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AGRICULTURAL MARKETING SYSTEM AND ITS PERFORMANCE: A COMPARATIVE STUDY OF THE STATES OF NORTH-WESTERN INDIAN PLAIN

Narender Kumar M. S. Jaglan

Abstract

Agricultural marketing plays an important role, not only in stimulating production and consumption, but also in accelerating the pace of agricultural economy. Present study attempts to analyze the availability of agricultural markets and their performance in the states of north-western Indian plain. The study is based on secondary data obtained from Agriculture Census 2015-16, Statistical Abstract, Directorate of Agricultural Marketing and Inspection, Ministry of Agriculture and Farmers Welfare Government of India and NSSO 77th round survey (2018-19). Three indicators have been selected to show the markets availability namely number of markets per million farmers, number of markets per million ha agricultural land and number of markets per thousand villages. The study shows that there is a huge inter-state and inter-district difference in the availability of market infrastructure. The agricultural market infrastructure is strongest in Punjab followed by Haryana. On the other hand, Uttar Pradesh and Rajasthan are quite lowly placed in this regard. The spatial inequality in availability of agricultural markets has its implications in the performance of marketing. Consequently, the performance of market system is perceived to be dismal in Uttar Pradesh and Rajasthan. It is imperative to develop the basic infrastructure of agricultural markets in the region to reduce the inter-state and inter-district disparity in the level of agricultural development.

Keywords: Agricultural markets, Mandis, Availability, Performance, Composite index, Northwestern Indian Plain.

Introduction

The National Commission on Farmers (2004) has defined agricultural marketing quite elaborately as "a process that starts with a decision to produce a saleable farm commodity and it involves all aspects of the structure of the market system both functional and institutional, based on technical and economic considerations and includes pre- and post-harvest operations, assembling, grading, storage, transportation and distribution". Depending on the nature and quantum of transaction of agricultural commodities, agricultural markets may be termed as primary markets, periodic markets, regulated markets and co-operative markets. The primary markets are located amid the producing areas and purchasing of the agricultural commodities here is carried out by the intermediaries who further sell the produce in the wholesale market. Periodic markets, locally known as 'haats' are generally held at central places in open ground or along roadsides once or twice a week. The regulated markets known as 'Mandis' are regular wholesale grain markets with shops or 'Arhats' that provide a permanent place for daily transaction of commodities. The agricultural marketing in the Mandis in most states is organized and operationalized under Agricultural Produce Marketing Committee (APMC) Act. A co-operative agricultural market is an organization of farmers to market the farm products collectively for their direct benefit (Acharya, 1997).

An efficient marketing system ensures a higher level of income for the farmers by reducing the number of middlemen or by restricting the cost of marketing services and the malpractices in the marketing of farm products. The presence of good marketing infrastructure is a basic requirement not only for the wellfunctioning of agricultural markets but also helpful in providing the farmers remunerative prices for their produce. Agricultural marketing infrastructure encompasses the facilities and amenities needed for the marketing of the produce from farm to firm, farm to fork, and firm to fork in the economy (Jairath, 2004). Likewise, in a dynamic and growing economy, the agricultural marketing system provides an important linkage between the farm production and non-farm sector (Kumar, 1996; Acharya, 1997).

Overall, the agricultural marketing system in India suffers from inefficiency and huge gaps between the prices received by farmers and paid by consumers, fragmented marketing channels, poor infrastructure, and policy distortions (Kumar and Sharma, 2003; Chand, 2012). Low prices have remained a major concern of farmers in India and main cause of their ineptness and distress (Sharma, 2021a). The performance of the agricultural market also depends on its structure and conduct which are influenced by regulatory measures, infrastructure, administered price regime, direct entry of public agencies, export and import regime and macro-economic policies (Acharya, 1998). The regulatory mechanism of minimum support price (MSP) becomes a crucial factor and its guarantee would be a historic correction as open markets have failed to prop up the farm income (Sharma, 2021b).

Availability of the agricultural markets within a short distance has direct bearing on the access and profitability of the farmers. As per the recommendation of the National Commission on Farmers (2004), there should be one market within a 5 km radius or every 80 km² area. The agriculture sector needs a streamlined supply chain in the form of well-functioning marketing infrastructure to make the 'Farm to Fork' model a reality. However, in India, the high-value chain is very weak (Planning Commission, 2011). Therefore, there is an urgent need of strengthening the agricultural marketing system in terms of its regulation and network (Rehman and Selvaraj, 2012).

There have been efforts to improve the agricultural marketing system in various states through the regulation of markets under various state acts. Presently, in most states of the country, agricultural markets are regulated under the Agriculture Produce Marketing Regulation Act (APMC) enacted by the respective state governments. The present study is a modest attempt to evaluate the availability and performance of agricultural marketing system in the north-western states of India.

Objectives

Major objectives of the study are:

• to evaluate the availability of agricultural market and inter-state and interdistrict gaps thereof in the north-western Indian Plains,

- to explore the storage and procurement facilities of wheat and rice, and
- to examine the inter-state differences in the performance of agricultural marketing system in the region.

Study Area

The study area comprises the states of Punjab, Haryana, Uttar Pradesh and Rajasthan (Fig. 1). These states have been most affected by the Farmers' Movement 2020-2021 that culminated in withdrawal of three new farm laws by the Union Government of India. In fact, Punjab, Haryana and western Uttar Pradesh farmers formed the nuclei of this movement. These north-western states of India have agriculture as the main livelihood source for the majority of the people. The total area of these states is 6,77,741 km² and it stretches between 23°3' to 32°32' N latitude and 69°30' to 84°39' E longitude, covering about one-fifth of the total geographical area of India. The agricultural significance of this area in the country can be gauged from the fact that it produces about two-third wheat and 28 per cent paddy of the country (Government of India, 2019). But there is a significant inter-state and inter-district difference in the level of agricultural development in the region. Punjab is the leading, agriculturally developed, state of the country followed by Haryana. On the other hand, Uttar Pradesh and Rajasthan rank low in terms of agricultural development (Bhalla and Singh, 2009). Besides, there is a big difference in level of irrigation and technological factors, institutions and marketing systems between these states which play a crucial role in determining the spatial pattern of agricultural develop-ment in the region (Banerjee and Kuri,

2014).

Database and Methodology

The present study is based on secondary data. The district level data on agricultural markets (APMC mandis) have been obtained from the Directorate of Agricultural Marketing and Inspection, Ministry of Agriculture and Farmers Welfare, Govt. of India. Information regarding the number of farmers and agricultural land has been extracted from Agriculture Census 2015-16. The data on number of villages have been collected from Statistical Abstract 2018-19 of Punjab, Haryana, Rajasthan, and Uttar Pradesh. NSSO (2019) 77th round survey data (2018-19) have been used to show the performance of the marketing system.

Three indicators have been computed to show the availability of market infrastructure, i.e., number of markets per million farmers, number of markets per million ha of agricultural land and number of markets per thousand villages. The normalized values of these indicators have been computed by dividing the district value with the region value of concerned indicator (Kundu, 1992). The composite index of availability of agricultural markets has been calculated using following formula:

Composite Index =
$$\frac{Xn}{n}$$

where, n is number of indicators and X is normalized value of indicators. The level of satisfaction and non-satisfaction of the sale outcome of agricultural produce has been calculated from the total sale reported by agricultural households in percentage terms. Maps have been prepared with the help of Arc GIS software. The availability of agricultural markets have been depicted by choropleth technique for the indicators such as market-



farmer ratio, market-village ratio, marketagricultural land ratio, and composite index of market availability.

Results and Discussion

According to Economic Survey of India, 2017-18, there are 2477 principal grain markets and 4843 sub-yards in India. The four states comprising the study area have 642 principal markets and 1034 sub-yards in total. Uttar Pradesh has the largest number of agricultural markets in the region (248 principal markets and 357 sub-yards) followed by Punjab, Rajasthan and Harvana. But as per the norms laid down by the National Commission on Farmers (2004), India in all has a deficit of 33770 agricultural markets. The study area comprising four states have a total deficit of 6827 markets where Rajasthan (3847) has highest deficit followed by Uttar Pradesh (2438), Haryana (349) and Punjab (194). This shows that even agriculturally developed states of Punjab and Harvana do not meet the standard market requirement set by National Commission of Farmers.

Market-Farmer Ratio

It is an indicator of the availability of agricultural markets with respect to market farmer ratio, i.e., number of markets per million farmers. Overall, there are 37 agricultural markets per million farmers in northwestern Indian plain. Table 1 shows that four out of five districts in the study area have low farmer-market ratio. Huge inter-state and interdistrict difference in this regard is a big cause of concern. Among the four states, the availability of agricultural markets per million farmers is highest in Punjab (399) and lowest in Uttar Pradesh (26).

All the districts of Uttar Pradesh and

Rajasthan (except one) fall in the low marketfarmer ratio. The situation is worst in Uttar Pradesh where about 90 per cent districts fall in the category of very low availability and there is not a single district of the state lying in moderate category. Few agriculturally backward districts, in this state, (in western and southern region) have low market-farmer ratio and all other parts of the state have very low ratio. In Rajasthan, only the agriculturally developed Sri Ganganagar district has moderate market-farmer ratio. The rest of the districts of the state have very low and low market-farmer ratio.

It's only the state of Punjab where majority of the districts lie in the category of high and very high market-farmer ratio. In fact, about one-third districts of the state (mostly in the central region) fall in very high category (Fig. 2). Majority of the districts of the southern region fall in the category of moderate to high market availability categories. Compared to Punjab, market-farmer ratio is almost half in Haryana. About two-fifth districts of the state, mostly located in the north-eastern region, fall in the moderate category. The rest of the districts of the state are placed in the low category of market-farmer ratio.

Market-Village Ratio

The market-village ratio is another important indicator of the availability of agricultural markets. It refers to the number of markets per thousand villages. Overall, there are 10 markets per thousand villages in the study area. This ratio is quite high in Punjab (34) and Haryana (30) and lowest in Uttar Pradesh (6). Table 2 depicts the distribution of districts by the number of markets per thousand villages. It is evident that about 86 per cent

North-west Ir	ndian Plain: St	ate-wise Dist	tribution of	Districts by	Number of A	\gricultural]	Markets per	Million Far	mers, 2018-19
State	Number of Markets per Million Farmers	Inter Districts Variation (CV)	Up to 50 (Very Low)	51-150 (Low)	151-250 (Low Moderate)	251-350 (High Moderate)	351-450 (High)	Above 450 (Very High)	Total
Punjab	399	32.80	(00.00) 00	00 (00.00)	01 (04.50)	09 (40.90)	05 (22.70)	07 (31.80)	22 (100.00)
Haryana	125	40.28	01 (04.80)	12 (57.10)	08 (38.10)	00(00.00)	00 (00.00) 00	(00.00) 00	21 (100.00)
Rajasthan	56	49.44	15 (45.50)	17 (51.50)	01 (03.30)	00(00.00)	(00.00) 00	(00.00) 00	33 (100.00)
Uttar Pradesh	26	54.82	64(90.10)	07 (09.80)	(00.00) 00	00(00.00)	(00.00) 00	(00.00) 00	71 (100.00)
All States	49	131.54	80 (54.40)	36 (24.50)	10 (06.80)	09 (06.10)	05 (03.40)	07(04.80)	147 (100.00)
Source: Comp	iled by Authors	S. CV:	Coefficients	of Variation	Figur	res in parenth	eses are perc	entage of tot	ıl.

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State	Number of Markets per Thousand Villages	Inter Districts Variation (CV)	Up to 15 (Very Low)	16-30 (Low)	31-45 (Low Moderate)	46-60 (High Moderate)	61-75 (High)	Above 75 (Very High)	Total
Punjab	34	59.76	02 (09.10)	09 (40.10)	03 (13.60)	02 (09.10)	04 (18.20)	02 (09.10)	22 (100.00)
Haryana	30	50.90	03 (14.30)	09 (42.90)	05 (23.80)	03~(14.30)	01 (04.80)	00(00.00)	21 (100.00)
Rajasthan	10	43.08	28 (84.90)	05 (15.20)	(00.00) 00	00(00.00)	(00.00) 00	00(00.00)	33 (100.00)
Uttar Pradesh	90	64.69	63 (88.70)	08 (11.30)	(00.00) 00	00(00.00)	(00.00) 00	00(00.00)	71 (100.00)
All States	10	104.58	96 (65.30)	31 (21.10)	08 (04.40)	05 (03.40)	05 (03.40)	02 (01.40)	147 (100.00)
Source: Comp.	iled by Authors.	. CV:	Coefficients	of Variation	Figure	ss in parenthe	ses are perce	entage of tot	П.

North-west Indian Plain: State-wise Distribution of Districts by Number of Agricultural Markets per Thousand Villages, 2018-19 Table 2

districts, of the study area, have recorded poor availability of agricultural markets. Only 5 per cent districts of the region fall in the categories of high and very high market-village ratio. In general, the districts of Rajasthan and Uttar Pradesh have recorded very low availability of markets. Fig. 3 reveals that a few districts in western and southern part of Uttar Pradesh and five districts of Rajasthan (randomly located) have a slightly better situation but still in the category of low availability.

The better placed states of Punjab and Haryana also have significant spatial variations in agricultural market-village ratio. About onefourth (6) districts of Punjab have high to very high market-village ratio. They are mostly located in southern and central part of the state. But the Shivalik foothill districts of the state fall in low and very low category of marketvillage ratio. About two-third districts of Haryana, mostly located in south-eastern and north-eastern regions of the state, also have low and very low market-village ratio. But northwestern and central parts of the state have registered moderate level market-village ratio. There is only one district (Kaithal), in the state, having a high market-village ratio.

Market-Agricultural Land Ratio

There are significant inter-state and inter-district variations in market-agricultural land ratio (number of markets per million ha agricultural land). Overall, the north-western Indian plain (four states together) has 37 markets per million ha agricultural land (Fig. 4). This ratio is quite high in Punjab (110) followed by Haryana (57). The ratio is lowest for Rajasthan (21) and very close to the region average for Uttar Pradesh (35). Table 3 shows that a large number of districts (72 per cent), in the study area, record low and very low marketagricultural land ratio. About one-fifth districts of the region fall in the moderate category and only 8 per cent districts in high and very high categories. More than two-fifth districts of Punjab, mostly lying in central and eastern parts have high and very high ratio (Fig. 4). The rest of the districts of the state, except one, have moderate ratio. The districts of Haryana have mostly low to moderate level market-agricultural land ratio. There is only one district (Panchkula) having a high ratio. In this regard ten districts of the state (almost half of the total), located in eastern and northeastern parts of the state, have moderate level availability of agricultural markets. The central and western parts of the state have low marketagricultural land ratio.

All the districts of Rajasthan have low to very low market-agricultural land ratio. There is a clear east west divide in the state in this regard. The districts lying west of Aravalli range have very low ratio. About 87 per cent (62) districts of Uttar Pradesh also have low to very low market-agricultural land ratio. These districts are located mostly in eastern and central-eastern parts of the state. The remaining 9 districts of the state (mostly located in western and central parts) have moderate market-agricultural land ratio.

Composite Index of Market Availability

The composite indices of availability of markets have been exhibited in Table 4 and Fig. 5. Index value above 1.0 indicates marketing infrastructure level higher than the regional average and vice versa. The index value of markets for Rajasthan (0.90) and Uttar Pradesh (0.70) is well below the regional average and it reveals overall backwardness of agricultural market infrastructure in these states. On the other hand, Punjab (4.84) records the highest





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State	Number of Markets per Million Agricultural Land	Inter Districts Variation (CV)	Up to 30 (Very Low)	31-60 (Low)	61-90 (Low Moderate)	91-120 (High Moderate)	121-150 (High)	Above 150 (Very High)	Total
Punjab	110	31.66	(00.00) 00	01 (04.50)	04 (18.20)	07 (32.80)	07 (31.80)	03 (13.60)	22 (100.00)
Haryana	57	45.70	(00.00) 00	10(47.60)	06 (28.60)	04 (19.10)	(00.00) 00	01 (04.80)	21 (100.00)
Rajasthan	21	44.70	18 (54.50)	15 (45.40)	00 (00.00)	(00.00) 00	(00.00) 00	00 (00.00)	33 (100.00)
Uttar Pradesh	35	44.90	25 (35.20)	37 (52.10)	08 (11.30)	01 (01.40)	00(00.00)	00(00.00)	71 (100.00)
All States	37	72.73	43 (29.30)	63 (42.90)	18 (12.20)	12 (08.20)	07 (04.80)	04 (02.70)	147 (100.00)
Source: Compi	iled by Authors.	. CV:	Coefficients	of Variation	Figur	es in parenthe	eses are perce	entage of tota	

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North-west In	ndian Plain: S	state-wise Di	stribution of	Districts by	7 Composite	Index of Ag	icultural M ²	arket Availab	ility, 2018-19
State	Composite Index	Inter Districts Variation (CV)	Up to 1.00 (Very Low)	1.01-2.00 (Low)	2.01-3.00 (Low Moderate)	3.01-4.00 (High Moderate)	4.01-5.00 (High)	Above 5.00 (Very High)	Total
Punjab	4.84	26.78	00(00.00)	00 (00.00) 00	00 (00.00)	05 (22.70)	06 (27.30)	11 (50.00)	22 (100.00)
Haryana	2.36	35.67	00 (00.00)	06 (28.60)	10 (47.60)	04 (19.10)	01 (04.80)	00 (00.00) 00	21 (100.00)
Rajasthan	06.0	34.99	15 (45.40)	18 (54.50)	00 (00.00)	00 (00.00)	00(00.00)	00 (00.00) 00	33 (100.00)
Uttar Pradesh	0.70	49.65	51 (71.80)	19 (26.80)	01 (01.40)	00 (00.00)	00 (00.00)	(00.00) 00	71 (100.00)
All States	NA	97.21	66 (44.90)	43 (29.30)	11 (07.50)	09 (06.10)	07 (04.80)	11 (07.50)	147 (100.00)
Source: Compi	led by Author	s. CV: Coel	fficients of Va	ariation NA	v: Not Applic	able Figure	s in parenthe	ses are percen	tage of total.

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Table 4

43



index value of marketing infrastructure among all the states followed by Haryana (2.36). It reveals that there is a huge inter-state difference in the marketing infrastructure among these north-western states of India. On an average, agriculture marketing infrastructure level in Punjab is seven times better than Uttar Pradesh, five times higher than Rajasthan and twice that of Haryana. There is a huge inter-district difference in the index of market infrastructure in the region (CV 97 per cent). Interestingly, the inter-district difference in agricultural market availability is highest in the least developed state of Uttar Pradesh and lowest in the developed state, Punjab.

About 45 per cent districts of the study area have poor marketing infrastructure as they have index value less than 1.0. The proportion of such districts is highest in Uttar Pradesh (72 per cent) mostly lying in eastern and central parts of the state (Fig. 4). Fifteen (about 45 per cent) districts of Rajasthan, lying in western and southern parts, also have poor availability of agricultural markets. Incidentally, these areas of Uttar Pradesh and Rajasthan count among agriculturally backward regions of India. About 29 per cent districts of the study area have index value ranging 1.01 to 2.00 (Table 4). These districts have low level market infrastructure and are largely located in Rajasthan (northern and eastern parts) and Uttar Pradesh (western and southern). Interestingly 6 (29 per cent) districts of Haryana, mostly concentrated in agriculturally backward southern parts, also lie in the category of low market infrastructure.

Twenty (14 per cent) districts of the study area have moderate (index value 2.01-4.00) availability of agricultural markets. Interestingly, the majority of districts in agriculturally developed northern Haryana fall

under this category. On the other hand, about one-fourth districts of Punjab, mostly located in agriculturally less developed western parts and Kandi area, also have moderate level marketing infrastructure. One district in western Uttar Pradesh also falls under this category. Eighteen districts of the study area, seventeen in Punjab only, have high availability of agricultural markets (index value above 4.00). Most districts of agriculturally developed central Punjab have very high-index value. It is evident that agriculturally developed states and districts have higher level marketing infrastructure and vice-versa.

Storage and Procurement of Wheat and Rice

The storage capacity and procurement level of wheat and rice also influence the efficiency of marketing of these crops. Table 5 shows the distribution of storage capacity and level of procurement of wheat and rice across the states. Punjab has highest storage capacity (233.99 LMT) among the states followed by Harvana (115.28 LMT). On the other hand, Rajasthan has lowest storage capacity (29.60 LMT) and it is only 66.90 LMT in Uttar Pradesh. Such is the dominance of Punjab in storage of fine foodgrains that it is seven times higher than Rajasthan, three times higher than Uttar Pradesh and twice that of Harvana. Punjab also leads in procurement of wheat (69.83 per cent) and rice (91.99 per cent) by government agencies on minimum support price. Harvana closely follows Punjab in this regard and procures about 61 per cent of its wheat production and 89 per cent of rice production. Both Punjab and Haryana are nonrice staple food states and hence they have much higher rice procurement ratio than that of wheat. But in Uttar Pradesh, procurement level

	2019	-20)				
State	Storage	Wheat	Wheat	Procurement to Production	Broduction	Broomcond	Procurement to Production
	(LMT)	(LMT)	(LMT)	(per cent)	(LMT)	(LMT)	(per cent)
Punjab	233.99	182.07	127.13	69.83	118.24	108.76	91.99
Haryana	115.28	120.73	73.98	61.28	48.24	43.03	89.20
Rajasthan	29.60	105.73	22.24	21.04	04.80	00.00	00.00
Uttar Pradesh	06.99	320.89	35.77	11.15	155.23	37.91	24.42
Sources: Compil	ed by Authors.	LMT: Lak	h Metric Tonne				

Table 5

North-west Indian Plain: State-wise Distribution of Storage Capacity, Crop Production and Procurement of Wheat and Rice,

46

PUNJAB GEOGRAPHER VOLUME 18 OCTOBER 2022

for wheat is only about 11 per cent and for rice it is about one-fourth of production. Rajasthan procures about one-fifth of its wheat and it does not procure rice at all. The procurement level of agricultural produce is a surrogate indicator of level of agricultural development.

Perception of Farmers about Marketing System

The perception of farmers about marketing system has been gauged using NSSO 77th Round Survey, 2018-19. Table 6 shows the state-wise performance of the marketing system in the study area. Punjab tops in terms of satisfaction level of farmers with the performance of agriculture markets. About 83 per cent farmers in the state are satisfied with the marketing system. Only 13 per cent farmers in the state have reported getting lower price of their produce than market and merely 3.5 per cent reported delay in payment. Haryana ranks second in satisfaction level of farmers with marketing. About three-fourth farmers of the state are satisfied with the agricultural marketing in the state but about 24 per cent farmers reported receiving lower price than the market prices.

The satisfaction level of farmers, with respect to agricultural marketing, is quite low in Rajasthan and Uttar Pradesh as compared to Punjab and Haryana. About 65 per cent farmers in Rajasthan and 63 per cent farmers in Uttar Pradesh are satisfied with the performance of marketing systems in their states respectively. Furthermore, about one-third farmers in these two states report sale of their agricultural produce at a price lower than the market rate. This could be the result of poor marketing infrastructure and system in these states. About 4 per cent farmers in Uttar Pradesh also report delay in the payment of crops.

Crop-wise Performance of Marketing System

Table 6 also shows the crop-wise performance of the agricultural marketing system in four states. About 95 per cent agricultural households in Punjab have reported the sale of crops which is highest in the study area. As Punjab is almost a two-crop agricultural economy, about 98 per cent paddy growers and 93 per cent wheat growers reported sale of these cereals in market. This indicates very high-level commercialization of agriculture in the state. About 87 per cent paddy growers and 78 per cent wheat growers are satisfied with the marketing of these commodities. The sale of commodities below market prices is reported more in the case of paddy (18 per cent) than wheat (9 per cent). Delay in the payment has been reported by a small fraction of farmers.

Haryana ranks second in level of agricultural commercialization as about 84 per cent farmers in the state have reported sale of their agricultural products in the market. Cotton farmers have reported the highest sale (96.9 per cent) followed by rapeseed (96.1 per cent) and paddy (95.7 per cent). Paddy is grown in Harvana as a cash crop rather than a dietary grain. Comparatively low sale has been reported in the case of staple foodgrains like wheat and bajra. The satisfaction level of marketing the agricultural produce is comparatively high for paddy (82 per cent), bajra (78 per cent), and wheat (77 per cent). The sale of produce below market level has been mainly reported in the case of non-cereal crops such as rapeseed (37.2 per cent) and cotton (30.8 per cent) which are not procured by government agencies. Delay in payment has been reported by 8 per cent farmers in Haryana.

About 57 per cent of crop-producing

							•)			,	•			
Crop	Pe	rcentage Cr	op Producin	50	P	ercentage D	istribution o	f Agricul	ltural Hou	iseholds Rej	porting Sale o	of Crop l	oy Level o	f Satisfactio	on of the Sale	Outcom	a
	Agricı	ultural Hous	cholds Repo	rting		Satisfa	Ictory				L.	Non-Sati	sfactory				Total
		Sa	le						Г	ower than N	Market Price			Delayed P	ayments		
	Punjab	Haryana	Rajasthan	Ъ	Punjab	Haryana	Rajasthan	đ	Punjab	Haryana	Rajasthan	đ	Punjab	Haryana	Rajasthan	Ð	
Paddy	97.50	95.70		36.20	78.00	82.20		61.90	17.70	17.50		35.90	3.40	0.30		1.00	100.00
Bajra		78.90	39.00	50.80		78.30	60.70	•		17.90	39.90	•		3.70	0.00		100.00
Cotton		96.90	-			60.30	-			30.80	-			8.10			100.00
Wheat	92.80	79.80	48.10	37.10	87.40	77.20	00'99	74.00	8.90	18.00	32.60	24.90	3.60	4.70	0.00	0.50	100.00
Maize			23.40	47.40		•	51.70	57.10		•	48.30	41.90		-	0.00	0.40	100.00
Moong		-	41.00				06.69			•	36.10			-	0.00		100.00
Soyabean			98.20				62.00	,			38.00				0.00		100.00
Barley	•		44.80	-			71.50			•	28.50				0.00		100.00
Sugarcane	•			95.70			-	59.90		•	-	13.20				26.80	100.00
Potato	•			32.10			-	62.00		•	-	36.30				0.00	100.00
Gram			71.40				08'6L	,			19.40				0.00		100.00
Rapeseed	•	96.10	91.70	15.10		59.40	64.10	68.40		37.20	35.90	31.50		3.30	0.00	0.10	100.00
& Mustard																	
Average	95.20	89.40	57.20	45.00	82.70	71.50	65.00	63.50	13.30	24.30	35.00	32.20	3.50	4.56	0.00	4.00	100.00
Source: C	Compile	ad by Au	thors.	UP: U	ttar Pra	desh											

North-west Indian Plain: State and Crop-wise Performance of Agricultural Marketing System, 2019 Table 6

PUNJAB GEOGRAPHER VOLUME 18 OCTOBER 2022

agricultural households in Rajasthan have reported sale of their agricultural produce. It shows moderate level commercialization of agriculture in the state. The highest sale in the state is reported in the case of cash crops i.e., soyabean (98.2 per cent) followed by rapeseed (91.7 per cent) and gram (71.4 per cent). Only about half of the wheat farmers have reported sale of this crop. The sale is guite low in case of coarse cereals such as maize and bajra. The satisfaction with the marketing is relatively high in the case of gram (79.8 per cent) and barley (71.5 per cent). A large proportion of maize (46.1 per cent) and baira (39.9 per cent) have reported sale of these commodities below market price.

About 45 per cent crop farmers in Uttar Pradesh sell their farm produce. This reveals low level commercialization of agriculture in the state. Highest sale is reported in sugarcane (95.7 per cent) which is main cash crop in the western parts of the state. About half of the bajra and maize growers have also reported the sale of these coarse cereals. Interestingly, the growers of fine cereals, wheat and paddy, have reported low sale of these crops i.e., 37 and 36 per cent respectively. Only a small proportion (15 per cent) of rapeseed farmers have reported the sale of this commodity. The satisfaction level of farmers is higher in the sale of wheat (74 per cent) and rapeseed (68 per cent). A large number of maize (42 per cent) and bajra (38 per cent) growers have reported forced sale of these crops at lower prices than market rate in the state. About one-fourth of sugarcane farmers have complained about the delay in payments.

Conclusions

The present study explores the availability and performance of marketing system of agricultural produce in the states of northwestern plain in India. The study reveals that Punjab is far ahead of other states of the region in terms of agricultural market infrastructure and crop procurement system. Central and eastern parts of Malwa region have higher availability of agricultural markets and the inter-district variations are minimal in the state in comparison to other states of the region. The closest state to Punjab in terms of availability of agricultural markets (mandis) is Haryana but there is a big gap between the two. Furthermore, there is a big gap in the availability of agricultural markets between the northern and southern parts of Harvana. Both the remaining states of study area, Rajasthan and Uttar Pradesh have quite poor availability of agricultural markets. Uttar Pradesh is in the worst position as barring a few districts, of western parts and southern region (Bundelkhand), most districts of the state have very poor availability of agricultural markets.

Dominated by wheat-rice crop pattern, the state of Punjab has quite highly commercialized agriculture. It also tops in storage facilities and procurement of wheat and rice in the region. Haryana also has good storage facility of foodgrains and follows Punjab closely in terms of procurement of wheat and rice. Interestingly, in both these non-rice staple food states, rice procurement ratio is much higher than that of wheat. The procurement ratio of these cereals is very low in Uttar Pradesh and Rajasthan.

Though the data is not available at district level, state level analysis reveals a big inter-state difference in the perception of farmers about performance of agricultural marketing. Punjab, which has the highest availability of APMC mandis and procurement ratio of fine cereals, is perceived to have the best performing marketing system. The satisfaction level of farmers in the state is quite high with respect to the sale of both paddy and wheat crops. The farmers have not made much complaint about low price levels and delayed payments. The state of Haryana, with second best agricultural market facilities and procurement system in the region, also has its farmers quite satisfied with the marketing system particularly with respect to the sale of cereals. But there are serious complaints about the low prices in the sale transaction of mustard and cotton in the state. On the other hand, the performance of the agricultural marketing system is perceived to be poor by the farmers in the states of Uttar Pradesh and Rajasthan on account of inadequate market infrastructure and procurement facilities. In Uttar Pradesh, the satisfaction level of farmers is moderate with respect to the sale of wheat but there is serious concern about low prices of coarse food grains and delay in the payments of sugarcane. In Rajasthan, the farmers have moderate satisfaction with respect to sale of gram but low price fetched by maize and bajra dissatisfy them with marketing facilities in the state. Overall, it may be deduced that the availability of APMC mandis and procurement of agricultural produce on minimum support price through them makes an efficient agricultural marketing system. It has been a big boost in commercialization of agriculture and development in Punjab and Haryana. Hence, it is imperative to develop the basic infrastructure of agricultural markets in the region to reduce inter-state and inter-district disparity in the level of rural development.

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Narender Kumar, Research Scholar,

Dr. M. S. Jaglan, Professor,

Email: msjaglan@kuk.ac.in (Author for Correspondence) Department of Geography, Kurukshetra University, Kurukshetra (Haryana).

punjab geographer

