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WHEAT GRAIN LOSSES AT THE FARM LEVEL (A CASE STUDY OF DISTRICT SHEIKHUPURA)

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An attempt has been made to measure the type and extent of post harvest wheat grain losses alongwith the factors contributing to the same. Post harvest losses seem to be a neglected aspect of farm profile in Pakistan. These losses donot merely generate negative repercussions for the farmers, but also have serious effects on the economy. Although the occurrence of food losses at the farm level during performance of various operations are inevitable yet the reduction in their extent can enhance the food supplies without planting an extra hectare of wheat crop. Knowledge of the type and magnitude of various losses is essential for framing policies helpful in reducing these losses.

INTRODUCTION

The agricultural experts, scientists, technologists and policy makers have so far been engaged in devising ways and means/ strategies for increasing wheat production, whereas measuring and mitigating the post harvest loses have remained a neglected aspect in the farm profile. These losses do not merely generate negative repercussions on the farmers but have serious effects on the economy as a whole. Despite the severity of post harvest losses, especially in food grains in developing countries like Pakistan, no comprehensive programme has been initiated to tackle this problem. Thus tonnes of grain are lost at the farm level. The world can attain freedom form hunger if all such losses are avoided or at least minimized.

The losses occurring in food grains are both quantitative and qualitative in nature. Pakistan stands in due need of a thorough probe into the type and extent of wheat grain losses at the farm level alongwith the causative factors. Mitigation of these losses in the wake of rapidly increasing population would be a big contribution toward achieving the food self-sufficiency. The factors responsible for these losses tend to differ according to farm operations such as harvesting, handling, threshing, weighment, transportation from the threshing floor to house godown and sundrying . For the purpose of the present study losses include the qualitative deterioration and quantitative reduction of wheat grain.

MATERIAL AND METHODS

A random sample of 60 farmers was taken from six villages of tehsil Nankana Sahib of Sheikhupura District. The farmers were distributed into different holdings as under:

	Number	percentage
Small farmers (upto-12.5 ha)	34	57
Medium farmers (12.5-to 25 ha)	10	17
Large farmers (more-than 25 ha)	16	26
Total:	60	100

The data pertaining to the year 1987-88 from these farmers were collected by means of a comprehensive and pretested questionnaire through personal interviews with the respondents and were analysed. Regression analysis was carreid out in order

to see the significance of various factors contributing to the food grain losses at the farm level.

RESULTS AND DISCUSSIONS

This section covers the characteristics of sample farms, area planted under wheat crop, farm production of wheat, its utilization, disposal and losses occurred during performance of farm operations such as harvesting, handling, threshing, transportation from the threshing floor to farm stores, storage, weighment and sundrying.

The average distance of sample farms from the market was 4.3 miles. Of which 24 % was unmetalled. The average size of these farms was 8.22 hectares. Approximately 98% of farm area was put under crops and the remaining was uncultivated due to various reasons. On these farms, wheat crop occupied 49.3% of cropped acreage. Marketable surplus was found to be 58.6% of production. The farm level losses were calculated on the basis of total production. The first component was losses at harvesting, handling and threshing. The details of the same are given in Table 1.

Table 1 . Wheat grain losses during harvestig and threshing at sample farms

Particulars	Total production	Harvesting losses	Rodent losses	Threshing & winnowing losses	Bad weather losses	Total loss
Quantity (tonnes)	5094.2	11.8	2.0	24.0	23.5	61.3
		19.2	2.2	39.2	38.3	100

The total loss during various operations stood at 1.2% of farm production. This was non-significant (.003). The major contributing factors at this level were the grain lost during threshing at floor and in the straw (39.2%), due to bad weather (38.3%), while harvesting loss was estimated at 19.2% of total produce loss at this level. Although the contribution of these factors is non-significant, yet improvement in harvesting and threshing technology can save some of the losses. As a result of this food grain supplies could be enhanced to the same extent, leading to increase in income of farmers.

Storage losses: These included the quantity deteriorated and got lost during the storage of wheat grain at the farm level alongwith the causative factors and the extent to which individual factors contributed to this loss. Details can be seen in Table 2.

Table 2. Storage losses at the farm level

Particulars	Total Qty. stored	Insect loss	Dampness loss	Rodent loss	Total loss	Percent of quantity stored
Quantity (tonnes)	1285.8	3.1	0.3	0.3	3.7	0.29
% 0f total loss		83.8	9.1	8.1	100	

The total storage loss was 0.29% of the quantity stored which was significant (.004**). Of the causative factors, insects (.003) and rodents (. 0004) were significant. These need to be checked or reduced by adopting measures helpful in controling these losses at the farm storage level. These losses, however, differed by type of store, the details are given in Table 3.

The maximum loss occurred (60.2%) in case the wheat was stored in the living rooms and minimum in steel vessels (0.3%). Separate room properly designed was also helpful in avoiding these losses to a greater extent. Steel vessels for small scale storage or consumption storage seem beneficial and need to be propogated at the farm level. This can possibly be done by making the farmers aware of the huge losses occurred during this process. Provision of technical know - how of low cost storage construction along-with adequate funds for this purpose is the appropriate solution.

Table 3. Extent of grain losses by type of store

Particulars	Mud vessels	Living rooms	Separate rooms	Cemented vessels	Steel vessels	Total loss
Quantity lost(tonnes)	1.08	2.36	1.16	0.31	0.01	3.92
% of total loss	27.50	60.20	4.10	7.90	0.30	100

Transportation losses: It comprised the quantity of wheat grain lost during transportation from the threshing floor to the farmers' home godowns. The analysis of data regarding this aspect is shown in the table 4.

Losses at this level were estimated at 0.14% of the quantity transported, the coefficient of which was (0.0005) significant at .05 and .01% level. The results indicated the need for proper emphasis to be laid on checking or reducing these losses by improving the transport technology and using the better packing material (gunny bags).

Table 4. Losses during transportation

Particulars	Total transported	Loss of grain
Quantity (tonnes)	2836.8	3.9
% of total quantity	100	0.14

Aggregate losses of wheat grains at the farm level: The losses occurring at different stages at the farm level are summarized in Table 5 to have an idea as to how much of

the produce is lost. This information is also helpful in fixing priority in framing policies of controlling these losses. The aggregate loss of wheat grain at the farm level was 1.4% of total wheat production at the sample farms. Of this , approximately 86% loss occurred during harvesting, handling of crop and threshing stage, while the remaining 14% was caused in storage, transportation of produce from the threshing floor to farmers home godown and sun drying of produce stored. The loss determined to be maximum at harvesting, handling and threshing stages and minimum during sun drying process. Although the coefficient of farm level loss is non-significant, but still it necessitates the need for improvement in the harvest and post harvest technology in order to minimize the wastage. The reduction in losses will proportionately increase the income of the farmer.

Table 5. Aggregate wheat grain losses at the farm level

Particulars	Harvesting, handling, threshing loss	storage loss	Transport loss	Sundrying loss	Total loss	Total production (tonnes)
Quantity (tonnes)	61.28	3.67	3.88	2.48	71.31 1.4	5094.23 100
%of total loss	85.90	5.20	5.40	3.50	100	

Total farm level losses of wheat in Punjab: These losses were calculated at the rate of 1.4%of the total provincial production multiplied by the fixed wheat price i.e. Rs. 85/40 kg or Rs . 2125/tonne

Total wheat production in Punjab (1987-88) tonnes	9203.80
Loss of grain at farm level at the rate of 1.4%	128.85
Value of loss at Rs. 2125/- tonne	273806.25

The above facts indicate that the total loss at the province level was 128.85 thousand tonnes, the value of which was Rs.2,73,806.25. This big amount is wasted mainly due to non-suitable farm level technology and lack of farmers awareness about these losses. Moreover, these operations are performed by contract labour who take little pain in reducing such losses and do the job carelessly. Improvement in farm level wheat harvesting and post harvesting technology and proper care by the farmers can save much of these losses and can enhance the supplies to a greater extent without putting any extra efforts in wheat grain production.