Agricultural Survey of Gujranwala

Exploring District's Rural Economy

State Bank of Pakistan
Banking Services Corporation (Bank)
Development Finance Support Department
Head Office Karachi &
SBP-BCS Gujranwala

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The following Officers of the Agriculture Department, Gujranwala extended full support in the timely completion of survey, we acknowledge their contribution.

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1- INTRODUCTION

The limited information and understanding of banks about the rural markets and economy has been one of the key impediments in penetration of banks in agricultural/rural sector of our economy. The sector never considered as a mainstream and viable business activity by banks and thus could fetch no or limited attention of banks' senior management to build their capacities for serving the sector. State Bank of Pakistan and SBP-BSC have been taking different initiatives to strengthen the banks' capacity including the training and capacity building programs for banks' agrifinance staff and research studies and surveys to broaden and deepen the banks' understanding of the rural economy.

The Agricultural Surveys of Gujranwala District in Punjab and Sukkur District in Sindh were initiated as pilot projects to explore the districts' rural economies and thus enable SBP and banks to devise market responsive initiatives and products for increasing flow of financial services in the rural areas. While the Sukkur survey was conducted through IBA Sukkur, the Gujranwala survey was conducted by SBP-BSC Gujranwala office under the guidance and supervision of Development Finance Support Department (DFSD) HOK. The Agriculture Department of District Gujranwala also fully supported the conduct of the survey and lend its 3 Field Assistants to SBP-BSC Gujranwala to accompany the survey teams. The Department also provided us Tehsil-wise detail of more than 800 villages in the District that helped us a lot in sample selection as well as conduct of the survey.

The survey questionnaire comprised 235 questions grouped in 6 parts viz. general information about the farmer and his/her village, ii) Farming activities, iii) farm mechanization, iv) livestock, v) access to finance and sources thereof and vi) key issues/challenges faced. Responses of 300 farmers, selected randomly from 60 villages based on stratified sampling, were collected and compiled. The survey provides a better understanding of the rural economy in Gujranwala and provides some useful insights about the farm and non-farm activities in the rural areas of the district as well as socio economic conditions of the villages. While most of the villages in central Punjab have more or less similar set-up and business and economic activities, the results however cannot be generalized for all the districts of central Punjab. We have plans to cover some more districts and regions in FY09 which would enable us to assess the generalization of the survey findings across the region/province.

2- EXECUTIVE SUMMARY

Objectives

The survey was aimed at exploring the Gujranwala district's rural economy to facilitate stakeholders, particularly the banks in enhancing their understanding of the district's rural economy and thus enable them to comfortably enter this market and develop market responsive products for the rural clientele of the district. It would also help SBP to better design and focus its policy, regulatory and promotional initiatives to increase the flow of funds to the agricultural/rural communities. The survey was conducted as a pilot project and similar surveys will be conducted for other regions for having a better understanding of the rural economies in different regions.

Survey Methodology

The survey was conducted in all the 4 Tehsils of District Gujranwala viz. i) Gujranwala ii) Wazirabad, iii) Kamonke iv) Nowshera Virkan. There are 802 villages in Gujranwala District out of which 60 villages (7.5% of the total villages) were selected randomly through stratified sampling for the survey; 20 villages from Tehsil Wazirabad, which is the largest Tehsil of the district with 243 villages, 15 villages from Tehsil Gujranwala, 13 from Nowshehra Virkan and 12 from Kamonke. A total of 300 respondents were interviewed during the survey covering 5 farmers/rural households selected randomly from each of the 60 villages.

Three Teams of two surveyors each were constituted comprising an intern[1] and a Field Assistant of Agriculture Department Gujranwala. The teams were provided training for about 10 days on the objectives of the survey and the survey methodology.

Survey Findings

Socio Economic Conditions

A large majority of the farmers in Gujranwala District comprise subsistence farmers as 65% of the farmers interviewed during the survey had land holdings of up to 12.5 acres; about 42% of the subsistence farmers had land holding of up to 5 acres. About 16% and 13% of the respondents were holding 12.6-25 acres and 25.1-50 acres land respectively; only 7% of the respondents had land holding of more than 50 acres. More than 96%respondent farmers were fully cultivating their land which suggests that farmers with smaller landholdings tend to have better land utilization levels. Further about 84% of the farmers were cultivating their own land whereas about 15% of the respondent farmers were cultivating on their own as well as the rented land.

Farming is the major source of income of most of the respondents. About 80% of the farmers were undertaking both farm and non-farm activities whereas the remaining 20% were having employment, grocery stores etc in addition to farming. More than 50% of the respondents of this survey were living in separate and independent families and less than 50% (49.8% more precisely) were living in joint families. The average family size of the respondents living in joint family was 8.3 and that in separate family was 7.1 members.

The literacy levels in the villages covered in the survey were well above the national and provincial averages. About 75% of the 300 respondents were literate having qualifications of

[1] MBA student of a local Business School

primary and above with 55% being matric and above. 90% of the 60 villages covered in the survey had primary and middle schools and 25% villages also had high schools. On average the respondents had a high school within a distance of 3 Km from their houses and about 80% had college within 12 Km from their residence.

The health facilities' indices however were not as encouraging as those of the educational facilities; about 42% of the respondents did not have access to any medical facility within their village; BHUs were available only in 24% of the villages, another 24% had Dispensaries in their villages whereas 11% had access to Hakeems only.

Farm Sector

Farming is the major source of income of almost all the farmers covered in the survey. Wheat and rice are the two major crops of the area and almost all the respondents were cultivating both the crops.

Wheat Crop

Gujranwala is one of the major wheat producing districts of Punjab province with total wheat production of more than 700,000 tons in 2007-08. More than 98% of the farmers covered in the survey were cultivating wheat and on average producing 31.57 maunds per acre with maximum and minimum per acre yields of 50 maunds and 3 maunds respectively. 76% of the farmers had per acre yields of 26 maunds or more whereas 53% were recovering 31 maunds or more from each acre. The average yields are thus well above the national average of 28.026 maunds per acre.

Seed and Fertilizer Used

About 85% of the respondent farmers used their own seed retained from previous crop for wheat cultivation. About 9% purchased the seed from private seed dealers (largely Arties) and less than 1 % purchased seed from Public Sector Seed Corporations.

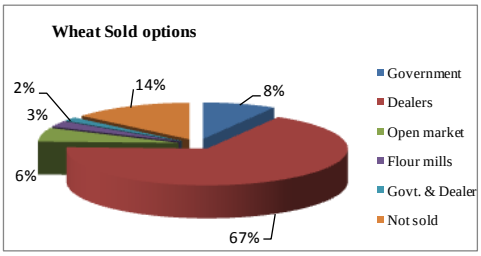
Almost all the farmers cultivating wheat in the district were using chemical fertilizers; only about 9% also used organic fertilizers in their wheat fields. The average per acre usage of chemical fertilizers was 157.5 Kg (almost three bags of 50 Kg each). On average the yields of the farmers using 150 Kg of chemical fertilizers per acre were better than their peers using lower or larger than 150 Kg.

Production Cost

The average cost of producing wheat was Rs.11,334/- per acre with minimum and maximum of Rs. 2,500/- to Rs. 20,500/- The wide variation in per acre production cost was due to differences in irrigation methods and use of fertilizers/pesticides/labor & other inputs. The farmers having access to canal irrigation system or even electric tube-wells on average incurred lower cost per acre. Further the farmers who were dependent on arties for inputs and or taken loans from arties also incurred relatively higher cost due to higher input prices and interest rates charged by arties.

Wheat Sold & Retained

About 86% of the respondent farmers engaged in wheat cultivation sold their wheat during the year whereas the remaining 14% retained all the produce for domestic consumption and for using as seed in the next season.



Most of the farmers sold their crop to arties due to convenience and or compulsion to sell the produce to arties under the loans etc taken from them. If given an option only 32% would sell their produce to arties and most of the remaining would sell in open market. Only 8.5% of the farmers sold wheat to Government both due to limited purchase points and unattractive support price.

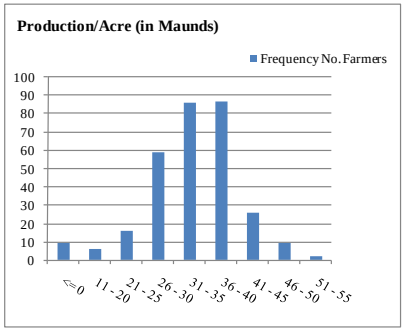
Almost all the farmers who cultivated wheat retained a part of their crop for personal consumption and for using as seed in the next crop.

Crop Failures and Reasons Thereof

About 49% of the respondent farmers engaged in wheat cultivation had not suffered any loss, major or minor, during last 5 years. 11% of the respondents suffered complete loss[2], 13% major loss[3] and 21% minor losses[4] once in last 5 years. Only 7.8% suffered more than one type of losses during last 5 years. The rain storms and pest attacks were responsible for most of the wheat crop failures during last 5 years.

Rice Crop

Gujranwala District is the largest producer of rice in Punjab province and the second largest in the country after Larkana with production of more than five hundred thousand tons. 97% of the 300 respondents were engaged in rice cultivation and obtained on average 34.41 Maunds of rice per acre with maximum and minimum yields of 55 Maunds/acre and 15 Maunds/acre respectively.



Seed and Fertilizer Used

Like wheat more than 78% of the respondent rice cultivators used their own seed/sapling for rice cultivation retained from previous crop. 16.3% farmers however purchased seed from the private market mostly led by dealers/arties; only 2.3% purchased seeds from Public Sector Seed Corporation.

Almost all the rice farmers covered in the survey used chemical fertilizers for enhancing the crop productivity. The average per acre usage of the chemical fertilizer was 124 Kg (about 2.5 bags). 11% of the farmers who used up to 50 KGs (1 bag) of fertilizer obtained highest per acre yield of 37 maunds; however there might be some other factors for the better yields of this group in addition to the judicious use of fertilizer which were out of the scope of this study.

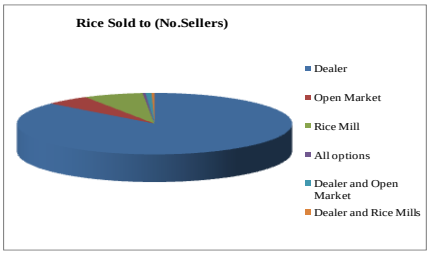
Production Cost

The respondent rice farmers on average incurred Rs.16009 per acre. Like wheat here again the farmers having access to the canal irrigation system incurred substantially lower cost than the farmers not having access to the canal water. Also the farmers with low dependence on arties/Input Suppliers for purchase of inputs incurred relatively lower per acre cost on the rice production.

Rice Sales & Retention

[2] yield dropping by more than 50%
[3] yield reducing by more 25% but less than 50%
[4] yield reducing by 25% or less

84% of the rice farmers sold their produce to dealers/arties largely due to convenience in timely disposal of the produce and compulsion to sell the produce under the loans/inputs taken from the dealer/arty. If given an option 58% would however sell in open market due to bright chances of fetching better price.



About 88% of the rice farmers covered in the survey retained a part of their rice crop either for domestic consumption or use as seed/sapling in the next crop or both. 12% of the farmers however did not retain any produce neither for consumption nor for using as seed.

Crop Failure and Reasons Thereof

More than 43% of the 293 rice farmers covered in the survey did not face any crop failure, major or minor, during last 5 years. 12% suffered complete loss once and less than 1% thrice in 5 years. 23% suffered major loss once and 1% twice in last 5 years. 15% suffered minor loss once in last 5 years, 1% however suffered minor lose 4 times. The pest attack and rain storm were the two major reasons for the crop failures.

Insurance Facility

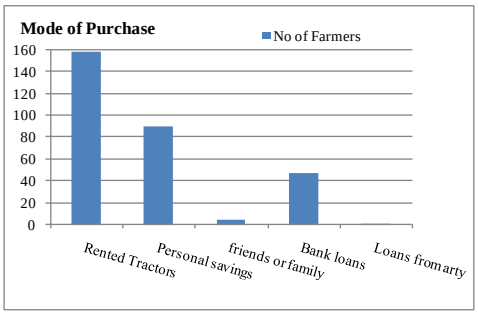
None of the respondent farmers had used insurance facility to protect against possible crop failures and 80% of the farmers had no awareness about any such product/facility.

Storage Facility

No commercial storage facility is available in any of the villages surveyed. Only 2% farmers had their own storage facility, whereas remaining 98% had no storage facility. About 74% of farmers responded positively to the need for developing and promoting commercial storage facility in or in the near vicinity of their villages.

Farm Mechanization

All the respondent farmers have been using tractor for cultivation and land preparation etc. 47% had their own tractor whereas about 53% used the rented tractors. 29% of the farmers used their personal savings to purchase the tractors, 15% bank loans and about 2% took loans from friends and family for the purpose.



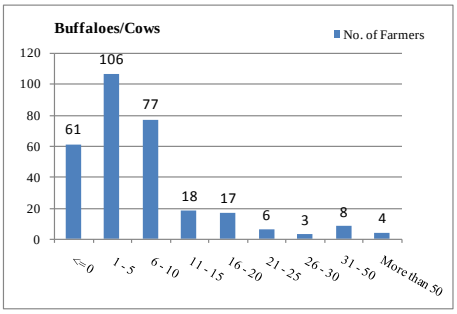
The use of other agricultural implements like Harvesters, Threshers, Rooters and Trawlers etc is also quite common. However most of the farmers (83%) use the rented implements, while 17% use their own implements. The Agricultural Extension Shops established by Government of Punjab are available in most of the villages as 92% of the respondents had access to the Agri extension shops for hiring the agri implements.

Agriculture Research & Extension Facilities

76% of the farmers had awareness about the Agricultural Research & Extension (R & E) facilities. 56% were approached by R & E Department and informed about the innovations and new farming techniques and technologies. However, only 31% of the farmers were satisfied with

the support and the facilities of the department and a large majority (69%) expressed their reservations on the scope and quality of services and support being provided by the department.

Livestock



About 80% of the respondent farmers had buffaloes/cows both to meet their domestic milk needs and to generate some additional revenue through sale of milk. 35% farmers had up to 5 buffaloes/cows and about 61% had up to10 animals. Only 19% of the farmers had more than 10 buffaloes/cows and only 7% had 21 or more cows/buffaloes. The livestock rearing is not the primary/major source of income of most of the farmers. About 38% of the respondents were rearing the animals exclusively to meet their family milk needs, whereas about 42% were keeping the animals for their own milk needs, commercial sale of milk and or to sell the animals in the market; the remaining about 20% had no buffalo/cow.

The farmers rearing livestock for commercial sale of milk were on average obtaining about 40 liters of milk daily out of which about 11 liters was retained for own consumption and about 29 liter was sold in the market. None of the farmers except 2 had their own chillers and only 05 farmers had access to central milk collection center established by Nestle nearer to one of the villages.

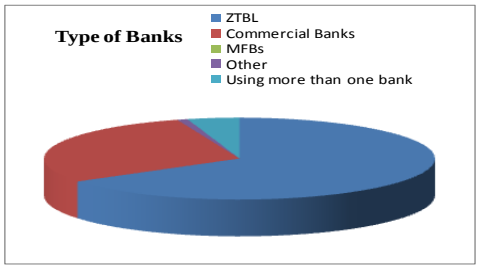
46% farmers had no access to the veterinary hospitals; only 19% had veterinary hospital within a distance of 5 KM. 74% of the respondent farmers had access to and awareness about the Artificial Insemination (AI) facilities, and 58% used the AI during last 1 year to get their animals fertilized whereas 19% used the natural process.

About 66% of the respondent farmers rearing animals were quite satisfied with their animal rearing activity whereas about 25% expressed their dissatisfaction as they had suffered losses in the shape of animal deaths etc. 75% opined that it provides them food security and 66% would like to increase the animals provided they have additional income/savings.

Access to Finance

About 47% of the respondent farmers had bank accounts. About 37% of the farmers had a bank branch within a radius of 5 KM from the village[5]. Thus about 63% of the respondents were living in un-banked/under-banked areas.

Bank Loans



About 39% of the farmers had obtained loans from banks, 10% did not get loan from any source whereas remaining 51% had taken loans from informal sources. Further about 66% of those who took loans from banks were ZTBL clients and commercial banks as a whole could tap about 34%, which is indicative of dominance of ZTBL in the agrifinance in the district. The educated farmers and the farmers with larger land holding had

[5] Based on respondents' response to the query whether there is a branch within a 5 KM radius and thus might have some judgment errors

higher tendency to maintain bank accounts and had better access to bank loans than the un-educated and small farmers.

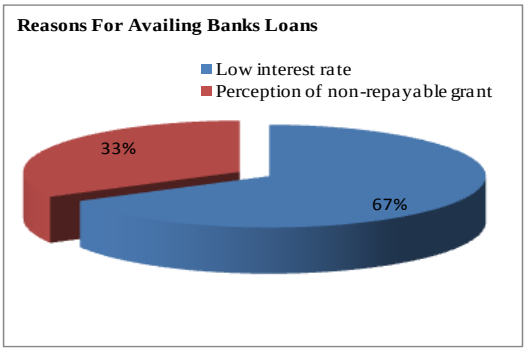
Time Consumed in Obtaining Loans

About 36% of respondent farmers who took bank loans consumed up to 15 days in obtaining the loan, 26% consumed 16-30 days and about 38% consumed 2 months or more for obtaining the bank loans. The delays in loan processing and disbursements have been described as one of the key factors that discourages farmers to access bank loans and thus need to be improved substantially.

References/Undue Considerations

Almost 70% of the farmers who obtained loans from banks used references/connections to get the loan sanctioned; the rest 30% however obtained the loans without any reference. More disappointingly about 63% of those who took bank loans said that they had to use undue consideration, money and or in kind, to obtain the loans.

Reasons for Availing Banks Loans



67% of the farmers who took bank loans preferred the bank loans due to relatively lower interest rates being charged by banks than the informal sources. The rest 33% however consider the bank loans as non repayable grants. While the perception of bank loans as non-repayable grants can be attributed to governments' off and on announcements for writing off agri-debts which give rise to such expectations, the finding that bank loans are cheaper than informal sources lends credence to the opinion that though the banks' agri-loans are relatively expensive than the corporate loans they are much cheaper than the loans from informal sources and that if provided access most of the farmers needing credit would like to take loans from banks rather than the informal sources.

Reasons for not Availing Bank Loans

Lack of awareness about the financial services\products being offered by banks for the farming community, lack of collaterals/defective land titles, difficulties/delays in obtaining Passbooks, interest (Riba) based loan products, cumbersome procedures and low productivity of farmers were reported as the major factors that discourage/inhibit farmers to access bank loans.

Informal Sources of Finance

The informal sources of finance particularly arties/input suppliers seem to have absolute dominance in the rural credit market of the district. A very large majority of respondent farmers (73%) had taken loans from arties, 63% from input suppliers and 59% from both arties and input suppliers. Further about 76% of the farmers who had taken loans from banks were also taking loans/credit from arties/input suppliers. This is despite the fact that arties charge higher than market rates on the inputs supplied to farmer and that most of the farmers who took loans/credit from arty are under obligation to sell the produce to arty generally at a price lower than the market. The dominance of informal sources in the rural credit market is attributable to the convenience and timely availability of the informal loans/credit without any documentary requirements.

3- SURVEY METHODOLOGY

The survey was conducted in all the 4 Tehsils of District Gujranwala viz. i) Gujranwala ii) Wazirabad, iii) Kamonke iv) Nowshera Virkan. There are 802 villages in Gujranwala District out of which 60 villages (7.5% of the total villages) were selected randomly for the survey. The distribution/break-up of villages selected from each tehsil is given in Table-1 below. 20 villages were selected randomly from Tehsil Wazirabad, which is the largest Tehsil of the district with 243 villages, whereas 15 villages were selected from Tehsil Gujranwala and 13 and 12 villages were selected from Nowshehra Virkan and Kamonke Tehsils. The criteria for selection of the villages was selection of 5th village from the villages lists provided by the Gujranwala Agriculture Department; where the 5th village was not easily accessible then 6th village was selected and if the 6th village was of the same category then 7th village was selected. Thus the villages selected from each of the four Tehsils were from the first 100 villages of each Tehsil as per the list provided by the Agriculture Department Gujranwala. As the total sample size was 300 respondents, 5 farmers were selected randomly from each village to collect their responses on the survey questions. Tehsil wise breakup of the villages in which the survey was conducted is given the above table.

Sr. No.	Tehsil	Total No. of Villages in Tehsil	No. of Villages selected for survey from each Tehsil	%age w.r.t Tehsil wise villages	%age w.r.t sampled villages
1	Wazirabad	243	20	8.23	33.34
2	Gujranwala	205	15	7.32	25
3	Nowshera Virkan	185	13	7.03	21.67
4	Kamonke	169	12	7.1	20
	Total	802	60		100

Survey Teams, Data Collection, and Analysis

Three Teams comprising two surveyors each were constituted to conduct the survey. Each team comprised an intern[6] and a Field Assistant of Agriculture Department Gujranwala. The teams were provided training for about 10 days on the study objectives, survey methodology, and interviewing techniques. Mock interviews were also part of the training sessions for estimating the average time required to fill up the questionnaires and also to identify the confusing and irritating questions. A well structured questionnaire was designed in consultation with Agriculture Credit Department (ACD) and was pre-tested. The DFSD supervised the whole project viz questionnaire design, sampling criteria and sample selection process and provided guidance in all phases of the project. The Chief Manager SBP-BSC Gujranwala and Head DFSU Gujranwala worked full time with the survey teams, motivated them, guided them and resolved their problems particular in field survey and data entry phases. The collaboration and support of the Agriculture Department Gujranwala also proved extremely useful in timely completion of the survey.

The SPSS software was used for data analytics. This provided us flexibility in managing the data by ensuring accuracy and quality of data collected/entered. While analyzing data, where necessary, outliers and zeros were excluded from the total number of observations to arrive at realistic percentages and averages of the variables/data series.

The analysis of data collected could be extended to many dimensions, however, our main focus remained on highlighting basic dynamics of the rural economy. For openness, transparency and knowledge sharing purposes the data would be made available to the researches for exploring more aspects of the rural economy (without revealing personal identity of the respondents).

[6] MBA students of Punjab College of Information Technology (PCIT)

4- SOCIO ECONOMIC CONDITIONS

A large majority of the farmers in Gujranwala District comprise subsistence farmers as 65% of the farmers interviewed during the survey had land holdings of up to 12.5 acres; about 42% of the subsistence farmers had land holding of up to 5 acres. About 16% and 13% of the respondents were holding land 12.6-25 acres and 25.1-50 acres respectively; only 7% of the respondents had land holding of more than 50 acres. More than 96% of the respondents were fully cultivating their land; only less than 4% of the respondents had some unused land with 3 respondents had 40 acres or more land lying uncultivated. This suggests that land utilization levels of farmers with smaller land holdings are better than the farmers with larger land holdings. Further, more than 84% of the farmers cultivate on their own land, only 15% cultivate on their own as well as rented land and just 1% farmers who were interviewed cultivate on the rented land only.

Almost all the respondents had irrigated land as they had access to either the canal irrigation system or installed tube-wells, both electric and diesel. The operating cost of diesel engines tube wells however is much higher than electric tube wells due to subsidized electricity being provided by the Government for tube-wells. The availability of diesel for tube wells was also an issue and the farmers had to rely on arties for the diesel, who reportedly charge exorbitantly higher price for the same.

The major source of income of most of the respondents was farming with 80% rearing livestock in addition to farming and 20% had grocery stores, employment rural enterprises etc in addition to the farming. More precisely about 98% were engaged in farming, 80% also had livestock, 2% each had Fish and Poultry farms, 4% had grocery stores and about 7% were engaged in employment in addition to the farming. The findings suggest that most of the farmers have multiple cash flows and thus the banks should estimate the overall/total cash flows of the farmer while processing their credit requests.

The rural areas of the District Gujranwala seems to have literacy ratios well above the national and provincial averages as about 75% of the 300 respondents were literate having qualifications of primary and above; 55% were matriculates and above. 90% of the 60 villages covered in the survey had primary and middle schools and 25% villages also had high schools. On average the respondents had a high school within a distance of 3 Km from their houses. Further about 55% of the respondents had a college within a distance of 8 Km, and 80% had college within 12 Km from their residence.

The health facilities' indices however are not as encouraging as those of the educational facilities; about 42% of the respondents did not have access to any medical facility within their village; BHUs were available only in 24% of the villages, another 24% had Dispensaries in their villages whereas 11% had access to Hakeems only. 70% of the respondents didn't have access to MBBS Doctors in their village and most of them had to travel up to 7 Kms to access the MBBS Doctor. Further about 12% of the respondents had hospitals in their own villages, 30% within a radius of 4 Km, 32% within 5-8 Km and 19% between 9-12 Km.

Average Family Size (#)

	Joint	Separate
Avg	8.31	7.11
Mode	7	6
Max	30	15
Min	1	1
SD	5.9	2.7
No. of Obs.	149	150

One outlier excluded

Contrary to the general perception that people in rural areas predominantly live in joint families, more than 50% of the respondents of this survey were living in separate and independent families and less than 50% (49.8% more precisely) were living in joint families. This trend in the family system may be due to better literacy ratio in the district, increasing penetration of electronic media in the rural areas and shrinking distances between rural and urban areas due to fast pace expansion of urban boundaries particularly in central and northern Punjab. The average family size of all the respondents was 7.8; however those living in joint family had on average 8.3 members (with a SD 5.9) in the family and those in separate family 7.1 members (with Standard Deviation 2.7). The maximum family size of farmers living in joint and separate families was 30 and 15 respectively. However, the mode values for the two categories were 7 and 6 respectively, which is very close to the averages for both the categories.

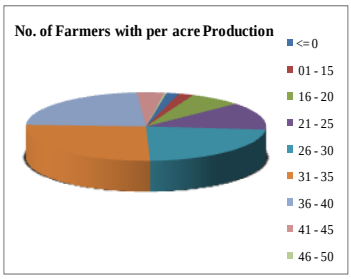
5- FARM SECTOR

Farming is the major sub-sector of the district's rural economy with almost all the farmers covered in the survey engaged in farming which constitutes a major chunk of their income and cash flows. Wheat and rice are the two major crops of the area and most of the farmers interviewed during the survey were cultivating both the crops. Although there have been some fruits and vegetable cultivation, most of such cultivation however was for domestic use. The survey thus focused on wheat and rice crops which constitutes a substantially large part of the farming activity in the district.

Wheat

Production/Acre

Gujranwala is one of the major wheat producing districts of Punjab province with total wheat production of more than 700,000 tons in FY07. As discussed above most of the farmers covered in the survey were cultivating wheat and on average producing 31.57 maunds per acre with maximum and minimum per acre yields of 50 maunds and 3 maunds repectively. This is well above the national average of 28.026 maunds per acre (approx). The frequency distribution of different ranges of per acre yields achieved by the respondent farmers show that 76% of the farmers had per acre yields of 26 maunds or more whereas 53% were recovering 31 maunds or more from each acre.



Per Acre Production (in Maunds)

Production	Frequency	Percentage
<= 0	5	1.7
01 - 15	6	2
16 - 20	21	7
21 - 25	39	13
26 - 30	69	23
31 - 35	79	26.3
36 - 40	69	23
41 - 45	11	3.7
46 - 50	1	0.3
Total	300	100

Wheat Production/acre

Mean	31.57
Std. Deviation	8.257
Minimum	3
Maximum	50

Although there was a very weak correlation between the size of landholding and production yields, the respondent farmers having land holdings of 5-12.5 acre obtained relatively better production yields per acre. Interestingly the farmers with land holdings of 51 acres or more had the lowest production yields. This finding is not in line with the general perception that farmers with larger land holdings obtain better production yields due to greater capacity, both financial and technical, and better managerial skills. It may however be due to a fewer number of respondents of this category, less than 7%, covered in the survey.

Wheat: Land Ownership and Productivity (Maunds per Acre)

Land Holding	Freq. #	Avg. Prod	Min	Max
Upto 5 Acres	80	30.29	3	40
5-12.5 Acres	110	32.73	10	50
12.5-25 Acres	47	32.18	18	45
25-50 Acres	38	32.45	20	42
=or> 51 Acres	20	30.2	16	45
Total	295	31.57		

Seed Used

A large majority (more than 85%) of the farmers used their own seed retained from previous crop for wheat cultivation. About 9% of the farmers purchased seed from private seed dealers (largely Arties) and less than 2% used seed purchased from Public Sector Seed Corporation. About 3% of the respondents used both

Mode of Seeds

Mode of Seed Procement	No of Farmers	Percentage	Adj. %age
Purchased from Public Sector seed corporation	5	1.7	1.7
Purchased from Private Sector	26	8.7	8.8
Using Own seeds & Purchased from Private Sector	9	3.0	3.1
Own Seed	255	85.0	86.4
Not cultivating	5	1.7	
Total	300	100.0	100.0

their own seed and that purchased from public/private dealers for the cultivation.

Use of Fertilizer

Almost all the farmers cultivating wheat in the district were using chemical fertilizers; only about 9% of the farmers used organic fertilizers for growing wheat. The position among others could also be attributed to limited availability of the organic fertilizer in the area and firm belief in utility of chemical fertilizer for obtaining better yields. The average per acre use of chemical fertilizers was 157.5 Kg (almost three sacks of 50 Kg each). A deeper analysis of the fertilizer use and yields per acre suggests that judicious and timely rather than excessive use of fertilizers is important for increasing the crop yields. On average the yields of the farmers using 150 Kgs of chemical fertilizers per acre were better than their peers using lower or larger than 150 Kgs.

Fertilizer used/acre: Chemical (Qty)

Fertilizer used/acre (Qty)	No of Farmers	Percent	Adj. Percent
50 kg	3	1	1
100 kg	56	18.7	19
150 kg	154	51.3	52
200 kg	61	20.3	21
250 kg	19	6.3	6
300 kg	1	0.3	0
350 kg or more	1	0.3	0
Not growing	5	1.7	-
Total	300	100	100
Avg. per Acre	157.46		

Use of Pesticides

About 93% of the respondent used pesticides to protect the crops against diseases and pest attacks. The average expense on pesticides was Rs. 641 per acre with standard deviation of Rs. 291 and minimum & maximum cost of Rs. 200 and 2,500 per acre respectively.

Pesticides Used in Wheat Cost in Rs./acre	
Avg	640.9
Min	200
Max	2500
Count	280
SD	291.2

Production Cost

The average per acre cost of wheat was Rs. 11,334/- with minimum and maximum cost of Rs. 2,500/- to Rs. 20,500/- respectively. The wide variation is attributable to differences in irrigation methods and use of fertilizers, pesticides, labor and other inputs. The smaller farmers cultivating their own land with the help of unpaid family members, using their own seed and having access to canal irrigation system or even electric tube-wells on average incurred lower cost than the farmers who did not have access to canal irrigation system and electric tube wells; the farmers with larger holdings who engage labor on cash payment basis also incurred relatively larger cost. Further the farmers who were dependent on arties for all or most their inputs and or taken loans from arties also incurred relatively higher cost, which may be due to relatively higher input prices and interest rates charged by arties.

Average Cost of Wheat per acre:

Average cost/Acre	No of Farmers	Percent	Adj. Percent
<= 0	5	1.7	-
1 - 4000	2	0.7	0.7
4001 - 8000	37	12.3	12.5
8001 - 12000	155	51.7	52.5
12001 - 16000	70	23.3	23.7
16001 - 20000	24	8	8.1
above 2000	7	2.3	2.4
Total	300	100	100

Wheat: Cost of Production / Acre	
Avg	11334
Max	20500
Min	2500
SD	3186
Valid Obs.	291

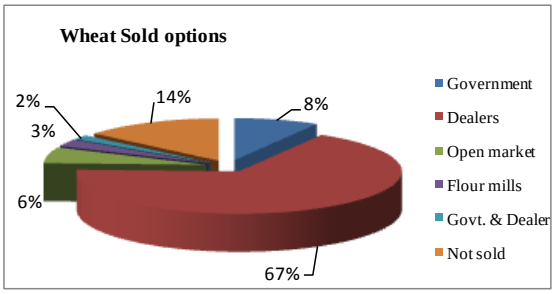
Excl. Outliers and Zeros

Sale of Wheat

About 86% of the farmers engaged in wheat cultivation sold their wheat during the year whereas the remaining 14% retained all the produce for domestic consumption and for using as seed in the next season. A large majority of respondent farmers (77.3%) who sold their crop, selected arties for selling the crop due to convenience in timely disposal of the produce and or compulsion to sell the produce to arties to settle their loans etc taken from them. When asked about their preferred outlet for sale of the produce only 32% opined in favor of the arty. This shows that more than half of the farmer who sold wheat to the arty was under compulsion to sell the produce to the Arties. Only 8% of the farmers sold wheat to Government both due to limited purchase points and unattractive support price; only 10% of the farmers considered government departments as the preferred outlet for selling the crop which is indicative of large scale discontent with and rejection of the official support price by the farming community.

Wheat sold to:

	No of Farmers	Percentage	Adj. Percent
Government	25	8.33	8.5
Dealers	198	65.66	67.1
Open market	18	6	6.1
Flour mills	8	2.33	2.7
Govt. & Dealer	5	1.66	1.7
Not sold	41	13.66	13.9
Not Grown	5	1.66	-
Total	300	100	100.0



Wheat Retained

Almost all the farmers who cultivated wheat retained the wheat for personal consumption and using the same as seed. Each farmer on average retained 50.7 maunds of wheat for personal consumption and for use as seed. Some farmers also retain a part of produce for gifts and Usher purposes, the minimum & maximum quantity of wheat retained for Ushr & for Gifts are 5 & 30 maunds respectively.

Wheat Retained:

Retained for	No Of Farmers	Percent	Adj. Percent
Own Consumption & Seed	294	98.66	99.7
Not grow	5	1.66	-
Not retained	1	0.33	0.3
Total	300	100	100.0

Storage Facility

The commercial storage facility is not available in any of the villages surveyed. Only 2% farmers had their own storage facility, while 96.3% of the farmers had no storage facility as they sell the produce soon after harvesting. The position could be attributed among others to i) majority of the respondents were small and subsistence farmers and as such cannot afford to build their own storage facility ii) farmers' obligation to sell the produce to dealers/arties due to credit purchase of inputs or owing loans from the dealers/arties, and iii) no government support for establishing such facilities on commercial basis. When asked about the need for any storage facility, about 76% responded positively that they would like to have a commercial warehouse for storage as it would i) minimize post harvest losses caused due to bad weather ii) maintain quality of the

Storage Facility:

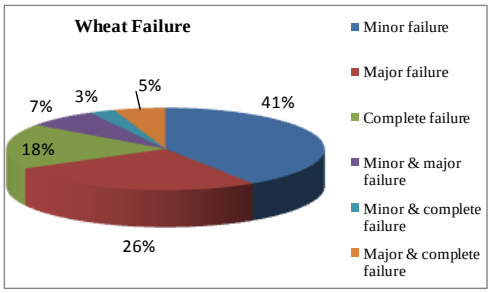
	No of Farmers	Percent
Not growing	5	1.7
No facility	289	96.3
Own facility	6	2
Total	300	100

Desire for Storage Facility:

	Frequency	Percent
No	73	24.3
Yes	227	75.7
Total	300	100

produce, iii) enable the farmer to sell the produce at a time of his choice and thus fetch better price.

Crop Failures



About 49% of the respondent farmers engaged in wheat cultivation had not suffered any loss, major or minor, during last 5 years. 11 of the respondents suffered complete loss[7]; 13% faced major loss[8] and 21% faced minor losses[9] once in last 5 years. 4% of the farmers suffered both minor & major losses during last 5 years and 3% faced major losses & complete failures. Further 5 farmers (2%) suffered complete loss twice, 1 farmer suffered major loss 5 times and 1 farmer suffered minor loss 5 times. Only 7.8% suffered more than one types of losses during last 5 years.

Reasons of Failure

The rain storms and pest attacks were responsible for most of the wheat crop failures during last 5 years. About 41% of the 152 farmers who faced crop failures during last 5 years, reported rainstorm as the major reason for the failure whereas 39% of them suffered losses due to pest attack and about 20% on account of other reasons like fire, inferior quality seeds, shortage of water, hails etc.

Reasons of Wheat Failure:

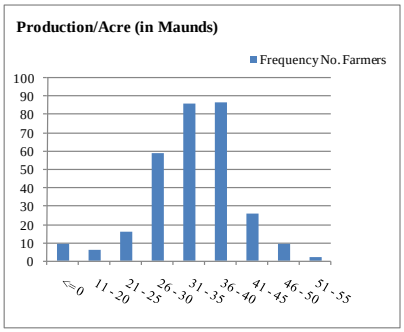
Reasons of Failure	No of Farmers	Percent	Adj. %age
Rain & Storm	62	20.7	40.8
Pest Attack	59	19.7	38.8
Others	17	5.7	11.2
More than one causes	14	4.7	9.2
No Loss	143	47.7	
Not Growing	5	1.66	
Total	300	100	100

[7] yield dropping by more than 50%
[8] yield reducing by more 25% but less than 50%
[9] yield reducing by 25% or less

RICE

Production/Acre

Gujranwala District is the second largest producer of rice in the country after Larkana with production of more than 500,000 tons. It contributes more than 15% in Punjab province's rice production and about 9% of the country's total rice production. 97% of the 300 respondents of the survey were engaged in rice cultivation. The average per acre yield of the respondent farmers was 34.41 Maunds with maximum and minimum yields of 55 Maunds/acre and 15 Maunds/acre respectively. 89% of the farmers covered in the survey were having per acre yields of 26 maunds or more, 69% had 31 maunds or more, and 40% were obtaining 36 maunds or more from an acre of land.



Rice Production/acre

Mean	**34.41**
Std. Deviation	8.844
Minimum	15
Maximum	**55**

There seems to be positive correlations between the size of land holding and production yields of rice as the farmers with larger land holdings on average obtained marginally better yields except for farmers having more than 51 acres of land. However as the sample size of farmers with land holdings of 51 acres or more is very small, the finding cannot be generalized for all the farmers having larger land holdings. Further the coefficient of correlation between the size of land holdings and produce yields is not strong but moderate at 0.55.

Rice: Land Ownership and Productivity (per Acre)

Land Holding	Freq. #	Avg	Min	Max
Upto 5 Acres	81	33.32	15	50
5-12.5 Acres	107	36.15	17	50
12.5-25 Acres	46	36.85	22	50
25-50 Acres	38	36.39	20	55
=or> 51 Acres	19	35.63	22	50
Total	291	35.67		

Seeds/Saplings used

Like wheat a large majority (more than 78%) of the rice cultivators covered in the survey used their own seed/sapling for rice cultivation retained from previous crop. Over 16.3% farmers however purchased seed from the private market, which is mostly led by dealers/arties & money lenders; only 2.3% purchased seeds from Public Sector Seed Corporation.

Seeds/Saplings used:

Seeds/Saplings	Frequency	Percent
Not growing	9	3
Own seeds/saplings	235	78.3
Purchased from public sector seed corporation	7	2.3
Purchased from private market/Nursery	49	16.3
Total	**300**	**100**

Fertilizers Used

The use of organic fertilizer in rice cultivation is also almost negligible as only 3% of the respondents used 1-2 Trolleys organic fertilizer. Besides limited availability of organic fertilizer, farmers' belief in utility and effectiveness of chemical fertilizers in improving crop productivity was also responsible for very limited use of organic fertilizers. Almost all the respondents engaged in rice cultivation used chemical fertilizers for increasing crop productivity. A large majority, about 81%, used 100-150 Kgs (2-3 bags) of chemical fertilizer per acre, 8% used 50 Kgs only and another about 8% used over 200-

Rice: Fertilizer Used/acre:

Kg	Freq	Total	Adj Freq. %
50	24	1200	8.2%
100	117	11700	40.2%
150	126	18900	43.3%
200	19	3800	6.5%
250	5	1250	1.7%
Not Growing	7		-
Total	298	36850	1.0
Avg use/acre	123.66		

250 Kgs per acre. Only 2.7% farmers used both organic and chemical fertilizers. The average per acre usage of the chemical fertilizer for all the farmers engaged in rice cultivation was 124 Kgs (about 2.5 bags). The table below gives a comparison of per acre fertilizer usage and production yields; 11% of the farmers who used up to 50 KGs (1 bag) per acre on average obtained the highest yield of 37 maunds per acre, this may however be due to some other factors like better farm care, better preparation of land, timely usage of fertilizers and pesticides etc which was beyond the scope of this study. 39% farmers used on average 100 KGs (2 bags) per acre and produced on average 34.24 maunds per acre, 42% of the farmers on average used 150 Kgs (3 bags) per acre and on average obtained 33 maunds per acre. The overall results however suggest optimum and timely use of fertilizers could yield better results rather than the excessive use of fertilizer.

Cheminal Fertilizer Used	Rice Production/acre (in Maunds) (Banded)						Total
Kg/acre	<= 0	11-25	26 - 30	31 - 35	36 - 40	41 >	
Not Used	0	0	0	0	1	1	2
50 kg	0	2	4	1	9	8	24
100 kg	0	6	24	36	38	13	117
150 kg	2	14	28	39	33	10	126
200 kg	0	0	2	8	5	4	19
250kg >	0	0	1	2	1	1	5
Not growing	7	0	0	0	0	0	7
Total	9	22	59	86	87	37	300

Use of Pesticides

About 96% of farmers covered in the survey used pesticides and on average incurred Rs. 993 per acre for growing rice.

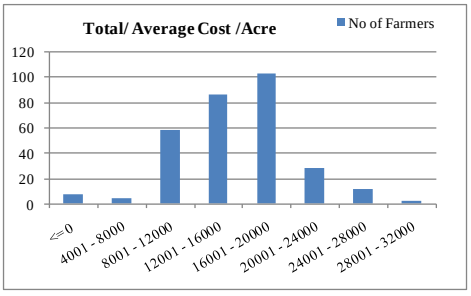
Pesticides Used in Rice Cost in Rs./acre	
Avg	992.8
Min	200
Max	9000
Count	287
SD	762

Production Cost

The average per acre cost of rice was Rs.16,009 with minimum and maximum of Rs. 5,600/- and Rs. 31,000/-. 63% of the farmers covered in the survey incurred between Rs.12,000-Rs.20,000 per acre, only 14% incurred more than Rs.20,000 per acre. The variation in the production cost is attributable to differences in irrigation methods and use of fertilizers/pesticides/ labor & other inputs. The smaller farmers cultivating at their own land with the help of unpaid family members, using their own seed and having access to canal irrigation system or even electric tube-wells on average incurred lower cost than the farmers not having access to canal water or electric tube wells; the farmers with larger holdings who engage labor on cash payment basis also had higher per acre cost. The farmers taking inputs and or loans from Arties also incurred higher cost due to higher than market rates charged by arties.

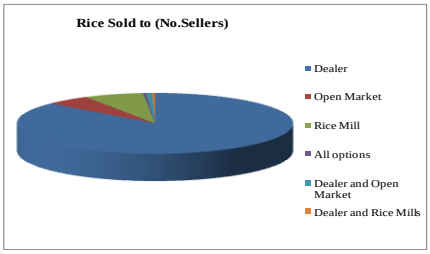
Rice: Cost of Production / Acre (Rs.)	
Avg	16009
Max	31000
Min	5600
SD	5422
Valid Obs.	291

Excl. Outliers and Zeros



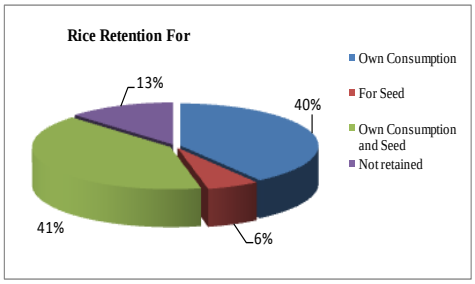
Sale of Rice

About 84% of the rice farmers sold their produce to dealers/arties due to i) convenience in settling dues/loans, ii) timely disposal of the produce iii) compulsion to sell the produce under the loans/inputs taken from the dealer/arty. Only 5% sold the produce in open market and another about 7% sold to Rice mills. When asked about the most preferred



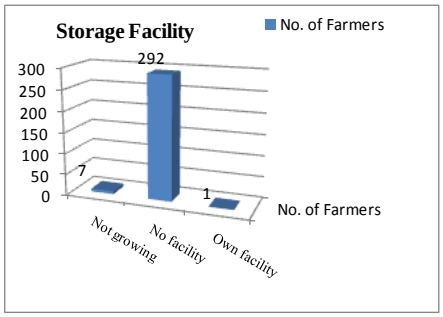
institution for selling the output, 58% responded in favor of open market due to greater chances of fetching better price. This shows that about two third of the farmers who sold their produce to the dealers were either under compulsion to sell the produce to the dealer/arty or did not have access to the open market as otherwise they would have sold the produce in the open market. The lack of access to financial services from banks and the markets to sell the produce increases the farmers' dependence on dealers/arties both for inputs and sale of the produce and thus limits his/her chances to acquire inputs at competitive rates and fetch better prices for his/her produce. As the crop gets ready for harvesting the arty/dealers approach the fields and take the produce against settlement of dues/loans outstanding against the farmer in their books.

Rice Retention



About 40% of the respondent farmers engaged in rice cultivation retained on average 26 maunds of rice for own consumption, another about 41% retained on average 30.5 maunds for both own consumption and seed for next crop and a mere 6% retained about 4 maunds on average for seed only. 13% of the farmers did not retain any produce neither for consumption nor for using as seed. As shown in the table, about 53% of the farmers did not retain the produce for using as seed in the next crop. However as discussed earlier 78% of the respondents used their own seed for rice cultivation which shows that about 50% of the farmers who would have retained rice for consumption only ended up using some of that rice as seed also.

Storage Facility for Rice

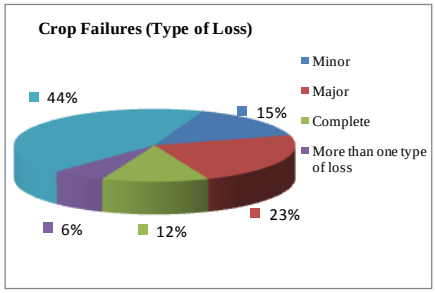


Only one farmer has his own storage facility that produced 750 maunds from a piece of land of 30 acres. The remaining 292 respondent farmers engaged in rice cultivation had no storage facility and they sell the produce soon after harvesting. No commercial storage facility is available in any village. The reasons for this gross absence of the storage facilities are same as discussed in wheat section like limited financial capacity, low awareness about and initiative to build commercial warehouses, no Government support and heavy dependence on dealers/arties for inputs who take away the produce from the field. When asked about the need for the commercial storage facilities, about 74% of farmers responded positively and said they would like to have the facility in or in the near vicinity of their villages.

Need for Storage Facility:

	No. of Farmers	Percent
No	78	26
yes	222	74
Total	300	100

Crop Failures and Reasons Thereof



More than 44% of the 293 rice farmers covered in the survey did not face any crop failure, major or minor, during last 5 years. 12% suffered complete loss once in 5 years, 2 farmers however, suffered complete loss 3 times during last 5 years. 23% suffered major loss, once in last 5

years except 2 farmers who suffered the major loss twice. 15% suffered minor loss once in last 5 years except 3 farmers who suffered minor 4 times. Only 6% suffered more than one type of loss.

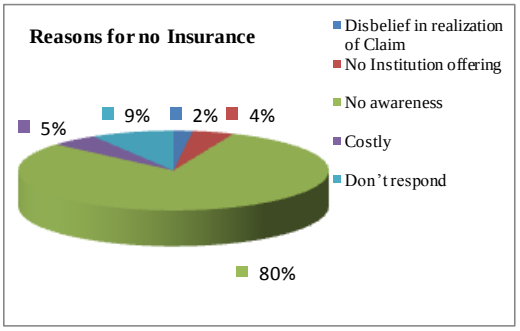
The pest attack and rain storm were the two major reasons for the crop failures experienced by the rice farmers during last 5 years. While rains and storms are uncontrollable factors, the pest attacks could be controlled largely by creating awareness amongst the farmers to take effective preventive measures. The findings should be encouraging for insurance companies as only 12% of the farmers suffered complete loss and that too only once in last 5 years. Similarly the yearly average of major losses incurred by the rice farmers is less than 5%.

Reasons of Rice Crop Failure:

Reason	No. of Farmers	Percent
Drought	3	1
Storm	44	14.6
Flood	2	0.67
Rains	5	1.6
Pest	98	32.7
Others	11	3.7
More than one reason	20	6.6
No loss	110	36.7
Nor growing	7	2.3
Total	300	100

Insurance Facility

None of the respondent farmers had used insurance facility to protect against possible crop failures (both wheat and rice). 80% of the farmers had no awareness about any such product, 9% didn't respond to the question regarding the reasons for not using the insurance facility, 5% had awareness about the facility but considered it costly or additive burden on their cost structure. Another about 4% responded that they didn't know any institution that is offering this product; only 2% expressed their disbelief in realization of claim in case of losses. A large majority of the respondent farmers (about 77%) said they would not like to have insurance coverage against crop failures and only 23% responded positively and said that they would like to have the insurance coverage. The position may be due to lack of awareness amongst the farmers about the insurance facility and non existence of any such product in their area. As the awareness levels improve, the ratio of farmers interested in having the insurance coverage would also improve.



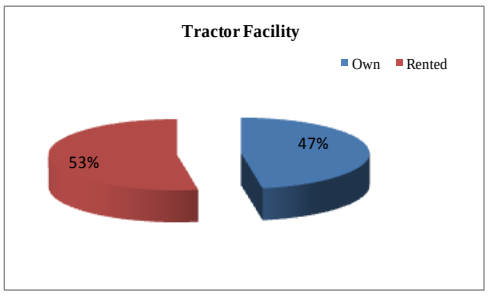
Interested for Insurance:

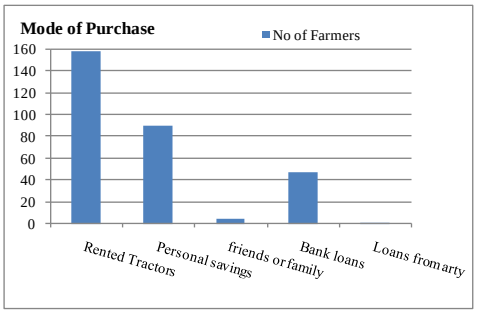
like insurance	No of Farmers	Percent
No	232	77.3
Yes	68	22.7
Total	300	100

6- FARM MECHANIZATION

Tractor

All the respondent farmers have been using tractor for cultivation and land preparation etc. and the manual methods of harvesting was almost non-existent in all the villages covered in the survey. 47% of the farmers had their own tractor whereas about 53% did not own tractors and thus used the rented tractors for cultivation. 30% purchased tractors using their personal savings, 16% through bank financing and about 2% through loans from friends and family. The banks with only 16% share in tractor financing seem to have low penetration in the rural areas of the district. Majority of the 53% farmers who don't own tractors and using the rented tractors could be the potential candidates for tractor financing from banks.





Other Agri-Implements

The use of other agricultural implements like Harvesters, Threshers, Rooters and Trawlers etc is also quite common although 79% of the farmers did not own these agricultural implements. About 83% of the farmers including 4% of those who own some of the implements use the rented implements, while 17% use their own implements. The widespread use of rented tractors and other agri implements can be attributed to availability of Agricultural Extension Shops in most of the villages as 92% of the respondents had access to the Agri extension shops established by Government of Punjab for farmers' facilitation.

Other Agri-implements owned:

implements	No of Farmers	Percent
No Other implements	237	79
Harvester	11	3.7
Thresher	34	11.3
Rooter	2	0.7
Trawler	16	5.3
Total	300	100

Agri-Implements Used:

Agri-Implements Used	No of Farmers	Percent
Own	51	17
Rented	249	83
Total	300	100

Farm Mechanization and its Relationships with Land Holding and Education

An inquiry into the above question may help in understanding the extent to which these two factors influence or determine the farm mechanization process; the table highlights these relationships, which shows that there are strong correlations of 0.99 and 0.93 between size of landholding and average ownership of tractors and other agri implements respectively. 100% of the farmers with landholding of 51 acres or more and 87% of the farmers having land holding between 25-50 acres owned tractors whereas just 17% of farmers having upto 5 acre of land owned tractors.

Land Owned vs. Ownership of Tractor, Agri Implements

Land Holding	Frequency		Tractor Owned		Agri Implements Owned	
	Resp. #	% of Total	Resp. #	% of Category	Resp. #	% of Category
Upto 5 Acres	82	27%	14	17%	2	2%
5-12.5 Acres	113	38%	48	42%	16	14%
12.5-25 Acres	47	16%	27	57%	5	11%
25-50 Acres	38	13%	33	87%	17	45%
=or> 51 Acres	20	7%	20	100%	10	50%
Total	300		142		50	
Correlation Coefficient				0.9939		0.9253

Similarly, only 2% of the farmers holding up to 5 acres of land owned other agri implements, compared to almost 50% of those holding 25 acres and more land. The farmers with larger land holdings have better purchasing power, awareness and scales to own and effectively use tractors and other agri implements.

Similarly, there is a strong positive correlation between education levels and ownership of tractors and other agri implements. The more educated the farmer, the better is the probability that he/she would own tractor and other implements. More specifically only 34% of farmers with no education owned tractor compared to 69% of the farmers with master level education.

Education, Ownership of Tractor, Agri Implements

Education Level	Frequency		Tractor Owned		Agri Implements Owned	
	#	% of Total	Resp. #	% of Categor	Resp. #	% of Category
No. Education	74	25%	25	34%	8	11%
Primary	58	19%	31	53%	9	16%
Matric	100	33%	46	46%	17	17%
Intermediate	39	13%	23	59%	9	23%
Graduate	16	5%	8	50%	3	19%
Master	13	4%	9	69%	5	38%
Total	300	100%	142		51	
Correllation Coefficient:				0.7902		0.7908

Further only 11% of the farmers with no education had other Agri Implements, whereas 38% of those with master level education owned these Implements. It implies that farmers with better education have greater tendency towards adopting mechanized methods of cultivation.

Agri Extension Shop

The Agricultural Extension Shops has been established by Punjab Agricultural Department to facilitate the farming community and to promote farm mechanization. A very large majority (92%) of the respondents had access to Agri Extension Shops.

Agri Extension Shop:

Shop in town/tehsil	No of Farmers	Percent
No	24	8
Yes	276	92
Total	300	100

The finding is very encouraging and is indicative of the success and effectiveness of the Punjab Agricultural Department initiative. The shops are particularly useful for small farmers who don't have the capacity and scales to buy their own tractors and other implements. Further for small and subsistence farmers it is generally more economical and prudent to use the rented implements instead of purchasing their own as due to smaller land holdings, the owned implements usually remain under utilized.

7- AGRICULTURE RESEARCH & EXTENSION FACILITIES

76% of the farmers had awareness about the Agricultural Research & Extension facilities offered by the Agriculture Extension Department. 56% were approached by Research & Extension Department and informed about the innovations in the sector and new farming techniques and technologies. 42% of the farmers covered by the survey attended the Natural Resource Management (NRM) Programs arranged by the department during last 03 years. However, only 31% of the farmers were satisfied with the support and the facilities of the department and a large majority (69%) expressed their reservations on the scope and quality of services and support being provided by the department. Most of them complained about non-cooperation of the Agri department and said that the information about latest research and technology for improving farm productivity as well as high yielding seed varieties hardly reach them. Moreover, R & E department advice is usually not backed by the availability of inputs at the cheaper rates thereby compelling the farmers to purchase the low yielding inputs particularly the seeds.

Agriculture Research & Extension Facilities:

R & E Facilities	Total	Yes	Percent
Awareness about R & E	300	227	75.7
Access to R & E	300	167	55.7
Access to Natural Resource Management	300	126	42
Satisfaction about R & E programs	300	94	31.3

The table below gives a relationship between education and access to R&E facilities. Although there is a moderate positive correlation between the education level and awareness and access to the R&E services, more or less most farmers irrespective of their education level have awareness and access to R&E services. The finding is indicative of an extensive network of Extension Department.

Education Vs. Access To R & E Services

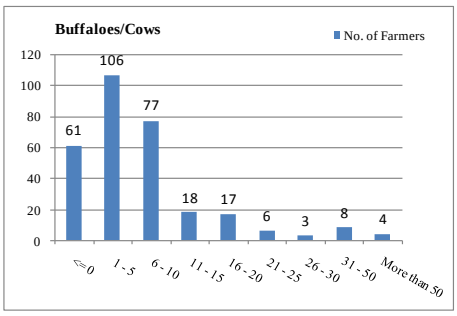
Education Level	Frequency		Research & Ext.		Natural Rsourc. Mngmnt	
	Resp. #	% of Total	Resp. #	% of Category	Resp. #	% of Category
No. Education	74	25%	60	81%	45	61%
Primary	58	19%	39	67%	19	33%
Matric	100	33%	74	74%	38	38%
Intermediate	39	13%	29	74%	21	54%
Graduate	16	5%	13	81%	10	63%
Master	13	4%	12	92%	1	8%
	300		227		134	
Correlation				0.4495		-0.3831

However, there seems to be a substantial room for improvement in the quality of the services being extended by the Extension Department, as most of the respondents were not satisfied with the R&E services being extended.

Further there was a negative correlation though moderately weak, between education level and availing of NRM programs. This may be due to elementary nature of NRM programs, which may be of limited value/use for the educated farmers. This again signifies the need for improvement in quality of NRM programs and other initiatives for enhancing farmers' awareness about new farming techniques etc.

8- LIVESTOCK

Buffaloes/Cows



About 80% of the respondent farmers had buffaloes/cows both to meet their domestic milk needs and to generate some additional revenue through sale of milk.

35% farmers had up to 5 buffaloes/cows and about 61% had up to10 animals. Only 19% of the farmers had more than 10 buffaloes/cows and only 7% had 21 or more cows/buffaloes. This pattern of animal holdings suggests that most of the animal rearing activity is to meet family milk needs and or to have some additional income through sale of milk and that commercial dairy farms are almost non-existent in the area. It further suggests that livestock is not the major source of income of most of the farmers in the area. About 38% farmers in the district rear the animals exclusively for family milk needs. 24% farmers were keeping the animals both for their own milk needs and also for selling the milk in market. About 6% kept animals to meet their family milk needs and also to sell the animals in the market. 11% farmers were rearing buffaloes/cows for family milk needs, commercial sale of milk and selling the animals in the market. About 20% farmers don't rear the animals at all. These 20% are having employment, grocery stores, poultry and fish farms etc.

Purpose of Rearing Animal:

Purpose of Rearing	No. of Farmers	%age
Family milk needs	115	38.3
Sale of Animal	1	0.3
Family milk needs & Sale of Milk	74	24.7
Family milk needs & sale of animals	16	5.3
Family milk needs, Sale of Milk & sale of Animal	33	11.0
Not Rearing	61	20.3
Total	300	100

Further 82% of the farmers were not rearing ox/males buffaloes; 15% had just one ox/male buffalo and only 1.7% had up to 4 ox/males buffaloes. This suggests greater tendency of the farmers to adopt Artificial Insemination for getting the animals fertile and the declining use of natural process for animal fertility.

Further only 6% of the respondent farmers were rearing goat/sheep with none of them having more than 4 goat/sheep. This is indicative of no focus on meat/goat farms in the area.

Do Land Holdings and Education affect Animal Rearing Activity of Farmers?

There is a positive correlation between size of landholding and number of animals owned. The farmers with large land holding tend to own higher number of animals than the farmer with smaller landholdings. For instance farmers with land holding of 25 acres or more were having on average 15 animals whereas the small land holders having up to 5 acres had on average 6 animals.

Similarly there exists a positive correlation between education level and livestock activity, though not very strong. The farmers with higher education levels tend to

Land Owned vs. Livestock Rearing

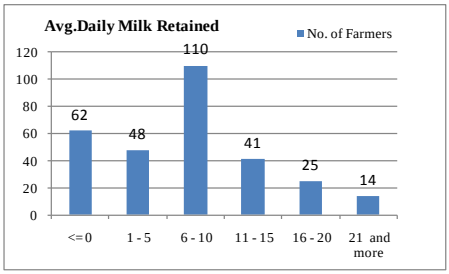
Land Holding	Frequency		Livestock Rearing	
	Resp. #	% of Total	Avg. #	Max. #
Upto 5 Acres	82	27%	6	41
5-12.5 Acres	113	38%	8	36
12.5-25 Acres	47	16%	11	71
25-50 Acres	38	13%	15	75
=or> 51 Acres	20	7%	20	51
Total	300			

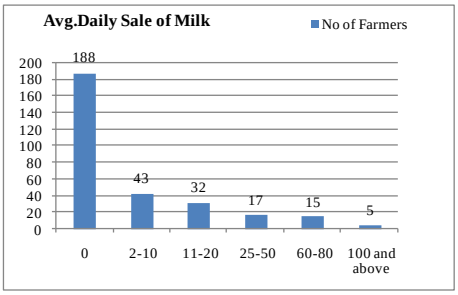
Education Level Vs. Livestock Rearing

Education Level	Frequency		Livestock
	#	% of Total	Avg. #
No. Education	74	25%	10
Primary	58	19%	11
Matric	100	33%	8
Intermediate	39	13%	10
Graduate	16	5%	11
Master	13	4%	18
Total	300	100%	
Correllation Coefficient:			0.4950

have more animals than the farmers with no or lower education levels. Particularly the farmers with master's level education had on average 18 animals which was highest amongst all categories of farmer based on education level. However, this may not be generalized in view of the limited sample size (just 13) respondent farmers that fall under this category.

Milk Production, Retention and Sales





About 80% of the farmers (total 238) were rearing buffaloes and cows and on average produce about 25 liters of milk daily out of which about 11 liters is retained for own consumption and the remaining milk is sold in the market. The 47% farmers rearing livestock were engaged in commercial sale of milk and were on average producing 40 liters of milk daily out of which about 29 liters was sold in the market and remaining 11 liters was retained to meet the family milk needs. 48.7% of livestock farmers were rearing animals just to meet their family milk need and were on average producing 11 liters of milk daily and retaining whole production to meet the family milk needs. As most of the farmers are rearing a few animals (61% had up to 10 animals) they don't use modern techniques and latest technology in animal rearing and thus the yields are pretty low. The milk production could be substantially improved by creating awareness about the best practices in the animal care and feed etc and also by promoting dairy farming on commercial basis. The livestock rearing activity not only meet the family milk requirements but also generates some additional and regular cash flows for the farmers to meet the routine daily expenses.

Milk Chillers and Milk Collection Centers

None of the farmers except 2 had their own chillers purchased through personal savings or loans from friends and family. Further only 05 farmers had access to central milk collection center established by Nestle nearer to one of the villages. The remaining about 98% livestock farmers were selling all the milk in access of their family requirements in the village or in the nearby town. The increase in the number of chillers or the central milk collection centers would reduce milk wastages, improve the price of milk being fetched by the farmer and would encourage small farmers to increase the size of their animal holdings as well as the productivity (milk yields) of the animals.

Availability of Milk Chillers:

Farmer has Milk Chiller	No. of Farmers	Percent
No	298	99.3
Yes	2	0.7
Total	300	100

Access to Milk Collection Centre:

Access to Centre	No. of Farmers	Percent
No	295	98.3
Yes	5	1.7
Total	300	100

Veterinary Hospital Facility

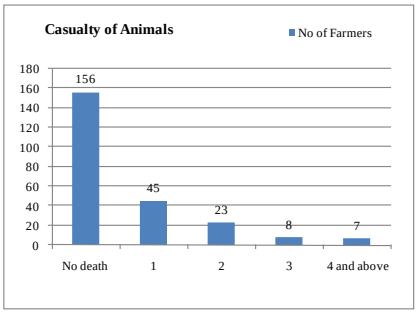
46% of the respondents' farmers had no access to the veterinary hospitals. Only 19% have access to the veterinary hospitals/clinics within a distance of 1-2 KM, 23% within 3-5

Access to Veterinary Clinic/Hospital:

Access to Clinic/Hospital	No of Farmers	Percent
No access	138	46
1-2	56	18.7
3-5	70	23.3
6-11	36	12
Total	300	100

KMs and 12 % within a distance of 6-11 KMs. Most of the farmers who have access to the facilities call the doctors on request as and when need arises i.e. the sickness of the animal or some periodic check-up of the animals. About 5% of the farmers obtain veterinary facilities/doctor visits free of cost whereas 43% on average pay Rs. 500/- to veterinary doctors for each visit.

Casualty of Animals



About 65% of farmers rearing buffaloes/cows did not experience any casualty of the animals during last one year. 19% reported casualty of one animal, 8% lost 2 animals, 3% lost 3 and about 2% lost 4 or more animals during last one year. Stomach problem, complications during delivery/pregnancy, fever and gulgoto were the major causes of deaths/casualties of animals during the year.

Artificial Insemination

Access & Awareness about Artificial Insemination:

Access & Aware about AI	No of Farmers	Percent	Adj. %age
No	16	5.3	6.7
Yes	223	74.3	93.3
Not rearing	61	20.3	
Total	300	100	100

74% of the respondent farmers had access to and awareness about the Artificial Insemination (AI) facilities; only 5.3% had no information about AI whereas 20% had no animal. About 58% of farmers rearing animals used the AI during last 1 year to get their animals' fertiled whereas 19% used the natural process. The response about satisfaction with AI was mixed with 31% opting not to respond, 9% reported negative results and only 11% considered it successful. The limited awareness about the benefits of AI coupled with scarcity of trained staff to undertake AI may be some possible explanations of this mixed response to AI. It is however expected that the misperception about AI would subside with the improvements in awareness levels as well the AI related capacity.

Satisfaction about Animal Rearing Activity

Satisfaction about Animal Rearing Activity:

Animal Rearing Activity: Satisfaction	No. of Farmers	Percent	Adj. %age
Good	140	46.3	64.2
Bad	60	20	27.5
Economical & safe	18	6	8.3
Not rearing	61	20.3	
Not responded	21	7	
Total	300	100	100

Contribution of Livestock in Family Income:

Livestock Contribution	No. of Farmers	Percent
<= 0	180	60
1 – 10%	52	17.3
11 – 20%	34	11.3
21 – 30%	22	7.3
More than 30%	12	4
Total	300	100

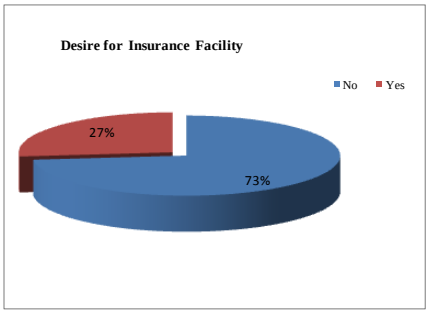
About 66% of the respondent farmers engaged in animal rearing activity were quite satisfied with their animal rearing activity whereas about 25% expressed their dissatisfaction as they had suffered losses in the shape of animal deaths etc. about 9% opted not to respond to this question. The livestock contributes towards the family income of about 50% of the farmers engaged in rearing livestock, with minimum and maximum contribution of 1% and 90% respectively. It constitutes up to 10% of the family income of about 22% of the farmers engaged in animal rearing, 11-20% of 14% of the farmers and more than 20% of remaining 14% farmers engaged in livestock rearing.

Further about 60% of the respondent farmers are of the view that animal rearing activity provides them hedge against the unexpected/unplanned expenses. Whereas almost all the farmers rearing animals considers that it provides them the food security.

66% of livestock farmers would like to increase the animals provided they have additional income/savings which is again reflective of overall satisfaction of the livestock farmers with the livestock rearing activity/business.

Insurance Facility

Only 27% farmers would like to avail the insurance facility for the animals while rest of the population would not like to have the facility largely due to limited awareness about the facility, its benefits, costs and operational mechanism. The ratio of farmers willing to avail the facility would improve with the improvement in awareness levels about the benefits of the facility and lessening of apprehensions about the cost of the facility and realization of claims.



9- ACCESS TO FINANCE

Bank Accounts

About 47% of the respondent farmers had bank accounts; 18% were maintaining the account since 1-5 years, 12% since 6-10 years and the rest about 17% were maintaining the bank accounts for over 10 years. 53% of the farmers covered in the survey had no bank account. Further the family members of only 17% farmer were having bank accounts. The wide scale exclusion of the farmers from the net of banking services could be attributed to among others low presence of banks in the near vicinity of the villages. Only 37% of the farmers had any bank branch within a radius of 5 KM from the village[10]. Thus about 63% of the respondents were living in un-banked/under-banked areas. If this is the position in the rural areas of a district of Central Punjab where the concentration of banks is among the highest then one could assess the level of exclusion of the rural communities of Southern Punjab, interior Sindh, Baluchistan and far flung areas of N.W.F.P.

Bank Accounts:

Bank account	No. of Farmers	Percent
No	158	52.7
yes	142	47.3
Total	300	100

No. of Account of Other Family Members:

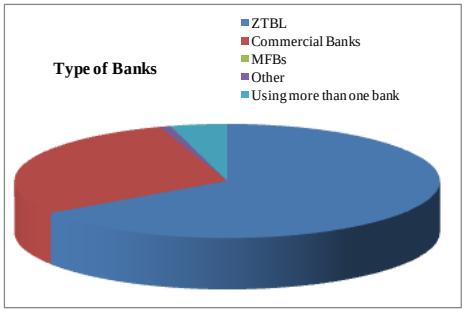
No. of Account	No. of Farmers	Percent
No	250	83.3
1	25	8.3
2	16	5.3
>2	9	3
Total	300	100

Access to Bank Loans

About 39% of the farmers had obtained loans from banks, whereas 51% had taken loans from informal sources including Friends and Family, Input Suppliers and Arties; about 10% of the respondents had not taken loans from any source, formal or informal. This suggests that about 90% of the respondent farmers needed credit facilities of which just over 42% had taken loans from banks and the rest about 58% had to rely on informal sources to meet their funding needs. Although the proportion of farmers reached by banks in the area is much better than the national average of about 25%, still a large majority of the farmers needing the credit facilities is out of the banking services' net and accessing informal sources to meet their credit needs. Further about 66% of those who took loans from banks were ZTBL clients and commercial banks as a whole could tap the remaining 34%. This suggests that ZTBL still dominates in Agrifinance and is covering more than twice the farmers being reached by all commercial banks jointly. Although the finding cannot be generalized for all the rural areas, however if this is the position in a Central Punjab District where the concentration of commercial banks is among the highest, then the ratio could hardly be better in other districts of the country. The position may be attributed to relatively large sized borrowers being tapped by commercial banks.

Type of Banks:

Type	No. of Farmers	% age	Adj.% age
ZTBL	76	25.34	65.5
Commercial Banks	34	11.34	29.3
MFBs	0	0	0.0
Other	1	0.34	0.9
Using more than	5	1.67	4.3
No loan from Banks	184	61.34	
Total	300	100	100



[10] Based on farmers response to the question that whether there is a branch within a 5 KM radius and thus might have some estimation errors.

A further analysis of access to bank loans suggests strong positive correlations between size of land holdings and bank loans as well as between education levels and probability of accessing bank loans.

Land Ownership, Bank A/C and Bank Loan Availed

Land Holding	Frequency		Bank A/C Maintained		Bank Loan Availed	
	Resp. #	% of Total	Resp. #	% of Category	Resp. #	% of Category
Upto 5 Acres	82	27%	23	28%	18	22%
5-12.5 Acres	113	38%	55	49%	46	41%
12.5-25 Acres	47	16%	25	53%	15	32%
25-50 Acres	38	13%	22	58%	22	58%
=or> 51 Acres	20	7%	17	85%	16	80%
	300		142		117	
Correlation Coefficient				0.9507		0.9195

The farmers with larger land holding have higher tendency to maintain bank accounts and better access to bank loans. The correlation between size of land holding and bank accounts is 0.95 and that with availing bank loans is 0.92.

Education Vs. Access to Finance:

Education Level	Frequency		Bank Loan	
	Resp. #	% of Total	Resp. #	% of Category
No. Education	74	25%	20	27%
Primary	58	19%	21	36%
Matric	100	33%	38	38%
Intermediate	39	13%	23	59%
Graduate	16	5%	8	50%
Master	13	4%	7	54%
	300		117	
Correlation				0.8816

Similarly the educated farmers have greater tendency to maintain bank accounts and avail bank loans. For instance, 69% and 92% of the farmers with graduate and master level education were maintaining bank accounts. The coefficient of correlation between the education level and the account maintenance is 0.95. The correlation between education and availing of bank loan is 0.88.

Time Consumed in Obtaining Loan

Time Consumed in Obtaining Loan:

No of days	Frequency	Percent	Adj. %age
Loan not Taken	184	61.3	
Up to 7 days	10	3.3	8.6
8-15 days	32	10.8	27.6
16-30 days	30	10	25.9
2 month	22	4	19.0
3 months or more	22	7.3	19.0
Total	300	100	100

36% of the farmers who took loans from banks consumed up to 15 days in obtaining the loan, 26% consumed 16-30 days, 19% 2 months and another 19% consumed 3 months or more for obtaining the loan. 2 respondents consumed more than 01 year for obtaining the loan. Although a good number of farmers, 36%, obtained bank loans within 15 days, there is a need for considerable improvement in turnaround time of banks in processing the farmers' loan applications.

References Used for Obtaining the Loan

Education Vs. Method used to Get Bank Loan

Education Level	Frequency		Reference Used		Undue Source	
	Resp. #	% of Total	Resp. #	% of Categor	Resp. #	% of Category
No. Education	74	25%	15	20%	15	20%
Primary	58	19%	13	22%	14	24%
Matric	100	33%	24	24%	21	21%
Intermediate	39	13%	14	36%	15	38%
Graduate	16	5%	7	44%	5	31%
Master	13	4%	6	46%	3	23%
	300		79		73	
Correlation				0.8955		0.4519

Almost 70% of the farmers who obtained loans from banks used references/connections to get the loan sanctioned; the rest 30% however obtained the loans without any reference. Interestingly the educated farmers had greater tendency to use connections and references to get the bank loans than the uneducated farmers. For instance, 44% and 46 % of farmers with graduate/ & master level education used reference for obtaining the bank loans as against 20–24% of the farmers with no or up to matriculation level education who used references to get bank loans. The coefficient of correlation between education level and reference used is very strong at 0.90.

The finding that most farmers used references to obtain bank loans is reflective of continuation of past practices in banks for extending loans based on references, political or personal. It also lends credence to the general perception amongst the public that references or some links with the bank staff etc is essential for obtaining the bank loans.

Undue Considerations for Bank Loans

63% of the farmers who obtained bank loans said, they had to use undue consideration, money or in kind, to obtain the loan. This is again reflective of continuation of the practices of the era of public sector banking and is in line with the general public perception that references/undue considerations are still required to obtain bank loans.

Undue Considerations for Bank Loans:

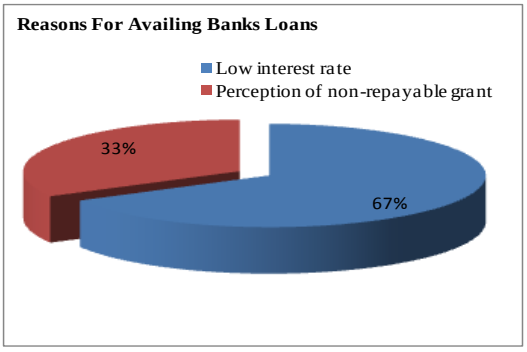
Undue consid.	Frequency	Percent	Adj. %age
No	43	14.3	37.1
Yes	73	24.3	62.9
Not taken	184	61.3	
Total	300	100	100

Reasons for Availing Banks Loans

67% of the farmers who took bank loans preferred the bank loans due to relatively lower interest rates being charged by banks than the informal sources. The rest 33% however considers the bank loans as non repayable grants. The finding that a large majority of the farmers considers bank loans cheaper than the loans from informal sources is in line with the studies done elsewhere both within and outside the country that the access to bank loans and not their price is the key issue faced by the farming community. It also lends credence to the opinion that though the banks' agri-loans are relatively expensive than the corporate loans they are much cheaper than the loans from informal sources and that if provided access most of the farmers needing credit would like to take loans from banks rather than the informal sources.

Reasons for Availing Banks Loans:

Reasons	Frequency	Percent	Adj. %age
Low interest rate	77	25.67	24.3
Perception of non-repayable grant	38	12.7	61.3
Not taken	184	61.3	14.3
Not responded	1	0.3	100
Total	300	100	61.3



The finding that 33% farmers consider bank loans as non-repayable grants is reflective of banks' limited success in creating credit culture in the rural markets. The governments off and on announcements for writing off agri-debt, particularly for ZTBL borrowers, also give rise to such expectations and thus cause difficulties for banks in loan recoveries as well as promotion and development of credit culture in rural areas.

Reasons for Not Taking Loan from Banks

Lack of Awareness

About 34% of the farmers who did/could not take bank loans said that they had no information about the financial services\products being offered by banks for the farming community. Although a large majority had some information

Reasons for Not Taking Loan from Banks (# of Responses)

	Loan Not Taken			
	Yes		No	
Reasons Not Taking Loan	Freq.	%	Freq.	%
Lack of awareness	62	33.7	122	66.3
Lack of Collaterals/land Ownership	107	58.2	77	41.8
Difficulties/Delay in obtaining Passbooks	151	82.1	33	17.9
Religious Grounds-	165	89.7	19	10.3
Low Productivity	132	71.7	52	28.3
Cumbersome Procedures	158	85.9	26	14.1

about the financial services, still a substantial proportion lacks even the minimum information about the financial services. The position may be attributed to limited presence of banks in the area coupled with limited number of Agrifinance officers and traditional loan marketing and sales systems of banks.

Lack of Collaterals/land Ownership

More than 58% of the farmers who did/could not take bank loans did not have adequate collaterals acceptable to banks for grant of loans; most of these farmers lacked satisfactory title to property/piece of land. The position may be attributed to long delays in updation of revenue records particularly in case of inherited properties which remain in the name of deceased persons.

Difficulties/Delay in obtaining Passbooks

A very large majority of farmers, 82%, which could not obtain bank attributed non-cooperation and non-issuance of passbooks by revenue department a key hurdle in obtaining the bank loans. Most of them complained about the long delays and thus wastage of their precious time in issuance of passbooks. They also complained about the attitude of the revenue officials who demand speed moneys for early issuance of the pass books.

Religious Grounds-Interest Based Loan Products

About 90% of the farmers who did not take bank loans and 55% of all the respondent farmers expressed their dislike of interest based products and said that they don't want to take the interest bearing bank loans. Although this finding signifies the need for introduction of Islamic Agrifinance Products, however the finding may be somewhat biased as a large number of these farmers also considered lack of collaterals/defects in title deeds and non-cooperation by revenue department as the key hurdles in obtaining banks loans. Nevertheless there is substantial demand for Sharia compliant agrifinance products and if offered most of the farmers would be willing to avail the facility.

Low Productivity

72% of the farmers who did not take bank loans also considered low productivity of their farms as a hurdle in obtaining the loan. This observation is also somewhat biased as most of the farmers had obtained loans from arties/input suppliers. There were however farmers whose production was just enough for meeting the domestic requirements and to pay off the dues/loans taken from arties etc.

Cumbersome Procedures/Extensive Documentation

86% of the farmers who did not take bank loans had the perception that the banks' procedures for granting the loans are lengthy and tedious that also discourages them to obtain the bank loans.

Informal Sources of Finance

As only 39% of the respondent farmers have access to bank loans in the area, most of the farmers are relying heavily on informal sources to meet their funding requirements. Further most of the farmers (76%) who have taken banks loans are also taking loans/credit from arties/input suppliers. This is indicative of almost total reliance of the farming community, with or without access to bank loans, on informal sources, particularly the arty and input suppliers. A very large majority of respondent farmers (73%) have taken loans from arties, whereas 63% have taken loans from input suppliers, whereas 59% of the farmers have taken the loans/credit both from arties and input suppliers.

Loans Taken & Outstanding from Any source:

	Friends	Suppliers	Arties	Banks	Not Taken
Friends	**54**	34	32	9	
Suppliers	34	**189**	176	84	
Arties	32	176	**218**	89	
Banks	9	84	89	**117**	
Not Taken					**31**

The heavy reliance of the farming community on arties/input suppliers could be ascribed to convenience and easy and timely availability of the informal loans/credit without any documentary requirements. It also signifies the need for developing linkages between formal and informal sources of finance to increase outreach of financial services in rural areas. Further most of the farmers in the area are using multiple sources of credit to meet their funding needs, which suggests that the farmers' funding needs are larger than the funds being extended by banks or other lenders. It may also be due to somewhat over indebtedness of the farmers as they may be using one source to pay off the loans/dues of the other source.

Obligation to Sell the Produce to Arty/Input Supplier

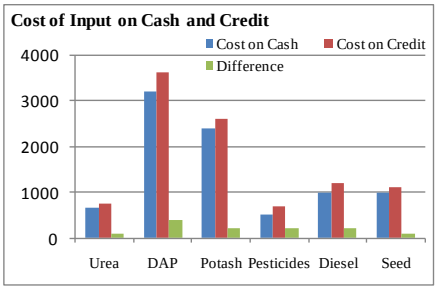
About 66% of the 189 farmers who had taken loans/credit from Input Suppliers (IS) were obligated to sell the produce to the suppliers. The obligation is more predominant in case of loans from arties as about 78% of the 218 farmers who had taken loans from arties were under obligation to sell the produce to the arty.

Obligation to Sll to Arty:

Obligation to sell to Arty	Frequency	Percent
No	47	21.6
yes	171	78.4
Total	218	100

Cost of Input on Cash and Credit

A further analysis of loans from arties/IS shows that the farmers on average pay Rs.150-200 more on each purchase of Rs.1000 on credit from the supplier. As the credit is for 6 months the average rate being charged by the suppliers is 30%-40% per annum. The rate, though lower than normal perception of 36-60% per anum, is still much higher than the banks' interest rate of about 16% p.a. Interestingly, the arty/IS also rate the farmers based on their life style, past repayment behavior etc. The farmers with better repayment behavior get a better price than the farmers with problematic repayment behavior.



Cost of Input on Cash and Credit:

S.No	Type of Input	Cost on Cash	Cost on Credit	Difference
1	Urea	650	750	**100**
2	DAP	3200	3600	**400**
3	Potash	2400	2600	**200**
4	Pesticides	500	700	**200**
5	Diesel	1000	1200	**200**
6	**Seed**	**1000**	**1100**	**100**

Difference in Price of Produce

The farmers who had taken loans/credit from IS/arty and were under obligation to sell the produce to the IS/arty, got relatively fewer price of their produce. About 41% of the wheat farmers and 35% of rice farmers who had taken loans from IS got Rs.50 per maund lesser than the market price. Whereas 24% and 29% of wheat and rice farmers respectively fetched Rs.100 per maund lower than the market price. Thus the farmers accessing loans from IS/arty are not only charged higher prices of input but also paid lower prices of their produce by IS/arty.

Difference in Price of Produce:

Difference in price (Rs)	For Wheat	Percent	For Rice	Percent
No Difference	95	31.7	95	31.7
1-50	110	36.7	93	31.0
51 - 100	41	13.7	49	16.3
101 - 150	15	5.0	20	6.7
151 - 200	6	2.0	9	3.0
200 - 400	0	0.0	1	0.3
open market	23	7.7	23	7.7
Not responded	7	2.3	7	2.3
Not sold	3	1.0	3	1.0
Total	300	100	300	100

10- KEY ISSUES

High Energy Cost

The high energy cost coupled with frequent power outages was one of the key problems faced by all the respondent farmers. The power outages particularly in case of rice, which continuously need water, substantially increase the production cost as the farmer has to use diesel engines for meeting their water requirements. Due to energy crisis farmers were hopeless which has definitely reduced the per acre yield of the farmers.

Key Issues:

Sr. No.	Key Issues	Yes	Count	Percentage
1	High Energy Cost	Yes	300	100.0
2	Water Shortage	Yes	293	97.7
3	Inferior quality of inputs/ Pesticides/seeds etc.	Yes	178	59.3
4	Research/ Non dissemination of latest Research	Yes	250	83.3
5	Difficulties in marketing & selling the products	Yes	223	74.3
6	Lack of capital and financial resources	Yes	265	88.3
7	Time lost in the processing/ sanctioning of credit	Yes	256	85.3
8	Lack of farm to market roads	Yes	253	84.3

Water Shortage

97.7% farmers consider water shortages due to outdated canal irrigation system, which is depleting day by day. The existing tube wells are also not meeting the requirements of the farmers due to lowering of water level. The high diesel prices also inhibit the farmers' ability to adequately and cost effectively water the fields.

Inferior Quality of Inputs

59.3% farmers consider that the seed available in the market is of inferior quality and thus affect the farm productivity.

Non-dissemination of Latest Research

83.3% respondents opined that limited or no access to latest research and farming techniques is an issue, which if resolved substantial improvement in farm productivity could be achieved.

Difficulties in Marketing & Selling the products

74.3% respondents replied that they are facing difficulties in marketing & selling the products because most of the villages are situated far away from main roads and arty system bounds them to sell their products to arties and they have no alternatives for selling the product. Govt. support price system is not attractive to the farmers as it does not reflect the true remuneration of their efforts.

Lack of Capital & Financial Resources

88.3% respondents considered that lack of capital and financial resources is one of the key issues faced by them that limit their ability to expand and enhance farm and non-farm activities.

Time lost in Processing & Sanctioning of Credit

85.3% respondents replied that loan sanctioning procedure is very complex, lengthy and time consuming that discourages the farmers to access bank loans, which is also evident with the fact that 61% farmers in the district are out of the banking net.

Lack of Farm to Market Roads

84.3% respondents opined that lack of farm to market roads is also one of the key issues faced by them that limit their ability to fetch better prices of their produce and also cause substantial post harvest losses.

While most of the issues discussed above are faced by most of the farming community across the country, however there seems to be some elements of biasness in these responses as probably the respondents said "yes" to most of the options/problems discussed with him/her by the interviewer. These elements/chances of biasness should be kept in perspective while interpreting the findings regarding key issues faced by the farming community of the districts.

11- CONCLUSION

The Gujranwala district's agri survey (a pilot project - the first of its kind) is the beginning of a series of agri surveys to be conducted in various districts/regions for better exploring the dynamics of rural economies and thus facilitating all stakeholders including banks to enhance their understanding of the neglected areas/segments of the economy. The survey takes a deeper look into the district's rural economy and gives useful information and insights about all sub-sectors as well as the characteristics of the rural clientele of the district. The following paragraph summarizes the key findings of the survey:

- 65% farmers of district are subsistence farmers holding up to 12.5 acres of land, 81% hold up to 25 acres;
- Though farming is the major source of income of almost all the farmers, they have multiple sources of income and cash flows with 80% rearing livestock and the remaining 20% having employment, grocery stores etc in addition to farming;
- 'Wheat' and 'Rice' are the two major crops of the area and almost all the respondents were cultivating both the crops. The average per acre yield of wheat and Rice of the respondent farmers was 31.57 maunds and 34.41 maunds respectively. The average per acre cost of production of wheat and rice was Rs.11,334/- and Rs.16009 respectively;
- Most of the farmers sold their crops to arties and input suppliers (IS) due to convenience and or compulsion under the loans/credit etc taken from them. If given an option most of the farmers would sell their produce in open markets. Only less than 10% farmers sold their produce to the government outlets which shows large scale discontent with the Government support price system;
- No commercial storage facility is available in any of the villages surveyed. About 74% of farmers would like to have commercial storage facility in the near vicinity of their villages.
- All the respondents are using tractors and other agricultural implements like Harvesters, Threshers, and Rooters etc. 47% had their own tractors whereas 53% used rented tractors;
- 35% farmers had up to 5 buffaloes/cows and 61% had up to10 animals; only 7% had 21 or more animals; it provides food security to most of the farmers and 66% would like to increase the animals provided they have additional income/savings;
- Only 37% of the farmers have a bank branch within a radius of 5 KM from the village[11] and thus about 63% are living in un-banked areas.
- 39% had obtained loans from banks, of which 66% were ZTBL clients and 34% commercial banks' clients;
- 67% of those who took bank loans consider the bank loans relatively cheaper than the loans from informal sources, whereas the remaining 33% consider the bank loans as non repayable grants;
- 51% had obtained loans only from informal sources whereas 10% did not take loans from any source, formal or informal;
- The informal sources of finance particularly arties/input suppliers have absolute dominance in the rural credit market of the district. 73% farmers had taken loans from arties and 76% of those who had taken loans from banks had also obtained loans from arties/input suppliers.

[11] Based on respondents' response to the query whether there is a branch within a 5 KM radius and thus might have some judgment errors

The findings would help SBP to better design and focus its policy, regulatory and developmental initiatives for increasing flow of funds to the agricultural/rural communities. This may form some basis for further review of the branch licensing policy to minimize the financial exclusion of the rural masses. Similarly it emphasizes the need for further improvement in awareness and information dissemination programs to enhance awareness of the farming community about the financial services. With more than two third of agri-loans still with ZTBL, it highlights the limited presence of commercial banks in the rural credit market of the district. The position may be even worse in other districts as the concentration of banks in Central Punjab is amongst the highest. The large scale absence of commercial banks from the rural markets despite extensive SBP efforts to mainstream the agri/rural finance in the country's financial system, emphasize the need for review in our approach towards mainstreaming of agri/rural finance.

The survey would also help commercial banks in improving their understanding of the district's rural economy and thus enable them to comfortably enter the market and improve their agri/rural finance portfolios. The absolute dominance of informal sources like arties in rural credit markets is attributable to limited presence of banks in rural areas and banks' complex and lengthy procedures for processing loan applications, which force the farmers to access relatively expensive loans from informal sources; the arties & IS are easily accessible to all farmers and require no or minimum documentations for extending loans. The survey suggests that if provided easy access, the farmers would prefer bank loans over the informal loans. While it may not be possible for banks to bring their documentation requirements at par with the informal sources, however the procedures could be further simplified and some of the documents could be eliminated to encourage the farmers to obtain bank loans. The possibility of introducing equitable mortgage for securing agri-loans may be an option which can be explored. This would enable the farmers to obtain loans against deposit of land/property title deeds with the banks and save considerable time and resources consumed in obtaining passbooks from the Revenue Department.

The insurance companies may also find the survey findings useful for developing and introducing crop and livestock insurance products for the rural communities. The information about history of crop failures and reasons thereof would be of particular interest for the insurance companies and would help them in assessing the risk profiles of various sectors/sub-sectors of the district's rural economy.

The survey findings are equally important for government departments particularly the Provincial Agricultural Departments and their Extension Wings and the Revenue Departments. Only 31% farmers are satisfied with the scope and quality of services being extended by the agricultural department and a very large majority complains about the delays and difficulties in obtaining passbooks from Revenue Department. The issues relating to seeds, pesticides, fertilizers, water, electricity, passbooks deserve immediate attention of the concerned departments and necessitate review and reforms in these departments' respective policies and approach to better serve the farming community.

Finally these findings would also motivate academicians, researches and even bankers to come forward and explore these aspects in further depth so that the process of development could be accelerated for the betterment of rural communities.

LIST OF SURVEYED VILLAGES

Tehsil Wazirabad

S. No	Village	UC	Tehsil	Persons Surveyed
1	Manzoorabad	Manzoorabad	Wazirabad	5
2	Kot Khizri	Manzoorabad	Wazirabad	5
3	Langyanwali	Manzoorabad	Wazirabad	5
4	Sangowali	Manzoorabad	Wazirabad	5
5	Chak Snata	Manzoorabad	Wazirabad	5
6	Bhatti Mansoor	Ojla Klan	Wazirabad	5
7	Ojla	Ojla Klan	Wazirabad	5
8	Kot Inayat	Ojla Klan	Wazirabad	5
9	Kotli Sahyan	Nat Klan	Wazirabad	5
10	Kot Noora	Nat Klan	Wazirabad	5
11	Kot Shah Mohammad	Talvara	Wazirabad	5
12	Rati	Mansoor wali	Wazirabad	5
13	Darowal	Dalawer Cheema	Wazirabad	5
14	Thath	Mansoorwali	Wazirabad	5
15	Dlawar Cheema	Dlawar Cheema	Wazirabad	5
16	Nayalo Chak	Ghaka Miter	Wazirabad	5
17	Aziz Chak	Ghaka Miter	Wazirabad	5
18	Pathan Wali	Ghaka Miter	Wazirabad	5
19	Mansoorwali	Mansoorwali	Wazirabad	5
20	Kathor Kala	Mansoorwali	Wazirabad	5
	Total			**100**

Tehsil Noshehra Virkan

S. No	Village	UC	Tehsil	Persons Surveyed
1	Pagrewala Khurd	Dograwala	Noshehra Virkan	5
2	Ram Ghar	Kot Lada	Noshehra Virkan	5
3	Pokar	Kot Lada	Noshehra Virkan	5
4	Kot Lala	Kot Lada	Noshehra Virkan	5
5	Kot Lada	Kot Lada	Noshehra Virkan	5
6	Dara Shah Jamal	Kot Lada	Noshehra Virkan	5
7	Qila Bhian	Kot Lada	Noshehra Virkan	5
8	Qila Maja Singh	Kot Lada	Noshehra Virkan	5
9	Khan Musliman	Mari Bhindar	Noshehra Virkan	5
10	Daburgi Virkan	Mari Bhindara	Noshehra Virkan	5
11	Mari Bhindara	Mari Bhindara	Noshehra Virkan	5
12	Pagara	Mari Bhindara	Noshehra Virkan	5
13	Vadran	Babbar	Noshehra Virkan	5
	Total			65

Tehsil Gujranwala

S. No	Village	UC	Tehsil	Persons Surveyed
1	hardupur	Papnagha	Gujranwala	5
2	Kot Bano Shah	Thariwal	Gujranwala	5
3	Bhatti Bango	Bhatti Bango	Gujranwala	5
4	Aroop	Aroop	Gujranwala	5
5	Balle Wala	Balle Wala	Gujranwala	5
6	Abdal	Waniwala	Gujranwala	5
7	Kotli Bangawali	Kadial Kalan	Gujranwala	5
8	Attava	Attava	Gujranwala	5
9	Kot Boani Das	Kot Boani Das	Gujranwala	5
10	Sansara Goraya	Sansara Goraya	Gujranwala	5
11	Talwandi Musa Khan	Talwandi Musa Khan	Gujranwala	5
12	Jandiaalah Baghwala	Jandiaalah Baghwala	Gujranwala	5
13	Thatta Basoo	Chahal Kalam	Gujranwala	5
14	Dhedo Duggal	Dhedo Duggal	Gujranwala	5
15	Musa Dughal	Chahal Kalan	Gujranwala	5
	Total			75

Tehsil Kamonki

S. No	Village	UC	Tehsil	Persons Surveyed
1	Ahmad Pur Virkan	Akbar Ghanokay	kamonki	5
2	Tarar	Akbar Ghanokay	kamonki	5
3	Akbar Ghanokay	Akbar Ghanokay	kamonki	5
4	Ashraf Abad	Akbar Ghanokay	kamonki	5
5	Kot Khewan Mul	Mandiala Teega	kamonki	5
6	Fazal Pur	Mandiala Teega	kamonki	5
7	Mandiala Teega	Mandiala Teega	kamonki	5
8	Chak Gillan	Mandiala Teega	kamonki	5
9	Bhoper	Mandiala Teega	kamonki	5
10	Rana	Wahndo	kamonki	5
11	Kotray	Wahndo	kamonki	5
12	Wahndo	Wahndo	kamonki	5
	Total			**60**