

An Economic Analysis of Cotton Crop Failure in the Mansa District of Punjab

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Economic Studies

By

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DECLARATION

I declare that the dissertation entitled “**An Economic Analysis of Cotton Crop Failure in the Mansa District of Punjab**” has been prepared by me under the guidance of Dr. Sandeep Kaur Bhatia, Assistant Professor, Centre for Economic Studies, School of Social Sciences, Central University of Punjab. No part of this dissertation has formed the basis for the award of any degree or fellowship previously.

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ABSTRACT

An Economic Analysis of Cotton Crop Failure in the Mansa District of Punjab

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At the time of the green revolution, there is a huge increase in the productivity of wheat and rice. Among the various states, Punjab was the leader of the green revolution in India. But from the late 1980s, decline in the prosperity of farmers due to increasing farm costs as input prices has put heavy weight on the farmers to borrow additional from the informal lenders in the lack of access to suitable formal credit. The number of farmer suicides in Punjab is recognized as the changing agricultural relations. The major cause was the productivity of cotton crop failed to put the whole cotton belt under stress. The study was carried out in the Mansa District. However, the study area was confined to those villages where the farmers committed suicides due to cotton crop failure in 2015-16. 81 farmers from 24 villages were surveyed from 5 blocks of Mansa district. Out of 81, Where 31 families were those whose member committed suicide due to cotton crop failure. Most of the farmers in study belong to the small and marginal category of farmers those are most vulnerable from cotton crop failure due to burden of high debt. Benefit –cost analysis and sensitivity analysis were used to know loss, cost and return due to crop failure. Without crop insurance scenario, it was found that the net returns were negative and the B-C ratio remained well below unity. Therefore these results indicate that estimated amount of crop insurance is also not sufficient to

fill up the loss gap due to crop failure in case of Mansa district of Punjab. Therefore for the comprehensive implementation of the PMFBY in case of Punjab need some modifications regarding the premium rate and indemnity level and special agrarian policy for small and marginal farmers.

Harpreet Singh

Dr. Sandeep Kaur Bhatia

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LIST OF ABBREVIATIONS

Sr. No.	Full Form	Abbreviation
1	Hectare	ha.
2	Pradhan Mantri Fasal Bima Yojana	PMFBY
3	Comprehensive Crop Insurance Policy	CCIP
4	National Crop Insurance Policy	NCIP
5	Quintal	q.
6	National Bank for Rural and Agricultural Development	NABARD
7	Minimum Support Prices	MSP
8	Benefit-Cost	B-C

Chapter I

Introduction

Agriculture plays a crucial role in the development of Indian economy. Among the various states, Punjab was the leader of the green revolution. By using green revolution strategies, Punjab has set an example for an enormous increase in production and productivity of crops especially wheat and rice. The economy of Punjab mainly depends on agriculture and Punjab helps the country in making self-sufficient in the production of food grains, on the cost of its natural resources exploitation. The state has been contributing 41.5 percent of wheat and 24.2 percent of rice to central pool in 2014-15 (Economic Survey of Punjab, 2015-16).

Punjab has the prominent place in the developed states of India. As compared to the other states, an economy of Punjab grows with the steady rising per capita income. Punjab is the developed state of India with having 5.96 percent average growth rate. The share of the agricultural and allied sector in Punjab economy recorded to Gross State Value Added (GSVA) at constant prices is 27.22 percent in 2014-15. Punjab agricultural sector has recorded a growth rate of 6.91 percent in 2015-16 at the constant prices 2011-12 (Punjab Economic Survey 2015-16, Punjab). Percentage Distribution of Gross State Value Added by Economic Activity at 2011-12 Prices is in 2015-16 is primary sector is 27.22 (Agriculture, Forestry & Fishing is 27.19), the secondary is 23.88 and tertiary are 48.90. Growth rate of primary, secondary and tertiary sector in 2015-16 in Gross State Value Added at Constant Prices 2011-12 was 5.22 percent, 3.14 percent and 6.29 percent respectively (Economic Survey of Punjab, 2015-16).

Punjab is one of the states of India which is mainly dominated by the agriculture sector with having the lowest contribution of industry as compared to the remaining states of the India. In a very short period, Punjab has achieved huge success. That was the effect that in term of the programme of poverty elimination started by the government of India and state government achieved great success as against the 27.5 percent national average of poverty as only 8.4 percent population live below

the poverty line (Planning Commission, 2004-05). In 2008, Global Hunger Index, Punjab in India ranked with the lowest level of hunger state (Gaiha et.al. 2009).

But after the golden period of green revolution, agriculture sector in Punjab has been revolving under a severe crisis described by stagnating productivity, crop failure, deteriorating incomes and growing costs of production. But from the late 1980s, declining the prosperity of farmers due to increasing farm costs as input prices have put a heavy weight on the farmers to borrow additional from the informal lenders in the lack of access to proper formal credit. The numbers of farmer's suicides in Punjab are recognised as the changing agricultural relations, numerous crop failures mostly that of Cotton in the period of the 1990s, growing debt burden among the farmers since 1997 (G.K. et.al.2002). The primary cause was the productivity of cotton crop failed to put the whole cotton belt under stress, and another problem of the minimum support prices (MSP) of wheat and paddy were almost stagnant due to falling international prices. The performance of agriculture sector in Punjab state showing the symbol of slow down from last few years. From 2009-10 growth rate of the agriculture sector has declined up below 2 percent even turned negative in the year 2009-10. However agriculture and allied sector expected to achieve 5.22 percent growth rate as related to the negative growth rate in the year 2014-15. Due to high crop intensity and fully utilisation of irrigation potentiality, there is the saturation point in the productivity of agricultural production' (Punjab Economic Survey 2015-16). As a result, the economic agony of farmers in the state increased many times, which is claimed to have led to a significant number of farmers' suicides in the Punjab. The trend of suicide by farmers is particularly troublesome for India since the greater part of the workforce depends on agriculture for its livelihood. About 55 percent of Indian workers were employed in agriculture, either as cultivators or as agricultural labourers (Census of India, 2011). After liberalisation, the agriculture sector has rapidly changed when started to integrate with the global market. Linking to the national market with international markets has also increased price uncertainty, particularly in crops like cotton. Therefore, according to the market demand, agriculture shift of staple crops to cash crops increases competition of more production between the farmers. But the Indian farmers do not cope in this economic environment. It also enhances the exploitation of the farmers by MNCs' through high seeds, pesticides, fertilisers, and oil and agriculture tools. This type of

structure affects the majority of farmers because of in India marginal and small land holdings farmers are around 80 percent (Kaur, 2015). On the other side, these Farmers have been buried for a long time under the debt of banks, artisans, and big landlords. This burden is growing every day. Government policies of cutting down in of agriculture subsidies and less minimum support prices are both sides exploitation of the farmers.

There is also a major problem of farming products' market. Although, when crops are destroyed by natural disaster, excessive rain and drought, then proper compensation of distraction is not given to farmers. In these situations when farmers run their house then they cannot pick up that much expenses because of government is also privatising necessary facilities, education or health care. Therefore, in the end, when there is no option left then farmer take steps toward suicide. Punjab also cannot escape from these problems. Ecologically and economically Punjab is now one of the worst affected states in the country. Since last few years, the agriculture sector has been going through a painful phase. Agriculture suffers from a mono-crop culture of mainly wheat and paddy (Kaur, 2015). With this cropping pattern, farming itself is becoming an unviable occupation, due to rising fixed and variable input costs, and little compensation leading to falling profit margins. The farmers who take land on lease for cultivation also have to bear the extra cost of rent of land. There is declining of crops production, and whitefly attack to cotton is worsening the conditions of farmers. Now day's agriculture is becoming increasingly difficult, and farmers have not any other alternative without farming. These conditions push them to take extreme steps of ending their lives. Punjab has started the problem of farmer suicides in the mid of 1980s. The main reason behind the farmer's suicides was the crisis in rural Punjab after the green revolution. In current scenario cases of farmer suicides has been increased in the numbers in Punjab especially in Mansa District. Suicide an action of dismissing ones' own life, or the „determined demolition of one's self-interest may happen for some reasons. Many socio-economic variables which contain high burden of debt, crop failure, expensive wedding ceremony, a decline in social status, drug addiction, health related problems, family disputes and quarrel with someone, etc. Therefore an issue of farmer suicides need attention.

Crop failure and farmers suicide are correlated variables where crop failure increase the economic burden on farmers and further lead to the ultimate step of suicide among farmers. The present study of the Mansa district of Punjab attempts to know the socio- economic status of cotton crop failure of farmers and to find the socio-economic causes for the higher incidence of suicides. Cotton is 3rd major crop in the state and second main crop in the Kharif season and an important cash crop of the south-western districts of the Punjab State. Cotton crop is sown mainly in 8 districts namely Sangrur, Barnala, Moga, Faridkot, Muktsar, Bathinda, Mansa and Ferozepur (Agriculture Department of Punjab, 2015-16).

Table 1.1: Area, Yield, Production and Minimum Support Price of Cotton in Punjab

Year	Area ha.) ('000'	Yield (kg/ha)	Production ('000' bales bales)	MSP (Rs. /q.)
2002-03	449	410	1083	1695
2003-04	452	556	1478	1725
2004-05	509	697	2087	1760
2005-06	557	731	2395	1760
2006-07	614	750	2709	1770
2007-08	604	663	2355	1950
2008-09	528	736	2286	2500
2009-10	509	668	2000	2500
2010-11	484	641	1826	2500
2011-12	516	535	1624	2800
2012-13	481	575	1027	3600
2013-14	446	570	1495	3700
2014-15	420	543	1342	3750
2015-16	339	197	393	4000

Source: Department of Agriculture, Agriculture Statistics, Punjab

Table 1.1 show the area, yield, production and minimum support price of cotton in Punjab from the year 2002-03 to 2015-16

Picture of Farmers' Suicide in the World

Farmer suicide is not only the problem of India but also reported in different parts of the world like Sri Lanka, USA, Canada, England, and Wales, etc. during the great depression of 1930s many farmers committed suicides in the United States of America (Eugene and Learner, 1971). Due to the mental depression caused by crisis and income loss of farmers in the 1980s many farmers in the United Kingdom driven to suicides. Many farmers committed suicides between 1979 and 1990 in the United Kingdom due to series of difficulties developed over a period in the agricultural sector (Kelly et al. 1995). Many Asian countries just like China, Malaysia, Pakistan, and Bangladesh have reported cases of farmer suicide. In Sri Lanka rate of the farmer, suicide was the highest particularly among the farming communities (Eddleston et.al.1998).

In current scenario in India, crop failure that further leads to the high burden of debt on farmers is the main causes of farmer suicides. Debt is insufficient of profitability from farming that causes incapability to repay the debt and further causes of the burden on farmers. Farmers' suicides in many states mainly Maharashtra, Andhra Pradesh, Kerala, Karnataka and even highly agricultural developed state Punjab has received the attention of media and government also.

The reports of farmer's suicides from various districts of Punjab, particularly Bathinda, Mansa, and Sangrur has become a serious issue. The current spate of farmers' suicides is caused basically due to their economic suffering rather than social and psychological reasons.

Magnitude of Problem and Causes of Suicides

There is no comprehensive study regarding the accurate estimation of farmer suicides in Punjab. It is tough to reach at the exact estimate of farmer suicides because of lack of reporting in the police stations for reach at the absolute magnitude of the problem. There is the increase in the suicides of farmers and agricultural labourers between the year of 1994 and 1997 (Bhalla et.al.1998). According to statistics from the Home Ministry of India across the India from 1995 to 2003, 9.26 lakh farmers were informed to have committed suicide. The main reason behind this

were a high burden of debt, crop failure, and other socio-economic and psychosomatic reasons (Nagthan et.al. 2007)

A study conducted by the Suri (2006), about the farmer's suicides analysed that 8900 farmers committed suicides between 2001 and 2006, in four states of India namely Andhra Pradesh, Karnataka, Kerala, and Maharashtra. In 2014, 12360 farmers committed suicide in India out of which NCRB divide the farmers into two categories, farmers and agricultural workers, in which 5,650 farmers and 6,710 agricultural workers were involved (NCRB, 2104).

A NGO activated in Southern Punjab 'Movement against State Repression' (MASR), has estimated 1,738 suicides in 91 Punjab villages between 1988 and 2014. These 91 villages are selected from two sub-divisions of District Sangrur in Punjab as one of the 22 districts of Punjab. According to MASR estimates at least 50,000 suicides have taken place all over the Punjab from the last two decades, even all districts are not equally affected. A farmers union, Bhartiya Kissan Union, also supported general estimation of MASR by estimating 90,000 suicides between 1990 and 2010, A State Government commissioned report by Punjab Agriculture University estimated 2,990 suicides in the two districts – 1256 in Bathinda and 1634 in Sangrur between 1990 and 2010 (Pathak, 2016).

In current scenario, due to cotton crop failure and drought in India, Maharashtra and Punjab has the highest number of cases of suicides by farmers. In a written reply to the Lok Sabha, Minister of State for Agriculture submitted the 'number of suicides committed by farmers due to agrarian reason, which said that as many as 1,690 cases were reported in 10 states during 2015. The maximum number of farmer suicide cases was reported in Maharashtra at 725, followed by Punjab at 449, Telangana 342, Karnataka 107 and Andhra Pradesh 58 (Hindustan times, 2016).

A study on farmer suicides conducted by Gill (2007) found out that all three regions of Punjab namely Malwa Majha and Doaba are facing the problem of farmer suicides. Many socio-economic factors were responsible for the farmers suicides, the new pattern of landholdings, policies of globalization and liberalization which cause pushed Indian agricultural in global market without a level playing field, growing cost of cultivation due to high cost of inputs, shifting to subsistence agricultural to commercial agriculture, variability in crop production market prices,

lack of proper price policy, unfavorable government policies regarding agriculture sector and decline in public investment in agricultural sector India.

Significance of the Study

Crop failure and farmer suicides in Punjab is a very sensitive issue because it affects the lives of farmers and their families economically and socially. Thus a survey of recent crop failure is required, which has played with many lives of the region. Due to lack of crop protection, the present issue has serious socio-economic implications. This study also would be helpful to know the consequences of a new crop insurance policy and other measures taken by the state government to compensate the affected farmers from crop failure. The present study attempts to deal with the socio-economic characteristics of farmer suicides due to cotton crop failure, a high debt of burden on farmers and lack of and effective crop insurance policy in Punjab.

Objectives of the Study

1. To study the socio-economic implications of cotton crop failure in the Mansa district of Punjab
2. To evaluate the implications of proposed crop insurance policy from cotton crop through benefit-cost analysis
3. To analyse the impact on cost and return of cotton crop with the help of sensitivity analysis
4. To suggest some policy implications for minimising the adverse impact of cotton crop failure on farmers.

Hypotheses

- Marginal and small farmers suffer economically more from cotton crop failure, as compared to the large farmers.
- Benefit-cost ratio of cotton crop cannot increase much with crop insured amount
- Returns of the cotton crop are more sensitive than the cost in different scenarios.

Plan of the Study

In order to achieve the objectives of the study, the study has been divided into six chapters including the present chapter. In the second chapter literature review of the related studies to the theme of the study is done. The third chapter describes methodology adopted for analysing the primary data and the study area. The fourth chapter explains the socio-economic characteristics of the farmers affected from cotton crop failure. The fifth chapter describes the economic analysis of crop failure and crop insurance policy in case of Mansa district of Punjab. The sixth chapter explains and summarises the study with suggestions.

Chapter II

Review of Literature

The present chapter is an attempt to discuss the literature review related to the subject of the study. It has focused socio-economic aspects of farmers' suicides in India and especially in Punjab. Implications of crop failure, indebtedness and role of crop insurance policy related with farmers' suicides reviewed on both India and Punjab level. The review of the literature has been discussed under three major sections i.e. implications of suicides at India level in Section I and at Punjab level in Section II and the role of crop insurance policy in India and Punjab in Section III.

Section I

Rahangdale (2016) examined the problem of farmers' suicides in India that conditions of the farmers from eastern and southern states are very negatively than other regions. These suicides in the late 1990s were very high in the specified area of the country. The public concern about the farmer's suicides that lead to compelling of the state governments just like and Maharashtra, Karnataka and Andhra Pradesh to establish the inquiry commissions on farmers' suicides. The databases that were based on data collected by Kissan Sabha, or small-scale surveys led by the investigation commissions. It finds leading causes of farmers suicides are Indebtedness, Crop failure, and little return, Illness of family members, Inability to arrange finance for the marriage of daughter, Lack of income earning opportunities from subsidiary occupations and Higher cost for boring wells. The study finds that condition of farmers in Indian farmer is very miserable because public investment in agriculture is decreasing. So there is a need to take the appropriate initiative in terms of trade of agriculture and farmers livelihood. The government should a comprehensive agricultural policy and Introduction of Bt cotton has happened together with a rise in yields and also possibly income in certain circumstances, even it has not lead to a whole abolition of the use of pesticides or been able to ward off farmers' suicides; therefore during a time of crisis, it could add to the farmer's risk and vulnerability.

Mitra and Shroff (2007) have discussed that how the loss of the competitiveness of the Indian cotton-growing farmers after the globalisation of India's agricultural sector in the mid-1990s was the leading cause for the growing incidence of farmers' suicides in the Maharashtra state of India. In the time of closed economy, farmers were only faced with yield risk and crop loss could at least be slightly remunerated by a rise in domestic prices. But in an open economy, crop failure may go together with by a decrease in the prevailing price in case of an increase in world supply. Therefore farmers cop with not only yield risk but also price risk in an open economy. Three main factors are responsible for the trouble of farmers - low yield showing to the lower liberalisation, lack of dynamism in cotton yield per hectare in a vibrant world and an enormous growth in costs of cultivation. One new reason primary to a rise in the cost of cultivation was the use of high Bt- Cotton seeds. The growing number of farmer suicides in Maharashtra had frequently been recognised to the extensive adoption of the area under Bt Cotton by the farmers. Above these factors made cotton farming uneconomic.

A study conducted by **Narasimhan (2006)** analysed the incidence of farmers' suicides together in relations of the structural point of view of the agricultural economy and speculative environments. The current destiny of suicides of farmers in many states, comprising Andhra Pradesh –a heartbreaking phenomenon, which had exposed rare symbols of abating in some part of the country, just like Vidarbha. The wave of suicides had highlighted the longstanding structural, institutional and systemic subjects that continue to cast their threatening effect on the rural economy. Agriculture recorded significant development, but the existence of extensive suicides did point to certain severe weaknesses. The growth rate in the agrarian sector had been slowing due to public investment had been slowing down in this sector, and terms of trade remained under pressure in agricultural. Loss of farmers' income from crop failures was a big problem. Crop failures frequently show the inconstancy of weather, and we also had the droughts and floods. Such inconstancy of weather had been the main reason for the trouble of production and subsequent loss of income to the farmers in India.

Kumari (2005) conducted a study on 165 respondents in Adilabad, Karimnagar, Nizamabad and Warangal districts of Northern Telangana Zone (NTZ) and pointed out that 142 farmers (81%) were indebted. On an average, the sample farmer in

NTZ was in debt for an amount of Rs. 16904 per hectare and Rs. 43444 per average size of a holding of 257 hectares. With regard to loan repayment, only 63 percent of the sample farmers were found to be regularly repaying the loan amounts, while 22.4 per cent failed to repay due to many reasons i.e. crop failure, low yields, lack of irrigation facilities and low market prices respectively as the primary reasons for non-repayment of loans.

Vyas (2004) in his study had noticed some changes in the Indian agriculture such as small farm character; shift of area from food grain to non-food grains, and within food grain from coarse 11 cereals to final cereals and their price policy; influenced by the spread of modern technology and relative prices of different inputs like fertilizers, insecticides, mechanical power and improved seeds purchase which claims a large share of farmers cash expenditure. He further added that the growing openness of the economy and the liberalising external trade policies which cause price fluctuations in the domestic market. Moreover, the small and marginal farmers in dry areas who had borrowed heavily to purchase inputs for what they thought were more remunerative crops. Within the high input and low output scenario, the result has been the failure to repay the loans. As most of these loans were concentrated through so-called non-formal sources, who could report to social pressures as much as coercive tactics, many self-respecting farmers have taken the extreme step of suicide to save face. On the whole, when there is nobody to listen to the helpless cry of the farmers and failure of mitigating risks for the poor led to farmer's suicides in Andhra Pradesh.

Rao (2004) made an attempt to examine the phenomenon of suicides of farmers in the country in the background of domestic and trade liberalization and in a macroeconomic perspective by studying the changes brought about in the cultivation of cotton crop and also study all the policies- agricultural, industrial, employment and social welfare and their impact on the farming community. The erstwhile prosperous state of Andhra Pradesh and Punjab recorded a significant number of suicides of farmers followed by Karnataka, Maharashtra, and Gujarat. The majority of the victims were from the small farmers, workforce age group and dry land cultivators and growers of cotton, a third of them are tenant-cum owner cultivators. Farm harvest prices had almost doubled in Andhra Pradesh, Punjab, Karnataka, and Gujarat in the first five years of the nineties. A large number of

farmers entered cotton cultivation when prices were increasing in anticipation of huge profits. Failure of chemical control, rising rental values of land, depleting ground water, the popularisation of hybrids, rising in money wages, hike in fertilizer prices, power, diesel and high interest rates contributed to the large increase in costs of cultivation. There is the crisis in the cultivation of cotton crop, and this seems to be net losers in the process of liberalisation. Crop failure and indebtedness emerged as the main and causative factors.

A study conducted by **Revathi (1998)** tried to find out the causes of farmers' suicides in Warangal district by conducting a study of 50 deceased farmers, which exhibited that main cause of the farmers 'suicides was irrigation, as wells were the main source of irrigation for around three-fourths of the farmers in Warangal district . Farmers had to bear the high cost for the digging of wells due to depletion of ground water the expense acquired for deepening of wells was on an average between Rs. 50,000 to Rs.1, 00,000. In the study, fifty percent of the farmers had stated finding loans for the upgrading of the well and about 20 percent cases experienced loan for digging wells in the previous four years. This study showed that 12 farmers committed suicides due to crop failure, debt burden and crop failure in the case of 21 farmers and debt burden, crop failure, and others causes of 17 farmers suicides. Crop failure was the basis reason which again was an accumulative consequence of failure and lack of irrigation as drought conditions, pest attack, deteriorating soil structure monoculture. Drought again was the consequence of short fall in average rainfall and deficiency of irrigation facilities. Lack of institutional credit sources was also a significant reason for this problem. Non-institutional sources of credit usually charged 15 percent to 20 percent greater price over the normal price.

Singh, (1998) in perspective about the reports on farmers 'suicides due to crop failure and the high burden of debt in various states of India through a study to examine the subject of agricultural credit noticed a serious issue. Through a survey of 115 households in six villages of three districts of Punjab during 1996-97, a study was founded on the estimations made from the data collected. The study exposed that land holding size had the solid and positive association with the relative share of loans and amount of credit. Marginal, small and medium farmers used credit for per acre capital requirement. No institutional agencies play the major role in fulfilling

their credit requirement of these farmers. Big farmers have relatively low cost of credit but comparatively high for the marginal and small farmers.

Section II

A study on Crop Failure, Indebtedness and Farmer Suicides in Punjab conducted by **Kaur et.al. (2016)** in Talwandi Sabo block of Bathinda district, Punjab. Recently, farmers of the Malwa region of this state are affected by the financial crisis due to the failure of the cotton crop. The present paper is an attempt to examine the intensity of indebtedness of randomly selected three villages Jagga Ramtirath, Natheha and Bhagwanpura of Talwandi Sabo block of Bathinda district. The survey finds out that 96 percent of the sampled farmers are indebted. 63 per cent debt has been borrowed from institutional while 37 percent from non-institutional sources. Respondents use institutional sources such as commercial banks and cooperative bank and no institutional sources like commission agents, landlord, relative and friends. Amongst all the non-institutional sources, commission agents (arhtiyas) are the most popular sources of credit. Out of the total non-institutional loan, 90 percent loan was taken from commission agents, only 5.15 per cent loan was taken from landlords and relatives or friends. The landless farmers full depend on the commission agents for borrowing loan while marginal farmers take 62.96 per cent of their loan from these agents. Regarding loan from institutional sources, 78.02 percent loan was taken from commercial banks, and remaining 21.98 per cent was taken from the cooperative bank. Out of the total debt, 61.67 per cent was found as 'productive' debt and 38.33 per cent as an 'unproductive' debt. The relative per hectare debt burden of marginal farmers was 16.36 times higher than that of large farmers. The low productivity of cotton is one of the major reason of the current problem. On the other side, the cost of the inputs has also increased considerably. Because of whitefly pest attack, farmers sprayed more times to control the pest attack which led to increasing the cost of pesticides. Due to the very less productivity and higher cost of production, net returns of a cotton crop are almost negative in surveyed villages. The farmers involved in 'leased in' land are severely affected as they bear a burden of the cost of production as well as rent. The study also shows that despite an additional income from 'leased in' activities, farmer's indebtedness considerably has increased due to a failure of the cotton crop. Therefore a reliable insurance policy for crops should be provided to every farmer. Relaxations should

be given in time of repayment instalments and securities for credit for marginal and landless farmers because these both categories of farmers have the lack of credit resources.

Bains (2007) analysed the farmers' suicides as a serious problem in the Southern Punjab. Although cotton belt of the southern Punjab was an agriculturally better area than the respite of the state and even the numbers of farmers' suicides was more there. Indebtedness considers as the key factors driving farmers to commit suicide. It is the outcome of two factors. First, low yields of cotton crop and therefore farmers are not receiving sufficient income to meet his requirements and to repay the debt amount. Moreover, farmers have a tendency to over - borrow and utilise it for unproductive purposes other than agriculture. He perceived that while the farmer was incapable of paying bank loans, he borrow from village moneylenders at the inflated rate of interest. He suggested that macro measures for growing productivity with especially importance on small farmers and other characteristics for rural development should go on and farmers' suicides need to be examined and dealt with at micro level. Machinery had to be established for the agriculture sector and the rural sector on the similar lines as the debt recovery tribunals where the borrower get certain immediate help as also a chance to put advancing his case and be heard at the individual level.

The study conducted by **Kumar and Sharma (2006)** was apportioned by the Punjab State Farmers Commission (PSFC). The objective of this study was to find out the nature, extent, and causes of suicides in rural Punjab and recommended a plan of action for fighting the problem of farmers suicides, according to this study which was accompanying in Faridkot, Bathinda, Amritsar, Mansa, Sangrur and Jalandhar and 24 villages of the state, 40 percent of the farmers' suicide victims were from on-farming occupations such as business, service or labour, 48 percent of them were daily drinkers and 20 percent of the total victims were alcoholics. The main conceivable reason of farmers' suicide indicated by the family members were the high burden of debt, family discords, drug abuse and psychological tension. A study conducted by Gill and Singh (2006) exposed that Sangrur and Mansa were the two districts which stated the record incidents of farmers' suicides. Sangrur and Mansa are the relatively backwards and poorer districts of Punjab. In these two districts, the percentage of cultivators who committed suicide was considerable more than

agriculture labourers. Amongst the cultivators, small and marginal farmers who reported the maximum numeral of suicides. 55 farmers committed suicides In Mansa district where Sangrur district 66.66 percent. Percentage of agriculture labourers" households was 33.33 in Sangrur district and 45 in Mansa district. The agricultural crisis in the form of suicides had reached very dangerous stages in Punjab. In these two districts suicides were credited to a number of causes, ranging from poverty to crop failure, high burden of debt, marital dispute and drunkenness, domestic dispute, etc. But according to the view of authors, it was primarily due to economic crisis

A study on farmer suicides conducted by **Gill, S. S. (2007)** find out that all three regions of Punjab namely Malwa Majha and Doaba are facing the problem of farmer suicides especially among poor peasants and agricultural labourers. But three district namely Sangrur, Bathinda, and Mansa district of Malwa region of Punjab mostly effected area. Main reason behind these case is high burden of debt on farmers and economic crisis in rural economy

An attempt has been made by **Preet (2005)** in his study, examined main parts of districts Sangrur, Mansa, Bathinda, Faridkot and Muktsar. The agricultural exercise of wheat, paddy and cotton rotation in this region had played devastation. While paddy is water intensive crop but cotton crop had been a failure because of pest attack (bollworm attack). The high prices of pesticides and their unsuccessfulness could not withstand cotton. The deteriorating water table, farmers reliant on diesel for submersible pumps and bad quality of water in this region made paddy also unsustainable. The increasing costs of living assisted and supported by consumerist culture, which had occupied into sweep level the rural Punjab, made agriculture an uneconomical profession. The extensive dependence on drugs, incapability to repayment loans taken for unproductive expenses just like marriages and tractors had initiated a flood of suicides in this region.

A study taken by the **Gill (2004)**, surveyed the incomes of the small and marginal farmers had deteriorated unequally in the cotton belt of Sangrur, Mansa and Bathinda districts. Faced with growing debts, decreasing produces and rising cost of production, the poor farmers" destiny turn out to be depressed. This causes of farmers suicides from mid- the 1980s. Cases of farmers 'suicides were largely concerted in Sangrur, Mansa, and Bathinda, however, some case of suicides of

farmers were informed from the other districts of the state. Many farmers under indebtedness committed suicides, many deceased due to lack of medical treatment due to not having money, and about half the land of the village had been seized by money lenders. The average debt per farmer ranges Rs. 46 lakh. The writer detected that in the lack of a structured farmer's movement, the farmers turn into isolated, upset and started committing suicides and the state government was well well-versed about it, but no step was taken to curb this problem and farmers' suicides under social and under economic distress continued.

An attempt has been made by **Bose (2000)** which discloses that most incidents of farmers, suicides were stated in the Mansa district of Punjab as relatively backwards and poorer district of Punjab. The farmers of Mansa district committed suicides because they could not abolish the cotton pest attack on cotton crop. There was a passion in the Punjab farmers to having tractors because the tractor was a status symbol. It was irrelevant whether the farmer necessary a tractor for say, his five-acre land. He takes a loan from a cooperative and scheduled bank. A tractor costs whatever between Rs.2, 75, 000 to Rs.3, 50,000. But at the end of one year, he had to pay back the first instalment of the loan along with interest. The pesticides flop to counter American pests and in consequence cotton crop failed and cotton crop failure in next year too and got more debts both from the artiya and bank. The writer finds that the future of the farmers was miserable and debts would mound up and the loss of respect anxious the farmer most. To get rid of the anxious he found it better to put up commits suicide.

Section III

A study conducted by **Narasimha Murthy (1960)** described that Crop Insurance programme was started in 1939 with two goals, first to enhance the organising capability of farmers for mutual help and second to withstand the influence if yield variations. With the help of Japanese Crop Insurance policy, the country concludes that Crop Insurance helps as a 'beacon light' to many Asian countries which are involved in modernising agriculture. Compulsory subsidisation and the incorporation of Crop Insurance with the rural credit. Features which are described in Japanese Crop Insurance programme could be integrated into a Crop Insurance policy under Indian circumstances.

A report was given by **Ray (2013)** explained that Crop Insurance is a significant connection in the chain of packages required for the stabilisation the income of the agricultural sector. To provide a minimum security to farmers at the production stage, several countries are looking the crop insurance as an instrument in order to guarantee their well-being and welfare contrary to the risk of crop failure due to natural hazards and weather, thus offering the farmers an incentive for an ongoing increase in the production of necessary food and crops.

Das (2013) recommended that there is need of more effort to be done as far as the penetration of agricultural insurance is concerned. Because the role of agricultural in the Indian economy is dropping, therefore need to more area should be covered under agriculture, but also more farmers should be taken into its fold. To achieve this objective, efforts should be taken to improve the level of awareness about insurance among the farmers. The role of financial literacy is neglected here so there is need of emphasised on the financial literacy that the farmers should be made to understand that agriculture is not a 'fatalistic' venture which left to god, rather the risks should be mitigated. Proper and timely full settlement of claims in the case of eligible claimants would pervade self confidence in the farmers.

Kumar et.al. (2003) conducted a study in Wayanad district of Kerala of crop insurance of banana farmers that analytically investigative its rates and the difficulties faced in its implementation. The crop of Banana cultivation occurs to be the largest crop covered under the State Crop Insurance Scheme in Kerala. Kerala have about 48 percent of the total indemnity has given to the banana crop in the state, according to the Directorate of Agriculture. Lack of financial viability of scheme caused a heavy burden to the government, higher premium rate, bulky administrative processes and financial struggle to pay the premium at the pre gestation phases of cultivation were the major drawbacks of the scheme. Credit facility should be linked with crop insurance programme.

A study conducted by **Mohapatra and Dhaliwal (2014)** tried to explain the origin of agricultural insurance in India macroscopically and reviews many agricultural schemes working microscopically in Punjab. Descriptive research design used for study the role of crop insurance policies in Punjab. Functional agricultural insurance schemes were studied microscopic level in Punjab and macroscopically in India. Study explain that Punjab had not been needed of crop insurance in the time of

green revolution because this era was free from any production risk. But after the era of green revolution, many types of risk were faced by the farmers of Punjab. Due to the stagnation of paddy-wheat rotation, declining ground water table and climatic variability cause many risks to the economy of the Punjab. To overcome these problems diversification needed which involve risk in production which can be mitigated by crop insurance mechanism to inspire the farmers to go for high-value crop production. This is the time to spread awareness among farmers about the risk involved in agriculture in shifting from the paddy-wheat rotation and climatic variability. Therefore crop insurance play vital role as an inspiration for the farmers of Punjab to drive for diversification by insuring themselves free from the risks and the loss of farming income. There is need of a strong policy that should be implemented with well-defined risk to Punjab's agriculture.

Research Gap

Thus there are many studies on socio- economic status of farmers done on crop failure for India in general and Punjab in specific. The present study covers the socio- economic status of farmers in Mansa districts of Punjab. The study tries to analyse the economic impact of cotton crop failure and role of crop insurance policy in Mansa district. Thus this study attempts to find causes for the same, with the implications of enlightening the status of farmers and crop insurance in the area of the study.

Chapter III

Study Area and Methodology

In order to find out the socio-economic implications of cotton crop failure and indebtedness on farmers' suicides, so as to achieve the objectives of the study. This chapter deals with the selection of the area, sample, methods of data collection and analytical techniques used for the analysing of the data. The present research is based on both the primary and secondary data.

Table 3.1: Sample Size of Farmers (Block and Village Wise)

Sr. No.	Block Name	No. of Village	No. of Crop Failure Farmers	No. of Farmers' Suicides out of crop failure Farmers
1	Bhikhi	4	18	6
2	Budhladha	3	4	3
3	Jhunir	6	12	5
4	Mansa	6	30	9
5	Sardulgargh	5	17	8
Total		24	81	31

Source: Field Survey

The study was carried out in the Mansa District. However, the study area was confined to those villages where the farmer's committed suicides due to cotton crop failure in 2015-16. 81 farmers from 24 villages were surveyed from five blocks of Mansa district. Where 30 farmers were surveyed from Mansa block, out of which nine farmers were those who has committed suicide, 17 from Sardulgargh block, out of which eight farmers were those who has committed suicide, 18 from Bhikhi block, out of which six farmers were those who has committed suicide, 12 from Jhunir block, out of which five farmers were those who has committed suicide and 12 from Budhladha block, out of which three farmers were those who has committed suicide.

METHODOLOGY

Multistage sampling technique was used to select the sample for the present study.

Selection of district

Out of the total number of 22 districts in Punjab, Oilseeds Cotton crop is sown mainly in nine districts namely Sangrur, Barnala, Moga, Faridkot, Muktsar, Bathinda, Mansa, Fazilka and Ferozepur are located in the Malwa region of Punjab. These nine districts are major cotton producing districts of Punjab and comprise the cotton Belt of Punjab. Among these districts, Bathinda district has the maximum area under cotton cultivation of (140 thousand hectares). Fazilka (96 thousand hectares) and Mansa (85 thousand hectares) having second and third position respectively (Statistical Abstract of Punjab, 2014). Purposively, Mansa district has been selected for the study because this district is very sensitive to crop failure as many farmers committed suicides.

Mansa District

Mansa is the smallest district both in terms of population and area wise. On 13th April 1992 Mansa was declared as district from the east while district of Bathinda. This district is surrounded by Bathinda district in North West, by Sangrur District in the east and by Sirsa District of Haryana State in the South. Mansa district is divided into three Sub Divisions namely Mansa, Budhladha, and Sardulgargh. There are five Blocks and 243 villages having 244 Gram Panchayats. The total geographical area is 216,000 hectare. The total population of the district was 768,808 amounting to 2.83 percent of Punjab state according to the census 2011. The number of woman per thousand men were 880. As per 2011 census, 78.75 percent population of Mansa districts lives in rural areas of villages. The literacy rate is 61.83 percent. Regarding the literacy, the urban population was 75.47 percent literate, whereas literacy rate in the rural area was 57.72 the no of farming families in this district are 42381. Out of which 4048 are marginal, 5548 are small, 13825 are semi medium, 15158 are medium, and 3793 are larger. Holding is larger as 4.43 ha as compare to 4.03 in Punjab. The major area is under agriculture crops i.e. 92 percent. Horticulture, fodder and forest occupy 1 percent, 5 percent and 1.5 percent respectively. The prominent cropping system is Cotton. Wheat, Cotton, and Rice are major crops which occupy 45 percent, 26 percent and 18 percent area of gross

cropped area. Whereas Moog, Gauara, Groundnut, Barley and Oil seeds are the minor crops which are grown under 3 percent area. The cropping intensity is 189 percent (Agricultural Department of Punjab, 2014-15).

Selection of Blocks and Villages

In this study blocks and villages are selected purposively where the cases of farmers' suicides happens in the Mansa district with the help of newspapers and list provided by a Kissan union activated in this area.

Selection of Farmers

A sample of 81 farmers selected in which 31 farmers' suicide cases are selected purposively and remaining 50 farmers suffered from cotton crop failure are selected randomly, at least one farmer from the same village where farmer has committed suicides. The farmers are divided into following five groups as per NABARD, 2014 classification.

Table3.2: Classification of Farmer according to Size of Land Holding

Category of Farmers	Size of Landholdings
Marginal Farmers	Below 1 hectare
Small Farmers	1 to 2 hectares
Semi-medium	2 to 4 hectares
Medium Farmers	4 to 10 hectares
Large Farmers	10 hectares and above
Landless Farmer #	Having no land ownership of land

Source: NABARD (2014)

Note: Farmer has no land ownership but has 'leased in' land known as landless farmers.

Landless farmer category is not defined by the NABARD, but use in the study for those farmers has no land ownership but have 'leased in' land.

The selected farmers were categorised into five categories on the basis of the size of land holdings. In the study, another category of a farmer by class wise is Landless Farmers is mentioned. That farmer has no land ownership but has 'leased in' land known as landless farmers.

Data Collection

All the farmers have sown American cotton (Bt cotton). Therefore all the data is related to the production of Bt cotton.

Keeping in mind the set of designed objectives, the study is based on survey method to find out the socio- economic status of farmers in Mansa districts of Punjab. The data for the study will be primarily collected through Primary Data, but secondary data has also been used.

The methodological technique of primary data collection comprises methodologies available in any social scientific work. The objective of field visit was to collect primary data about the socio-economic condition of certain suicide victims and detect the geographical structures of selected region. During the pilot survey, many parts which were not suitable for the survey due to lack of data and information. These parts of the schedule are eliminated at the time of main survey. The primary data was collected from the sample respondents through personal interview method pertaining to demographic information regarding the farmers, particulars of landholdings, cotton crop inputs used, amount of debt from different purpose and sources, causes and impact of crop failure, role of crop insurance policy and social –political struggle by farmers were asked from farmers. In the case of farmers, suicides were asked questions related to their age, education, methods of suicides and financial status etc. The secondary data related to farmers' suicides and area, productivity etc. in Punjab, was collected from the Statistical abstract of Punjab (Various issues), Economic Survey 2015-16, Department of Agriculture, and official website of Mansa district for the different time periods.

Data Analysis

The collected data was analyzed and interpreted by using the statistical techniques like average mean, percentage etc.

Benefit-Cost Analysis

The benefit-cost analysis also named as Cost–Benefit Analysis is a methodical approach. It shows a systematic technique for comparing cost and benefits decision of a project. Mainly benefit-cost analysis has two objectives first is to determine the investment decision and second is to compare the cost and return of two projects. In this study, benefit-cost analysis is used to compare the benefit cost ratio of in

different economic scenario. Benefit-cost ratio is calculated for the normal year and failure year of cotton crop production with and without crop proposed crop insurance policy.

Sensitivity Analysis

A sensitivity analysis is used to determine how the uncertainty in the output of a model can be assigned to different sources of uncertainty in its inputs. In other words, how different values of an independent variable influence a specific dependent variable under the specified set of assumptions. The procedure of recalculating results under alternative assumptions to conclude the influence of a variable under sensitivity analysis can be useful for many purposes, for example, testing the strength of the outcomes of a model in the existence of uncertainty, Better understanding of the relationships between input and output variables in the model and to reduce the uncertainty by the identification of inputs that cause important uncertainty in the output and should therefore be the emphasis in order to raise strength of the model. In this study to identify the extent of vulnerability of farmers to shockwaves and stresses experienced in cotton farming, a Sensitivity analysis was used. The net return and the Benefit-Cost Ratios were worked out under the different conditions as the cost was increased by 5 percent and 10 per cent keeping the returns constant, and then the returns were decreased by 5 percent and 10 percent keeping the cost constant, and accordingly the B-C ratio and Net Return were worked out.

Limitations of the Study:

The foremost limitation of the study is about the selection of the sample area because the study is related to the current scenario of cotton crop failure and farmers' suicide and lack of authentic record of farmers, suicide, study has to depend on the list provided by the Kissan union and newspapers. The finding of this study does not become valid to other parts of the country because every region is has different difficulties and different solutions required to solve these problems. The study is based on information obtained from 81 farmers. Information from the sample farmers and labourers is based upon the memory and the experience as generally the farmer does not retain records about their farming activities. Hence, various conclusions are drawn, and the explanation of various problems have been based

on their behaviour. However, every effort is made to get precise information. It is, of course, is never very easy to get at the objective reality but in the present study; it is even more problematic because of the extremely subjective nature of the problem of the study and the suicide victim being no more present to be studied. Under the conditions, we have to help not only to cross-check the information with numerous sources.

Chapter IV

Socio-Economic Implications of Cotton Crop Failure in the Mansa District of Punjab

Crop failure is a common phenomenon in India. Cotton crop failure in the Malwa region of Punjab driven the farmers to commit suicide. The reports of farmer's suicides from various districts, particularly Bathinda, Mansa, and Sangrur has become a serious issue. The current spate of farmers' suicides is caused basically due to economic suffering rather than social and psychological reasons.

Table 4.1: Distribution of Selected Farmers in Mansa District

Sr. No.	Block Name	No. of Village	No. of farmers suffered from cotton failure	Suicide victims
1	Bhikhi	4	18	6
2	Budhladha	3	4	3
3	Jhunir	6	12	5
4	Mansa	6	30	9
5	Sardulgargh	5	17	8
Total		24	81	31

Source: Field Survey

Cotton crop failure in the Malwa region of Punjab driven the farmers to commit suicide. To find out the consequences are responsible for farmer suicides a sample survey of Mansa district is conducted. In survey 81 farmers including 31 respondent the family member's suicide victim and also 50 suffered from cotton crop failure. All the blocks of Mansa district surveyed namely, Bhikhi, Budhladha, Jhunir, Mansa, and Sardulgargh.

Socio-Economic Characteristics of Farmer

In this study, a sample survey of 81 farmers is taken in the all blocks of the Mansa district. The age of cotton crop failure farmers is shown in Table 4.2. 2.47 percent of farmer's victims lie in the age group up to 20 years. 17.28 percent lies between the age group 21-30 years, and 27.16 percent victims lie in age group 31 to 40 years. 53.08 percent victims were above 40 years. The average age of all farmers is 33.02 years depicting that most of the farmers belong to most productive age.

Table 4.2: Age-Wise Distribution of Farmers

(Figures in parentheses indicates percentage)

Age of farmers	No. of farmers	Mean age
0-20	2 (2.47)	17
21-30	14 (17.28)	28.43
31-40	22 (27.16)	35.64
Above 40	43 (53.08)	51.02
Total	81 (100)	33.02

Source: Field Survey

Note: Table also include the information about 31 farmers suicide victims.

Educational Status of the Farmers

The level of literacy of the cotton crop failure farmers is low. It was observed that 54.32 percent victims did not have any formal education and another 9.88 percent had primary education. 14.81 percent victims had up to the middle education, 12.35 percent up to matriculation and 7.41 percent had a higher secondary education. Only 1.23 percent hold a diploma in vocational education.

Table 4.3: Education Level of Farmers

(Figure in parenthesis show in percentage)

Educational Attainment	No. of farmers
No Education #	44 (54.32)
Primary	8 (9.88)
Middle	12 (14.81)
Matric	10 (12.35)
Higher Secondary	6 (7.41)
Diploma /Degree	1 (1.23)
Total	81 (100)

Source: Field Survey

#Note: Respondent cannot read and write in regional language

Farm size- wise Distribution of Farmers

Table 4.4 shows the distribution of cotton crop failure farmer's by class of farmers. 16.05 percent of the farmers belonged to the marginal farmer category, their average size of holdings was only 0.46 hectares which highlight the economic position of such families on their capacity to cope with economic distress due to crop failure, low income, and growing social expenditure. 44.44 percent farmers came from small farm size, whose average size of holdings was 1.29 hectares. Both semi medium and medium farmer class had the 18.52 percent and 9.88 percent share in all farmers with having 2.25 hectare and 3.58-hectare size of land holding respectively.

Table 4.4: Farm size- wise Distribution of Farmers

(Figure in parenthesis show in percentage)

Class of farmers	Number of farmer (%)	Average size of holdings (ha.)
Marginal Farmers	13 (16.05)	0.46
Small Farmers	36 (44.44)	1.29
Semi Medium Farmers	15 (18.52)	2.25
Medium Farmers	8 (9.88)	3.58
Large Farmers	5 (6.17)	5.99
Landless farmers	4 (4.94)	0
Total	81 (100)	2.70

Source: Field Survey

Note# Total number of cotton crop failure farmers are 81, but 77 farmers have land ownership, and four are landless and have 'leased in' land

However, a small proportion of large farmers category having 6.17 percent share with having the 5.99-hectare average size of land, where 4.94 farmers have no land. Small and marginal farmers have 60.49 percent share in total farmers. A study conducted about farmer suicides in rural areas of Punjab find that districts of Malwa region namely Sangrur, Bathinda, Ferozepur, Mansa, and Faridkot are mostly affected.

‘Leased in’ and ‘Leased out’ Land Activities

Landless people who found it difficult to get employment, involved in ‘leased in’ land. Out of the 81 farmers, 49 had ‘leased in’ land to supplement their operational holdings.

Table 4.5: ‘Leased in’ Land Activities

Lease activities	‘Leased in’ land		
Category of farmers	No. of farmers	Ha.	Avg.
Landless farmers	4	16.57	4.14
Marginal Farmers	11	16.12	1.47
Small Farmers	20	35.53	1.78
Semi Medium Farmers	9	13.87	1.54
Medium Farmers	3	13.76	4.59
Large Farmers	2	6.07	3.04
Total	49	101.92	2.76

Source: Field Survey

It is found that 11 marginal farmers had taken land on lease 16.12 hectares on lease, 20 small farmers had 35.53 ha. And nine semi medium farmer had 13.87 ha. Three medium farmers had 13.76, while two large farmers had 6.07 hectare land on lease. Moreover, four landless farmers involved in 16.57 hectares of land. No one farmer ‘leased out’ the land. The farmers who ‘leased in’ land were severely affected due to the failure of the cotton crop. They already paid high rent per acre for one year. So they take loan advance from landlords and commission agents for the payment of rent in advance to the landowners. Landlords and commission agents charged a high rate of interest on borrowers and borrowed sum is to be repaid after harvest. However, the net return was negative in case of the cotton crop, so farmers were unable to pay high back the borrowed sum with interest. As a result, they got trapped into debt due to the burden of the cost of production and rent. Despite additional income from ‘leased in’ activities, farmer’s indebtedness considerably increased due to the failure of the cotton crop. Because of the crop failure farmer could never again be able to recoup the loss unless they sell off his landed property.

The Returns of the Cotton Crop

Table 4.6 indicates the returns of the cotton crop of victim's family. The cotton yield was found 3.14 quintals per hectare which is much less than last year yield. Not only the productivity of cotton has declined, but the cost of inputs has increased considerably. Because of whitefly pest attack, farmers sprayed pesticides several times to control them leading to higher cost of production. Per hectare average cost of production was found to be Rs 78083.88.

Table 4.6: Returns of Cotton Crop (Rs.)

Yield/per/ha	Price/qu.	Total ha.	Gross return per/ha.	Cost/ha.	Net Returns per ha.
3.14	4161.23	221.83	13066.28	78083.88	-65017.6

Source: Field Survey

However, farmers claimed that they did not get adequate price for cotton. The market price of cotton remained the same as in the previous year, i.e. Rs. 4161.23 /- per quintal. The Minimum Support Price (MSP) of cotton in the financial year 2014-15 was Rs. 3750 per quintal to Rs. 4050 per quintal and for the financial year 201516, it was Rs.3800 per quintal to Rs.4100 per quintal (Ministry of Agriculture and Farmers Welfare, 2015). Thus, no significant increase in the MSP of cotton occurred in 201516 over 2014-15. Due to very low productivity and higher cost of production, the net returns of the cotton crops were found negative.

Burden of Debt

The average debt per household was Rs. 493,062.5/- It was the lowest for large farm size (Rs. 2130000/-) followed by landless farmers (Rs. 2,730,000/-), medium farmers (Rs. 4,595,000/-), semi-medium farmers (Rs. 8,210,000/-) and marginal farmers (Rs. 5,995,000/-) and the highest per household debt with small farmers (Rs. 15,785,000/). The relationship between the amount of debt per hectare and size of the farm is inverse as the marginal, semi medium and small farmers have higher debt amount as compared to the large farmers. This indicates that the marginal, and small farmers are in more critical position. Also, the landless farmer, who does not own land, bears more burdens in real terms.

Table 4.7(a): Percentage of Indebted Households

(Figures in parenthesis show in percentage)

Category	Indebtedness household	Amount of debt Rs. in lakh	Amount of debt/ha./Rs. in lakhs
Marginal farmers	13 (100)	59.95	9.94
Small farmers	30 (100)	15.78	3.39
medium farmers	15 (100)	82.10	2.42
Medium farmers	8 (75)	45.95	1.57
Large farmers	4 (100)	21.30	0.71
Landless farmers	4 (100)	27.30	—
Average	80 (98.77)	4.93	3.61

Source: Field Survey

Note: * Per hectare debt amount of landless farmers is excluded from the overall average per hectare debt amount.

Purpose Wise Credit among Farmers

Table 4.7(b) shows the details of credit taken by the farmers. The spending amount on bore well, other agricultural purposes like the purchasing of farm input machinery, etc. and livestock is to consider as productive credit. Whereas the expenditure on education, repayment of old debt, houses, marriage, health are known as unproductive credit (Gill, 2010). Large farmers have the highest share for housing credit with 28.17 percent and marriage (18.78) respectively. The share of small farmers is highest in total credit with found 40 percent, followed by the semi medium farmers and marginal farmer with 20.81 percent and 15.20 percent respectively. Medium and landless farmers have only 11.65 percent and 6.92 percent share in total credit respectively.

Table 4.7 (b): Purpose Wise Credit among Farmers

(Figures in parenthesis show the amount in lakhs)

Farmer Category	Unproductive purpose				Productive Purpose		Total
	Health	Marriage	Consumption	House	Live stock	Agriculture	
Marginal farmers	8.34 (5.00)	6.67 (4.00)	8.34 (5.00)	–	0.83 (0.50)	75.81 (45.45)	15.20 (59.95)
Small farmers	10.96 (17.30)	7.10 (11.20)	2.81 (4.45)	2.85 (4.50)		76.27 (120.40)	40.00 (157.80)
Semi medium Farmers	13.4 (11.00)	2.44 (2.00)	15.83 (13.00)	–	–	68.33 (56.10)	20.81 (82.10)
Medium farmers	2.18 (1.00)	3.81 (17.50)	–	17.41 (8.00)	–	76.61 (35.20)	11.65 (45.95)
Large farmers	–	18.78 (4.00)	–	28.17 (6.00)	–	53.05 (11.30)	5.40 (21.30)
Landless farmers	–	–	–	–		100 (27.30)	6.92 (27.30)
Grand total	8.70 (34.30)	5.82 (22.95)	5.69 (22.45)	4.69 (18.50)	0.13 (0.50)	74.98 (295.75)	100 (394.45)

Source: Field Survey

The largest share (74.98) of total credit goes to the productive agriculture activities, followed by the unproductive health purpose about 8 percent in total credit. Marginal, small and semi medium farmers are more indebted comparatively the large farmer's class.

Source Wise Credit among Farmers

Enormous development has taken place in government and commercial formal institutions in India as well as in Punjab, yet there is a significant role of not-institution financial sources just like agent commission, money lender, landlord, friends/relative and other (traders, etc.) who charge a high rate of interest relatively

the prevailed in the market. Institutional credit carries 53.16 percent share in total credit amount with having large share 89.20 percent of large farmer in institutional credit. Commercial banks have 39.85 percent share in total credit with having largest share of large farmer class 70.42 percent. Cooperative banks also provide 13.81 credit in total credit with the largest share of small farmers 27.56.

Table 4.7 (c): Source Wise Credit among Farmers

(Figures in parenthesis show the amount in lakhs)

Source of Credit/Farmer Category	Marginal farmers	Small farmers	Semi medium farmers	Medium farmers	Large farmers	Landless farmers	Total
Institutional sources	22.25 (13.35)	65.16 (102.65)	51.76 (42.50)	70.07 (32.20)	89.2 (19.00)	–	53.16 (209.70)
Commercial banks	22.25 (13.35)	37.60 (59.25)	46.16 (37.90)	66.81 (30.70)	70.42 (15.00)	–	39.85 (157.20)
Cooperative banks	–	27.56 (43.40)	5.60 (4.60)	3.26 (1.50)	18.78 (4.00)	–	13.81 (54.50)
Non institutional sources	77.75 (46.65)	34.75 (54.85)	48.23 (39.60)	29.93 (13.75)	10.80 (2.30)	100 (27.30)	46.74 (184.37)
Agent commission	15.58 (9.35)	11.55 (18.20)	–	–	–	3.66 (1.00)	7.23 (28.52)
Money lender	30 (18.00)	11.88 (18.75)	26.18 (21.49)	19.04 (8.75)		52.38 (14.30)	20.86 (82.29)
Landlord	22.17 (13.30)		18.40 (15.11)	–	–	–	7.20 (28.41)
Relative/Friends		5.77 (9.10)	–	–	–	7.33 (2.00)	2.81 (11.10)
Other	10 (6.00)	5.58 (8.80)	3.65 (3.00)	10.88 (5.00)	–	36.63 (10.00)	8.31 (32.80)
Grand total	15.21 (60.00)	39.82 (157.5)	20.70 (82.1)	11.56 (45.95)	5.34 (21.3)	6.83 (27.3)	394.45

Source: Field Survey

This data analysis show that largest farmer category gets credit from commercial banks at market rate, therefore no economic exploitation of large farmers but small farmers have low access for credit from commercial banks due to lack of security assets. On the other side non institutional sources also have major role in providing credit to farmers with having 46.74 percent share in total credit. Money lenders have

highest share 20.86 percent followed by the others (traders), commission agent, landlords and relative/friends with share 8.31 percent, 7.23 percent, 7.20 percent and 2.81 percent respectively. Where landless farmer highest share in non-institutional credit of 100 percent due to lack of security sources for credit from institutional sources. Marginal farmers have highest share 15.58 percent from agent commission and landless farmers have highest rank with 52.38 percent in case of money lender. Marginal farmer get maximum 22.17 percent credit from landlord and Landless farmers receive 7.33 percent and 36.63 percent credit from relative/friends and other sources respectively.

Failure of Institution and Government Agencies

Many claims were made by Punjab agricultural university and other government agencies that they warned the farmer about the pest attack on cotton crop, but farmers have ignored their instructions. News from the leading newspapers in Punjab lack of information gap was found between leading agriculture research institute in Punjab. 'Punjab Agriculture university', other government agencies and farmers. And marketing of spurious pesticides in Punjab with the involvement of some senior official officer was also highlighted by media, Kissan unions and political parties in Punjab. In this study farmers also point out that in the case of cotton crop failure spurious pesticides play the main role.

Suicide Methods Used by Victims

Suicides were committed by various methods, but the most common methods were by consuming pesticides, which are freely available in every farm household in Punjab.

Table 4.8: Methods of Suicides

Methods of suicide	No. of victims	Percentage
Consume pesticides	16	51.61
Hanging	12	38.71
Jumping into canal	2	6.45
Jumping before the train	1	3.23
Total	31	100

Source: Field Survey

51.61 percent of the farmers committed suicides through this method, followed by hanging (38.71 %) and jumping into the canal (6.45 %) and jumping before the train (3.23%).

Demand of Suicide Victims' Families

Financial or social support for the of victim's families was found to be missing. Families were suffering from poverty, education facilities and access to health and looking for livelihood and financial support from the state. Only a few social organizations were making efforts in their rehabilitation, but the effort was insufficient in opposition to a large number of suicides and no state support. Families were found to be struggling for survival and demanded various services and facilities for their cure.

Table 4.9: Demand of Victim Families

(Values in parenthesis are in percentage)

Details	No. of victim families
Direct financial support	19 (61.29)
Job for family member	3 (9.68)
Free education for children	5 (16.13)
Solution for non- institutional loans	2 (6.46)
Relinquish- off institutional loans	2 (6.46)

Source: Field Survey

Most measures varied from direct one-time financial help to long-term provision for a livelihood with capacity building of surviving members to secure living in future. 61.29% of the families wanted one-time financial support to reduce the burden of economic adversity. The 9.68 percent of the families sought a job for one of the surviving members to earn a living. Free education for the children was also sought in case of 16.13 percent. Since the debt was the primary reason for committing

suicides, the relief from institutional and non-institutional debt was also demanded by a large number of families. Though the loan for small and marginal farmers were waived off by the Government of India in the year 2008, but it was the default only which was waived off, and the benefit of this waiver to the Punjab farmers was very small due to better recovery and a large proportion of loans by small holders taken from no institutional sources. Although the Government of Punjab also announced monetary support of Rs 2 lakh to the families of suicide victims in April 2009, the money has not been disbursed as yet (Sidhu et al. 2015). Therefore 6.46 % farmers want a solution for the no institutional and institutional loans.

Compensation for the Families of Farmer Suicides

For the financial help of the families of farmer suicides, Punjab government is giving compensation to each family 300000. But the lack of information and complicated procedure of the government agencies only 6.45 percentage farmer received the compensation while 93.55 percentage of families is still waiting for the compensation.

Role of Kissan Union and Media during the Crisis

The Kissan Union is a group of voluntary farmers may or may not be recognised by the government that works for the welfare of the farmers and labourers. From the last two decades, the cost of production increased continuously and income of the farmer remain stagnant. Farmers of Punjab are took credit from many agencies and unable to pay the loans due to low income from the agriculture. Thus these agencies started to acquire that land of the farmer which was used for the security purpose for credit. Therefore, there was a contradiction between the farmers and these credit agencies that lead to an organisation of some farmer's groups to stop acquire the land of the farmer from these credit agencies given the birth to the Kissan unions in Punjab. Kissan unions in Punjab came in mid of the 1990s when the farmers of Punjab come under a group for to lift up their voice against the anti-farmers activities of the government and started to raise their voice to solve the problems of the farmers. These unions also have a lot of ideas and information regarding the problems of farmers. Name of Some Kissan unions in Punjab are Bhartiya Kissan Union extra (Ugaraha), Bhartiya Kissan Union (Dakunda), Bhartiya Kissan Union (Lakhowal). To fulfill the expenditure on the movements and another type of

necessary thing of farmer unions they collect the funds from farmers in those areas where these farmer unions are activated. The Kissan Union highlights every aspect of the farmers and labourers in front of government and media. They compel the government to implement, the welfare policies for the farmers and to lift up the voice of farmers to increase the minimum support prices of crops and facilitate the marketing and distribution of farm products.

Farmers have taken the help from these Kissan unions during the current crisis. These unions in Punjab help the farmers to attain the compensation to families of suicides victims and to the farmers whose cotton crop was damaged. On 5 September 2016 various farmer unions stage a protested in Chandigarh over their demands. Unions organized several meetings at the village level to motivate farmers for the agitation.

The Kissan Union demands the waiver of the debt of farmers and agricultural labourers who are unable to pay their loans. Moreover, they demand compensation of Rs. 5 lakh each to the families of suicide victims, permanent job and unemployment allowance to unemployed farmers. These unions also demand Rs. 40,000 per acre as compensation to the farmers whose cotton crop was damaged due to the whitefly attack and the clearance of debt and amendment in the indebtedness bill in favour of the farmers. The state government has not fixed any rate of interest to be charged by money lenders or arhtiyas in the present indebtedness bill. Kissan unions also demand the implementation of Swaminathan report, a survey of suicides from 1990 onwards, the release of motor connections on government expenses and to the solution to the stray cattle troublemaker. They also demand government should making laws in favour of farmers instead of corporate houses or arhtiya (The Tribune, 2016).

Media play a vital role in reporting on farmer's suicide. Various newspaper and news channel reports on farmer's suicide. Reports from leading newspapers in the region such as 'The Tribune', 'The Times of India', 'Hindustan Times', 'Ajit' focused on this issue and made public aware of organizations attempted to mobilize the peasantry on this issue and linked it to the problem of indebtedness and especially to debt trap among the farmers.

Conclusion

This chapter has examined the socio-economic profile of cotton crop failure farmers and farmer suicides' victims of cotton crop failure of Mansa district in 2015-16. Most of the farmers belong to the marginal and small category of farmer class with having the largest share in the debt amount in this study. This chapter studies that most of the farmers are belong to the productive age group and more than 50 percent farmers have no education. Compensation policy announced during the crisis failed to provide compensation amount at large scale. Farmers are committing suicide by common consuming pesticide and about one-third farmers' suicide victims are drug addicts. So comprehensive policy is required to heal the different problems of small and marginal farmers.

Chapter V

Cotton Crop Failure and Crop Insurance Policy: An Economic Analysis

Farmers of Punjab has been undergoing the agrarian crisis during last two decade. The cotton crop failure in 2015-16 worked as an accelerator for speed up the crisis. Already having the High burden of debt and low income, farmers are in such condition that they cannot survive if there is any economic loss due to crop failure. Cotton crop failure stroke on the economic backbone of cotton grower farmers that resulted as farmers driven to suicides increase suddenly. Many causes are responsible for the farmer suicides as high burden of debt, low level of income, social stigma but one of the major causes is a failure of government institutions and administration to provide the income protection to farmers from risk and uncertainty in the form of crop insurance in Punjab. Agriculture is identical with risk and uncertainty in every country of the world. To stabilisation of farm production and income of the farmers, crop insurance can play a vital role. Crop insurance helps in optimal allocation of resources in the agricultural production process. Agriculture in India is risky venture harmed by droughts, floods, and pest attacks. As we are aware of the disastrous deaths of farmers in all over the country, who got caught in a debt trap and the upsetting consequence it has on their families. This chapter is concerned with the role of crop insurance in Punjab.

History of Crop Insurance in India

The government of India has also been concerned about the risk and uncertainty prevailing in agriculture as to protect the farmers from loss of their income from crop failure due to the pest attack and natural calamities. After the independence of India, a debate started for crop insurance. A distinct study to work out the procedure of crop insurance was ordered in 1947-48 ensuing an assurance given by the Ministry of Food and Agriculture to announce crop and cattle insurance in the country. In October 1965 Government of India set up a Crop Insurance Bill and a model scheme of crop insurance to allow the states to introduce crop insurance. In March 1970 after receiving feedback from state governments, the draft bill and model scheme was brought up to an expert committee with Dharam Narain as the chairman and

the report submitted by this committee in August 1971. The committee recommended that; it would not be worthwhile to introduce crop insurance in the near future. V. M. Dandekar examined the opinions of the expert committee and recommended the introduction of crop insurance (Dandekar, 1976). But after a long gap of the time period, the Government of India started Comprehensive Crop Insurance Scheme in 1985. This scheme covered only those farmers who have crop loans from financial institutions for growing food crops and oilseeds on the compulsory basis and coverage was restricted to 100 per cent of crop loan subject to a maximum of Rs.10 thousand per farmer. For cereals and pulses, the premium rates were 2 per cent and 1 per cent respectively. Premium given by the small and marginal farmers were subsidised equally by the central and state governments. The scheme was also optional for the state governments. The scheme was involving State Governments, Government of India, General Insurance Corporation of India and Banking Institutions. But due to flaws in the Comprehensive Crop Insurance Scheme has been replaced by the National Agriculture Insurance Scheme to protect the farmers from financial loss due to the failure of any of the informed crop as a result of natural calamities, pests, and diseases and to provide the incentive to farmers to adopt advanced technology in agriculture. The scheme was offered to all loanee and non-loanee farmers as compulsory for loanee farmers and voluntary for non-loanee farmers. The National Agriculture Insurance Scheme is reflected to be an upgrading of the Comprehensive Crop Insurance Scheme, but it has merely changed one flawed scheme with another a little less flawed scheme. Area approach, arbitrary premium adverse selection mandatory nature and lack of financial viability were the main drawbacks of the National Agriculture Insurance Scheme. Even private crop insurance is not very developed, but varied successful private programs do exist. Due to the failure of the comprehensive crop insurance scheme, The Government of India introduced "National Agricultural Insurance Scheme" in 1999-2000, which cover all food crops (cereals and pulses), oilseeds, horticultural and commercial crops. It covers all farmers, both loanees, and non-loanees, under the scheme. Twenty two states/union territories took part in the Comprehensive Crop Insurance Scheme, whereas only 16 are took part in the National Agriculture Insurance Scheme but Punjab and Haryana are two of the prominent agricultural states but have yet to take part in the Comprehensive Crop Insurance Scheme or National Agriculture Insurance Scheme. In 2003-04 Farmer

Income Insurance Scheme started to target two main components, farmer income production yield and price through a single insurance policy for minimum guaranteed income insurance. The Farmer Income Insurance Scheme was withdrawn in 2004. On 18 February 2016, Pradhan Mantri Fasal Bima Yojana started. This scheme provides help in stabilising the income of the farmers and helps the farmers to use new technologies and machinery in the farming. The non-prevention natural risk was covered under the scheme. For the settlement of the claim of wide damage area approach was used. For the Kharif, the rabbi and commercial crop a uniform premium rate of only 2 percent, 1.5 percent, and 5 percent is paid by the farmers and area unit of insurance was reduced to village level. A subsidy rate difference between premium and rate of insurance charge payable by farmers shall be provided as subsidy by the government which was shared by the centre and state government equally.

Role and Implications of Crop Insurance in Punjab

Punjab is divided into three agro climatic zones; the sub-mountainous region, the central region, and the southwestern region. Rice is grown widely in Punjab excepting some southern, western part of the western agro-climate zone grow a cotton crop in the same season. There is a very low place for another crop in Punjab in the Kharif season. Wheat is grown on the large part in Punjab during the Rabi season. Some upper area of the central region also grows Potato horticulture cash crop. Mostly the land is kept fallow, in summer season excluding in the central part vegetables are grown, and sugarcane is grown in the eastern region of Punjab. (Panigrahy et.al. 2009). Due to the intensive use of new agricultural technology and natural resources, it leads to depletion of water resources, soil, and fertility of the land. Due to the unsustainable use of water resources in the central region and poor quality groundwater in the south-west region and subsidies on power causes extraction of the natural resources. As point out by Sidhu & Vatta, 2012, in Punjab there is no role of any risk in the production of food crops, but due to climatic changes, unusual risks are rising which affects the production system. Variability in temperature and rainfall, during the maturity periods of wheat and growing incidences of pest attacks on the cotton crop because of the rise in humidity are the unconventional risk to Punjab's agriculture. All the participants talked about the good amount of risk which lies in the agriculture in the Punjab. Therefore Punjab

has also the need of crop insurance. In current scenario in Punjab cotton crop failure due to pest attack is one of the main reason which indicates for the comprehensive crop insurance scheme. Insurance of agriculture cannot be measured only as a hedge to guard agricultural economy against the adversative result of crop failure but to help the farmers in taking the risk of using new techniques in farming for increasing productivity and production. The Comprehensive Crop Insurance Scheme coverage was limited only to rain-fed crops. It was for this motive that the scheme was not effective among the advanced farmers of Punjab. Punjab was not attracted in Multiperil Crop Insurance and wanted insurance cover against hailstorm only with higher indemnity limits (Bhende, 2005). Crop Insurance is the loss of crop experienced by the few farmers is shared by many farmers in an area and losses acquired in bad years are compensated from funds accumulated in good years. In our development process to manage agricultural risk is a significant component of with the view to inspire farmers to adopt upgraded farming technology and agricultural practices, however with the potential of higher return could be riskier. Even agriculture in Punjab is less risky than that of other states. Though, one cannot undertake that no demand exists for crop insurance in these states because no cropping system is without risk. Therefore this present study looks into the origin of agricultural insurance in Punjab to examine the scope of Pradhan Mantri Fasal Bima Yojana because Punjab has a lot of differences in the case of production, productivity due to assured irrigation and use of modern agricultural technology and practices. Especially in the case of the cotton crop in Punjab which is a more risky venture.

Analysis of Cotton Crop Insurance in Mansa District of Punjab

Causes Responsible for of Crop Failure

In the current scenario, cotton crop failure was the very important issue in Punjab state both from the point of view politically and socio-economically. Many allegations were imposed on the failure of government policy. In the survey, only 6 percent of farmers consider natural disaster is the cause of crop failure, and nearly 57 percent farmers consider that crop failure was due to variation in rainfall. While 100 percent farmers accused crop disease as responsible for crop failure and more than 92.59 percent farmers blame spurious seeds and pesticides for crop failure.

Table 5.1: Causes of Crop Failure

(Figures in the parentheses show percentage)

Causes of Crop Failure	No. of Respondents
Natural Disaster #	5 (6.17)
Variation in rainfall	46 (56.79)
Crop Diseases	81 (100)
Spurious Seeds & Pesticides	75 (92.59)

Source: Field Survey

Note: Multiple responses are used

Note: # Term natural disaster is used for describing the superstitious power that destroys the cotton crop

Opinion of Farmers about Crop Insurance

Table5.2: Opinion of Farmers about Crop Insurance

(Figures in the parentheses show percentage)

Opinion of Farmers	Percentage of Respondent
Cotton crop is risky venture	81 (100)
Is aware of insurance	5 (6.17)
Willing to insure	31 (38.27)
Insurance should be compulsory	17 (20.99)
Insurance should be linked with credit	14 (17.28)
Reduction in premium rate	28 (34.57)
Maximum compensation for loss of crop	67 (82.72)

Source: Field Survey

Note:* Multiple responses are used

In Table 5.2, it was found that 100 percent of farmer agree with the opinion that cotton crop is risky venture from the other crops of Kharif season. Only 6.17 percent of farmers are aware of the crop insurance as the part of crop protection from crop failure. 38.27 percent of farmers are willing to crop insurance as the part of cotton crop loss from any adverse effect, but only 20.99 percent of farmers agree that crop insurance should be compulsory. Only 17.28 percent of farmer's record that insurance should be linked to credit. 34.5 percent of farmers agree to subscribe the new crop insurance scheme if the reduction in premium is done and 82.72 percent of farmer's demand for maximum compensation. The survey depicts that farmers are willing to insure the crop under certain conditions if premium rate is reduced and the maximum amount of insurance is provided. Therefore for the comprehensive study of the crop insurance under such conditions, it has become important to study the benefit –cost analysis under various scenarios.

Cost Concept used in Benefit-Cost Analysis

To study the Benefit- Cost Analysis two types of costs are used: one is an indirect cost which comprises of all types of expenditure on a production where direct cost also includes indirect cost plus rent paid on leased land.

Indirect Cost (Cost A1)

Approximate actual expenditure incurred in cash and kind which includes the following items:

a. Value of hired human labour

Human labour employed for various cultural practices like land preparation, planting, intercultural work, propping, maturing, plant protection, irrigation, and harvesting are included. The actual wages paid for labour is considered the value per unit of hired labour.

b. The purchased pesticides, fungicides and insecticides are evaluated by multiplying the physical quantities by their respective market prices their purchase price.

The value of fertilisers (Expenditure on purchased quantities of fertilisers.)

c. Land revenue (farm power, irrigation cost)

- d. Miscellaneous expenses this includes items such as cost of cotton picker, cost of land cultivation, etc.)

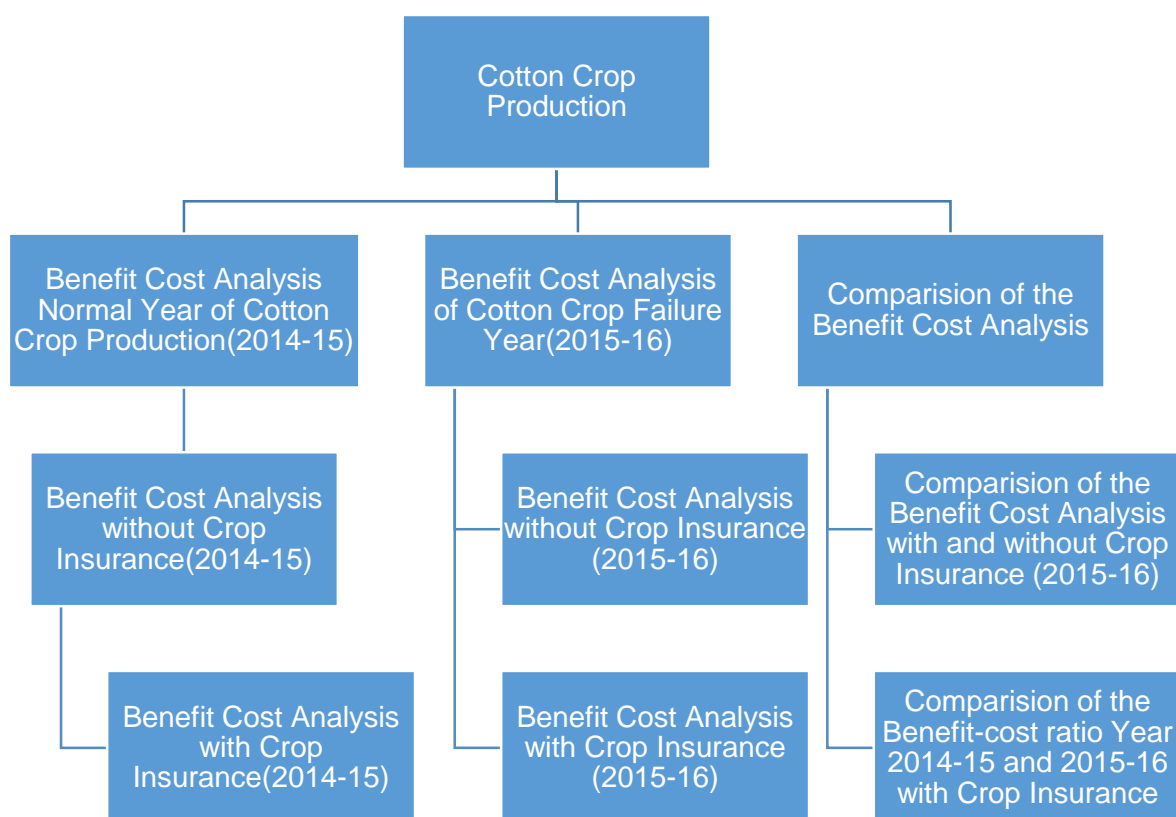
Direct Cost (Cost A2)

Rent paid for leased-in land is the actual rent paid by farmers who had leased land for cotton farming only for Kharif crop cotton. Direct Cost = Indirect cost + rent paid for leased-in land.

Flow Chart of Various Scenarios

Figure 5.1 shows the flow chart of the various scenario of the different years of cotton crop production to identify the role of crop insurance show how the study is further carried out in different aspects.

Fig 5.1: Flow Chart of Various Scenarios



Source: Field Survey

Benefit-Cost Analysis of Cotton Crop

Table 5.3 shows the benefit-cost ratio for the year 2014-15 of a normal year of production of cotton crop, it shows 2.48 benefit cost ratio when Indirect cost is involved (Cost A1) while it is 1.35 when direct Cost (Cost A2). And for the 2015-16 in which year cotton crop failure took place the ratio is 0.35 benefit-cost ratio for A1 cost and 0.17 for the A2 cost. Thus benefit-cost ratio indicates that in the case of the normal year of cotton crop production both cases are significantly more than unity indicating the good amount of benefits. But in the year in which cotton crop crisis took place, a benefit-cost ratio is below the unity indicating a loss in production and negative return in both types of costs.

Table 5.3: Benefit-Cost Analysis of Cotton Crop

(Without Crop Insurance)

Years wise benefit cost Analysis	Types cost	Cost (Rs.)	Cost (Rs.)	Total returns (Rs.)	Net returns (Rs.)
2014-15	Cost A1	33104.56	33104.56	82177.04	49072.48
	Cost A2	60683.5	60683.5	82177.04	21493.55
2015-16	Cost A1	37292.57	37292.57	13066.28	-24226.3
	Cost A2	78083.88	78083.88	13066.28	-65017.6

Source: Field Survey

Premium Rate and Sum Insured

On 18 February 2016 Pradhan Mantri Fasal Bima Yojana started with the uniform premium of only 2 percent to be paid by farmers. This scheme provides help by stabilising the help the income of the farmers and help the farmers to use new technologies and machinery in the farming. The no prevention natural risk was covered under the scheme. For the settlement of a claim area approach was used. For the Kharif, rabbi and commercial crop, a uniform premium rate of only 2 percent, 1.5 percent, and 5 percent was paid the farmer's area unit of insurance was shifted

to village level. A subsidy rate difference between premium and rate of insurance charge payable by farmers shall be provided as subsidy by the government which was shared by the centre and state government equally.

Table5.4: Benefit-Cost Analysis

(With Premium Rate Payable by the Farmer)

Years of benefit cost analysis of cotton crop	Types of cost	Cost (Rs.)	Premium Rate (Rs.)	Total Cost (Rs.)	Total Return (Rs.)	Net Return (Rs.)	B-C ratio
2014- 15	Cost A1	33104.5	1200	34304.5	82177.0	47872.4	1.72
	Cost A2	60683.5	1200	61883.5	82177.0	20293.5	1.33
2015- 16	Cost A1	37292.5	1200	38492.5	13066.2	- 25426	0.34
	Cost A2	78083.8	1200	79283.8	13066.2	-66217	0.16

Source: Field Survey

By PMFBY that is applicable in Sirsa district of Haryana for the cotton crop in 201516 with premium rate is 2 percent of sum insured value Rs. 60000 per hectare. Our study is based on the assumed values which are taken from Sirsa district of Haryana having almost same agricultural status as the neighbour of Mansa district having premium rate is 2 % of sum insured value Rs. 60000 per hectare. Because of lack of information data due to no implementation of PMFBY in Punjab state government. Table 5.4 show the benefit-cost ratio with including premium rate 1200 per hectare, for the year 2014-15 of a normal year of production of cotton crop show 1.72 Benefit cost ratio for Indirect Cost(Cost A1) and 1.33 benefit-cost ratio for the Direct Cost(Cost A2). And for the 201516 in which year cotton crop failure took place show

0.34 benefit-cost ratio for Indirect Cost (Cost A1) and 0.16 benefit-cost ratio for Direct Cost (Cost A2).

In this table, benefit cost analysis indicates that in the case of the normal year of cotton crop production both Indirect and Direct cost are significantly more than unity and the year in which cotton crop took place benefit cost ratio below the unity indicate a loss in production and negative return in both types of costs. But there is a minor increase in the benefit-cost ratio by including Rs. 1200 premium in production cost per hectare.

Level of Indemnity, Threshold Value, and Claim Value

In this study is assumed normal last year of average production per hectare as the threshold limit on which based claim is calculated for any loss in cotton production with the level of 90% indemnity is on the basis of PMFBY which are set for the Punjab neighbor state Haryana for the cotton crop in 2015-16 for Sirsa district. Table 5.5 show that last year average production of the cotton crop in Mansa districts of surveys 81 cotton crop farmers is Rs. 81547.03 and limit set for the current year for insurance the cotton crop is Rs 73376.49 with 90% indemnity level for Rs. 60000/- is the sum insured set by technical committee as assumed on the basis of PMFBY that is implemented for the Sirsa district of Haryana. Total claim value is Rs. 46803.18 per hectare calculated as per the following formula: **(Threshold Yield - Actual Yield) X Sum Insured/ Threshold Yield**. Table 5.5 show total claim value is Rs. 49315.7 per hectare.

Table 5.5: Amount of Claim and Threshold Value After 90% Level of Indemnity

Average in Production (Rs) Per ha.	Threshold Yield with Level of 90% Indemnity	Actual Yield (Per ha.)	Sum Insured (Per ha.)	Total claim Value (Per ha.)
81547.03	73376.49	13066.28	60000	49315.7

Source: Field Survey

Table 5.6 compare the benefit-cost analysis without and without crop insurance for the year in which cotton crop failure take place in Mansa district of Punjab by using the cost concept of A1 and A2. Without the crop insurance for cost A1 benefit-cost

ratio is less than one (0.35) and net return are negative value Rs. 24226.3. But after the insurance for the cost A1 benefit cost ratio increased up to 1.62 which is significantly more than unity and net return turned in positive value Rs. 23889.41. On the other side benefit-cost analysis without and without crop insurance for cost A2 benefit-cost ratio is less than one (0.17) and net return are negative value Rs.65017.6. But after the insurance for the cost A2 benefit cost ratio increased up to 0.79 which is more than 0.17 of without insurance but even less than one and even net return in negative i.e. Rs. -16901.9. Thus from this table, we find out that crop insurance policy for the Mansa district is not more significant to 100% protection from the crop loss.

Table 5.6: Benefit-Cost Analysis

(Without and With Crop Insurance Policy)

Role of crop insurance policy	Types of cost	Cost (Rs.)	Premium rate (Rs.)	Total Cost (Rs.)	Total claim value (Per ha.)	Total return without claim value (Rs.)	Total return with claim value (Rs.)	Net return (Rs.)	B-C ratio
Cost Benefit Analysis without Crop Insurance	Cost A1	37292.57	0	37292.57	0	13066.28	13066.2	-24226	0.35
	Cost A2	78083.88	0	78083.88	0	13066.28	13066.2	-65017	0.17
Cost Benefit Analysis with Crop Insurance	A1	37292.57	1200	38492.57	49315.70	13066.28	62381.9	23889.4	1.62
	Cost A2	78083.88	1200	79283.88	49315.70	13066.28	62381.98	-16901	0.79

Source: Field Survey

For show how much new crop insurance policy is beneficial for the farmers if they have insurance in case of cotton crop failure Table 5.7 show that in case of normal year when there is no crop failure take place for the year 2014-15 benefit cost analysis 1.35 for the A2 cost and net return are in positive figure value Rs. 21493.54 but in the tear of cotton crop failure 2015-16 after the payment of claim value benefit cost ratio is 0.79 which is less than unity and net return are in negative figure 16901.9 show that after the insured amount, farmer even faced the loss and

insurance policy for the farmers in Punjab need some modifications for the beneficial to farmers.

Table5.7: Comparison of the Values of Benefit-Cost Analysis

Role of crop insurance policy	Type s of cost	Cost (Rs.)	Premium Rate (Rs.)	Total Cost (Rs.)	Total claim value (Per ha.)	Total Return without claim value (Rs.)	Total Return with claim value (Rs.)	Net Return (Rs.)	B-c Ratio
2014-15	Cost A1	33104.5	0	33104.5	0	82177.0	82177.0	49072.4	2.48
	Cost A2	60683.5	0	60683.5	0	82177.0	82177.0	21493.5	1.35
2015-16	Cost A1	37292.5	1200	38492.5	49315.7	13066.2	62381.9	23889.4	1.62
	Cost A2	78083.8	1200	79283.8	49315.7	13066.2	62381.9	-16901	0.79

Source: Field Survey

Sensitivity Analysis

To identify the extent of vulnerability of farmers to shocks and stresses experienced in cotton farming, a Sensitivity analysis was undertaken. The net return and the benefit-cost Ratios were worked out under the following conditions:

- 5 percent reduction in return, costs being the same
- 10 percent reduction in return, costs being the same
- 5 percent increase in the cost, returns being the same
- 10 percent increase in the cost, returns being the same.

The results show the risk-bearing capacity of the farmers, a strong determinant of the success of any crop insurance scheme. For this analysis, only Direct Cost (cost A2) is considered to make an assessment of the impact of external shocks and stresses in cotton cultivation in Mansa District of Punjab, the risk-bearing ability of the farmer has been done using the sensitivity analysis taking into consideration only direct costs. For this purpose, the cost was increased by 5 percent and 10 percent keeping the returns constant, and then the returns were decreased by 5

percent and 10 percent keeping the cost constant, and the benefit-cost ratio and Net Return worked out. It was found that the net returns were positive and the benefit-cost ratio remained well above unity for normal year cotton crop production 2014-15 with and without crop insurance. But in 2015-16 in which year cotton crop took place, without crop insurance it was found that the net returns were negative and the benefit-cost ratio remained well below unity. But in the case of cotton crop insurance net return were negative and benefit cost ratio is below unity. Reduction in returns was found to affect the economic feasibility more than the increase in cost in case of normal year of cotton crop production where cost ids more sensitive in case of cotton crop failure year.

Table 5.8: Sensitivity Analysis

Sensitivity Of Cost and Return	Without Crop Insurance Policy For the Year 201415		With Crop Insurance Policy For the Year 201415		Without Crop Insurance Policy 2015-16		With Crop Insurance Policy 2015-16	
	B-C Ratio (per ha.)	Net Returns (Per ha.)	B-C Ratio (per ha.)	Net Returns (per ha.)	B-C Ratio (per Ha.)	Net Returns (per ha.)	B-C Ratio (per ha.)	Net Returns (per ha)
5 Per Cent Increase in Cost; Returns Being the Same	1.29	18459.36	1.26	17199.36	0.16	-65670.9	0.75	-20021
10 Per Cent Increase in Cost; Returns Being the Same	1.23	15425.19	1.20	14105.19	0.15	-66324.20	0.72	-23140.10
5 Per Cent Decrease in Return; the Costs Being the Same	1.27	17384.69	1.26	16184.69	0.15	-68921.80	0.75	-20866.10
10 Percent Decrease in Return; the Costs being same Being Same	1.22	13275.84	1.20	12075.84	0.14	-72826	0.71	-24830

Source: Field Survey

Findings of the Chapter

It was found that the net returns were positive and the benefit-cost ratio remained well above unity for normal year cotton crop production 2014-15 with and without crop insurance. But in 2015-16 in which year cotton crop took place, without crop insurance it was found that the net returns were negative and the benefit-cost ratio remained well below unity. But in the case of cotton crop insurance net return were negative and benefit cost ratio is below unity. Therefore these results indicate that estimated amount of crop insurance is also not sufficient to fill up the loss gap due to crop failure in case of Mansa district of Punjab. In 2014-15 without crop insurance, direct benefit-cost ratio is 1.35, and in 2015-16 with crop insurance, direct benefit-cost ratio is 0.79. The gap between these two values indicates weakness of Pradhan Mantri Fasal Bima (PMFBY) Yojana in the case of Mansa district of Punjab as the amount of insurance is less than the amount of loss accrued by the farmer. Therefore for the comprehensive implementation of the PMFBY in case of Punjab need some modifications regarding the premium rate and indemnity level.

Chapter VI

Summary and Conclusions

Agriculture plays a crucial role in the development of Indian economy. There is a steady increase in agricultural productivity since the 1960s with the introduction of green revolution policy, but after the new economic policy, Indian agriculture faced stagnation in both prices of agriculture crops and productivity. Many new emerging effects have defined the agrarian situation of India. Large number of farmer suicide is one of the emerging fact. Cotton crop failure in India that accelerate the rate of debt on the farmers is the main cause responsible for farmers' suicides. Punjab's Mansa district is famous for cotton production due to the sandy soil which is suitable for it. Among the five blocks, cotton is grown. Therefore present study is an attempt to analyse the socio-economic implications of farmer's suicides in the Mansa district due to cotton crop failure and indebtedness. For this, an attempt is made to analyse the cost and returns and the farm efficiency for cotton crops and also to examine the impact of cotton crop failure on gross returns as a cause of farmers' suicides. In order to achieve the envisaged objectives of the study, the data was collected from primary as well as secondary sources. 24 villages from all blocks namely Bhikhi, Budhladha, Mansa, and Sardulgargh were selected purposely for the primary survey with the help of structured schedules. Primary data was collected from 81 families of farmers suffered from cotton crop failure also including 31 members of victims' families. Secondary data was collected from various government, semi-government and private sources. Collected data was processed through tabular analysis, benefit cost analysis, and sensitivity analysis model.

Main Findings

Small farmers have the largest share with 44.44 percent in the surveyed respondents. The respondents from belonged to an average age of 33.02 years depicting that most of the farmers belong to most productive age. On an average, about 46 percent of the farmers were literate in a sample survey, show that large portion of the farmers cannot read and write even. Out of the 81 farmers, 60.49 percent farmers are involved in 'leased in' land to supplement their operational

holdings. It is found that 20 small farmers had the highest share in 'leased in' land 35.53 hectare and two large farmers had the lowest share with 6.07 hectare. This scenario describes that marginal and small farmers suffer more due to cotton crop failure. Total gross cropped area of the cotton crop was 221.83 hectare under the survey in which net return from per hectare cotton crop was Rs. 59250.9. Due to the high burden of debt, negative return from cotton crop compelled the farmers to take the extreme step of end the life. The average debt per household was Rs. 493,062.5/- It was lowest for large farm size Rs. 2,130,000/- and the highest per household debt for small farmers Rs. 15,785,000/-. There is a major role of informal financial credit institutions credit just like, money lender, landlord, agent commission, friends/relative and other (traders, etc.) which charge a high rate of interest comparatively the ongoing rate of interest in the market though huge expansion has taken place in government and formal commercial institutions in Punjab. Institutional credit having 53.16 percent share in total credit amount. The share of medium and small farmers is greater in credit for agricultural purposes within 76.61 and 76.27 percent respectively.

Socio-economic characteristics of farmers' Suicides show that common methods of suicide were by consuming pesticides, which are simply available in every farm household in Punjab. About 51.61 percent of the farmers committed suicides by this method, followed by hanging 38.71 percent and jumping into the canal 6.45 percent and jumping before the train (3.23%) and Survey found that drug addiction rate was also high in the victims about 35 percent victims were drug addicted. Only 6.45 percentage farmer received the compensation from Punjab government to each family due lack of information and complicated procedure of the government. Where 61.29% of the families wanted onetime financial support to reduce the burden of economic adversity, 9.68 percent of the families sought a job for one of the any surviving members to earn a living, and 16.13 percent sought free education for the children of farmer suicide victim. In the study by using the multiple responses of farmers on cotton crop failure find about 57 percent farmers consider that crop failure was due to variation in rainfall, 100 percent farmers accused crop disease as responsible for crop failure and more than 92.59 percent farmers blame spurious seeds and pesticides for crop failure. The study also try to find out the Opinion of Farmers about the Cotton Crop and Crop Insurance by using multiple responses of

farmers found that 100 percent of farmer agree with the opinion that cotton crop is risky venture from the other crops of Kharif season and in case of the awareness of crop insurance 6.17 percent of farmers are aware of crop protection from crop failure. 38.27 percent of farmers are willing to crop insurance as the part of cotton crop loss from any adverse effect, but only 20.99 percent of farmers agree that crop insurance should be compulsory while 17.28 percent of farmers record that insurance should be linked to credit. 34.5 percent and 82.72 percent of farmers agree to subscribe the new crop insurance scheme if the reduction in premium and the maximum insured amount is providing respectively. Kissan unions and media have played very important role in highlighting the problem of cotton crop failure and farmers' suicide. Kissan union's efforts help the cotton crop failure farmers to put their demand in front of government, as the results government announced the amount of compensation to farmers for cotton crop failure. To inform the farmers about cotton crop failure and supply of spurious pesticides in the market find as the major failure of agricultural institutions and government agencies that lead to deepen the agrarian crisis.

Two types of costs are used to study the Benefit- Cost Analysis first is the indirect cost which comprises of all types of expenditure on a production where direct cost which includes indirect cost plus rent paid on leased land.

The main emphasis is given on the direct cost to show the benefit-cost ratio for the year 2014-15 of a normal year of production of cotton crop. It shows that 1.35 benefit-cost ratio is 1.35 for the direct Cost and for the 2015-16 in which year cotton crop was failed, find benefit-cost ratio for the direct cost is 1.35. Thus benefit-cost analysis indicates that in the case of the normal year of cotton crop production, thus ratio is significantly more than unity indicates a respectable amount of benefits. But in the year in which cotton crop failure has happened a benefit-cost ratio below the unity indicating a loss in production and negative return. These negative returns in the absence of crop insurance hardly affected the income of farmers so that many farmers found that they cannot survive more and say goodbye to life as they were unable to meet the daily expenditure of their own and family expense.

Due to no implementation of Pradhan Mantri Fasal Bima Yojana in Punjab state the present study based on the proposed values which are taken from Sirsa district of Haryana having almost same agricultural status as the neighbour of Mansa district

having premium rate is 2 percent of sum insured value Rs. 60000 per hectare. Proposed premium is rate 1200 per hectare, for the year 2014-15 of a normal year of production of cotton crop show 1.33 benefit-cost ratio for the direct cost. For the 2015-16 in which year cotton crop failure, show 0.16 benefit-cost ratio for direct cost. There is a minor rise in the benefit-cost ratio by including Rs. 1200 premium in production cost per hectare. Study assume normal last year of average production per hectare as the threshold limit on which based claim is calculated for any loss in cotton production with the and level of 90% indemnity is on the base of Pradhan Mantri Fasal Bima Yojana which are set for the Punjab neighbor state Haryana for the cotton crop in 201516 for Sirsa district with 90% indemnity level for Rs. 60000 is the sum insured by technical committee for the Sirsa district of Haryana. To compare the benefit-cost analysis with and without crop insurance for the year in which cotton crop failure take place in Mansa district of Punjab for a direct cost. without the crop insurance for cost A2 benefit-cost ratio is less than one (0.17) and net return in negative value Rs65017.6 but after the insurance for the cost A2 benefit cost ratio increased up to 0.79 which is more than 0.17 of without insurance but even less than one and net return in negative value Rs. -16901.9. The study finds that crop insurance policy for the Mansa district is not very noteworthy as to 100% protection from the crop loss. This analysis finds that Punjab is the very important agrarian state for India and now agrarian economy of Punjab is a crisis. The productivity of major crops in Punjab is high in with less variability. Therefore with special references to this agrarian condition, crop insurance policy should be implemented with special features.

A sensitivity analysis was undertaken to recognise the degree of vulnerability of farmers to shocks and stresses experienced in cotton farming. For sensitivity analysis, direct Cost is considered to make an assessment of the impact of external shocks and stresses in the risk bearing ability of the farmer. For sensitivity analysis, the cost was increased by 5 percent and 10 percent keeping the returns constant, and then the returns were decreased by 5 percent and 10 percent keeping the cost constant, and the benefit-cost ratio and net return worked out. It was established that the net returns were positive and the benefit-cost ratio remained well above unity for normal year cotton crop production 2014-15 with and without crop insurance. But in 2015-16 in which year cotton crop took place, without crop

insurance it was found that the net returns were negative and the benefit-cost ratio remained well below unity. But in the case of cotton crop insurance net return were negative and benefit cost ratio is below unity. Where study reveal that reduction in returns was found to affect the economic feasibility more than the increase in cost in case of normal year of cotton crop production.

Suggestions

The study found that compensation policy for cotton crop failure and the families of farmers' suicide victim have failed on ground level due to lack of transparency and complicated procedure especially in the case of farmers' suicides victim. Therefore, need of proper implementation of these policies with some modifications by enhancing the information to farmers.

In the study, it was found that most of the farmers are marginal and small, also having the highest amount of debt. The main purpose of credit is for productive agriculture. Even after the expansion of banking system in India as well as in Punjab, non-institutional sources accounted 46.74 percent share in the total credit. Marginal, small and landless farmers are the main consumers of this credit. But due to minimum support prices of crop and recently cotton crop failure drive the farmers to commit suicide due to economic burden on farmers. Thus there is need of policy regarding the marginal and small farmers to provide subsidies and credit at discounted rate for the productive agriculture activities and to eliminate the exploitation to poor farmers from non-institutional sources.

The main finding of the study is that lack of comprehensive crop insurance policy in Punjab, especially for the cotton crop, as in the study it was described by the farmers that cotton crop is the very risky venture. Pradhan Mantri Fasal Bima Yojana also needs some modification in premium rate, especially level of indemnity in case of the cotton crop because agricultural conditions are different in Punjab from other states in the form of variability in production, irrigation, and climate, etc.

The role of Kissan union is very important in the struggle of farmers against anti-farmer policies of the government. The study also finds that these Kissan unions also have large idea and information about the problems of the farmers. Therefore government and institutions at the time of welfare agricultural policy formation should consider the demands and suggestions of Kissan unions which reflect the

large group of farmers. There should be such type of set up for smoothing the flow of information between Kissan Unions and government agencies.

Lack of awareness and information gap between the farmers, government agencies and agricultural research institutions regarding pre-information of cotton crop failure show the weakness of these institutions. Therefore, these agencies must be responsible for any pre-information regarding any problem if they have predicted it before the time.

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Appendix A

CENTRAL UNIVERSITY OF PUNJAB (BATHINDA)

An Economic Analysis of Cotton Crop Failure in the Mansa District of Punjab

Interview Schedule for Farmers

Part A: General Information

Household No. :

Date:

District:

Tehsil:

Village:

Part A.1: Respondent Information

Name of the Respondent	
Age	
Sex	
Relation With Household	
Mobile No.	

Part A.2: Household Information

Name of the Household	
Sex	
Religion	
Caste	
Type of Household*	
No. of Family Members	
Age	
Contact No.	

*nucleus – 1, joint – 2

Part A.3: Land Details/Acres

Ownership	Leased In	Leased Out	Total	Rent On Leased In Land (per acre)	Rent of Leased Out Land (per acre)

Part B: Cropping Pattern

Part B.1: Cropping Pattern On Own Land

Sr.no.	Crop On Own Land	Season@	Type of Land\$	Yield(quintal) Per Acre	Problems*	Sources of Irrigation**
1.						
2.						
3.						
4.						
5.						

@ Kharif -1, Rabi- 2. \$ irrigated -1, unirrigated- 2. # for cotton BT -1, Others- 2.

For other crops –HYV, Other-2.*drought-1, flood-2, Pest attack-3, other-4. ** Open well-1, tube well-2, canal-3, other-4.

Part B.2: Cropping Pattern on 'Leased in' Land

Sr.no.	Crop On Leased Land	Season@	Type of Land\$	Yield(quintals) Per acre	Problems*	Sources of Irrigation**

@ kharif -1, Rabi- 2.\$ irrigated -1, unirrigated- 2.# for cotton BT -1, Others-

2. For other crops –HYV, Other-2.*drought-1, flood-2, Pest attack-3, other4.

** open well-1, tube well-2, canal-3, other-4.

Part B.3: Why do you prefer this type of crop pattern?

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Part C: Expenditure on Cotton Crops

Cotton	Expenditure on Cotton (per acre)
Use of Pesticide	
Hired Permanent Labour	
Hired non-Permanent Labour	
Cultivated Expenditure	
Irrigation Expenditure	
Seeds	
Transportation	
Agent Commission	
Any Other	
Total Expenditure	

Part D: Agricultural Credit

Part D.1: Problem Faced in Availing Institutional Credit

High Transaction Cost	
High Rate of Interest	
Complicated and Time-Consuming Procedure	
Bride to Patwari Agents and Official	
Illiteracy and Less Link with Official	
No Near Bank	

Part D.2: From Which Type of Source You Prefer to Take Credit

Institutional.....Non Institutional

Part D.3: Credit Particulars

Sr. No.	Purpose *	Year In which credit taken	Amount	Source**	Name Of source	Rate of interest	Repayment #	Repaid	Outstanding Amount till date ##	If yes amount

*consumption-1, education-2, livestock-3, house-4, marriage-5, health-6, digging bore well-7, other agriculture-8, repayment of old debt-9, others (specify) - 10. ** Commercial bank-1, rural bank-2, cooperation bank-3, money lenders-4, landlord -5, relative/friends-6, other-7.#Regular-1, Irregular-2.## yes-1, yes-2

Part D.4: Why do you go for these type of institutions?

Part E: Farmer Suicide Case

Part E.1: Details about Farmer Who Committed Suicide

1. Name	
2. Date of Suicide	
3. Sex	
4. Age	
5. Educational Status #	
6. Marital Status ##	
7. Years of Experience in Farming	
8. Methods of Suicide @	
9. Whether Post Mortem was Conducted	
10. Causes Leading to Suicide	

Illiterate-1, Primary-2, Middle-3, Matric-4, Higher Secondary-5, Diploma or Certificate Course-6, Degree-7, Post Graduate-8, Technical Degree (Medical, Engineering)-9.
 ## Unmarried-1, Married-2, Widow/Widower-3, Divorced/ Separated-4, Others5 .
 @Pesticide consumption-1, Hanging-2, Drowning-3, Setting fire to oneself/burning-4, Others-5.

Part E.2: Causes Leading to Suicide

Debt	
Lose the Crop	
Low Income	
Dory Related to Daughter	
Education of Children	
Dispute in Family	
Other Reason	
If One to More Reason Mention Current Reason	

Part E.3: Mental /Physical Status of Victim

Mentally Sound	Yes	No
Mentally Stressed		
Any Disease		

Part E.4: Whether the member of the family suicides earlier **yes** **no**

If yes name..... relation with the victim.....

Part E.5: Any financial support of family after suicide by government and other agencies?

If yes

Name of the Agency or Person	Type of Help

Part E.6: Which type of help do you want?

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Part E.7: Role of Kissan Unions and Media in social Struggle of Farmers

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Part F: Crop Failure

Part F.1: Reasons for Cotton Crop Failure

Reason	
Natural Causes	
Cyclone, Drought, Flood, Fire, Other Disaster	
Variation of Rainfall	
Crop Diseases	
Poor Fertility of Land	
Non-Availability of Inputs (seeds, fertilisers and pesticides)	
Power Problem	
Spurious Seeds	
Other	

Part F.2: Pre-Information of Crop Failure

Not Aware	
Aware	

Part F.3: If you were aware name of the agency which has provided the information

Fellow Farmers	
Media	
Agricultural Department Official	
NGOs or Other Agencies	
Other	

Part F.4: Any Suggestion Regarding Crop Failure

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Part G: Role of the Policy of Crop Insurance

Part G.1: Opinions of Respondents about Crop Insurance of Cotton

Opinion	Yes	No
Cotton cultivation is a risky venture		
Is willing to reduce area		
Is willing to abandon cotton cultivation		
Is aware of the insurance scheme		
Is willing to insure the crop		
Insurance should be compulsory		
Insurance should be linked with credit		
Is aware but not subscribed		

Part G.2: Sources of Awareness

Fellow Farmers	
Bank/ Financial Institutions	
Media	
Agricultural Department Official	
NGOs or Other Agencies	

Part G.3: Willingness to Join Crop Insurance and Pay for Crop Insurance

Particular	
Ready to buy	
Not ready to buy	
No response	
Still need some time	

Part G.4: If any condition to wiliness to join and pay for crop insurance?

Reduction in premium rate	
Compensation timing	
Full compensation for loss of crop	
Full information was given by nodal agency	
Insurance unit size will be small for individual Farm	

Part G.5: Do you think that banks should deduct the amount of insurance premium from credit?

Agree	
Not agree	
Cannot say	

Part H: If have the insurance, give detail about of crop insurance

Name of the Institution	Types of Insurance	Amount of the Insurance	Benefitted from Insurance