing areas and for high quality of cotton better packing material should be provided by the Govt., respectively.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of conclusion, following suggestions are made: It is vital to decrease the prices of diesel, inputs and machinery and to solve the problems of electricity in the rural areas to increase the farmers' profitability which is necessary for sustainable development. Government should stabilize prices of pesticide and weedicide. It is essential to increase the linkage b/w extension and farmer to provide technical assistance for pest scouting, knowledge about hazardous effects of chemicals and information about safe and proper use of chemicals. Government should provide credit and storage facilities and improve marketing system.

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