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A Study on Staggered Public Procurement of Wheat in Punjab

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Abstract

Punjab is the second largest producer of wheat after Uttar Pradesh in the country but the state's share in contribution to the central pool is maximum. The study has brought out that the marketed surplus of wheat was about 84 per cent with the selected farmers and about 96 per cent of the produce was sold during the post-harvest period. The study has revealed that per holding debt of the selected farmers, on an average, was Rs 1.71 lakh. About 99 per cent of wheat arrival was during the post-harvest period, from April to June in 2007-08. Wheat price in the months of April and May was almost equal to the MSP from 1997-98 to 2007-08. During the lean period, there was a mixed scenario of the price. All this depended on the forces of the demand and supply. A vast majority (about 76 %) of the selected farmers have not been found in the favour of staggered public procurement of wheat. The public procurement agencies have their own practical limitations to operate in the grain markets throughout the year. Such a step will add to the procurement cost and the burden of food subsidy to be borne by the Union Government will increase further. Already it is Rs 56002 crore in 2009-10. Keeping in view the scenario at the farm and market levels, it is not feasible to have staggered public procurement of wheat in Punjab. Theoretically, it looks an attractive proposal but from practical point of view, it is not much feasible.

Introduction

The progress made by the farm sector in Punjab is so well-known and the factors that have made this possible encompass introduction of high-yielding varieties (HYVs), particularly of wheat and paddy, assured price policy, supporting infrastructure for the supply of different inputs, dissemination of technological know-how. It may be stated that about 53 per cent of wheat production and nearly 76 per cent of rice production of Punjab had been going to the central pool for the past four decades (Ghuman *et al.*, 2009). It may be said that food security of the country is in the hands of the Punjab farmers. Due to fast mechanization of agriculture, particularly with the introduction of harvesting and threshing of wheat and paddy with combine harvesters during the 1980s in the state, the post-harvest period of market arrival of these two crops has squeezed, resulting in congestion in the grain markets. Sometimes, it becomes difficult even for the

public procurement agencies to lift the farm produce from the markets in time. Therefore, to have a smooth public procurement of wheat and paddy, an alternative is a 'staggered procurement' all over the year by giving some incentive to the farmers in the form of increase in the minimum support price (MSP) on monthly basis, because a farmer has to bear the additional storage cost, storage losses and interest on the stock held by him. Theoretically, it looks a good idea, but there are a number of practical problems related with the issue of staggered public procurement. A majority of the farmers in Punjab are marginal, small or medium and their economic condition does not allow them to hold the grains for a long period. The average size of operational holding in the state is just 3.95 ha. The public procurement agencies have their own operational problems due to paucity of staff and other related issues like increase in procurement cost, food subsidy, etc. The Union Government provided food subsidy to the extent of Rs 56002 crore during the year 2009-10. Keeping in view all these aspects, the present study has been taken up with the following objectives:

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- To study production, consumption and marketed surplus of wheat with the selected farmers,
- To examine the sale pattern of wheat adopted by the farmers, and
- To study the feasibility of staggered public procurement of wheat in Punjab.

Database

The paper has been derived from a study on ‘Staggered Public Procurement of Wheat and Paddy in Punjab’, conducted by the authors (Sidhu and Singh, 2009). Wheat is the principal crop of Punjab and had about 35 lakh ha of area under it during the year 2007-08. It was about 44 per cent of the total cropped and 84 per cent of the net area sown in 2007-08. Wheat is cultivated in all the districts of the state during the *rabi* season. Keeping in view the objectives of the study, multi-stage sampling framework was followed. In the first stage, three districts, namely Ludhiana, Patiala and Sangrur were randomly selected. Then, two development blocks were chosen randomly from each selected district. After that, three villages were randomly selected from each selected block. Lastly, from each selected village for the study, the data were collected from the 10 randomly-selected farmers on the basis of the probability proportional to the total numbers of farmers in each farm-category. The farmers were categorized into small, medium and large categories on the basis of their size of operational holdings by using cube root frequency method (for details, *see* Sidhu and Singh, 2009). The ultimate sample consisted of 180

farmers (60 from each district). Out of these, 84 were small, 60 were medium and 36 were large farmers.

The information regarding production, consumption and marketed surplus of wheat was taken from the selected farmers. The data were collected regarding the sale pattern of wheat and storage facilities available with the farmers. Information about farm indebtedness was also obtained from the respondents. The data pertained to the crop year 2007-08, which was a normal year as far as the agricultural sector in Punjab was concerned. The secondary data on month-wise arrival and prices of wheat in the state were taken from the Punjab Mandi Board. The information published in the *Statistical Abstract of Punjab, Agriculture Statistics at a Glance* and *Economic Survey* was culled for the present study. The compound growth rates (CGRs) of month-wise prices of wheat were also worked out from 1997-98 to 2008-09. Student’s t-test was used to test the significance of CGRs.

Results and Discussion

Production and Procurement of Wheat

Next to Uttar Pradesh, Punjab is the second largest producer of wheat in the country, but the state’s contribution to the central pool is maximum. The Punjab’s share in wheat production of India varied from about 19 per cent to about 23 per cent during the period 1970-71 to 2007-08 (Table 1). On the other hand, the state’s contribution of wheat to the central pool varied

Table 1. Share of Punjab in production of wheat and its contribution to central pool: 1971-71 to 2007-08

(million tonnes)

Year	Production			Contribution to the central pool		
	India	Punjab	Share of Punjab, %	India	Punjab	Share of Punjab, %
1970-71	23.83	5.15	21.61	5.10	2.94	57.65
1975-76	28.84	5.79	20.08	6.60	2.94	44.55
1980-81	36.31	7.68	21.15	6.60	3.77	57.12
1985-86	47.05	10.99	23.36	10.54	6.48	61.48
1990-91	55.14	12.16	22.05	7.75	5.54	71.48
1995-96	62.10	12.51	20.14	8.16	5.64	69.12
2000-01	69.68	15.55	22.32	20.63	10.56	51.19
2005-06	69.35	14.49	20.89	9.23	6.95	75.30
2006-07	75.80	14.60	19.26	11.13	6.78	60.92
2007-08	78.40	15.72	20.05	22.23	9.94	44.71

- Sources: i. Economic Advisor to Government of Punjab, *Statistical Abstract* (various issues), Economic and Statistical Organization, Chandigarh.
 ii. Government of India, *Agricultural Statistics at a Glance* (various issues), Department of Economics & Cooperation, Ministry of Agriculture, New Delhi.

from about 45 per cent in 1975-76 to about 75 per cent in 2005-06. Even during the years of low wheat procurement at the national level, Punjab performed better in this regard. It is most likely that Punjab will remain number one state in near future as well as in terms of its contribution of wheat to the central pool.

Production, Consumption and Marketed Surplus of Wheat

The information regarding per holding production, consumption and marketed surplus of wheat during the year 2007-08 is given in Table 2. The marketed surplus was about 84 per cent. Another study conducted at PAU has revealed that marketed surplus of wheat in Punjab was about 86 per cent of the production during the year 1999-2000 (Singh, 2002). The selected farmers kept about 16 per cent of the produce for family consumption, seed, cattle feed, payment in kind to the labour and other miscellaneous uses. Since the production of wheat in absolute terms was high with the large category farmers, therefore, their marketed surplus was also high (90 %) as compared to medium (84%) and small (69%) farmers. This analysis reveals that larger the size of wheat production, higher is the volume of marketed surplus and vice-versa. Since wheat is a staple food of the Punjabis, the selected farmers kept about nine per cent of their production

for household consumption. It may be stated that due to higher productivity of foodgrains in Punjab, the marketed surplus, particularly of wheat and paddy, is also high; and therefore, Punjab is known as the 'food bowl' of the country and food security of India is in the hands of Punjab farmers.

Pattern of Sale of Wheat by Farmers

The information regarding pattern of sale of wheat by the selected farmers during the year 2007-08 is shown in Table 3. A perusal of Table 3 reveals that the selected farmers sold about 96 per cent of their marketed surplus in the post-harvest period and the rest about four per cent in the lean period. In the post-harvest period, the maximum quantity was sold by small farmers, followed by large and medium farmers. This happened on account of minimum support price (MSP) of wheat and its purchase by public procurement agencies like Food Corporation of India, PUNGRAIN, PUNSUP, MARKFED, Punjab State Warehousing Corporation and Punjab Agro-Industries Corporation. Therefore, it was the rational economic decision of the selected farmers to sell their marketed surplus in the post-harvest period. Due to insufficient storage facilities and other economic reasons, they were unable to wait and spread their sale over the lean period. In the lean period, the wheat was sold generally to the traders,

Table 2. Per holding production, consumption and marketed surplus of wheat with the selected farmers in Punjab: 2007-08
(in quintals)

Sl. No.	Particulars	Farm-category			
		Small	Medium	Large	Average
1	Production	49.05	135.38	346.28	137.27
2	Family consumption	11.52 (23.49)	11.45 (8.46)	13.89 (4.01)	11.97 (8.72)
3	Payment in kind to labour	0.33 (0.67)	1.03 (0.76)	2.39 (0.69)	0.98 (0.71)
4	Seed	1.46 (2.98)	5.62 (4.15)	10.14 (2.93)	4.58 (3.34)
5	Cattlefeed	1.2 (2.45)	1.45 (1.07)	2.69 (0.78)	1.58 (1.15)
6	Misc. use	0.75 (1.53)	2.75 (2.03)	5.53 (1.60)	2.37 (1.73)
7(=2 to 6)	Total consumption	15.26 (31.11)	22.3 (16.47)	34.64 (10.00)	21.48 (15.65)
8(=1-7)	Marketed surplus	33.79 (68.89)	113.08 (83.53)	311.64 (90.00)	115.79 (84.35)

Note: Figures within the parentheses indicate percentages of production

Table 3. Pattern of sale of wheat by the selected farmers in Punjab: 2007-08

(in quintals)

Farm category	Marketed surplus*	Quantity sold in post-harvest period*	Quantity sold in lean period*
Small	33.79	33.00(97.66)	0.79(2.34)
Medium	113.08	108.06(95.56)	5.02(4.44)
Large	311.64	301.36(96.70)	10.28(3.30)
Average	115.79	111.70(96.47)	4.09(3.53)

*Per holding.

Note: Figures within the parentheses indicate percentages of the marketed surplus

chakki owners and landless agricultural and other labourers in the village.

Methods of Sale of Wheat

Information on various methods of sale of wheat by the selected farmers during the year 2007-08 is given in Table 4. A perusal of the Table 4 indicated that about 99 per cent of the produce was sold in the regulated markets and the rest in the village itself to the landless agricultural and non-agricultural labourers, village shopkeepers and chakki owners. The medium and large farmers sold more than 99 per cent of their marketed surplus in the regulated markets, whereas the figure was about 98 per cent in the case small farmers. It is worthwhile to point out here that Punjab Mandi Board sets up more than 1600 purchase centres in the state for the purchase of wheat and paddy in the post-harvest period. Therefore, the farmers of Punjab do not have to cover more than 7-8 km distance for the sale of their produce, viz. wheat and paddy. The sale of wheat in the regulated markets ensures MSP to the farmers. Therefore, they have preference for sale of produce in the regulated markets.

Storage Infrastructure at Farm Level

Information about the storage infrastructures available with the selected farmers in the year 2007-

08 is given in Table 5. A perusal of the Table 5 shows that about 97 per cent of the selected farmers had metal bins for the storage of foodgrains, particularly wheat. It was followed by 'kothi' (17%) and gunny bags (8%). It was interesting to note that all the large farmers had metal bins. A vast majority of medium and small farmers also had metal bins for the storage purpose. A study conducted at PAU in 1980-81 had brought out that about 28 per cent of the Punjab farmers had metal bins, only about four per cent had *kothi* and rest of the farmers kept their foodgrains in the loose form, in bags, etc. (Gill *et al.*, 1984). Another study has revealed that about 94 per cent of the farmers had metal bins for storage of foodgrains in Punjab in 1999-2000 (Singh, 2002). Across different farm categories, the large farmers had a better storage infrastructure as compared to the medium and small farmers. It may be stated that storage structures were used by the selected farmers mainly for the storage of wheat for family consumption and seed purpose. The same storage structures were used by the selected farmers for storage of *kharif* foodgrains. Generally, the *kharif* grains are harvested and threshed during the months of September and October; hence, the same storage structures could be utilized by the farmers for the storage of *rabi* as well as *kharif* foodgrains.

Table 4. Methods of wheat sale adopted by the selected farmers in Punjab: 2007-08

(in quintals)

Farm category	Marketed surplus	Sale in regulated market	Sale to chakki owner	Sale in local village
Small	33.79	33.08(97.90)	0.40(1.18)	0.31(0.92)
Medium	113.08	112.30(99.31)	0.37(0.33)	0.41(0.36)
Large	311.64	309.00(99.15)	0.31(0.10)	2.33(0.75)
Average	115.79	114.67(99.03)	0.37(0.32)	0.75(0.65)

Note: Figures within the parentheses indicate percentages to the marketed surplus

Table 5. Storage structures available with the selected farmers in Punjab: 2007-08

Farm category	Metal bin	<i>Kothi</i>	Gunny bags	<i>Bharola</i>	Others*	Total
Small	79 (94.05)	12 (14.29)	4 (4.76)	3 (3.57)	5 (5.95)	84
Medium	59 (98.33)	7 (11.67)	4 (6.67)	-	-	60
Large	36 (100.00)	11 (30.56)	7 (19.44)	-	-	36
Total	174 (96.67)	30 (16.67)	15 (8.33)	3 (1.67)	5 (2.78)	180

*Others include wooden box, empty oil drum, etc.

Note: Figures within the parentheses indicate percentages and the total of percentages is more than 100 because one farmer had more than one storage structure.

Debt at the Farm Level

A number of studies conducted at the PAU and elsewhere have brought out that the majority of farmers in Punjab are under debt (Shergill, 1997; Sidhu *et al.*, 2000; Singh and Toor, 2005; Rangi *et al.*, 2005; Singh, *et al.*, 2008). Many farmers had even committed suicides mainly due to economic distress. A recent study conducted at PAU has revealed that 2890 farmers and agricultural labourers had committed suicides in the districts of Bathinda and Sangrur during the past nine years, 2000 to 2008 (PAU, 2009). Out of these, 1757 were farmers and 1133 were agricultural labourers (PAU, 2009). The present study has observed that per holding debt of the selected farmers was Rs 1.71 lakh in the year 2007-08 (Table 6). The major source of loans was commercial banks, followed by cooperative banks, commission agents, relatives, friends and fellow farmers. The magnitude of the debt was also linked

with the farm-size. Since large farmers have more capacity to borrow as compared to medium and small farmers, therefore, the per holding debt of large farmers was high as compared to the latter two categories of farmers. Further, the large farmers obtained more credit from the institutional sources as compared to medium and small farmers. Across different farm categories, the share of commission agents in the credit provided to the farmers was about 27 per cent each for small and medium farmers and about 24 per cent for large farmers.

The small farmers availed credit largely from their relatives, friends and fellow farmers. It may be stated that rate of interest charged by the institutional sources was less as compared with non-institutional sources. For the credit provided to the farmers, the commission agents charged 24 per cent to 30 per cent per annum interest in most of the cases. Although the commission

Table 6. Per holding debt of the selected farmers in Punjab: 2007-08

(in Rs)

Farm category	Source of debt				Total
	Commercial bank	Co-operative bank*	Commission agent	Others**	
Small	10333 (19.95)	22845 (44.12)	14178 (27.38)	4429 (8.55)	51785 (100.00)
Medium	77500 (39.42)	61283 (31.17)	53667 (27.30)	4150 (2.11)	196600 (100.00)
Large	166389 (40.86)	137500 (33.77)	98472 (24.18)	4833 (1.19)	407194 (100.00)
Overall average	63933 (37.36)	58589 (34.23)	44200 (25.83)	4416 (2.58)	171138 (100.00)

* Includes Primary Agricultural Credit Society, ** Relatives, friends and fellow farmers.

Note: Figures within the parentheses indicate percentages to the total debt

agents charged a high rate of interest, but practically no paper work was required in getting credit from them by the farmers. Basically it was based on their personal and social relations with the commission agents. Due to this, the farmers had preference to get credit from the commission agents. It may be pointed out that there are about 45000 commissions agents in the regulated markets of Punjab.

Keeping in view this grave problem, the Government of India in its Budget of 2008-09 had announced a scheme of agricultural debt waiving and debt relief for the farmers of the country. The Union Government announced debt relief and debt waiver worth about Rs 71000 crore in the budget for the year 2008-09. Out of this amount, the farm loans of 4.21 lakh farmers amounting to about Rs 1200 crore were waived-off in Punjab which was 1.69 per cent of the

total debt relief given by the Union Government. This scheme covered debt waiver and debt relief to the farmers for loans taken from the scheduled commercial banks, regional rural banks and cooperative credit institutions including urban cooperative banks.

Market Arrival of Wheat in Punjab

The information regarding month-wise pattern of arrival of wheat in Punjab from 1997-98 to 2007-08 is recorded in Table 7. A perusal of the Table 7 indicated that market arrival of wheat was about 67 lakh tonnes in 1997-98, which increased to about 95 lakh tonnes in 2000-01 and further to about 103 lakh tonnes in 2004-05, but it declined to about 98 lakh tonnes in 2005-06, about 85 lakh tonnes in 2006-07 and further to about 80 lakh tonnes in 2007-08. The month-wise pattern of the total market arrival revealed that 21 per cent of the

Table 7. Month-wise pattern of market arrival of wheat in Punjab:1997-98 to 2007-08*

Month	(in lakh tonnes)										
	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
April	13.80 (20.58)	30.11 (42.44)	55.59 (71.01)	46.28 (48.97)	41.17 (36.22)	67.64 (69.52)	68.93 (76.53)	94.27 (91.65)	83.62 (85.62)	73.60 (86.62)	59.58 (74.32)
May	46.99 (70.07)	39.46 (55.62)	21.96 (28.06)	45.93 (48.60)	70.07 (61.64)	28.16 (28.94)	20.58 (22.86)	7.95 (7.73)	13.40 (13.72)	10.73 (12.63)	18.39 (22.94)
June	4.59 (6.84)	0.82 (1.16)	0.38 (0.49)	1.23 (1.30)	1.12 (0.99)	0.23 (0.24)	0.31 (0.34)	0.26 (0.25)	0.28 (0.29)	0.31 (0.36)	1.54 (1.92)
July	0.48 (0.72)	0.10 (0.14)	0.07 (0.09)	0.28 (0.30)	0.24 (0.21)	0.17 (0.18)	0.06 (0.07)	0.03 (0.03)	0.05 (0.05)	0.11 (0.13)	0.09 (0.11)
August	0.18 (0.27)	0.10 (0.14)	0.05 (0.06)	0.47 (0.50)	1.04 (0.92)	1.02 (1.05)	0.04 (0.04)	0.07 (0.07)	0.06 (0.06)	0.07 (0.08)	0.04 (0.06)
September	0.25 (0.37)	0.06 (0.08)	0.03 (0.04)	0.13 (0.14)	0.02 (0.02)	0.01 (0.01)	0.03 (0.03)	0.06 (0.06)	0.03 (0.03)	0.05 (0.06)	0.05 (0.06)
October	0.08 (0.12)	0.03 (0.04)	0.01 (0.01)	0.02 (0.02)	-	-	0.03 (0.03)	0.02 (0.02)	0.04 (0.04)	0.02 (0.02)	0.03 (0.04)
November	0.13 (0.19)	0.06 (0.09)	0.03 (0.04)	0.04 (0.04)	-	-	0.02 (0.02)	0.06 (0.06)	0.04 (0.04)	0.02 (0.02)	0.05 (0.06)
December	0.24 (0.36)	0.05 (0.07)	0.03 (0.04)	0.05 (0.05)	-	0.03 (0.03)	0.02 (0.02)	0.03 (0.03)	0.03 (0.03)	0.02 (0.02)	0.09 (0.11)
January	0.16 (0.24)	0.05 (0.07)	0.02 (0.03)	0.03 (0.03)	-	0.02 (0.02)	0.02 (0.02)	0.03 (0.03)	0.04 (0.04)	0.01 (0.02)	0.06 (0.07)
February	0.08 (0.12)	0.06 (0.08)	0.02 (0.03)	0.02 (0.02)	-	-	0.02 (0.02)	0.03 (0.03)	0.04 (0.04)	-	-0.07 (0.09)
March	0.08 (0.12)	0.05 (0.07)	0.08 (0.10)	0.03 (0.03)	-	0.01 (0.01)	0.02 (0.02)	0.04 (0.04)	0.04 (0.04)	0.03 (0.04)	0.18 (0.22)
Total	67.06 (100.00)	70.95 (100.00)	78.27 (100.00)	94.51 (100.00)	113.66 (100.00)	97.29 (100.00)	90.08 (100.00)	102.85 (100.00)	97.67 (100.00)	84.97 (100.00)	80.17 (100.00)

*Marketing year.

Note: Figures within the parentheses indicate percentages to the total.

Source: Punjab Mandi Board, Chandigarh.

wheat arrived during the month of April in the year 1997-98. It increased to about 42 per cent in 1998-99, to about 71 per cent in 1999-2000, to about 77 per cent in 2003-04 and further to about 87 per cent in 2006-07, but declined to about 74 per cent in 2007-08. The major reason for heavy arrival of wheat during April may be attributed to the climatic change and large-scale use of combine harvesters for harvesting and threshing of the crop. It may be stated that just 2.36 per cent of wheat area was harvested and threshed with combines in Punjab in 1980-81 (Gill *et al.*, 1984). But, due to fast mechanization of agriculture in the state, this figure increased to about 76 per cent in 1999-2000 (Singh and Sidhu, 2003). On account of the climatic change during the previous decade or so, the temperature went up in the month of March which resulted in the early maturing of the crop. Therefore, there was no choice with the farmers except going for harvesting and threshing of the crop. During the 1970s, 1980s and early-1990s, the wheat harvesting used to start around middle of April every year. In Punjab, the *Baisakhi* festival (celebrated mostly on 13th of April) is known as the beginning of harvesting of wheat.

On account of the above factors, the arrival of wheat in the month of May declined to only about eight per cent in 2004-05 as compared to about 70 per cent in 1997-98, about 56 per cent in 1998-99, about 28 per cent in 1999-2000, about 49 per cent in 2000-01 and about 62 per cent in 2001-02. During the years 2005-06, 2006-07 and 2007-08, about 14 per cent, 13 per cent and 23 per cent of the wheat was arrived during May. Punjab used to witness significant wheat arrival even in the month of June, but this scenario had also changed during the past one decade or so. In the year 1997-98, about seven per cent of the total wheat arrival was in June, it declined to just 0.24 per cent in 2002-03, but marginally increased in the subsequent years. The market arrival of wheat in the remaining ten months of the year had been negligible during the period 1998-99 to 2007-08.

Month-wise Price of Wheat in Punjab

The month-wise data on the price of wheat in Punjab from 1997-98 to 2007-08 are given in Table 8. A perusal of the Table 8 revealed that price of wheat

Table 8. Month-wise price of wheat in Punjab: 1997-98 to 2007-08

Year	(Rs/q)											
	April	May	June	July	August	September	October	November	December	January	February	March
1997-98	475	475	475	476	485	486	482	485	570	615	580	520
				(0.21)	(2.11)	(2.32)	(1.47)	(2.11)	(20.00)	(29.47)	(22.11)	(9.47)
1998-99	510	510	540	590	580	585	600	600	600	610	625	625
			(5.88)	(15.69)	(13.73)	(14.71)	(17.65)	(17.65)	(17.65)	(19.61)	(22.55)	(22.55)
1999-2000	550	550	565	590	610	647	650	630	635	645	630	620
			(2.73)	(7.27)	(10.91)	(17.64)	(18.18)	(14.55)	(15.45)	(17.27)	(14.55)	(12.73)
2000-01	580	580	580	580	580	580	540	560	550	560	558	575
							(-6.90)	(-3.45)	(-5.17)	(-3.45)	(-3.79)	(-0.86)
2001-02	610	610	610	610	595	570	600	600	590	600	608	608
					(-2.46)	(-6.56)	(-1.64)	(-1.64)	(-3.28)	(-1.64)	(-0.33)	(-0.33)
2002-03	620	620	620	610	610	600	595	600	620	610	655	660
				(-1.61)	(-1.61)	(-3.23)	(-4.03)	(-3.23)		(-1.61)	(5.65)	(6.45)
2003-04	630	630	650	650	650	700	700	730	740	735	735	710
			(3.17)	(3.17)	(3.17)	(11.11)	(11.11)	(15.87)	(17.46)	(16.67)	(16.67)	(12.70)
2004-05	630	630	660	675	710	705	720	740	745	750	745	740
			(4.76)	(7.14)	(12.70)	(11.90)	(14.29)	(17.46)	(18.25)	(19.05)	(18.25)	(17.46)
2005-06	640	640	690	700	695	698	760	780	780	850	850	900
			(7.81)	(9.38)	(8.59)	(9.06)	(18.75)	(21.88)	(21.88)	(32.81)	(32.81)	(40.63)
2006-07	700	700	740	725	800	880	870	890	915	950	965	950
			(5.71)	(3.57)	(14.29)	(25.71)	(24.29)	(27.14)	(30.71)	(35.71)	(37.86)	(35.71)
2007-08	850	851	875	955	925	920	950	940	940	960	975	995
		(0.12)	(2.94)	(12.35)	(8.82)	(8.24)	(11.76)	(10.59)	(10.59)	(12.94)	(14.71)	(17.06)

Note: Figures within the parentheses indicate percentage increase/decrease in price as compared to the price in the month of April of the respective years

Source: Punjab Mandi Board, Chandigarh.

in the months of April and May was almost equal to the MSP. During the lean period, there was a mixed scenario of the price. In some years, the price rise was substantial, while in some other years, the price increase was insignificant. All this depended on the forces of demand and supply. For example, the wheat price increased at a fast rate during the lean months in the year 2006-07 due to low wheat production in India during the crop year 2005-06. The production of wheat crop in the year 2005-06 was sold in the next marketing year, i.e. 2006-07. Similarly, the wheat price was quite high in the lean months of 1998-99 and 2005-06. The determination of price in the lean months depended on the prevailing market forces. In the peak period, there is public procurement of wheat, therefore, the farmers get the MSP fixed by the Union Government. During the lean period, the public procurement was not there and therefore, the market price was less than the MSP in 2000-01, 2001-02 and 2002-03. It may be stated that wheat arrival was also low in the lean months, therefore, this did not result in a very big economic loss to the Punjab farmers. Sometimes, due to unscientific storage by the farmers, there is qualitative loss to the produce which results in low market price. To maintain the quality of wheat to be sold in the lean months, the farmers should have scientific storage and give proper chemical treatment to the wheat for storage.

Month-wise Compound Growth Rates (CGRs) of Wheat Price

The information about month-wise CGRs of wheat price in Punjab from 1997-98 to 2007-08 is shown in Table 9. It was found that the monthly CGR of wheat price was maximum (3.37 %) in 2006-07, followed by 3.10 per cent in 2005-06. These growth rates were statistically significant. For the remaining years, the monthly CGR of wheat price varied from 0.38 per cent in 2002-03 to 1.94 per cent in 1997-98. All these CGRs of monthly wheat price were statistically significant. On the other hand, the CGRs of monthly wheat price during the year 2000-01 and 2001-02 were negative but statistically non-significant. Therefore, an inference can be drawn that farmers of Punjab did not gain much by selling their wheat in the lean period from the year 1997-98 to 2007-08, except for 2005-06 and 2006-07.

Viewpoint of Farmers Regarding Staggered Public Procurement of Wheat in Punjab

The viewpoint of the selected farmers regarding staggered public procurement of wheat in the state was

Table 9. Month-wise compound growth rates of wheat price in Punjab: 1997-98 to 2007-08

Year	(% age per annum)
	CGR of wheat price (April to March)
1997-98	1.94*
1998-99	1.81*
1999-2000	1.39*
2000-2001	-0.39 _{NS}
2001-2002	-0.09 _{NS}
2002-2003	0.38*
2003-2004	1.61*
2004-2005	1.69*
2005-2006	3.10*
2006-2007	3.37*
2007-2008	1.27*

Note: *Significant at 1 per cent level of significance.
NS=Non-significant.

also obtained. A vast majority (about 76 %) of them were not in favour of staggered public procurement of wheat, and only about 24 per cent of them were in its favour. The selected farmers who were in favour of the staggered public procurement also put the condition that the MSP of wheat should increase significantly in the lean period to cover the storage cost, storage loss, interest on the price of stored wheat and sufficient margin. About 39 per cent of the large farmers were in favour of staggered public procurement of wheat as compared to about 23 per cent of medium farmers and about 18 per cent of small farmers.

Feasibility of Staggered Public Procurement

An impression has been created by print and electronic media that Punjab is a land of big and rich farmers. On the other hand, the ground reality is totally different. According to the Agricultural Census for the year 2005-06, the total number of operational holdings in Punjab was 10.03 lakh, of this, about 13 per cent were marginal, 18 per cent were small, 32 per cent were semi-medium, 30 per cent were medium and 7 per cent were large farmers. The average size of the operational holding in Punjab is 3.95 ha. Since the size of the operational holding is small, therefore, the level of per holding production of wheat, paddy and other crops is also not very high. Consequently, the quantum of per holding marketed surplus of wheat is low with

the majority of Punjab farmers. As already discussed, the economic condition of the selected farmers was not very sound. The storage infrastructure for the foodgrains at the farm level was inadequate and was not on scientific lines. The Punjab farmers preferred to sell a very high proportion of their marketed surplus of wheat in the post-harvest period. The farmers have to meet their routine domestic expenditure on food and non-food items. Besides, they have to buy various farm inputs for the next crop season also. Therefore, they cannot afford to store their produce for the lean period. The farmers in India cannot be regarded at par with the farmers of developed countries like Australia, Canada and USA, where the average size of holdings is large, about 3232 ha, 273 ha and 178 ha respectively (IASRI, 2007). A recent study conducted at PAU has revealed that 81 per cent of marginal, 62 per cent of small and 39 per cent of other farm households were economically unviable on the basis of (C_1 cost) crop income (Sekhon *et al.*, 2008). Their number declined to 64 per cent, 31 per cent and 32 per cent, respectively when income from dairy farming was added to the crop income during the year 2005-06 (Sekhon *et al.*, 2008). This analysis shows that the economic condition of the Punjab farmers is not good and general belief about their prosperity is only a myth.

The public procurement agencies have their own practical limitations to operate in the grain markets throughout the year. The public procurement agencies are operating in Punjab with almost half of the sanctioned strength of the staff. The staggered public procurement of cereal crops like wheat and paddy will add to the procurement cost and the burden of food subsidy to be borne by the Union Government will increase further. Already, it was Rs 56002 crore in the year 2009-10. Keeping in view the scenario at the farm and market levels, it is not feasible to have staggered public procurement of wheat in Punjab. Theoretically, it looks a good idea but from practical point of view, it is not much feasible.

Summary and Conclusions

The state of Punjab is the second largest producer of wheat after Uttar Pradesh in the country, but the state's share in contribution to the central pool is maximum. The study has brought out that the marketed surplus of wheat is about 84 per cent with the selected farmers in Punjab. Since the production of wheat in

absolute terms is high with large farmers, their marketed surplus is also more as compared to that of the medium and small farmers. The study has revealed that about 96 per cent of the produce is sold in the post-harvest period and the rest about four per cent is sold during the lean period. Further, about 99 per cent of the produce is sold in the regulated markets. The most common storage structure used by the farmers is metal bin, followed by *kothi*, gunny bags and *bharola*.

The study has revealed that per holding debt of the selected farmers was Rs 1.71 lakh. About 74 per cent of the total market arrival of wheat was in the month of April alone in Punjab in 2007-08. The arrival in May was about 23 and in June, just two per cent. Thus, about 99 per cent of the arrival was in the post-harvest period alone. Wheat price in the months of April and May was almost equal to the MSP from 1997-98 to 2007-08. During the lean period, there was mixed scenario of the price. All this depended on the forces of the demand and supply. A vast majority (about 76 %) of the selected farmers were not in the favour of staggered public procurement of wheat. The public procurement agencies have their own practical limitations to operate in the grain markets throughout the year. Such a step will add to the procurement cost and the burden of food subsidy to be borne by the Union Government will further increase. Already, it is Rs 56002 crore in 2009-10. Keeping in view the scenario at the farm and market levels, it is not feasible to have staggered public procurement of wheat in Punjab. Theoretically, it looks an attractive proposal but from practical point of view, it is not much feasible.

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