EXISTING STATE OF THE FARMMANAGEMENT AND ITS IMPACT ON FARM PRODUCTIVITY IN KHYBER PAKHTUNKHWA

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ABSTRACT

Pakistan is basically an agrarian economy. The greater proportion of GDP is contributed by agricultural sector. Basically the overall development of the economy isbased on the proper management of farm land andimprovement of agro-based industries. This study seeks answer to the question, "How farm land should be managed, which is conducive to enhance the farm productivity?"

The Pakistan Agriculture Council has divided the provinceinto four different climatic regions.It is proposed that one district (say stratum) selectedrandomly from each region would fairly represent the province. A complete list of villages in the sampled districts has been prepared, which serves as a sampling frame. It is assumed that the basic agrarian features within the same climatic zone are homogenous, thus ten villages from eachdistrict have been randomly chosen.The total sample size of 200 farmers has been interviewed and data on tenure statue, operational holdings,irrigation status fragmentation,water logging/salinityand land management etc. are collected.

It has been evidenced from the results and discussion below that the farm land has not been properly managed. Smallness of small farms, inappropriate tenure statusuneconomic land utilization, the problems of fragmentation, water logging and salinityindicate that the overall agrarian structure has not been appropriately managed and is not conducive toincrease the rate of economic growth. Due to this reason the overall development of the economy has been stagnant.

For appropriate farm management,it has been suggested that new policy for land reforms is required in such a way that ownership of the farm landshould not be changed, but the size of operational holdings should be equalized.There is sufficient room toimprove the farm management by proper land utilization,better cropping pattern and enhancing the intensity of cropping.

The potential size of operational holdings has been decreased, because of waterlogging and salinity. Farmers have to beeducated and guided to use gypsum and green manures or to cultivate such variety of seeds which are salt tolerant. This will reduce salinity in the soil of farm land. They may also be motivated to launch the drainage system in the water logged area. A small financial support by the state may help to rehabilitate the saline and water logged farm lands.

INTRODUCTION

Pakistan is primarily an agrarian economy. The greater proportion of GDP is contributed by agricultural sector. Basically overall development of the economy is directly based on agriculture and indirectly on the agro-based industries. Appropriate management of farm land may enhance the rate of economic growth and in turn development.

This study elaborates the existing state of the land management/ agrarian structure in the Provence. Specifically, it comments on the tenure status, size of operational holdings, land fragmentation,land utilization, irrigation modes, incidence of water logging and salinity, cropping pattern, production of major crops andland use intensity in the sampled areas. The study seeks answer to the question, "How farm land should be managed,which is conducive to enhance the farm productivity?" However, the main objectivesof the study are as follows:

- To identify the existing state of farm land management in the province of Khyber Pakhtunkhwa.
- To determine the impact of this state on the farm productivity
- To give suggestions for the appropriate management.

RESEARCH METHODOLOGY

The province of Khyber Pakhtunkhwa is divided by PARK into four different climatic regions. One district from each region has been selected randomly. A list of all villages in the selected four districts/strata has been prepared, which serves as a sampling frame for the selection of sample villages. It is assumed that the basic agrarian characteristics within the same climatic region would be homogenous, thus a few that is ten villages from each selected stratum would fairly represent the whole province.

The sample villages are also chosen on random basis irrespective of total number of villages in the selected districts. It is further proposed that five farmers from each sampled village would be selected purely on random basis (lottery method). Thus in this way the total sample size of farmers would become 200 farmers.

Keeping in view the title and objectives of the study a comprehensive interview schedule has been devised.The relevant data has beensecured from the sample farmers by face to face contact (Interview) method. For the analysis of primary data the simple analytical techniques viz. tables, graphs, percentages and averages were used.

RESULTS AND DISCUSSION

This section of the study focuses on the main elements Farm Land Management. Appropriate management of land for crop production with support of certain ingredient inputs may increase the productivity, which is conducive to improve the development of Pakistan. The important aspects of the agrarian structure have been analyzed as follows:
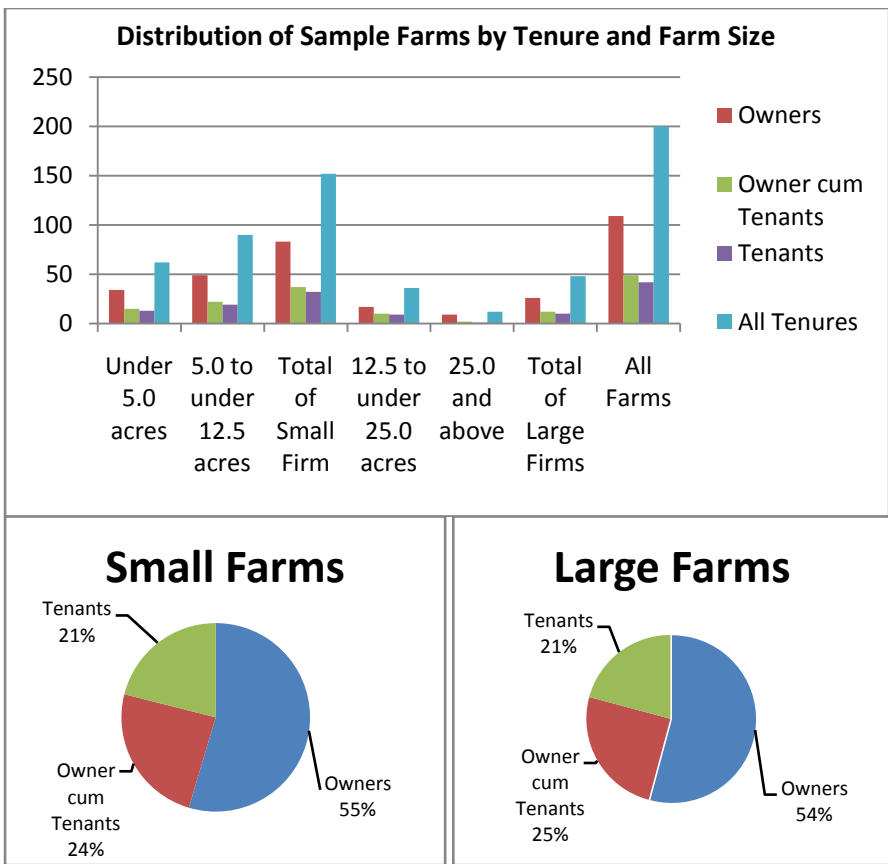
i)   Tenure Status:

Table.1 and diagram below indicate that a majority (55%) of the farmers are owners, 25% areowner-cum-tenants and 21% are as pure tenants. The sampled farms are, therefore, predominantly owner farms with some owners who could not maintain their household farms and thus have enhanced their farm sizes by renting in farm land from others. This also infers that there are land owners who either cannot or do not want to cultivate their farms themselves and have thus rented them out. This pattern of tenure status is being exhibited uniformly in small and large size farms together without any considerable variation.

Table:1. Distribution Farms by Tenure and Farm Size

Tenure	Small Farms			Large Farms			All Farms
	Under 5.0 acres	5.0 to under 12.5 acres	Total	12.5 to under 25.0 acres	25.0 and above	Total	
Owner	34	49	83	17	9	26	109
	(54.84)	(54.44)	(54.61)	(47.22)	(75.00)	(54.17)	(54.50)
Owner cum Tenant	15	22	37	10	02	12	49
	(24.19)	(24.44)	(24.34)	(27.78)	(16.67)	(25.00)	(24.50)
Tenant	13	19	32	09	01	10	42
	(20.97)	(21.11)	(21.05)	(25.00)	(8.33)	(20.83)	(21.00)
All Tenures	62	90	152	36	12	48	200
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Source: Field Survey

Note: figures in parentheses show the percentages

Distribution of Sample Farms by Tenure and Farm Size

Small Farms

Tenants 21%
Owner cum Tenants 24%
Owners 55%

Large Farms

Tenants 21%
Owner cum Tenants 25%
Owners 54%

ii)   **Operational Holdings**

Out of 1870 acres of the operational holdings, 54% is in the possession of the pure owners, 24% is managed by the owner-cum-tenant and only 22% is cultivated by the pure tenants. This distribution almost corresponds with the distribution of tenure status of farmers the discussed earlier. Again there is no significant variation in the percentages of operational holdings in the small farms versus the large farms (See table.2).

The averages of operational holdings are presented in the following table.3. These are ranging between 9.26 to 9.35 acres, which infers that the average operational holdings are within the category of the small farm size. The distribution of operational holdings among different tenure classes is somewhat uniform within each farm size i.e around 6

acres in the small farms category, around 20 acres in the large farm sizes and around 9 acres in case of all farms.

Table: 2. Total Operational Holdings by Tenure and Farm Size
(Area in Acres)

Tenure	Small Farms			Large Farms			All Farms
	Under 5.0 acres	5.0 to under 12.5 acres	Total	12.5 to under 25.0 acres	25.0 and above	Total	
Owner	34	49	83	17	9	26	109
	(54.84)	(54.44)	(54.61)	(47.22)	(75.00)	(54.17)	(54.50)
Owner cum Tenant	15	22	37	10	02	12	49
	(24.19)	(24.44)	(24.34)	(27.78)	(16.67)	(25.00)	(24.50)
Tenant	13	19	32	09	01	10	42
	(20.97)	(21.11)	(21.05)	(25.00)	(8.33)	(20.83)	(21.00)
All Tenures	62	90	152	36	12	48	200
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Note: Figures in parentheses indicate their respective percentages.

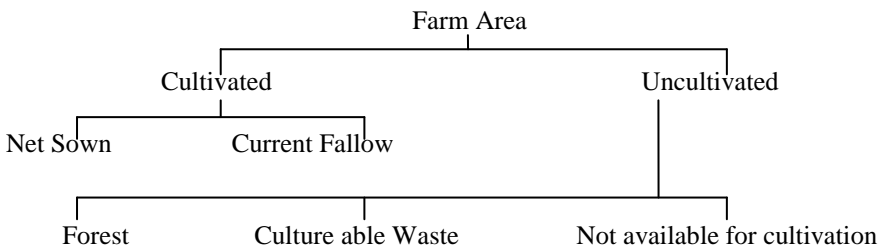## Table:3. Average Operational Holdings by Tenure and Farm Size
(Area in Acres)

Tenure	Small Farms			Large Farms			All Farms
	Under 5.0 acres	5.0 to under 12.5 acres	Total	12.5 to under 25.0 acres	25.0 and above	Total	
Owner	2.99	7.45	5.62	15.20	31.56	20.86	9.26
	(1.05)	(2.13)	(1.04)	(2.10)	(2.25)	(1.37)	(1.02)
Owner cum Tenant	3.01	8.12	6.05	17.79	27.14	19.35	9.31
	(0.76)	(1.11)	(1.30)	(2.33)	(3.51)	(2.01)	(1.00)
Tenant	3.48	9.04	6.78	17.92	26.50	18.78	9.64
	(1.01)	(1.16)	(1.03)	(3.85)	(2.43)	(2.25)	(1.05)
All Tenures	3.10	7.95	5.97	16.60	30.40	20.05	9.35
	(0.71)	(0.84)	(1.00)	(2.02)	(4.85)	(2.16)	(0.98)

Note: Figures in Parentheses are the Standard Deviations.

iii)   Land Utilization:

There are various important economic and technical factors, which affect the total output of farm. Land utilization is one of them. Appropriate land use may influence the Agriculture produce positively. Land utilization means the classification of the farm area in accordance with its use, as shown in the following figure:

Farm Area

Cultivated   Uncultivated

Net Sown   Current Fallow

Forest   Culture able Waste   Not available for cultivation

The information on land use of sample area is given in table 4, while for comparison on different farm sizes, the land utilization of sample farm area by farm size is presented in table.5 In absolute term the total sample farm area was 2592.9 acres during the survey period. The total cultivated area was 1763.75 acres (or 68.02 percent) significantly higher than the uncultivated area of 829.15 acres (or 31.98 percent).

Table:4. LAND USE OF SAMPLE AREA

Land use		Area (in acres)	Percentage
i.	Cultivated	1763.75	68.02
ii.	Uncultivated	829.15	31.98
Total farm Area		2592.90	100.00

Source:Field Survey

Although the cultivated area is approximately two times the uncultivated area, even then the land utilization may not be considered as optimal. A sufficient room was there to improve the use of land by making the culture able wastes fit for cultivation.

The details of breakup of cultivated and uncultivated areas on different farms can be seen from table 5. As a whole 62.96 percent of the total farm area was net sown area. A negligible proportion of 5.06 was left as a current fallow at the time of survey (Rabi Season). The culture able wastes constituted 19.98 percent followed by area under forests with the percentage of 8.33. The area 'not available' for cultivation equaled to 3.66 percent was not unusual. The proportions of small and large farms within each use of land are shown in parentheses. Both the sub parts of cultivated area on small farms were higher than on the large farms. In cases of small and large farms the proportions of cultivated area were 54.84 and 45.16 respectively. More or less the same situation was found in favor of total uncultivated area. However the percentages of area under 'Forests' and 'Not Available' for cultivation (55.09 and 51.58 respectively) on large farms were significantly higher relative to small farms. A remarkable figure of 61.09 percent culture able wastes was recorded on small farms.

From critical analysis of land utilization on different farms, it was observed that the proportions of different uses of land were higher on small farms with the exception of two cases that is area under forest and not available for cultivation. The former case may be attributed to

mountainous area of Hazara Division and the later may be due to area under buildings of large farm (Rich) households. A handsome wastage of culture able area on small farms may be attributed to the smallness (poverty) of the farms.

Table: 5. Breakup of Land utilization by Farm Size

Land Utilization	Small Farms		Large Farms		All Farms	
	Area	%age	Area	%age	Area	%age
(A) Cultivated Area						
Net Sown Area	899.5 (55.10)	63.04	733.0 (44.90)	62.86	1632.5 (1000.00)	62.96
Current Fallow	67.75 (51.62)	4.75	63.5 (48.38)	5.45	131.25 (100.00)	5.06
Total-A	967.25 (54.84)	76.79	796.5 (45.16)	68.30	1763.75 (100.00)	68.02
(B) Uncultivated Area						
Area Under Forest	97 (44.91)	6.80	119 (55.09)	10.20	216 (100.00)	8.33
Cultivable Wastes	316.55 (61.09)	22.19	201.6 (38.91)	17.29	518.15 (100.00)	19.98
Not available for cultivation	46 (48.42)	3.22	49 (51.58)	4.20	95 (100.00)	3.66
Total-B	459.55 (55.03)	100.00	1166.1 (44.97)	100.00	2592.9 (100.00)	100.00
Total Farm Area (A+B)	1426.8 (55.03)	100.00	1166.1 (44.97)	100.00	2592.9 (100.00)	100.00

Source: Field Survey
Note: The Net Area sown and current fallow was for the Rabi Season (Survey Period).

So far as the breakup of land utilization in different farm sizes is concerned, it also plays a vital role in the development process. The percentage of net sown area is exactly congruent with the pattern of land utilization as discussed earlier. It is 75% on the small and 64% on the large farms. The culture able wastes, however, is positively correlated with farm size, which is 13% on the small farms and 18% on the large farms.

iv)   Irrigation Status:

An interesting situation has been observed regarding the irrigated status. The percentage of irrigated farms is higher on small farms (80%) as compared to the irrigated farms on large farms (72%). On both the sizes of farms the percentages of tenant farmers, who managed the irrigated farms are significantly higher as compared to the ownerfarmers and owner-cum-tenant farmers (table.6).

Table: 6.Frequency Distribution Farms and Irrigation Status by Tenure

Farm Size and Irrigation Status	TUNURE							
	Owners		Owner-cum-Tenants		Tenants		All Tenures	
	No	%age	No	%age	No	%age	No	%age
(A) Small Farms								
Irrigated	64	**77.11**	31	**83.78**	27	**84.38**	122	**80.26**
Un-Irrigated	19	22.89	6	16.22	5	15.62	30	19.74
Total - A	83	100.00	37	100.00	32	100.00	152	100.00
(B) Large Farms								
Irrigated	18	**69.23**	9	**75.00**	8	**80.00**	35	**72.92**
Un-Irrigated	8	30.77	3	25.00	2	20.00	13	27.08
Total – B	26	100.00	12	100.00	10	100.00	48	100.00
(C) All Farms (A+B)								
Irrigated	82	**75.23**	40	**81.63**	35	**83.33**	157	**78.50**
Un-Irrigated	27	24.77	9	18.37	7	16.67	43	21.50
Total - C	109	100.00	49	100.00	42	100.00	200	100.00

The data regarding the irrigation status of cultivated and mode of cultivation are presented in the following tables 6/a and 6/b respectively.

The small farms are better placed with respect to irrigated area with 92%. On large farms the percentage of irrigated area drops to 80%. Again tenants are having a higher percentage of irrigated area than the owners and owner-cum-tenants.

The mode of irrigation is predominantly canal water; covering 60% of the irrigated area. The deficiency in canal irrigation is covered by tube-wells, irrigating approximately 18%, of farms, while the rest of the irrigated farms use the alternative means such as streams, Persian wheels, etc.

Table: 6/a Irrigation Status of the Cultivated Area By Farm Size and Tenure

(Area in Acres)

Farm Size and Irrigation Status	TUNURE							
	Owners		Owner-cum-Tenants		Tenants		All Tenures	
	No	%age	No	%age	No	%age	No	%age
(A) Small Farms (under 12.5 acres)								
Irrigated	307.34	88.74	170.10	93.28	197.75	95.65	675.19	91.81
Un-Irrigated	39.00	11.26	12.25	6.72	9.00	4.35	60.25	8.19
Total - A	346.34	100.00	182.35	100.00	206.75	100.00	735.44	100.00
(B) Large Farms (12.5 and above)								
Irrigated	253.20	76.80	135.10	80.85	148.30	83.17	536.6	79.48
Un-Irrigated	76.50	23.20	32.00	19.15	30.00	16.83	138.5	20.52
Total – B	329.70	100.00	167.10	100.00	178.30	100.00	675.10	100.00
(C) All Farms (A+B)								
Irrigated	560.54	82.82	305.20	87.34	346.05	89.87	1211.79	85.91
Un-Irrigated	115.50	17.08	44.25	12.66	39.00	10.13	198.75	14.04
Total - C	676.04	100.00	349.45	100.00	385.05	100.00	1410.54	100.00

Table.6/b Distribution of Farms by Source of Irrigation, Farm Size and Tenure

(In Percentage)

Source of Irrigation	Small Farms (under 21.5 acres)				Large Farms (12.5 and above)				All Farms			
	O	O.C.T	T	All Small	O	O.C.T	T	All Large	O	O.C.T	T	All Farms
Cannal	51.96	61.50	72.23	63.50	39.60	59.58	69.47	56.12	45.78	60.54	70.90	59.80
Tubewells	20.15	16.35	13.50	15.13	27.39	19.25	17.12	21.25	23.76	17.81	15.30	18.16
Stream	9.50	6.00	4.04	6.05	15.04	6.03	5.13	8.75	11.63	6.02	4.64	7.42
Canal + Tubewells	8.23	8.50	6.02	8.00	9.78	5.30	6.25	7.15	9.59	6.91	6.14	7.59
Others	10.16	7.65	4.10	7.32	8.19	9.84	2.03	6.73	9.11	8.75	3.08	7.03

v)   Land Fragmentation:

Land fragmentationis predominantly common in province Khyber Pakhtunkhwa. The process of land fragmentation still continues and is getting severe over time. The data indicate as many as 86% of the farms fragmented into pieces. These percentages are 88% on small farms, 79% on large, the situation different tenures is different. Its percentage on farms managed by owner farmers is 83 while it is 91% in case of tenant farmers. The problem of fragmentation being global is uniformly affecting farmers irrespective of their tenure status (Table.7). On average small farms are having 4 and large farms 5 fragmented pieces. Similarly owner farms are having 4 and tenant farms 5 fragmented pieces each (Table.7/a).

Table:7. Frequency Distribution of Farms by Size, Tenure, And Fragmentation Status

Farm Size and Irrigation Status	TUNURE							
	Owners		Owner-cum-Tenants		Tenants		All Tenures	
	No	%age	No	%age	No	%age	No	%age
(A) Small Farms								
Fragmented	71	85.54	33	89.19	29	90.63	133	87.50
Non-Fragmented	12	14.46	4	10.81	3	9.37	19	12.50
Total – A	83	100.00	37	100.00	32	100.00	152	100.00
(B) Large Farms								
Fragmented	20	76.92	9	75.00	9	90.00	38	79.17
Non-Fragmented	6	23.08	3	25.00	1	10.00	10	20.83
Total – B	26	100.00	12	100.00	10	100.00	48	100.00
(C) All Farms (A+B)								
Fragmented	91	83.49	42	85.71	38	90.48	171	85.50
Non-Fragmented	18	16.51	7	14.29	4	9.52	29	14.50
Total - C	109	100.00	49	100.00	42	100.00	200	100.00

Table.7/aAverage Number of Fragments of Land Holdings by Tenure and Farm Size

Farm Size (in Acres)	Tenure			
	Owners	Owners-cum-Tenants	Tenants	All Tenures
(A)Small Farms				
Below 5.0	3.6	3.9	4.1	4.0
5.0 to 12.5	3.8	4.7	4.9	4.5
Total – A	3.7	4.4	4.6	4.3
(B)Large Farms				
12.5 to 25.0	4.6	5.1	5.7	5.2
25.0 to above	5.2	5.4	5.9	5.6
Total – B	4.8	5.3	5.8	5.4
All Farms (A+B)	44	4.9	5.3	4.9

vi)   Water logging and Salinity:

The menace of water logging and salinity is very severe in KPK and negatively affecting the agrarian productivity. It is discovered that 11% of the small farms and 48% of the large farms have been affected by the problem. Similarly 23% of the owners'farms and 14% of the tenants'farms have been affected by it (Table).

Table:8. Distribution of Farms by Tenure, Farm Size, Incidence of Water Logging and Salinity

Farm Size and Irrigation Status	TUNURE							
	Owners		Owner-cum-Tenants		Tenants		All Tenures	
	No	%age	No	%age	No	%age	No	%age
(A) Small Farms								
Affected by W & S	11	13.25	3	8.11	2	6.25	16	10.53
Not affected by W & S	72	86.75	34	91.89	30	93.75	136	89.47
Total – A	83	100.00	37	100.00	32	100.00	152	100.00
(B) Large Farms								
Affected by W & S	14	53	5	41.67	4	40..00	23	47.92
Not affected by W & S	12	46.15	7	58.33	6	60..00	25	52.08
Total – B	26	100.00	12	100.00	10	100.00	48	100.00
(C) All Farms (A+B)								
Affected by W & S	25	22.94	8	16.33	6	14.29	39	19.50
Not affected by W & S	84	77.06	41	86.67	36	85.71	161	80.50
Total - C	109	100.00	49	100.00	42	100.00	200	100.00

W = Water Logging   and S = Salinity

On average 18% of the farm area has been affected by water logging and salinity. The percentage of the affected area is comparatively higher on large farms (23%) than on small farms (12%). The distribution of the affected area among different tenurial classes has not been highly

skewed, it is 18% in the case of owners and 17% in the case of rented farms.

vii) Intensity of Land Use:

For the computation of land use intensity, the following formula has been used;

$$\text{I.L} = \frac{\text{Net Sown Area}}{\text{Culture able Area}} \times 100$$

The land use intensity has been estimated at 77% in the sample area. It is higher (80%) on the rented farms than (75%) on the owner farms. Similarly the small farms have appeared better in land use than the large farms. The land use intensity in the former casehas been 81% while it is 73% in the later case. The estimation of land use intensity is based on the level of production. TheTotal Productions of Major Crops on sample Farms by Tenure and Farm Size are presented in table.10 below:

Table:9. Total Production of Major Crops on Farms by Tenure and Farm Size

(In maunds)

Tenure/ Farm Size	Wheat	Maize	Sugarcane	Rice	Grams	Rabi Vegetable	Kharif Vegetable
(A)OWNERS							
Small Farms	3137	2263	19038	327	54	2581	4889
Large Farms	2907	1339	33594	1281	96	3891	565
Total – A	6044	3602	52632	1608	150	6472	1054
(B)OWNER-CUM-TENANTS							
Small Farms	3376	2383	18276	350	64	2521	533
Large Farms	2765	1417	33225	1167	106	4014	606
Total – B	6141	3800	515101	1517	170	6535	1139
(C)TENANTS							
Small Farms	3582	3582	16499	397	71	2430	553
Large Farms	2445	1592	32856	1107	146	4080	628
Total – C	6027	4145	49355	1504	217	6510	1181
(D)ALL TENURES (A+B+C)							
Small Farms	10095	7199	53813	1074	189	7532	1575
Large Farms	8117	4348	99675	3555	348	11985	1799
Total – D	18212	11577	153488	4629	537	19517	3374

Source: Field Survey

The higher percentage of land use intensity suggests further intervention for increasing land use, which if is raised to 100%, the farmers' income would increase to 23%. At the low level of land use, it is obvious that the agrarian sector is undergoing a deficiency which can be removed

with great efforts. The 23% gap is wide enough which warrants government intervention indeed.

viii) Intensity of Cropping:

The following expression has been used for the determination of intensity of cropping or cropping pattern:

$$I.C = \frac{\text{Total Cropped Area}}{\text{Net Sown Area}} \times 100$$

On average cropping intensity has been estimated at approximately 201% in the project/study area. This infers that the net sown area is cultivated at least twice inone calendar year. The cropping intensity has remained almost the same in small and large farms together. It is, however, varying among different tenure arrangements, for example, on owner farms the cropping intensity is almost identical with the overall average, while on tenant farms it is upto 207%. The remarkable point to note is that the highest cropping intensity (242.17 acres) has been observed on the farms managed by Small Tenants followed by large Owner Farmers with 214.10 acres.

By introducing appropriate cropping patterns the cropping intensity can further be enhanced to 300%, which would need proper propagation of crop packages developed both by the provincial and national research systems.

Table:10. Cropping Intensity by Tenure/Farm Size

(Area in acres)

| Tenure/Farm Size	Total Cropped Area	Net Sown Area	Cropping Intensity
A. Owners			
Small Farms	669.58	312.74	**214.10**
Large Farm	562.46	301.56	186.52
Total – A	1232.04	614.30	200.56
B. Owners-cum-tenants			
Small Farms	357.10	175.20	203.82
Large Farm	285.90	154.36	185.22
Total – B	643.00	329.56	195.11
C. Tenants			
Small Farms	352.55	198.50	177.61
Large Farm	391.45	161.64	**242.17**
Total – C	744.00	360.14	206.59
D. All Tenures			
Small Farms	1379.23	686.44	200.93
Large Farm	1239.81	617.56	200.76
Total - D	2619.04	1304.00	200.85

ix)   Farm Productivity

The impact of Land Management on the Farm Productivity can be determined in two ways viz. either to calculate sum of the monetary value of crops based on their selling prices or to compute the yield per acre of farm land. The results are presented in the following tables 11 and 12 respectively:

Table:11.   Monetary Value of Farm Productivity by Tenure/Farm Size (Rupees Per Acre)

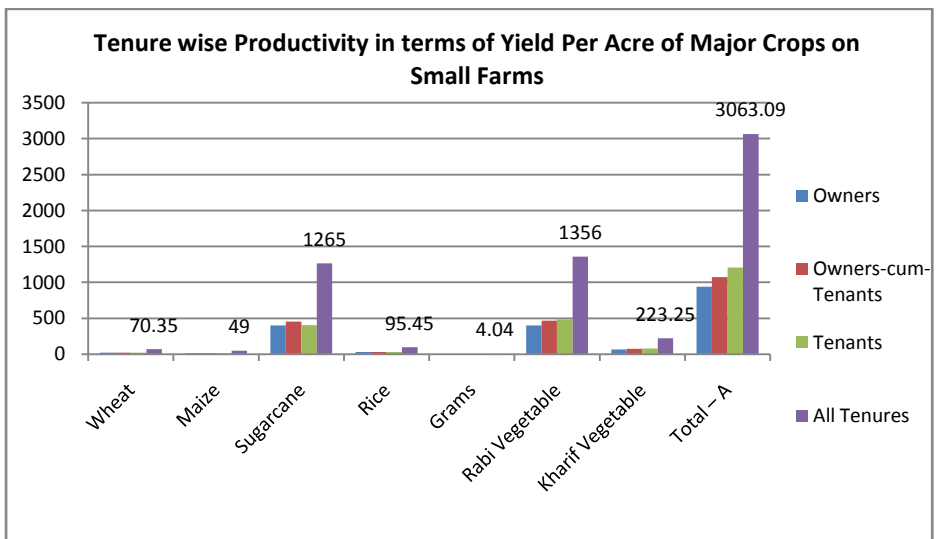| Tenure	Owners	Owner-Cum-Tenants	Tenants	All Tenures
Small Farms	5604	5766	5973	17343
Large Farms	5895	5975	5760	17630
All Farms	11499	11741	11733	34973

Source: Field survey
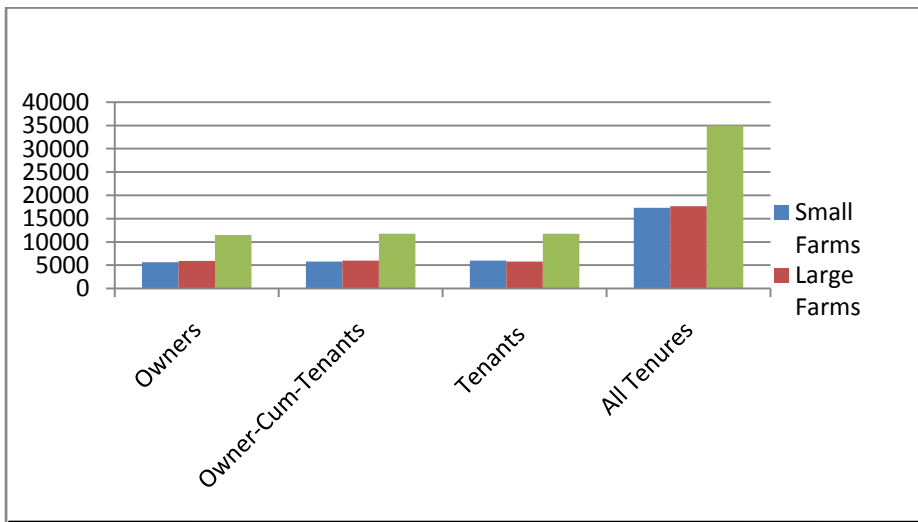
The above table reveals that there is a direct relationship between the monetary value of farm output/ productivity and the farm size. The larger the farm size the greater is the productivity.   A remarkable situation has been observed from the relationship between tenure and productivity per acre point of view. The tenancy has shown a reverse attitude from owners to tenants.Tenants are relatively better than the owners.
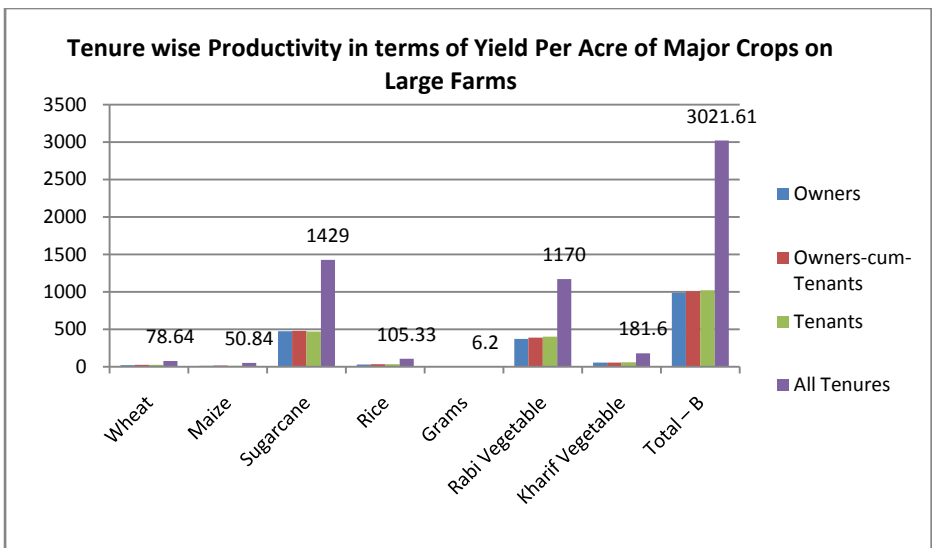
Table:12. Productivity in terms of Yield Per Acre of Major Crops on Farms by Tenure/Farm Size

(In maunds)

Farm Size	Tenure			
	Owners	Owners-cum-Tenants	Tenants	All Tenures
(A)Small Farms				
Wheat	22.64	23.55	24.16	70.35
Maize	15.98	16.00	17.02	49
Sugarcane	403.00	454.00	408.00	1265
Rice	31.29	32.12	32.04	95.45
Grams	1.13	1.16	1.75	4.04
Rabi Vegetable	401.00	469.00	486.00	1356
Kharif Vegetable	66.10	76.11	81.04	223.25
Total – A	941.14	1071.94	1210.01	3063.09
(B)Large Farms				
Wheat	25.05	26.45	27.14	78.64
Maize	16.86	17.03	16.95	50.84
Sugarcane	476.00	480.00	473.00	1429
Rice	34.02	35.31	36.00	105.33
Grams	2.03	2.02	2.15	6.2
Rabi Vegetable	375.00	391.00	404.00	1170
Kharif Vegetable	58.94	58.99	63.67	181.6
Total – B	987.9	1010.8	1022.91	3021.61
(C)All Farms				
Wheat	47.69	50	51.3	148.99
Maize	32.84	33.03	33.97	99.84
Sugarcane	879	934	881	2694
Rice	65.31	34.14	68.04	200.78
Grams	3.16	3.18	3.9	10.24
Rabi Vegetable	776	860	890	2526
Kharif Vegetable	125.04	1351	144.71	404.85
Total – C	1929.04	2049.45	2072.92	6084.7

Source: Field survey

Tenure wise Productivity in terms of Yield Per Acre of Major Crops on Small Farms

Tenure wise Productivity in terms of Yield Per Acre of Major Crops on Large Farms

The farm Productivities in terms of yield per acre (in maunds) of major crops in the province also indicated that the farm size and yield in most of the cases tends together in favor of small farms. The sum of yields per acre were relatively higher on small farms managed by tenant farmers as compared to the total yields on the large farms operated by owner farmers. The respective yields per acre were 1210.10 maunds and 987.90 maunds. The table reveals that the yield per acre and the farm size varied in the same direction, while the former and tenure status changed in the opposite direction from owner to tenant. The question is why the process of farm management is in favor of small and tenant farmers? The reason is very simple. The small and tenant farmers are basically poor. They strive for earning their lives. They manage the small piece of land which is not owned them. Thus they use the land very intensively, because they will have to survive at the subsistence level and will have to pay to the owners as a rent.

CONCLUSION AND RECOMMENDATIONS

This section of the study highlights the main conclusion of the investigation and recommendations based on the conclusion.

i) Conclusion

It is concluded from the results of the Farm Land Management/Agrarian Structure that there is no systematic correlation between structure of farm and farm productivity of major crops. In case of capital- intensive crops, the relationship between farm productivity, farm size, tenure status and irrigation status is positive. Contrarily an inverse relationship is record between these variables in case of labor-intensive-crops. It is also inferred that the agrarian structure of the sample farms is substandard. The average size of the operational holdings is less than the limit of economic holdings on the large farms and below the substance holdings on the small farms. Inadequate land utilization, unequal distribution of farm land, higher incidence of water logging and salinity, paucity of irrigation water, fragmentation of operational holdings, undesirable in-appropriate land use intensity and inadequate cropping intensity have notable inverse influence on the productivity of the farms.

The small and tenant farmers are basically poor. They strive for earning their lives. They manage the small piece of land which is not owned them. Thus they use the land very intensively, because they will have to survive at the subsistence level and will have to pay to the owners as a rent.

ii) Recommendations:

The following recommendations are suggested for the improve farm productivity of the improvement of farm management/agrarian structure in the province of Pakistan.

i. Inequality in the distribution of farm land adversely affects the farm productivity of the farms. The empirical results suggest that to avoid both the extremes of very small and vary large farms, appropriate and effective land reforms are needed. To avoid conflicts and problems of implementation, it is proposed that land should not be taken away from the very large owner farmers. The ownership of

land may not be disturbed. A policy may be evolved such that minimum and maximum limits are fixed for the operational holdings, irrespective of the tenure status, whereby the operation holdings are transferred from the very large to the very small farm operators on reasonable and equitable terms and conditions on continuous basis.

ii. The size of operational holdings hasbeen decreased due to water logging and salinity. The illiterate farmers have to be educated and guidedto use gypsum and green manureor to cultivate crops of recommended varieties of seeds which are salt tolerant. This reduces salinity in the soil of farm land. They may also be convinced to launch the drainage system in the water logged area. A small financial support by government may help to rehabilitate the saline or water logged soils.

iii. The economic efficiency is very well affected by the irrigation system. Efforts are needed to improve the existing irrigation system. Irrigation water can be bitterly utilized by increasing the number of canals and by improving their maintenance system. The equitable availability of water atthe heads and tails of canals should be made sure. Proper netting of canals and financial support by farmers in drilling the tubewells, need a serious attention from the government and farmers together.

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