

PRODUCTION, STORAGE AND DISPOSAL PATTERN OF WHEAT STRAW FODDER IN PUNJAB

HARBIR SINGH¹, RAJ KUMAR^{2*} AND SANGEET RANGUWAL³

Department of Economics & Sociology, PAU, Ludhiana

*(e-mail: rajkumar@pau.edu)

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SUMMARY

With commercialization of the dairy business, changing cattle rearing patterns, gap in supply and demand for green fodder, the strategic use of wheat straw fodder (*toori*) provides a vital supplement to livestock diets and offer economic benefits to farmers. The present study examined the production and marketing pattern of *toori* in Punjab. On an average, *toori* was produced from about 89 per cent area under wheat crop by about 86 per cent farmers in the state. The average per farm production of *toori* was about 156 quintals, with about 97.25 per cent being from farmers' own fields and 2.75 per cent from the purchased standing wheat stubble. About 81 per cent *toori* was being stored in covered structures. The major cost in post handling of *toori* was of the covered storage (26.67%) followed by making *Kupp* (25.19%). About 59 per cent of *toori* was consumed at own dairy farms, and the remaining surplus (41%) was marketed to co-villagers, dairy farms, and traders at an average sale price Rs 543 per quintal. The Punjab state farmers have good prospects to sell the surplus wheat straw fodder to the fodder deficit neighbouring states. Need of the hour is to develop infrastructure and farmer-friendly policies to encourage intra and inter-state trade for optimal utilization of surplus wheat straw which will help in providing an additional income to the farmers.

Key words: Disposal, economics, fodder, sales, storage, wheat straw

The livestock sector forms a major component of agriculture contributing to employment and better livelihood in rural areas. The important sources of fodder are crop residues, green fodder and fodder from common property resources like forests, permanent pastures and grazing lands. Among the crop residues, paddy straw, wheat straw, stalks of sorghum, maize, pearl millet, groundnut, and grams, etc. are most common. Wheat is integral to mixed crop-livestock systems, which are predominant in the developing countries supplying much of the world's food and supporting millions of farmers globally (Herrero *et al.*, 2009). Paddy and wheat straw constitute about 64 per cent of the total feed resources in India (Duncan *et al.*, 2020). Wheat straw fodder is regarded as security feed by farmers and is the only fibrous residue transported to and from distant markets. These fodder markets are essential for ensuring livestock welfare and providing economic opportunities for poor and landless farmers. In Punjab state, wheat is cultivated on 3.52 million ha area with production of 18.17 million metric tonnes during 2023-

24 (Govt. of Punjab, 2024). The by-product of wheat crop in the form of wheat straw fodder (*toori*) is a key ruminant feed source. Each bovine gets green fodder supply of about 30 kg per day against requirement of 40 kg green fodder per animal (PAU, 2024). *Toori* is the most common cattle feed for all types of ruminant animals throughout the year, either alone or in combination with other feeds or green fodder. *Toori* also serves as a valuable supplement to livestock diets, especially during lean periods. Further, livestock is one of the most important aspects of the state's economy, accounting for 10.47 per cent of the Gross State Value Added (Govt. of Punjab, 2024). Changing land use patterns due to intensive and commercialized agricultural and development activities have affected the cattle raising patterns, which are transitioning from grazing to stall feeding as forest area, fallow, and grazing grounds decline. Several states have common property resources for meeting the fodder requirements through grazing, but in Punjab, animals are generally stall-fed due to disappearance of these grazing grounds (Sharma, 2017). Further,

¹M.Sc. Scholar.

²Principal Extension Scientist (Agricultural Economics).

³Agricultural Economist.

increased money and growing urbanization have boosted the commercialization of the dairy business (Singh *et al.*, 2013).

Punjab contributes significantly to the supply chain by exporting *toori* to neighbouring states facing shortages of fodder. Fodder trading is an important livelihood activity for the poor who engage in it directly or who are employed in this value chain (Singh *et al.*, 2015). As per the nutritional requirement of livestock, there is a significant short-fall of 160.4 kg/animal/day in terms of green fodder in the country and a slight surplus in respect of dry fodder to an extent of 10.97 kg/animal/day. The projected livestock population during 2030 is estimated at 573.27 million and there may be the deficit of green fodder to the extent of 33562.9 million tonnes, however, the dry fodder will be in surplus of 2295.42 million tonnes (Maruthi *et al.*, 2021). Some studies indicate that Punjab has surplus straw fodder than its requirement (Tanwar and Verma, 2017; Roy *et al.*, 2019). The state government is trying hard to stop crop residue burning as there becomes a peculiar and difficult situation after wheat harvesting in the state (Teja, 2025). As such, policy focus and a study on this issue is essential to analyze the production and disposal/marketing pattern of wheat straw fodder.

MATERIALS AND METHODS

The study is based on primary data collected during the year 2024. The multi-stage stratified random sampling technique was employed in the present study to collect data from respondents across three agro-climatic zones of Punjab. At the first stage, one district was selected randomly from each of the three agro-climatic zones of Punjab i.e. Gurdaspur from Zone I, Ludhiana from Zone II, and Ferozepur

from Zone III. Further, two development blocks were selected randomly from each of the selected district and at the third stage, one village was chosen randomly from each selected block. The farmers of the selected villages were classified as small (<5 acres), medium (5-15 acres) and large (>15 acres) farm size categories on the pattern followed by the 'Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in India', Department of Agriculture and Farmers' Welfare, Ministry of Agriculture, Govt. of India. From each selected village, a sample of 15 farmers were selected randomly by taking 5 farmers each farm size category and thus, the total sample of selected farmers comprised 90 farmers (Table 1). To study the magnitude of intra and inter-state trade of wheat straw fodder (*toori*), a sample of 20 traders engaged in the marketing of *toori* were also selected randomly from the state. To capture the overall picture the *toori* trade from Punjab to its neighbouring states (Rajasthan, Jammu & Kashmir, Himachal Pradesh and Haryana), three traders each from Gurdaspur, Bathinda, Barnala, Ferozepur and Sri Muktsar Sahib districts and five from Ludhiana district were interviewed. The primary data relating to area under wheat crop, straw fodder generation, post-harvest handling, storage, consumption and marketing pattern were collected on the well-structured and pre-tested survey schedule through personal interview method. Similarly, the information related to volume of trade, purchase and sale price of *toori*, intra and inter-state trade, price spread, marketing constraints faced by traders, etc. were collected from the selected traders. Descriptive statistics were utilized to summarize and organize the collected data, providing a clear picture of the current state of *toori* production, its management and distribution.

TABLE 1
Sampling design for selection of respondents

District	Block	Village	Farm size category			Total sample
			Small (< 5 acres)	Medium (5-15 acres)	Large (> 15 acres)	
Gurdaspur	Kalanaur	Kalanaur	5	5	5	15
	Kahnuwan	Thakar Sandhu	5	5	5	15
Ludhiana	Khanna	Isru	5	5	5	15
	Sudhar	Khandoor	5	5	5	15
Ferozepur	Ferozepur	Jhoke Hari Har	5	5	5	15
	Zira	Tatha Kishan Singh	5	5	5	15
Total			30	30	30	90

RESULTS AND DISCUSSION

Operational land holding and cropping pattern

The average operational holding of the sampled farmers was 13.27 acres out of which 76.26 per cent was owned land and 24.26 per cent was leased-in land (Table 2). The average operational holding of small, medium and large farm size categories was 3.63, 8.94 and 27.23 acres, respectively.

The cropping pattern followed by the sampled is presented in Table 3. The share of area under non-basmati paddy in total cropped area was 33.81 per cent followed by basmati paddy (9.07%), maize (3.54%) and *kharif* fodder (1.52%). During the *Rabi*

season, wheat was the major crop covering about 42.88 per cent of the total cropped area followed by potato (3.18%), rapeseed & mustard (2.31%) and *kharif* fodder (1.41%). Similarly, in the Zaid season, spring maize and moong, occupied 3.18 per cent and 0.94 per cent of the total cropped area, respectively.

Production of wheat straw fodder

Understanding the production and disposal of straw fodder is essential not only for promoting sustainable agriculture but is also crucial for ensuring food security, boosting livestock production, optimum resource management and exploring economic opportunities. The results related to the production of

TABLE 2
Operational land holdings of sample farms

Operational holding (acres)	Farm size category			Overall (Acres/farm)
	Small	Medium	Large	
Owned land (a)	3.45(95.04)	7.81(87.36)	19.10(70.14)	10.12(76.26)
Leased-in (b)	0.18(4.96)	1.13(12.64)	8.33(30.59)	3.22(24.26)
Leased-out (c)	-	-	0.20(0.73)	0.07(0.52)
Total operational land holding (a+b-c)	3.63(100.00)	8.94(100.00)	27.23(100.00)	13.27(100.00)

Figures in the parentheses are percentages to their respective totals.

TABLE 3
Cropping pattern at the sample farms in Punjab

Crops	Farm size category overall			Overall (Acres/farm)
	Small	Medium	Large	
<i>Kharif</i> season				
Paddy	3.2 (41.61)	5.69 (29.76)	19.18 (34.12)	9.36 (33.81)
Basmati	0.27 (3.51)	2.33 (12.19)	4.94 (8.79)	2.51 (9.07)
Maize	0.1 (1.30)	0.60 (3.14)	2.25 (4.01)	0.98 (3.54)
Fodder (Sorghum)	0.07 (0.91)	0.32 (1.67)	0.86 (1.53)	0.42 (1.52)
Sub-total (a)	3.63 (47.20)	8.94 (46.76)	27.23 (48.44)	13.27 (47.94)
<i>Rabi</i> Season				
Wheat	3.53 (45.90)	7.89 (41.26)	24.18 (43.02)	11.87 (42.88)
Potato	-	0.40 (2.09)	1.35 (2.40)	0.88 (3.18)
Rapeseed & mustard	-	0.38 (1.99)	0.90 (1.60)	0.64 (2.31)
Fodder (Berseem)	0.1 (1.30)	0.27 (1.41)	0.80 (1.42)	0.39 (1.41)
Sub-total (b)	3.63 (47.20)	8.94 (46.76)	27.23 (48.44)	13.27 (47.94)
Zaid season				
Spring maize	0.43 (5.59)	0.97 (5.07)	1.23 (2.18)	0.88 (3.18)
Summer moong	-	0.27 (1.41)	0.52 (0.93)	0.26 (0.94)
Sub-total (c)	0.43 (5.59)	1.24 (6.48)	1.75 (3.11)	1.14 (4.12)
Total cropped area (a+b+c)	7.69 (100.00)	19.12 (100.00)	56.21 (100.00)	27.68 (100.00)

Figures in the parentheses are percentages to their respective total cropped area.

wheat straw fodder (*toori*) along with its disposal pattern i.e. storage and marketing has been discussed as under.

During the study, it was observed that *toori* was produced by the farmers from their own cultivated wheat crop while some farmers were found to be selling/purchasing standing wheat stubble to/from other farmers for the production of wheat straw fodder. The analysis relating to the sale/purchase of the standing wheat stubble indicate that on an average, about 16.7 per cent of the sampled farmers were following this practice (Table 4). About 30 per cent of the small farmers, 10 per cent each of the medium and large farmers sold the standing wheat crop stubble to other farmers. The average area of standing wheat stubble sold by small, medium and large farmers was 0.63, 1.23 and 1.97 acres per farm, respectively. At overall 6.67 per cent of respondents were purchasing the standing wheat stubble. The small farmers were the most active buyers (13.33%) followed by medium farmers (6.67%) and none of the large farmers were in the habit of purchasing it. These findings suggest a varied pattern of standing wheat stubble transactions across different farm sizes, with a notable proportion of farmers engaging in sales rather than purchase. The average area of standing wheat stubble purchased by small and medium farmers was 0.37 and 0.53 acres per farm, respectively. The farmers sell/purchase the standing stubble at a price of Rs. 1800 to 1850 per acre.

The results revealed that the generation of *toori* was carried out on about 89 per cent of the wheat area sown and about 86 per cent of the selected farmers were observed to be following this practice (Table 5). The average yield of *toori* at small, medium, and large sized farms was 14.35, 14.09 and 14.39 q/

acre, respectively and its average market price was Rs. 542.7/q.

It was also observed that at overall, the production of *toori* was about 151 quintals per farm. The farm size category wise generation of *toori* was 40.25, 98.72 and 311.97 quintals per farm for small, medium and large farms, respectively. At small farms, *toori* was being produced from about 78 per cent of wheat area while at the medium and large farms, it was generated from about 87 and 91 per cent of wheat area, respectively.

The major reason behind this practice was that the small farmers owned comparatively lesser number of livestock and moreover they preferred to buy *toori* than producing it at own farms. It was also observed that about 97 per cent of total wheat straw fodder was generated at farmers' own fields and only three per cent was produced at the purchased standing wheat crop stubble. About 11.79 and 7.17 per cent of *toori* was produced from the area of purchased standing stubble in the case of medium and small farms, respectively while at the large farms, *toori* was being produced at their own farms only. The farmers who were not rearing livestock at their farms, often sell the standing wheat stubble to other needy households.

Storage of wheat straw fodder

To ensure a stable and sufficient food supply for livestock and sale during lean periods with scarce green fodder availability, wheat straw fodder is stored in different storage types (Fig. 1).

It was observed that about 81 per cent of *toori* produced at sample farms was stored in covered *pucca* storage (by 68.89% farmers), 16.35 per cent of produce was being stored in *Kupp*, a large conical mound type structure constructed in an open area at

TABLE 4
Sale/purchase of standing wheat stubble in Punjab

Particulars	Farm size category						Overall	
	Small		Medium		Large		No. of farmers (N=90)	Area (acres/farm)
	No. of farmers (n=30)	Area (acres/farm)	No. of farmers (n=30)	Area (acres/farm)	No. of farmers (n=30)	Area (acres/farm)		
Sold	9 (30.00)	0.63	3 (10.00)	1.23	3 (10.00)	1.97	15 (16.67)	1.27
Purchased	4 (13.33)	0.37	2 (6.67)	0.53	-	-	6 (6.67)	0.30

Figures in the parentheses are percentages to their respective sample sizes.

TABLE 5
Wheat straw fodder (*toori*) production in Punjab

S. No.	Particulars	Farm size category			Overall (n=90)
		Small (n=30)	Medium (n=30)	Large (n=30)	
1	Farmers who made <i>toori</i> (No.)	22 (73.33)*	28 (93.33)*	27 (90.00)*	77(85.56)*
2	Area under wheat (acres/farm)	3.53	7.89	24.18	11.87
3	Average yield of <i>toori</i> (q/acre)	14.53	14.39	14.11	14.31
4	Wheat area used for <i>toori</i> production (acres/farm)	2.77 (78.47)**	6.86 (86.94)**	22.11 (91.44)**	10.57(89.05)**
5	<i>Toori</i> produced at own farm (q/farm)	40.25 (88.21)#	98.72 (92.83)#	311.97 (100.0)#	151.26 (97.25)#
6	<i>Toori</i> produced from the purchased standing wheat stubble (q/farm)	5.38 (11.79)#	7.63 (7.17)#	-	4.28 (2.75)#
7	Total <i>toori</i> production (q/farm)	45.63 (100.00)	106.35 (100.00)	311.97 (100.00)	155.54 (100.00)
8	Average price of <i>toori</i> (Rs./q)	537.4	545.9	541.2	542.7
9.	Value of <i>toori</i> produced (Rs./farm)	24522	58056	168838	84412

*Figures in the parentheses are percentages to their respective sample sizes.

**Figures in the parentheses are percentages to their respective area under wheat.

#Figures in the parentheses are percentages to their respective total *toori* production.



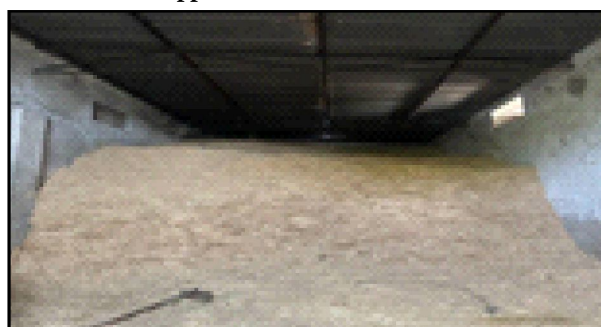
Open storage



Kupp covered with mud & *toori*



Kupp covered with plastic sheets



Covered (pucca) storage

Fig. 1. Different ways of storing wheat straw fodder (*toori*) in Punjab.

the farmers' fields (by 32.22% farmers) and 2.59 per cent of *toori* was kept open in the field itself for its immediate sale after wheat harvesting by 11.11 per cent farmers (Table 6). The farm category-wise analysis revealed that 10 per cent small farmers kept about 10.88 per cent *toori* openly for immediate sale, while 30 per cent of them stored 22.73 per cent of *toori* in *Kupp* and 60 per cent of farmers used covered

storage for storing 66.39 per cent *toori*. The small farmers not having any milch animals did not produce *toori* (26.67%). On medium-sized farms, 8.49 per cent of *toori* was kept open for immediate sale while 16.74 and 74.76 per cent *toori* was stored in *Kupp* and covered storage, respectively. At large farms, 84.51 and 15.49 per cent of *toori* was stored only in covered storage and *Kupp* respectively.

TABLE 6
Storage of wheat straw fodder (*toori*) in Punjab

Storage type	No. of farmers* Farm size category				Quantity of <i>toori</i> stored (q/farm) Farm size category			
	Small	Medium	Large	Overall	Small	Medium	Large	Overall
Covered storage (<i>pucca</i> /cemented)	18 (60.00)	25 (83.33)	26 (86.67)	69 (68.89)	30.29 (66.39)	79.29 (74.76)	263.65 (84.51)	126.08 (81.06)
<i>Kupp</i>	9 (30.00)	11 (36.67)	9 (30.00)	29 (32.22)	10.38 (22.73)	17.80 (16.74)	48.32 (15.49)	25.43 (16.35)
Open storage (for immediate Sale)	3 (10.00)	7 (23.33)	-	10 (11.11)	4.96 (10.88)	9.26 (8.49)	-	4.03 (2.59)
<i>Toori</i> not produced	8(26.67)	2(6.67)	3(10.00)	13(14.44)	-	-	-	-
Total	30** (100.0)	30** (100.0)	30** (100.0)	90** (100.0)	45.63 (100.0)	106.35 (100.0)	311.97 (100.0)	155.54 (100.0)

*Multiple response, **Sample size.

Figures in the parentheses are percentages to their respective totals.

Cost of handling of wheat straw fodder

The handling of *toori* includes different costs like labour for unloading and setting transportation charges (tractor), *Kupp* making charges using plastic sheets or mud, rent of land used for storage, and covered *pucca* storage costs. Analysis of data revealed that farmers were following different storage methods according to their requirements. The break-up of post-harvest handling charges for managing wheat straw is given in Table 7.

The average cost of handling and storing wheat straw fodder was Rs 195.76 per quintal. The cost of covered storage (*pucca*) was the highest among different storage methods i.e. Rs. 52.21/q followed by the *Kupp* covered with plastic sheets (Rs. 49.31/q), the *Kupp* covered with mud and *toori* only (Rs. 23.47/q). The transportation cost has been estimated

at Rs. 26.68/q while the cost for unloading and setting of *toori* came out to be Rs. 12.72/q. Thus, the major share in the total cost of post harvest handling of *toori* was for covered *pucca* storage (26.67%), followed by *Kupp* covered with plastic sheets (25.19%), rent of land used for storage (16.02%), transportation costs (13.63%), and cost of unloading/setting of *toori* (6.50%), respectively.

Disposal pattern of wheat straw fodder

Further data were also collected relating to annual on farm utilisation and sales of wheat straw by the respondents. On average, the annual consumption of *toori* was 91.86 quintals per farm out of which about 53 and 32 per cent of *toori* was fed to buffaloes and cows, respectively (Table 8). Farm size category analysis indicates that annual consumption of *toori*

TABLE 7
Cost of handling of wheat straw fodder (*toori*) in Punjab

Cost items	Farm size category			Overall
	Small	Medium	Large	
Unloading and setting of <i>toori</i>	13.10 (8.31)	12.76 (6.26)	12.38 (6.30)	12.72 (6.50)
Transportation	26.88 (17.04)	26.21 (12.87)	25.68 (13.06)	26.68 (13.63)
Covered <i>pucca</i> storage	62.52 (39.64)	60.69 (29.79)	51.82 (26.36)	52.21 (26.67)
Covering <i>Kupp</i> with plastic sheets*	-	47.61 (23.37)	52.52 (26.72)	49.31 (25.19)
Covering <i>Kupp</i> with mud and <i>toori</i> *	23.73 (15.05)	23.37 (11.47)	22.85 (11.62)	23.47 (11.99)
Rent of land used for storage	31.49 (19.97)	33.06 (16.23)	31.34 (15.94)	31.37 (16.02)
Total	157.72 (100.00)	203.7 (100.00)	196.59 (100.00)	195.76 (100.00)

*Including labour charges

Figures in the parentheses are percentages to their respective totals.

was higher at large farms (181.13 q/ farm) than at medium (81.20 q/farm) and small farms (37.90 q/ farm). Though the respondents mainly utilised *toori* for consumption at own farm (59.06%), but also a considerable share (40.94%) was sold up. Farm size category wise analysis indicated that on an average, quantity of *toori* sold was higher on medium farms (25.15 q/ farm) than on large (13.084 q/farm) and small farms (7.73 q/farm). Of the quantity sold, about 67 per cent (42.51 q/ farm) was sold to traders, to dairy farms (12.97 q/ farm) and to co-villagers (8.20 q/ farm). The highest share in the sales to the traders was for large farms (75.3%), followed by medium (56.1%) and small farms (51.62%) while reverse pattern was observed in case of own farm utilisation and sales to co-villagers.

Marketing pattern of wheat straw fodder at different time periods

The results revealed that *toori* was sold throughout the year at different time periods. Out of the total quantity marketed, about 18 per cent was sold during the mid-year period (August to November), followed by 13.36 per cent in the post-harvest period (April to July), 8.63 per cent in the lean period (December to March) and 0.81 per cent immediately after harvesting of wheat crop (Table 9). The major share of wheat straw fodder (*toori*) was sold in the mid-year period (August to November) because the demand for fodder is higher at this time. The price of *toori* varied with different time periods. The price was highest (Rs. 802/q) during the lean period (December

TABLE 8
Disposal pattern of wheat straw fodder at sample farms in Punjab

S. No.	Particulars	Farm size category			Overall (n=90) (q/farm/annum)
		Small	Medium	Large	
Consumption at own farm					
1	Buffaloes	18.50 (48.81)	39.69 (48.89)	101.86 (56.24)	48.56 (52.88)
2	Cows	11.8 (31.13)	29.41 (36.21)	54.36 (30.02)	29.69 (32.32)
3	Calves	5.19 (13.72)	10.20 (12.56)	22.49 (12.42)	11.39 (12.40)
4	Bullocks	1.21 (3.17)	1.90 (2.34)	1.40 (0.77)	1.59 (1.74)
5	Goat	1.20 (3.17)	-	1.02 (0.55)	0.63 (0.66)
Total consumption (a)		37.90 (83.10)	81.20 (76.36)	181.13 (58.06)	91.86 (59.06)
Sale of wheat straw fodder					
1	Sold to traders	3.99 (51.62)	14.11 (56.1)	98.52 (75.3)	42.51 (66.76)
2	Sold to dairy farms	-	5.30 (21.07)	21.74 (16.62)	12.97 (1.4)
3	Sold to co-villagers	3.74 (48.38)	5.74 (22.82)	10.58 (8.09)	8.20 (12.88)
Total quantity sold (b)		7.73 (16.90)	25.15 (23.65)	13.084 (41.94)	63.68 (40.94)
Total production (a+b)		45.63 (100.0)	106.35 (100.0)	311.97 (100.0)	155.54 (100.0)

Figures in the parentheses are percentages of their respective total production.

TABLE 9
Marketing of wheat straw fodder at different time periods in Punjab

Period	Farm size category						Overall	
	Small		Medium		Large		Qty (%)	Price (Rs./q)
	Qty (%)	Price (Rs./q)	Qty (%)	Price (Rs./q)	Qty (%)	Price (Rs./q)		
Immediate after wheat harvesting	3.77	410.0	2.74	415.0	-	-	0.81	413.0
Post-harvest period(April - July)	-	-	7.46	442.0	13.03	428.0	13.36	434.0
Mid-year period (August - November)	8.48	650.0	10.29	658.0	19.48	643.0	18.04	653.0
Lean period(December - March)	4.65	788.0	3.15	795.0	9.42	806.0	8.63	802.0
Retained for own dairy farm	83.10	-	76.36	-	58.06	-	59.06	-
Total/Average	100.0	537.0	100.0	546.0	100.0	541.0	100.0	543.0

to March), followed by Rs. 653/q during the mid-year period (August to November), Rs. 434/q during the post-harvest period (April to July) and Rs. 413/q at the time of wheat harvesting. During the post-harvest period, medium farmers sold their produce at the highest price of Rs. 442/q, while small farmers did not sell during this period. In the mid-year period, the price of *toori* ranged from Rs. 643 to 658 per quintal. During the lean period, prices varied between Rs. 788 to 806 per quintal. The price during the lean period remained higher than the mid-year period because of less stock of *toori* was available.

CONCLUSIONS

The study revealed that about 86 per cent of the farmers in Punjab produce *toori* from about 89 per cent of the total wheat area. Covered *pucca* storage was the most preferred storage followed by *Kupp* and open storage for immediate sale after wheat harvesting. On an average, about 59 per cent of *toori* was consumed at own farms, and the remaining 41 per cent was sold to co-villagers, dairy farms, and traders. The price of *toori* was the highest (Rs. 802/q) during the lean period (December to March) in comparison to other time periods and the average sale price was Rs 543 per quintal. The Punjab state farmers have good prospects to sell the surplus wheat straw fodder to the straw fodder deficit areas of neighboring states. To encourage this, there is a need to develop infrastructure and farmer-friendly policies to encourage intra and inter-state trade for optimal utilization of surplus wheat straw which will contribute to earning additional farm income from the surplus throughout the year.

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