

**Role of Credit in the Accessing Fertilizers and Pesticides in Wheat
Production. A case study of District Sialkot, Punjab**



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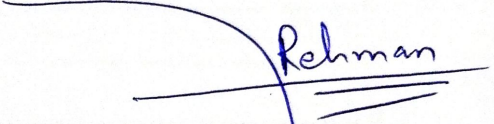


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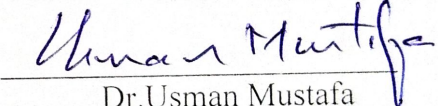
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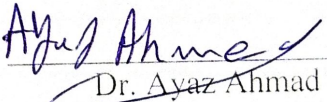
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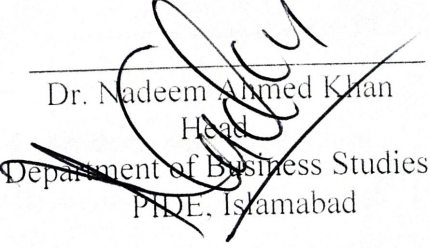
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Abstract

This study is based on a survey with a sample of 120 farmers from Sialkot District. Agricultural credit in Sialkot district is on rising trend during the recent years. However, most of such credit has been disbursed in urban and semi-urban areas only. Thus, there is a need to extend the formal financial intermediation services in the rural areas also. To increase the farmer's access to better inputs and mechanized farming methods and thereby raising wheat production, more credit should be disbursed to purchase better inputs besides capital instruments. Farmers of the study area do not have an easy access to agricultural credit. They do not get as much credit as required to finance the inputs of agricultural production. Moreover, they have to bear a high interest rate while taking credit. It is thus, necessary to improve their access to agricultural credit at a lower interest rate. Farmers should be imparted the technical know-how about how to utilize credit for the enhancement of wheat production by using better farming inputs and better farming practices. Agricultural credit has helped to enhance the agricultural productivity of the farmers in the study area. With such a credit facility, farmers have a better access to improved seeds, fertilizer, pesticides and better irrigation facility.

Role of Credit in Accessing Fertilizers and Pesticides in Wheat Production:A Case Study of District Sialkot, Punjab

CHAPTER I

1.1 Introduction

Introduction

Population growth leads towards increase in food demand. The United Nation survey shows that the world population has reached to about 7.4 billion and in 2050 it may be about 9.7 billion which shows that the population is increasing enormously. Forty nine percent of the world population is living in urban areas and it will increase to seventy percent by 2050. Urban area is consuming the food very largely and the production of food in this area is zero percent. The situation is becoming dangerous. The 50 percent of the grain production will be require to increase and also the meat production will be need to increase about 130 percent in 2050 (Verma,2019).

In the past thirty years or so, the agricultural technology has made a significant improvement to increase the productivity of the crops. Agriculture Chemists have produced fertilizers and pesticide which not only increase the productivity but also have provided protection against different type of threats that a crop faces like preventing the crops from different types of insects and to reduce the unnecessary growth of wild plants in the crop. Pesticides and fertilizers play a vital role to enhance the productivity of the crops. Professional exhibition of the pesticides mostly held in the openly farms, dealers shops and in the pesticides industry. A well-managed and well known use of pesticides and fertilizer can minimize the negative effect on human, soil, and environment. (Eleftherohorinos, 2011).

As in the lack of education and awareness the required amount of water for the spray of pesticides is not used which causes the soil toxicity as well as affect the yield of the crop. The developed countries are using those pesticides and fertilizers which have minimum side effect. But in Pakistan the situation is very different. All the agricultural inputs which are ban in the world are being used in Pakistan. Pakistan is a developing country and in this country the farmer is not so financially strong and he is facing a lot of problems financial crises concise them to use the generic company products and cannot use the multinational products according to this situation the farmer cannot gain the maximum productivity as well as also affecting the soil and environment. For example an herbicide (Acetochlor) use in rice crop is only of Rs.90 and the other herbicide (Butachlor) is of Rs.600. There is no side effect of Butachlor on soil and crop but Acetochlor has adverse effect on the soil and crop. The reason behind is that the farmer cannot afford the high quality inputs (McArthur & McCord,2017).

The role of small farmers in the developing countries is very important and valuable. Due to this the govt. of a country specially entertained the small farmers as by giving subsidy on fertilizers and pesticides. As well as the small farmers also suffered from bad experiences like floods, crop diseases, production losses, labor issues etc. unfortunately by this the small farmers got loss in the crop production and farmer has no resources to grow the next crop and in this condition he becomes helpless and also looking forward to Govt. in this matter. As the large farmers have a lot of resources and the relations on which base he continues his process without any problem (Reardon, 2009).

Agriculture is only the sector which directly supports three-quarters of the country's population employs half the labor force & contributes a large share of foreign exchange earnings. The main agricultural products are cotton, wheat, rice, sugarcane, fruits, and vegetables, in addition to

milk, beef, mutton, and eggs and to sustain this sector the agricultural credit is very necessary for the production of crops and agricultural variables have bump on the extension on the economy and it will impact on the overall economy of the country (Anthony, 2010).

The most important part of the Pakistan economy is the agriculture sector which contributes almost 18.9 percent in the economy of Pakistan. Provision of food security to the people relatively by maximizing the production is the mission of this sector. Forty five percent work force is directly related to this sector and this sector's basic role in Pakistan economy is to reduce the poverty graph and provision of employment. Woefully conventional method are being used in Pakistan even in this modern era and also based on the self-dependence which is main reason for the lower production. Developed countries used the modern technology and as well as increase the productivity per acre. The lower productivity causes the lower profit and as a result the farmers have not enough money to buy the best fertilizer and the quality pesticides which automatically will reduce the production of the upcoming crop (Chandio 2016).

In Pakistan the agriculture sector have the five major crops rice, maize, wheat, sugarcane and cotton and the average current yield is 2.88, 1.77, 2.26, 48.06 and 1.87 tons per hectare, respectively. The current situation shows that there are many circumstances which are affecting the overall productivity of the crops. Ameliorate accessibility of the agriculture credit strengthen the agriculture productivity of the crops. There are two types of creditors i) formal creditor ii) informal creditor. The informal creditors include the friends, shopkeepers, commission agents, relatives, traders. But now a day's the formal traders include financial institutions like commercial banks, ZaraiTaraqiati Bank Limited (ZTBL). Non government organizations (NGOS) are also providing the credit to the farmers. In Pakistan about 95% farms are less than the 25 acres and in this 86% holding less than 12.5 acres and in the total holding capacity 60% having less than 5 acres. Small farmers do not have the direct access to the formal institutions because they are

confined in the net of informal lenders. The financial institutions also do not go towards the small farmers due to the lack of the paying out network. The contribution of Agriculture in the GDP from two to three decades is decreasing due to the many problems but the main problem is the difficulties in obtaining the credit especially by the small farmers (Chakrabarty, 2011).

The purpose of this study is to assess the impact of accessibility of agriculture products to a farmer. The study also aims to measure the credit role in accessing the fertilizers and pesticides during wheat production cycle in Sialkot District and how it impact Small and large farmer production.

1.2 ResearchGap

Many researchers worked on the role of credit in the agricultural sector. While many research gaps represent a future standpoint and also worked on agriculture productivity.

A research that was conducted by Kamara (2004) on “The impact of market access on input use and agricultural productivity in which it was stated that all inputs under investigation (except pesticides) increase with improvement in the access of farmers to both input and output markets, leading to an increase in aggregate agricultural productivity”

Bashir, Mehmood, & Hassan, (2010) carry out a study on “Impact of agricultural credit on productivity of wheat crop in which it was stated that Financial requirements of the farming sector have increased tremendously over the last few decades due to the extended use of fertilizers, biocides, improved seeds, mechanization etc. The study in hand was carried out to check the impact of credit on the productivity of wheat crop in District Lahore, Punjab, Pakistan. United Bank Limited (UBL) was selected as a representative of the institutional credit sources.

According to the study conducted by Chandio, Jiang, Wei, & Guangshun (2018) “Only those wheat farmers were considered who obtained agricultural loans from formal financial institutions like Zarai Taraqiati Bank Limited and Khushhali Bank. However, in the rural areas of Sindh, Pakistan, a considerable proportion of small-scale farmers take credit from informal financial channels. Therefore future researchers should consider the informal credits as well”.

A research is conducted by Mitra, Prodhan & Haque (2018) on “Factors Determining Credit Access of Tomato Farmers in a Selected Area of Bangladesh this study has contributed to the existing literature of credit accessibility of tomato farmers and its determinants that helps the policy makers to provide appropriate policy for increasing tomato productivity and export”

Chandio et al.(2018) Recommended that the government needs to ensure more supply of agricultural credit to the farmers which can eliminate their dependency on informal financial channels”

Harris (2019) also recommended that basic agricultural inputs such as fertilizers, pesticides, improved seeds etc. should be made readily available at affordable prices to rural farmers for improved food production.

By the above mentioned researches it is stated that previous studies have mainly focused on the role of credit and its impact on the crop production. While on the other side “How fertilizers and pesticides accessibility is affected by credit is a grooved area.

Therefore this study will find out the role of credit plays on the availability/accessibility of fertilizers and pesticides and its impact on the wheat productivity.

1.3 ProblemStatement

In Pakistan now a days a farmer is suffering from very bad conditions due to very simple and basic reasons. The farmer does not receive his products price when he sold to the market. In this condition he needs money to buy inputs for growing of the next crop. Therefore he borrows the inputs from commission agents or dealers at very high price as of market one Farmers are facing monopolistic market attributes as they totally depend upon the dealer’s in the prospects of quality products hence by this they got low quality products. As a result of this situation not only his

overall productivity fall down but due to the high rates as well lower quality of inputs his profit also decreased.

This study explores the role of credit on the accessibility of fertilizers and pesticides and its impact on wheat crop production in the Sialkot district of Punjab, Pakistan. This study will also compare the issues regarding resources and its utilization effect of small and large scale farmers of district Sialkot.

1.4 Study Objectives

Following are the objectives of the study:

- To explore the trend and structure of agricultural credit in district Sialkot and to assess the impact of credit source over accessibility to pesticides and fertilizer.
- To know the impact of accessibility process of pesticides and fertilizer on the productivity of wheat crop.

1.5 Research Questions

Following are the research questions of the study:

- Q** What is the trend and structure of agricultural credit in district Sialkot.
- Q** What is the impact of credit source over accessibility to pesticides and fertilizer?
- Q** What is the difference of affordability of agro inputs between a small and a larger farmer?
- Q** What is the impact of accessibility process of pesticides and fertilizer on the overall productivity of acrop?

1.6 Significance of theStudy

This study plays significance contribution in making how agricultural productivity profitable. By getting how credit plays prime role in making easier in getting access to agriculture products such as Fertilizers and pesticides and upraise the contribution of farmers in the production process. This study will also be helpful to raise the living standard of the rural people in the district Sialkot because as the agricultural productivity increases the income per household will also be increases. This study will be special beneficial for the small farmers as they can easily access to the agricultural inputs like fertilizers and pesticides at the normal rates and as well as can get quality products by their choice to increase the productivity of the crops.

CHAPTER II

Review of Literature

Financial needs of the agriculture sector have enlarged extensively over the last few decades due to the expand use of fertilizers, pesticides, improved seeds, etc. The Government connected big right of way to boost agriculture production and farmer's income. Formal / institutional credit to the farmers is being provided through Government, Cooperatives, ZaraiTaraqiati Bank Limited (ZTBL), Domestic Private Banks and Commercial Banks. Government considers it an important mechanism for getting higher production and attaches high priority to make sure its timely accessibility to the farmers.

Pesticides, Fertilizers and other essential farm inputs have acquired a low amount of credit. As a result, banks and financial institutions should be encouraged to spend loans to finance the essential inputs of agricultural production, apart from capital inputs.

2.1 Agricultural Credit

Agricultural credit is a salient ingredient of all economic ventures as agriculture. Proper utilization of agricultural credit has commanding role to get elevated crop production. Sial, Awan, & Waqas (2011) recommended to In the distribution of Agricultural credit there should be focused on the small farmers as well as crop insurance policy must be develop that might be useful in returning the loan. To reduce the misplacement of the agriculture credit the disbursement of loan should be based on crop production that will be helpful in focusing the most deserved farmers.

Akram, Hussain, Ahmad, & Hussain (2013) examines that the high technical efficiency of credit users was safely attributed to credit availability through which they have a timely access to farm

inputs. But still farmers were miss-allocating their resources means inputs at farm level.

“Access to credit has a significant positive impact on cassava productivity. So in order to facilitate the more rural and small farmers the credit related institutions should enhance their activities and services that maximum number of farmers can facilitate from it to increase their farm production”(Awotide, Abdoulaye, Alene, &Manyong, 2015).

Harris, Babagana, Madaki, Ismail, & Yakubu. (2019) concluded that farmers faces much difficulties to approach the credit from financial institutions to enable them afford the increasing cost of agricultural inputs like fertilizers, pesticides and labor as a result their crop production is hardly affected.

2.2 Farmers Accessibility to Fertilizers and Pesticides

Obisesan, Akinlade, &Fajimi(2013) concluded that major part of the farmers uses fertilizer on their farmland and there are some components that crucially influenced the usage of fertilizers and other inputs including nearest market distance, farm size, access to credit and fertilizer prices.

Tadesse (2014) assessed that people with more live stock rich assets are more suitable to take on fertilizer but less likely to take part in the local credit market as they have greater savings that could be used to buy fertilizer/improved seeds without credit agreement. This suggests poorer farmers heavily depend on credit than wealthier.

The fertilizers subsidy programs had some success in terms of increasing farming proficiency and be very favorable for a country where about half the labor force participate modestly 14.8% of gross domestic product in 2014. In the rest of economy the results are less than average that also makes the average farmer about six times less fruitful. In 2008 the domestic prices were got

very high due to the world food crisis in West Africa. They were afraid that it might lead to deteriorating quality of life especially in poorest population so the local prices of rice have boosted to 50 to 100 percent (Seck, 2017).

Sheahan & Barrett (2017) found that agricultural growth to reduce poverty in the region is expected to result from widespread use of large scale inputs that embody improved technologies, particularly fertilizers, agrochemicals and other improved seed.

Khan (2019) found that agricultural inputs like fertilizers are very essential for the rapid growth of wheat crop but due to very high cost the small farmer cannot access to this input at time and as a result the wheat production goes down.

2.3 Crop Production

Agriculture sector is considered as core sector of economy. In Pakistan, it is the back bone of the economy but this sector is facing many challenges. There is a huge gap between potential and actual productivity of crops in the developing countries such like Pakistan. Due to this gap the growth of agriculture sector is stagnant in these countries (Elahi et.al,2018).

Although, issues of Pakistan's agriculture sector was discussed but now there is a need to move towards the positive side and successful modern techniques of production that are using in this sector. The best example of green revolution was experienced by the Asian countries by adopting modern seed varieties, fertilizer, and mechanization techniques of agriculture production including solar energy (Mwangi and Kariuki 2015).

As Rehman et al., (2016) also claimed that in Pakistan there is huge gap between the potential and actual output due to lack of awareness about technology, unavailability of water and inadequate education. They argued that for the development of agriculture sector in Pakistan,

government should introduce new funding program for the farmers.

As Khan et al., (2013) reported that there are some major issues in the largest contributing sector in economy of Pakistan that we have to resolve for the better performance of agriculture sector. These issues are water deficiency and drought conditions, lack of cooperation between agricultural research, lack of modern post-harvest technologies and many others.

2.4 Agricultural Credit and Accessibility to Fertilizers and Pesticides

Kamara (2004) concluded that almost all agricultural inputs which are investigated (except pesticides) enhance with advancement in the access of farmers to both input and output markets which directing to improve the aggregate agricultural production.

Sial, Awan, & Waqas (2011) recommended that enlarge the agricultural credit disbursement. And particularly to small farmers. To take into custody the uncertainty in agriculture sector, crop insurance scheme must be initiated. This may be helpful in getting required recovery rates of agricultural loans. the basis of productivity will help in targeting the needy persons and this will also shrink the loan losses. Because when productivity of such a farmer increases, then by selling agricultural output he will be able to return the loan easily.

Harris et al. (2019) recommended that basic agricultural inputs such as fertilizers, improved seed etc should be made readily available at affordable prices to rural farmer for the improved food production

2.5 Agricultural Credit and Crop Production

Sial et al. (2011) concluded that agricultural credit, availability of water, cropping intensity and agricultural labor force are positively significantly related to agricultural production” . Credit does have an impact on the productivity of sugarcane crop. All these findings make anyone to conclude that commercial banks are effectively serving the agricultural sector of Pakistan which can be play a vital role in the enhancement of crop production (Bashir et al., 2007)

Farmers are not getting as much credit as they need even by paying very high interest rates. Thus, policy makers should ensure that the farmers get as much credit as they need at a subsidized interest rate. It will enhance their access to improved seeds, use of fertilizer and pesticides, better irrigation facilities and mechanized methods of production which will ultimately increase the productivity of farmers (Bhato, 2014).

Abdullah (2015) determines that agricultural credit plays a major role to push the production and raises the standard of living of rural farmers and consequently increasing economic growth and development.

It is recommended that the i attention of government iagencies ias well as financial institutions to utilize the agricultural credit iin ian inefficient way which will lead to profit maximization of farmers and also help in the enhancement of farmer’s living conditions (Khan, i2011).

Chandio et al. (2018) found that agricultural credit has a positive and highly significant effect on wheat productivity, while the short-term loan has a stronger effect on wheat productivity than the long-term loan. The reasons behind the phenomenon may be the significantly higher usage of agricultural inputs like seeds of improved variety and fertilizers which can be

transformed into the wheat yield in the same year.

Khan (2019) recommends that credit facilities to farmer on low interest rate according to their requirement for enhancement of maize productivity for purchasing their inputs in the study area. Better market facilities are also required for farmers for enhancement of maize productivity and high price also play key role in the development of maize productivity.

Harris (2019) Concluded that category of farmers find it very difficult to access loans from financial institutions to enable them afford the rising cost of farming inputs and labor as a result of which their productivity is seriously affected.

2.6 Role of Credit in Improving Accessibility to Fertilizer and Pesticides

Shiferaw (2011) reviews the role that producer organizations can play, and the challenges they face in improving access to markets and technologies for enhancing productivity of smallholder agriculture.

Obisesan (2013) found that accessibility to fertilizers and price of fertilizer influenced fertilizer use positively. The results suggested that in order to enhance fertilizer use, human capital such as education should be emphasized and formation of cooperatives that offer micro finances and loans to farmers should be encouraged.

Sheahan (2017) analyze that it is expected to come largely from expanded use of inputs that embody improved technologies, particularly improved seed, fertilizers and other agrochemicals, machinery, and irrigation.

Koppmair (2017) found that further increasing production diversity may not be the most effective strategy to improve diets in smallholder farm households. Improving access to

markets, productivity-enhancing inputs and technologies seems to be more promising.

Kyomugisha (2018) assessed that Understanding barriers to market access for smallholder farmers and their marketing efficiency when they participate in agricultural value chains is key to unlocking the market potential and overcoming market failures.

Kopper (2019) analyze that in areas of low agro-ecological potential, households respond to rising land prices by cultivating less land and applying fertilizer more intensively but do not appear to adjust fertilizer use in response to changing fertilizer prices. Finally, households with better market access conditions appear slightly more responsive to land price changes than do those with poor market access.

2.7 Agriculture Credit, Accessibility to Fertilizers and Pesticides and Crop Production

Harris (2019) recommended that basic agricultural inputs such as fertilizers, pesticides, improved seeds etc. should be made readily available at affordable prices to rural farmers for improved food production.

Regardless of the massive reliance of Pakistani human beings on agriculture as a cause of earning and employment, there is still a scarcity of research on how the agricultural production can be uplift by expanding the access of farmers to better fertilizers, pesticides. There are a couple of studies about the impact of agricultural credit on farmer's productivity. The present study aims at attaining this gap from Sialkot district to investigate the problems related to the procurement and use of agricultural credit and assess its impact on farm productivity.

This type of research has not been done yet in case of Pakistan which makes this study a valuable addition to the existing literature.

Chandio (2018) reconfirmed that agricultural credit have a positive and highly significant effect on wheat productivity while the short term loan has a stronger effect on wheat productivity than the long term loan. The reasons behind the phenomenon may be the significantly higher usage of agricultural inputs like seeds of improved variety and fertilizers which can be transformed into the wheat yield in the same year.

CHAPTER III

Research Methodology

The specific process and techniques which are to be used for the sake of collecting processing and then analyzing data and information for the purpose of research objective and also for the solution of our research questions.

The purpose of this chapter is to check the reliability and validity for our overall study and to discuss previous researches with our research philosophy

3.1 Research Philosophy

Research philosophy itself is a very vast topic to discuss as a research philosophy refers to the process in which the data collected analyzed and used. There are different types of research philosophy like positivism, realism, epistemology ad etc. "Two major philosophies have been identified in the western tradition of sciences which are positivism & interpretive (Galliers, 1991).The approach of positivism is selected as research philosophy for this study.

3.1.2 Positivism

Positivists believe that reality is stable and can be observed and described from an objective viewpoint (Levin, 1988). From the past studies observed data and from their interrelationships predictions made. "Positivism has a long & rich historical tradition. It is embedded in our society that knowledge claims not grounded in positivist thought are simply dismissed as a scientific & therefore invalid" (Hirschheim, 1985). Positivism has also had a specific complete relationship

with natural & physical science. “Likewise some variables of reality might have been previously thought immeasurable under the positivist paradigm & hence went unsearchable” (Galliers, 1991). In this approach data researcher does collection and interpretations and its finding are quantifiable and observable. In this type of study, the researcher is independent from the study and there are no provisions for human interests within the study. This approach demonstrates causality, hypothesis generation and their sampling requires large numbers and selected randomly. In positivism hypothesis generated, tested and then confirmed that which hypothesis will used for further research. Quantifiable observations obtained by this approach.

3.2 Research Strategy

The strategies for positivism are:

- LaboratoryExperiments
- FieldExperiments
- Surveys
- Casestudies
- Theorem proof
- Forecasting
- Simulation

For this study, the survey strategy adopted by this the data and information collected through questioners. It allows researcher to study multiple variables at one time. Quantitative analytical techniques used for drawing interference for existing relationships. By our research objectives, we have to investigate the relationship between agriculture credit to that of crop production and accessibility to fertilizers and pesticides with mediating effect of accessibility to fertilizers and pesticides between agriculture credit and crop production.

3.3 Theoretical Framework

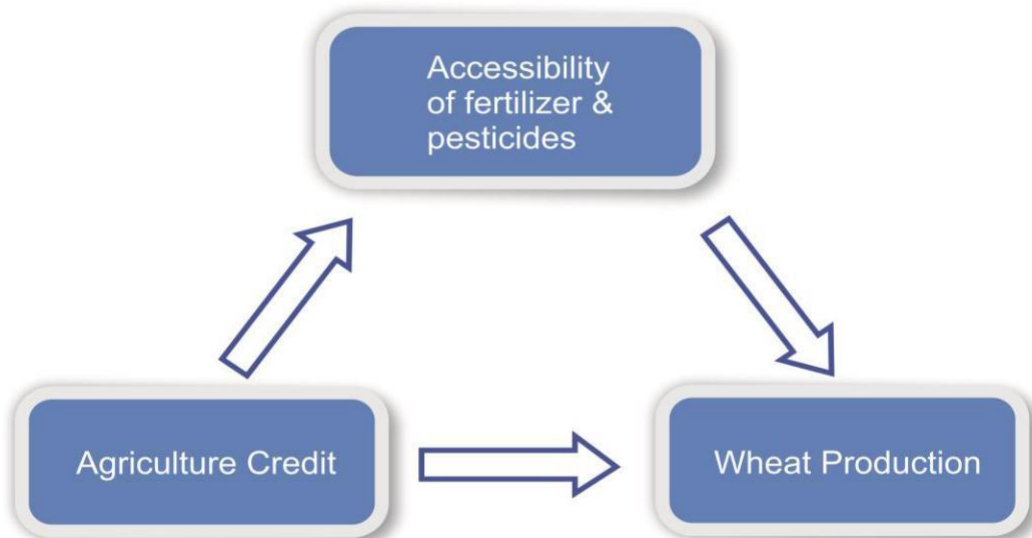
In this research crop production act as a dependent variable while, Agriculture credit is the independent one while accessibility to fertilizers and pesticides mediate the relationship between agriculture credit and crop production.

Independent variable: Agriculture credit

Mediator: Accessibility to fertilizers and pesticides

Dependent Variable: Wheat production

Figure 1.Theoretical Illustration of the Model



3.4 Cobb Douglas Production function

Cobb Douglas Production Function (CDPF) used for the purpose of data analysis. The selection of CDPF was made on the basis of: it can handle multiple inputs in its generalized form; in the presence of imperfections in the market it does not introduce distortions of its own; and various econometric estimation problems like serial correlation, heteroscedasticity and multicollinearity can be handled adequately and easily. Further, it facilitates computations and has the properties of uniformity, represent ability and flexibility.

Following equation represents CDPF for the current study

$$Y = \alpha X_1^{\beta_1} X_2^{\beta_2} X_3^{\beta_3} X_4^{\beta_4} X_5^{\beta_5} X_6^{\beta_6}$$

(Equation 1)

Where

Y = wheat yield (mounds/acre)

X₁ = pesticide cost (Rs. /acre)

X₂ = fertilizer cost (Rs. /acre)

X₃ = irrigation cost (Rs. /acre)

X₄ = Capital used cost (Rs. /acre)

X₅ = land holding (1 for large farmers and 0 for small farmers)

X₆ = loan taken (1 for loan taken and 0 alternatively)

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ = output elasticities

Log linearizing and adding a stochastic term to (1)

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \beta_6 \ln X_6 + \mu$$

Where μ = Disturbance term

The credit insertion is taken as an independent variable in above equation due to the fact that it does not affect the output directly and has an indirect effect on output through lessening the financial constraints of the farmers. Credit was included in the above equations due to the fact that it can move farmers along the production surface more efficiently:

firstly, credit influences the efficient resource distribution by overcoming constraints to 20

purchase inputs and use them optimally which shifts the farmer along a given production surface to a more intensive input use.

3.5 Hypothesis Development

As discussed in my literature review, and for the understanding of my research hypothesis generated which defines my study dimension and gives provision to my theoretical framework.

Following hypothesis generated for the justification of my study:

H1: Agriculture credit positively influences the crop production.

H2: Agriculture credit positively influences the accessibility to fertilizers and pesticides.

H3: Accessibility to fertilizers and pesticides positively influences the crop production.

H4: Accessibility to fertilizers and pesticides mediates the relationship between agriculture credit and crop production.

3.6 Sample Selection

According to Hair et al. (2017) number of variables multiplies by twenty and then double it for this study will be its sample size therefore this study has 3 variables multiply it with 20, it become 60, and double is therefore the sample size for this study is 120.

3.7 Population Frame

The population frame of the research is farmer households located in Sialkot. Selection of villages, farmers is randomly selected.

3.8 Type of Study

Study adopted correlation research design as our model shows and defines the correlation between the agriculture credit and crop production with the mediating role of accessibility to fertilizers and pesticides.

3.9 Sampling Technique

Study used purposive sampling technique for my research. In this connection Stratified Simple Random Sampling Technique was adopted.

3.10 Data Collection Procedure

Through printed research instrument that is in the form of questionnaires, this research collected data to check the relationship of our selected variables. English language used in questionnaires but local language was be used for the respondents for their responses. Moreover, no personal information will be given to third party.

3.11 Data Analysis Techniques and Tools

- Demographic statistics were used to find the frequencies and percentages for demographic variables.
- Reliability analysis was used to check the reliability on the scale provided (Cronbach's alpha).
- Descriptive statistics was used to check the normality of data by calculating mean, standard deviation, skewness and kurtosis.
- Correlation was used to check the strength and direction of the relationships.
- Either regression analysis was used in which linear regression run on data to test the hypothesis on which results will conclude that it is accepted or it rejected.
- Macro process installed in SPSS version 20 and bootstrapping method suggested by Haye's, (2013) used to test the mediation of variable on which result will conclude that hypothesis accepted or rejected.

IBM Statistics SPSS 20 software was used for running these analysis and tools

CHAPTER IV

Data Analysis

4.1 Demographic Analysis

In the demographic analysis, different set of methods and techniques are used to measure the different aspects and dynamics of target population. This study is depends upon 120 respondents in which 46 were those who use Agriculture credit and rest 74 were non credit users. The technique which was used to collect is simple random sampling because it was convenient for that circumstance. As shown in survey that all respondents were 'male' because in our study area female are not directly linked with agriculture (Table 4.1.1)

Table 4.1.1 Gender

		Farmers		Total
		Non Credit User	Credit User	
Gender Male	Count	74	46	120
	% within Gender	61.7%	38.3%	100.0%
Total	Count	74	46	120
	% within Gender	61.7%	38.3%	100.0%

As survey accounted that in the case of non credit users 8.1% respondents are lying in age group of 15 to 30 years, 36.5% of the respondents are ranging between 31 to 45 years, 43.2% of the respondents exist in age group of 46 to 60 years and remaining 12.2% of the respondents fall in the age group of 60 years to above. In the case of credit users 17.4% of the participants are ranging between 15 to 30 years, 26.1% of the respondents are falling in age group of 31 to 45 years,

41.3% of participants are lying in the age group of 46 to 60 and 15.2% of the respondents are in the range of above 60 years (Table 4.1.2)

Table 4.1.2 Age of farmers

Farmers		Age of farmers				Total
		15 to 30	30 to 45	45 to 60	Above 60	
Non Credit User		6 8.1%	27 36.5%	32 43.2%	9 12.2%	74 100.0%
Credit User		8 17.4%	12 26.1%	19 41.3%	7 15.2%	46 100.0%
Total		14 11.7%	39 32.5%	51 42.5%	16 13.3%	120 100.0%

From the respondents 11.7% of the respondents are illiterate, 10% of the respondents have primary education, 16.7% have secondary education, 27.5% of the participants got matric education, 15% farmers has intermediate and 19.2% are graduated or have master degree (Table 4.1.3).

Table 4.1.3 Education

	Education	Frequency	Percent	Valid Percent	Cumulative Percent
	Uneducated	14	11.7	11.7	11.7
	Primary	12	10.0	10.0	21.7
	Middle	20	16.7	16.7	38.3
	Matric	33	27.5	27.5	65.8
	Intermediate	18	15.0	15.0	80.8
	Graduation/Master	23	19.2	19.2	100.0
	Total	120	100.0	100.0	

Table 4.1.4 shows the income level of the respondents. There are 2.5 percent are less than 15000. 58.3 percent ranging from 15000 – 30000, 13.3 percent from 30000 – 45000, 20.8 percent from 45000 – 60000, for income level 60000 – 90000 there are only 0.8 percent while there are 4.2

percent respondents having income level more than 90000.

Table 4.1.4 Monthly income

	M. Income	Frequency	Percent	Valid Percent	Cumulative Percent
	Less than 15000	3	2.5	2.5	2.5
	15000 to 30000	70	58.3	58.3	60.8
	30000 to 45000	16	13.3	13.3	74.2
	45000 to 60000	25	20.8	20.8	95.0
	60000 to 90000	1	.8	.8	95.8
	More than 90000	5	4.2	4.2	100.0
	Total	120	100.0	100.0	

As it is showing in table (4.1.5) out of the totally 120 respondents 46 farmers are using agriculture credit in which 14 are small farmers, 13 are medium farmers and 19 are large farmers. 74 respondents are non-credit user in which 39 farmers are small, 22 are medium and 13 are large farmers and totally 74 farmers are non-user and 46 are credit users.

(Table 4.1.5) Farmers category

		Farmers category			Total
		Small farmer	Medium farmer	Large farmer	
Farmers	Non Credit User	39	22	13	74
	Credit User	14	13	19	46
Total		53	35	32	120

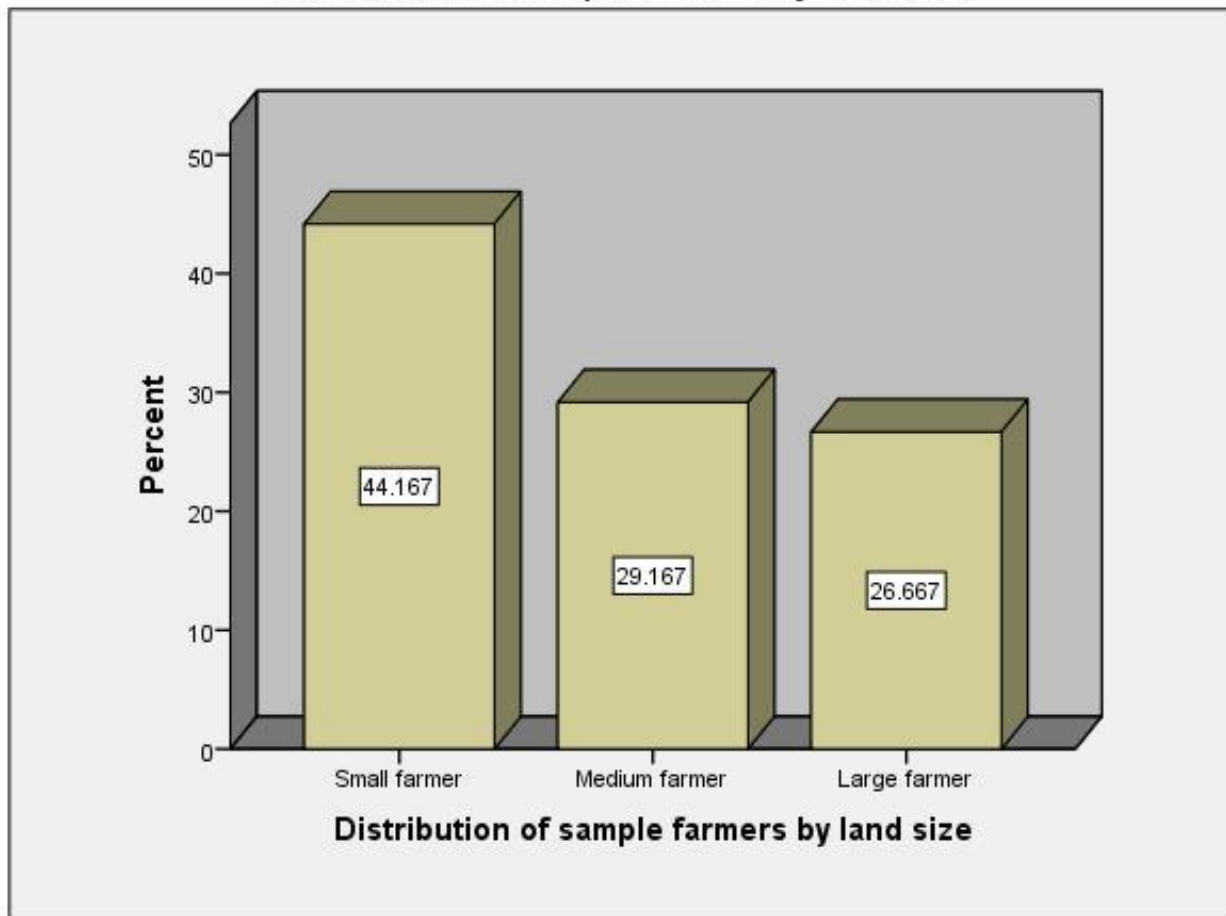
Most of the sample farmers in the study area have agriculture as their occupation; Among which three-fourths of the sample farmers have agriculture as their only occupation to earn their livelihood while the rest of the sample-farmers are engaged in teaching, other employment and small businesses in addition to agriculture.

Table 4.1.6 Other source of income

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	31	25.8	25.8	25.8
No	89	74.2	74.2	100.0
Total	120	100.0	100.0	

Land holding status shows that the majority of farmers in the study area are small farmers who feed their families and earn income from the sale of agricultural products. 29 per cent of the farmers belong to the category of medium-sized farmers. Only 26% of farmers have large land holdings (more than 24 acres) for agricultural purposes (Chart 4.1.1)

Distribution of sample farmers by land size



(Chart 4.1.1)

4.2 Procurement of Agricultural credit

Out of the 42 sample farmers who have taken agricultural credit from financial institutions, 22 (52%) farmers responded that they have obtained sufficient amount of credit as per their demand. 20 farmers which is 48 % of the total farmers who have taken credit responded that they have not obtained sufficient credit as they required (Table 4.2.1).

Table 4.2.1 Obtained sufficient credit as per their demand

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	22	18.3	52.4	52.4
Valid No	20	16.7	47.6	100.0
Valid Total	42	35.0	100.0	
Missing System	78	65.0		
Total	120	100.0		

Average interest rate charged by the commercial banks for agricultural credit in the study area is higher. It is due to the fact that agricultural credit has been disbursed mainly by the commercial banks. Interest rate on such lending is about 18 percent in the study area while on the other hand interest rate charged by the middleman's is very low as compared to other financial institutions. The average interest rate charged by the middleman's is only 3-4 % (Table 4.2.2).

Table 4.2.2 Ratio of interest rate

	Ratio of interest rate by financial institutions (percent)	Ratio of interest rate by middleman (percent)
Valid	14	28
Missing	106	92
Mean	17.8462	2.1071
Std. Deviation	.89872	1.78656
Range	3.00	5.00

Twenty one percent of the credit users responded that it is easy to obtain agriculture credit from financial institution and other resources but 67 percent responded that it is difficult to obtain credit and 12 percent answered that it is very difficult to obtain such credit (Table 4.2.3).

Table 4.2.3 Difficulty of credit receipt by the farmers in sample area

Easy/ Difficult	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Easy	9	7.5	21.4	21.4
Valid Difficult	28	23.3	66.7	88.1
Valid Very Difficult	5	4.2	11.9	100.0
Valid Total	42	35.0	100.0	
Missing System	78	65.0		
Total	120	100.0		

Farmer were asked that is there any mobile credit officer (MCO) from ZTBL or other banks visited you offering agriculture credit but no anyone give response in yes. 100 % of the farmers responded that no any credit officer visited to offer an agriculture credit (Table 4.2.4).

Table 4.2.4

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No	120	100.0	100.0	100.0

4.3 Descriptive Statistics

Before regression, the first step is to check the normality of the data. In this statistics Standard deviation, skewness and kurtosis were calculated to check and prove the normality of data (Table 4.3.1).

Table 4.3.1 Descriptive Statistics

Sr.	Variables	Std. Dev	Skewness	Kurtosis
1	Agriculture credit	.73739	-2.069	2.936
2	Accessibility to fertilizers and pesticides	.92899	-2.093	3.035
3	Wheat production	.78026	-2.103	2.985

Table 4.3.1 shows the descriptive statistics from the data provided by the respondents for all the variables. So according to this the values are given as for Agriculture credit (Std. deviation = 0.73739, Skewness = -2.069, Kurtosis = 2.936). For Accessibility to fertilizers and pesticides (Std. deviation = 0.92899, Skewness = -2.093, Kurtosis = 3.035). For Wheat production (Std. deviation = 0.78026, Skewness = -2.103, Kurtosis = 2.985). All the variables are confirmed their normality of the data because the “ranges of skewness and kurtosis is -2 to +2 and -3 to +3 respectively” (Torchim, Donnely, & James, 2006).

4.4 Agricultural Credit Impact on Wheat Productivity

4.4.1 Estimation Results of Cobb-Douglas Production Function

The estimation result of the Cobb Douglas production function in table(4.4.1) shows that the overall regression equation is highly significant as shown by the zero probability value of F-test.

All the variables under consideration have expected signs except irrigation expenditure and capital expenditure. The inputs amount of pesticide used and amount of fertilizer are significant at 1 percent Level of significance and amount of labor used is significant at 5 percent level of significance.

However, irrigation expenditure and capital expenditure are not statistically significant even at 10 percent and they do not bear the expected signs.

Table 4.4.1 Estimation result of Cobb-Douglas production function

ln_yield	Coef.	Std.Err.	t	P> t
ln_pest	.26**	.091	2.89	.005
ln_fert	.18**	.057	3.17	.002
ln_irrg	-.04	.032	-1.22	.225
ln_capex	-.02	.063	-.38	.707
ln_labor	.14*	.062	2.27	.026
credit_receipt	.25**	.058	4.28	.000
_cons	4.23**	.333	12.70	.000
Source	SS	DF	MS	Number of obs = 120
Model	3.89	6	.65	F(6,88) = 8.38
Residual	6.81	88	.08	Prob > F = .00 R-squared = .36
Total	10.70	94	.73	Adjusted R-squared = .32 Root MSE = .28

***Results Indicates that the coefficient is significant at 5% level of significance.**

****Results Indicates that the coefficient is significant at 1% level of significance**

The result shows that the credit receipt is highly significant implying that credit receipt contributes significantly to wheat production but the magnitude of the impact is rather lower as the coefficient of credit receipt 0.25 only which shows that mean log of output per acre (ln_yield) for agricultural credit's users are higher by 0.25 units than the farmers who did not use such credit facility. Low impact of agricultural credit may be due to two reasons in the study area; Firstly, Some of the farmers have not utilized the credit facility for agriculture purpose only rather they have used it for other business purposes, consumption and purchasing land; Secondly, some of the credit users are not so much passionate to adopt good quality inputs and mechanized methods of production as they want to grasp to the maintenance farming practices even after getting credit facility. The resultant estimated production functions for credit users and credit non-users can be presented as:

For Non Credit Users

$$\text{LN_YIELD} = 4.23 + 0.26 * \text{LN_PEST} + 0.18 * \text{LN_FERT} - 0.04 * \text{LN_IRRG} - 0.02 * \text{LN_CAPEX} + 0.14 * \text{LN_LABOR}$$

For Credit Users

$$\text{LN_YIELD} = 4.23 + 0.26 * \text{LN_PEST} + 0.18 * \text{LN_FERT} - 0.04 * \text{LN_IRRG} - 0.02 * \text{LN_CAPEX} + 0.14 * \text{LN_LABOR} + 0.25 * \text{CREDIT RECEIPT}$$

The significant positive sign with the coefficient of the dummy variable credit_receipt shows that the productivity of the credit users is greater than the productivity of credit non-users. This result is in line with economic theory and is consistent with empirical research

(e.g. Dong et.al. (2010), Ibrahim and Bauer (2013), Rahman et.al.). (2014)) that credit receipt provides farmers with the capacity to use pesticides , fertilizers and more efficient production methods which ultimately enhance the productive capacity of farmers. Other coefficients show the elasticities of agricultural yield with respect to some particular input in consideration. The coefficient of \ln_pest is 0.26 which shows that if quantity of pesticides per acre is increased by one percent, production per acre will increase by 0.26 percent. Similarly, the coefficient of fertilizer is 0.18 implying that if amount of fertilizer per acre is increased by one percent, production per acre will increase by 0.18 percent. The coefficient of labor being 0.14 implies that if man days per acre are increased by one percent, production per acre will increase by approximately 0.14 percent. The coefficient of irrigation expenditure and expenditure on capital instruments are insignificant and their magnitudes are very small. The negative sign attached with these coefficients may be due to the fact that the credit constrained farmers have fewer resources to invest in good quality pesticides and fertilizer. In such a situation, if the farmers spend more for irrigation facility and use of capital instruments, they do not have resources left for enough fertilizer and better quality pesticides as such production may be lower.

(Table 4.4.2) Breusch pagan test for Heteroskedasticity

Variables: fitted values of \ln_yield
$\chi^2(1) = 0.00$
Prob > $\chi^2 = 0.99$

(Table 4.4.3) Multicollinearity Test Results

Variable K	VIF	1/VIF
\ln_capex	1.57	0.64
\ln_irrg	1.50	0.67
\ln_seed	1.36	0.73
\ln_fert	1.27	0.78
\ln_labor	1.27	0.79
$credit_receipt$	1.04	0.96
Mean VIF	1.34	

The error term has constant variance due to high probability value of Chi-square statistics. The variance inflation factors (VIF) of all the variables and mean VIF are less than 10 confirming that the model is not suffered from the problem of Multicollinearity.

As hypothesis had significant impact, so that is why it states that Agriculture credit has a positive impact on wheat production. So by this conclusion hypothesis one accepted.

4.5 Linear Regression

Discussion followed table

Table 4.5.1 *Linear Regression of the sample households*

Hypothesis	IV	DV	R ²	F	Beta	t-test	Sig	Status
H2	AC	AFP	.848	1384.258	1.160	37.206	.000	Accepted
H3	AFP	WP	.419	178.923	2.240	13.376	.000	Accepted

IV: independent variable, DV: Dependent Variable, AC: Agriculture credit, AFP: Accessibility to fertilizers and pesticides, WP: Wheat production

HYPOTHESIS 2 states that the agriculture credit has positive relationship with accessibility to fertilizers and pesticides. The above table shows that 84.8% of variation in accessibility to fertilizers and pesticides is because of agriculture credit ($R^2 = 0.848$). It also states that this model is fit for regression ($F = 1384.258$). The change of 1 unit in agriculture credit cause 1.160 unit's change in accessibility to fertilizers and pesticides and it is defined by the coefficient β value in the table ($\beta = 1.160$). The analysis for hypothesis 1 had a significant impact ($t = 37.206$, $p < 0.05$). As hypothesis had significant impact, so that is why it states that agriculture credit has a positive impact on accessibility to fertilizers and pesticides. So by this conclusion hypothesis two accepted (Table 4.5.1).

HYPOTHESIS 3 postulates that accessibility to fertilizers and pesticides has a positive effect on wheat production. The above table shows that 41.9% variation in wheat production is due to

accessibility to fertilizers and pesticides ($R^2 = 0.419$). The analysis also verify the fitness of the model and it is fit for the regression ($F = 178.923$). The coefficient value indicates that change in one unit of accessibility to fertilizers and pesticides changes 2.240 units of wheat production ($\beta = 2.240$). The analysis also states the significant impact of this hypothesis ($t = 13.376$, $p < 0.05$). Hence, hypothesis 3 has also significant results. Therefore, this hypothesis accepted that accessibility to fertilizers and pesticides has a positive impact on wheat production (Table 4.5.1).

4.6 Mediation

Discussion followed table

Table 4.6.1 Mediation

Outcome	Effect (β)	SE	LLCI	ULCI
Total effect	.9821	.0250	.9328	1.0314
Direct Effect	.9056	.0341	.8383	.9728
Indirect Effect	.0765	.0279	.0270	.1351

The above table 4.6.1 represents the relationship of agriculture credit and wheat production through accessibility to fertilizers and pesticides. According to the tables accessibility to fertilizers and pesticides support the mediating relationship, as the indirect effect is significant. The direct effect of this relationship is described by value (Beta = 0.9056, SE = 0.0341, CI = 0.8383-0.9728) while its indirect effect with the value of (Beta = 0.0765, SE = 0.0279, CI = .0270 __ 0.1351).

While the basic relationship remains significance as the value describe this by total effect (Beta = 0.9821, SE = 0.0250, CI = 0.9328-1.0314)(Table 4.6.1).

Hence **hypothesis 4** is accepted which states that the accessibility to fertilizers and pesticides mediates the relationship between agriculture credit and wheat production.

CHAPTER V

Summary, Conclusions and Recommendations

5.1 Summary

The main aim of this study is to investigate the relationship of agriculture credit, accessibility to fertilizers, pesticides and wheat production also to investigate the mediating effect of accessibility to fertilizers and pesticides between agriculture credits to wheat production and to explore the problems related to the use of agricultural credit and intervention. This study verified previous studies for these variables where hypothesis 1 is supporting the fact that Agriculture credit has positive relationship with wheat production and hypothesis 2 is supporting that Agriculture credit positively influences the accessibility to fertilizers and pesticides. Hypothesis 3 is also supporting the fact that Accessibility to fertilizers and pesticides positively influences the crop production. This study also proved that accessibility to fertilizers and pesticides had positive mediating impact on wheat production.

This is a case study of district Sialkot and primary data is used for this survey. The technique which is adopted to evaluate the impact of Agriculture credit on wheat production is Cobb-Douglas production function and linear regression also used for hypothesis 2 and 3 and Mediation process also adopted for hypothesis 4 in which Accessibility to pesticides and fertilizers is acting as a mediator. This study has utilized the information from 120 sample farmers from the study area to estimate.

The criteria which have been followed of selecting respondents for this study allowed us to do a comparison of socio-economic condition and livelihood of both: Agriculture credit users and non users. Results of this study depicts that the impact of socio-economic well-being on livelihood of those farmer who are credit users are more than those who are non credit users. It is obvious after

getting these results that socio-economic condition and livelihood of those who are using Agriculture credit is better than of non-user. It is also analyzed that the use of Agriculture credit has positive impact on the farmer's income and savings. This positive impact improves the socio-economic condition as well as livelihood of the 46 farmers.

5.2 Policy Recommendation

Credit to the agricultural sector has been an upward trend in recent years. Such credit is, however, for the most part, ZTBL, Rural Development Bank and other commercial banks and financial institutions have very high interest rates and strict conditions which, in particular, small farmers can not afford and prefer to borrow from the middleman at very low interest rates of 4-5 per cent. Thus government should create proper environment to instigate and facilitate middlemen to disburse credit to this sector. Loaning method should be made more clarify and appropriate, Islamic financial system may also be supportive to discard of the interest.

Proper usage of the loan should be ensured because pesticides, fertilizer, seed and other necessary inputs have obtained a low chunk of the credit and remarkable part of loan has gone to capital inputs.

Even with high interest rates, farmers are not getting the credit as much they need. Such Policy makers should make sure that the farmers get more loans than they need at a subsidized interest rate. It will increase their access to use of pesticides, fertilizer and seeds and improved irrigation facilities and mechanized methods of production which will ultimately increase the farmer's productivity.

In agriculture sector timing is a critical thing so loan should be provided on time otherwise delay will not help them to get maximal advantage from loan. The Government institutions should deliver credit to farmers according to importance of crops and their veritable needs and should focus and advance credit to small rural farmers, because they are the disempowerment section of the society.

Agriculture loan tendency should be adaptable in case of any natural disaster or failure of crop, the period of repayment should be broadened at the satisfaction of borrowers.

Unfortunately farmers in the study area are not well educated and do not have much benefit from using the loan service in the production of wheat because of high interest rate charged and low production of wheat crop. Traditional farming practices being used by the farmers are the basic reason of low production. So farmers should be provided technical know-how about how to make use of credit for the intensification of wheat productivity by using better farming practices and better inputs. Coordination with the District Agricultural Development Offices can be made to convey such technical know-how to the farmers because agriculture department in District Sialkot is fully failed to entertain farmers in this regard.

5.3 Limitation of the Study

The study has been conducted carefully keeping in mind the consideration and intended objectives of the research and not every research is perfect or complete there are also had some limitations in the research. The research is comprised of quantitative approach and all the results are based on the response of household representatives subject to designed structured and semi-structured questions. There were also time and resource constraints as well. The sample size is also limited and better results can get by increasing the sample size. The study is limited to only one district of Punjab, Pakistan.

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Appendix

Questionnaire

Demographics and Personal Info

Date: _____
Name: _____ **Age:** _____ years **Cell No:** _____
Village: _____ **Education:** _____ Years of schooling
Household size: _____ **Gender:** M/ F **Monthly Income:** _____ Rs

Land Holding

1. How much Cultivated land do you have? _____ Acres
 Own _____ Acres, Tenant _____ Acres, OCT _____ Acres
2. If Tenant or OCT what is share/price/rent Rs/wheat crop _____
3. Is there any other source of income other than Agriculture?
 (A) Yes (B) No If Yes: Source _____ and income Rs: _____ Month
4. From when you have been affiliated to this Agriculture? _____ Years
5. How much area of land did you plant for producing wheat this year? _____ Acres
 Last year _____ Acres
6. How much land did you plant wheat on your own land? _____ Acres, Last year _____ Acres
7. How much land did you plant wheat on Tenant land? _____ Acres, Last year _____ Acres
8. If there is change what are the reasons (Also rank as important as one)
 (A) Low Price
 (B) Low Yield
 (C) Marketing Problem
 (D) Any other please explain _____

Access to Agri Products

9	Do you purchase your fertilizer by financing it on your own? If yes or no elaborate the reasons with priority ranking (A) No money/ No cash problem (B) Convenient (C) Interest/high cost of late payment (D) Any other kindly mention _____	(A) Yes (B) No
10	Do you purchase your pesticides on your own? If yes or no elaborate the reasons with priority ranking (A) No money/ No cash problem (B) Convenient (C) Interest/high cost of late payment (D) Any other kindly mention _____	(A) Yes (B) No
11	Do you pay the price at the time of purchase? If yes or no elaborate the reasons with priority ranking (A) No money/ No cash problem (B) Convenient (C) Interest/high cost of late payment (D) Any other kindly mention _____	(A) Yes (B) No

12	<p>If you don't pay the price at the time of purchase then by paying later do you think then vender receives high prices of products? If yes then how much (A) Little bit (B) High (C) Very high</p>	(A) Yes (B) No
13	<p>Do you purchase your Agri product from the same vender every year? If yes or no elaborate the reasons with priority ranking (A) Quality / price difference (B) old relation (C) Interest/high cost of late payment (D) Any other kindly mention _____</p>	(A) Yes (B) No
14	<p>What is the distance of the Vender from your location _____ Km</p>	

In case if the Agri Products are not being financed by own self
<p>15. How you finance your Agri products? (A) By taking loan from bank (B) By taking loan from friends/loans (C) By taking loan from middleman (D) By taking products on credit from vender</p> <p>16. How much easy do you think obtaining agricultural loan from banks and financial institutions? (A) Easy (B) Difficult (C) Very Difficult</p> <p>17. If you take loan from bank, from which bank do you take? (A) ZTBL (B) HBL (C) ABL (D) Any other kindly mention..... (E) N/A</p> <p>18. What is the ratio of interest rate? Percent</p> <p>19. If you finance your expenditures through middleman, that how do you pay? (A) By returning the loan in cash (B) By selling the yield of crop</p> <p>20. If you pay interest to middleman then what is the ratio? Percent</p> <p>21. If the yield is collected by the middleman then at what rate it purchases from you? (A) Same as the market price (B) Lower than the market price (C) Greater than the market price</p> <p>22. Does the middleman provides money or just provides the required Agri products? (A) Only provides money (B) only provides Agri products (C) Both</p> <p>23. Does middleman provides any facility? Yes, No If yes what are (A) Food (B) Residence (C) Technical help (D) Any other kindly specified_____</p> <p>24. Since when you have been dealing through the middleman? (A) 1-3 years (B) 3-6 years (C) 6-10 years (D) More than 10 years</p> <p>25. How much ratio of interest is increased every year?</p>

(A) 1 % (B) 2% (C) 3 % (D) 4 % (E) 0%

26. Do you dealing with the same middleman or you deal with random persons?

(A) Same middleman (B) Random persons

27. If loan taken, have you obtained sufficient credit as per your demand?

(A) Yes (B) No

28. If you have not obtained credit as per your demand, which of the following factor do you think is responsible for such a credit-constrained situation?

(A) Insufficient Mortgage (B) Lack of Interest of banks for Agricultural Credit (C) Others

29. Is any mobile credit officer (MCO) from ZTBL or any bank visited to you for offering to take Agri credit?

(A) Yes (B) No

Pesticides and fertilizers

30. What type of fertilizer you use for your crops?

(A) Nitrogen (B) Nitrogen & Phosphorous (C) Phosphorous & Potash (D) Nitrogen & Potash (E)) Nitrogen, Phosphorous & Potash

31. How much UREA fertilizer do you need for your wheat crops in tenure per Acre?

(A) 1 bag (B) 2 bag (C) 3 bag (D) 4 bag

32. How much UREA fertilizer you used for your wheat crops in tenure per Acre?

(A) 1 bag (B) 2 bag (C) 3 bag (D) 4 bag

33. How much DAP fertilizer do you need for your wheat crops in tenure per Acre?

(A) 1 bag (B) 2 bag (C) 3 bag (D) 4 bag

34. How much DAP fertilizer you used for your wheat crops in tenure per Acre?

(A) 1 bag (B) 2 bag (C) 3 bag (D) 4 bag

35. How much POTASH fertilizer do you need for your wheat crops in tenure per Acre?

(A) 1 bag (B) 2 bag (C) 3 bag (D) 4 bag

36. How much POTASH fertilizer you used for your wheat crops in tenure per Acre?

(A) 1 bag (B) 2 bag (C) 3 bag (D) 4 bag

37. What type of pesticides do you need for your wheat crop per Acre?

(A) Insecticides (B) Herbicides (C) Fungicides (D) None of these (E) B & C both

38. What type of pesticides you used for your wheat crop per Acre?

(A) Insecticides (B) Herbicides (C) Fungicides (D) None of these (E) B & C both

Input use in producing Wheat crop (Per Acre)

39		40	41	42	43	44	45
Total cost of Producing wheat (Per Acre)		Land preparation cost (Per Acre)	Sowing Cost (Per Acre)	Seed Cost (Per Acre)	Fertilizer Application cost (Per Acre)	Pesticide Application cost (Per Acre)	Irrigation cost (Per Acre)
In Cash (Rs.)		Rs	Rs	Rs	Rs	Rs	Rs

46		47	48	49
Harvesting & Threshing cost (Per Acre)		Transportation and storing cost (Per Acre)	Land rent (Per Acre) If Applicable	Other expenses (Per Acre)
Rs		Rs	Rs	Rs

Crop Production

50		51	52	53	54	55	56	57	58
Time of harvest		What is the average productivity of your wheat crop this year? And last year?	What was the price per unit For sold wheat this year? And last year?	Quantity paid to laborers this year? And last year? (Per Acre)	Quantity kept for household use this year? And last year?	Total Quantity sold this year? And last year?	How much wheat was produced during this year? And last year?	What is the total value of crop sold this year? And last year?	To whom sold the crop 1=Govt agent 2 =Local agent 3=Miler 4=village fellow 5=Others And last year?
Month (Write 1 for March, 2 for April and so on)	1= Early 2= Mid 3= Late	Quantity (Maunds)	Rs (Maunds)	Quantity (Maunds)	Quantity (Maunds)	Quantity (Maunds)	Quantity (Maunds)	Rs	Quantity (Maunds)

Total revenue of 1 Acre Wheat – Total Expenses of 1 Acre Wheat = Profit / loss per Acre

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Profit/ Loss

59. What are the main problems faced by you regarding agricultural lending?

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60. What steps should be taken in order to sort out the problems faced by you regarding agricultural lending?

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