



E-ISSN: 2278-4136

P-ISSN: 2349-8234

JPP 2019; 8(6): 1133-1137

Received: 04-09-2019

Accepted: 06-10-2019

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## Disposal pattern and price spread analysis of chickpea in Chhattisgarh plains

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**Abstract**

An attempt has been made in this study to examine the disposal pattern and price spread analysis of major pulses in Chhattisgarh, India. Study was conducted in five major pulse growing districts of Chhattisgarh viz; Mungeli, Bemetra, Kabirdham, Rajnandgaon and Bilaspur. Gram, lathyrus and pigeon pea were found to be the major pulses grown by farmers so that these crops were considered for the study. A multi-stage sampling design was adopted for the ultimate selection of pulses growers and various intermediaries. Krishi Upaj Mandi (KUM) Bhatapara, KUM Mungeli, KUM Rajnandgaon, KUM Kabirdham and KUM Bemetra were selected on the basis of maximum arrivals of pulse produce. From each selected district, 20 per cent blocks were undertaken randomly for the present study. The per cent of proportionate sampling method was adopted for selection of pulse growing farmers through which 12 per cent pulses growing farmers have been undertaken for the study. The 2 per cent of market traders and wholesaler-cum-commission agent were selected from the selected Krishi Upaj Mandi. The village traders and consumers were not registered so that 2 village traders and consumers were also considered to access the information on relevant aspects. The objective of disposal pattern and price spread of major pulses were estimated by using the simple average and percentage methods. The results of study reveals that the marketable surplus of chickpea among marginal, small, medium and large farmers was observed to be 85.83, 76.83, 67.87 and 62.28 per cent, respectively. There were three of market intermediaries were involved in the study area. Most of the quantity chickpea sold by growers to village traders. Overall, 40.28 per cent of produce sold by farmers to wholesalers in mandi and 44.01 per cent dispose-off to retailer, which shows that retailers were the most popular among producers. It is important to note that more producer's share in consumer's rupee was in channel-III (68.41 per cent). It was due to decreasing the total marketing cost, which was found to be Rs./qtl 249.59/- (4.33 per cent). The study was found that producer's share in consumer's rupee was increasing with decreasing the marketing intermediaries.

**Keywords:** Disposal pattern, price spread and chickpea

**Introduction**

The consumption of pulses in India is continuously rising and had sharply increased in the past couple of years touching around 47.20 gram/head/year (Economic Survey, 2015-16). Pulses are also played a very important role in the Indian agriculture. The production of total pulses in India was 16.47 million tones. The major growing states of India are Madhya Pradesh, Rajasthan and Maharashtra, contributed 31.07 per cent, 11.86 per cent and 8.56 per cent, respectively to the total pulses production of India (Pocket Book on Agricultural Statistics, 2016). Chhattisgarh state has achieved four times Krishi Karmath Purushkar awarded for successfully application of agricultural planning and best crop production in the country by Government of India, and one time Krishi Karmath Purushkar was also achieved in 2014-15 for adoption of special approach in pulse production. In Chhattisgarh, the total area under pulses was 8.14 lakh ha and production was 4.84 lakh metric tonnes, which rises 43 per cent in 2017-18 as compared to 2003-04. Five major pulse growing districts of Chhattisgarh are Mungeli, Bemetra, Kabirdham, Rajnandgaon and Bilaspur & have indentified in term of area and production first Bemetra and Mungeli respectively (Commissioner of Land Revenue, 2016-17)<sup>[1]</sup>. The farmers are facing various problems during marketing of their produce; these are exploitation by traders, price fluctuation of produce, transportation & storage facility, transparency in pricing system, transaction taking place in market area, market organization and operation of marketing system *etc.*

**Result and Discussion****Disposal pattern of chickpea of sample households**

Under the disposal pattern of selected major crops, it is important to know that how much quantity of pulses retain for different purposes and how much quantity marketed, which is given by crop on following heads:

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### Marketable Surplus

The marketable surplus was estimated on per farm basis, the formula was used to calculate the marketable surplus as under

$$MS = P - (C + W + C)$$

Where,

MS – Marketable Surplus

P – Total quantity produce

C – Family consumption quantity

W - Quantity use for wage

C – Cattle feed quantity.

The disposal pattern of chickpea has been estimated by quintals per farm, which is shown in Table 1 and Figure 1. The marketing channels adopted in sale of the surplus produce has been analyzed by using the tabular analysis and average. The total quantity of chickpea was produced 1.20,

4.03, 10.52, 25.08 and 7.53 quintal per farm at marginal, small, medium, large and overall farms, respectively, which shows that the total quantity produced by farmers was increasing with an increase their farm size of holdings. Out of their produce, 11.69 per cent quantity was stored for seed across the categories farm size. Nearly, 4.52 per cent of chickpea produce was stored for their home consumption. Irrespective to the farm size, 67.60 per cent was the marketable surplus. Thus, it could be conducted that production of chickpea was increasing with respect to their farm size while the marketable surplus was found to be decreases with their farm size.

The results of study reveals that the marketable surplus of chickpea was observed to be 1.03, 3.08, 7.14 and 15.62 quintal per farm, which was 85.83, 76.83, 67.87 and 62.28 per cent of the total production at marginal, small, medium and large farms, respectively.

**Table 1:** Marketable surplus of chickpea of sampled households (In qtls/ farm)

S. No.	Particulars	Farm Size				
		Marginal	Small	Medium	Large	Overall
1.	Sample farm	78	90	53	37	
2.	Total quantity produced	1.20	4.03	10.52	25.08	7.53
3.	Quantity retained for seed	0.05 (4.17)	0.29 (7.20)	1.21 (11.50)	3.57 (14.23)	0.88 (11.69)
4.	Quantity used for home	0.04 (3.33)	0.18 (4.47)	0.48 (4.56)	1.16 (4.63)	0.34 (4.52)
5.	Marketable surplus	1.03 (85.83)	3.08 (76.43)	7.14 (67.87)	15.62 (62.28)	5.09 (67.60)

**Note:** Figures in parenthesis indicate percentage to total quantity produced per farm.

### Sold quantity of chickpea

From the marketable surplus of chickpea, quantity sold by producer to different marketing intermediaries is given in Table 2 and Figure 2. There were three of market intermediaries were involved in the study area. Most of the quantity chickpea that sold by growers to village traders,

which was noticed to be 44.66, 27.92, 11.90, 8.13 and 15.72 per cent at marginal, small, medium, large and overall farms, respectively. Overall, 40.28 per cent of produce sold by farmers to wholesalers in mandi and 44.01 per cent was disposed-off to retailer, which shows that retailers were popular among producers.

**Table 2:** Quantity of chickpea sold in marketing intermediaries (in qtl/farm)

S. No.	Particulars	Farm Size				
		Marginal	Small	Medium	large	Overall
	Sample farm	78	90	53	37	
1.	Village trader	0.46 (44.66)	0.86 (27.92)	0.85 (11.90)	1.27 (8.13)	0.80 (15.72)
2.	Retailers	0.52 (50.49)	1.71 (55.52)	3.46 (48.46)	5.41 (34.64)	2.24 (44.01)
3.	Wholesalers	0.05 (4.85)	0.51 (16.56)	2.83 (39.64)	8.94 (57.23)	2.05 (40.28)
	Total	1.03	3.08	7.14	15.62	5.09

**Note:** Figures in parenthesis indicate percentage to total marketable surplus per farm.

### Price received of chickpea by producers from different intermediaries

From the sold quantity of chickpea, price received by producer to different marketing intermediaries is given in Table 3. There were three of market intermediaries were involved in the study area. Most of the price received of chickpea that sold by growers to village traders, which was

noticed to be 3296, 3336, 3347, 3380 and 3332.48 Rs./qtl at marginal, small, medium, large and overall farms, respectively. Overall, 3928.22 Rs./qtl of produce sold by farmers to wholesalers in mandi and 3641.71 rs./qtl was disposed-off to retailer, which shows that retailers were popular among producers.

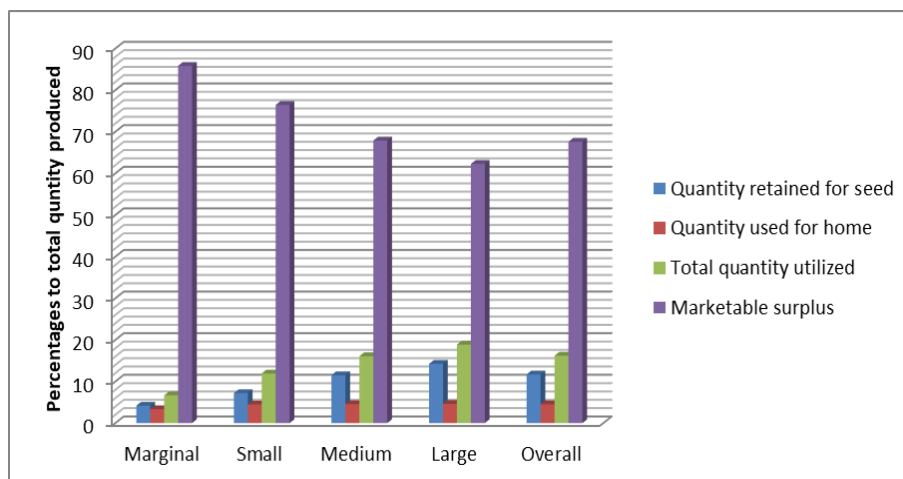


Fig 1: Marketable surplus of chickpea of sampled households

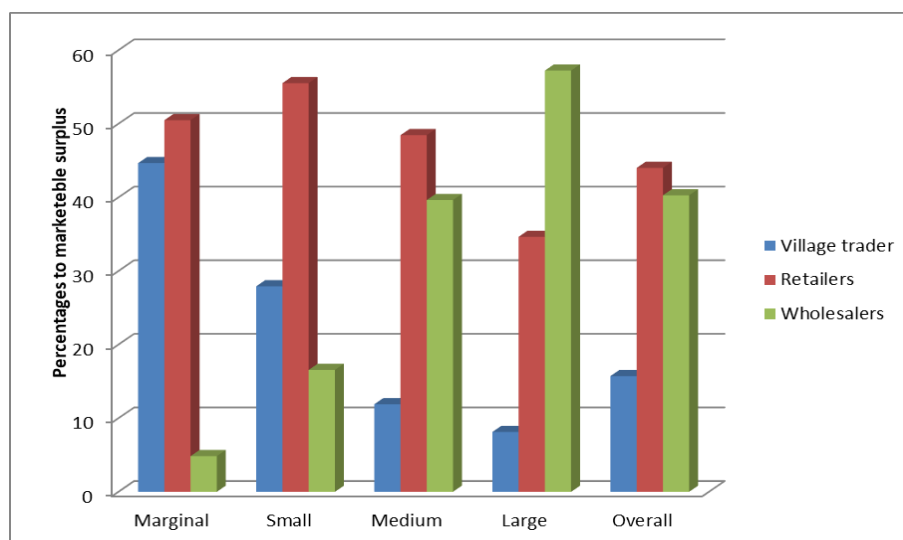


Fig 2: Sold quantity of chickpea through different intermediaries

Table 3: Price received by producers of chickpea from different intermediaries (in Rupees/quintal)

S. No.	Particulars	Farm Size				
		Marginal	Small	Medium	large	Overall
	Sample farm	78	90	53	37	
1.	Village trader	3296.00	3336.00	3347.00	3380.00	3332.48
2.	Retailers	3544.00	3640.00	3683.20	3792.40	3641.71
3.	Wholesalers/ Processor	3805.00	3952.80	3852.40	4236.80	3928.22
4.	Average	3548.33	3642.93	3627.53	3803.07	3634.13

**Price spread and marketing margin of chickpea**

**Total marketing costs**

The marketing cost was calculated in rupees per quintals. The total cost, incurred on marketing either in cash or in kind of the producers, sellers and various intermediaries involved in the sale and purchase of the commodity till the commodity reached ultimate to consumer, is computed by following formula:

$$C = C_F + C_{M1} + C_{M2} + C_{M3} + \dots + C_{mn}$$

Where,

C = Total cost in marketing of pulses produce,  
 C<sub>F</sub> = Cost paid by the producer from the time the produce leaves the farm till he sells it, and  
 C<sub>mi</sub> = Cost incurred by the *i*<sup>th</sup> middleman in the process of buying and selling the product.

**Marketing margin of middleman**

Marketing margin is price difference between one agency and another agency and profit realized by the various market intermediaries in transacting the produce. The marketing margin was calculated in rupees per quintal, is computed by following formula:

$$M_{mi} = P_{Ri} - (P_{Pi} + C_{mi})$$

Where,

M<sub>mi</sub> = Marketing margin per quintal of *i*<sup>th</sup> middleman  
 P<sub>Ri</sub> = Total value of receipts per quintal (Sale price)  
 P<sub>Pi</sub> = Purchase value of goods per quintal (Purchase price)  
 C<sub>mi</sub> = Cost incurred on marketing per quintal

**Price-spread**

Price-spread refers to the difference between the price paid by consumer and received price by the producer for an

equivalent quantity of the farm produce. The producer's share, marketing costs and margins of various intermediaries in the marketing of pulses produce has been worked out the following formula:

### Producer's share in the consumer's rupee

$$Ps = \frac{P_f}{P_p} \times 100$$

Where,

Ps = Producer's share in the consumer's rupee

P<sub>f</sub> = Price received by farmers

P<sub>p</sub> = Price of the produce paid by the ultimate consumer

The study was identified that the three types of marketing channel involved in marketing of chickpea produce in study area. These marketing channels were as follows:

Channel-I: Producer – Village trader – Retailer - Wholesalers/ Processor- Retail – Consumer.

Channel-II: Producer - Retailer - Wholesalers/ Processor- Retail – Consumer.

Channel-III: Producer - Wholesalers/ Processor- Retail – Consumer.

The price spread were analysed with price received by farmers of chickpea and price paid by consumers and same is presented in Table 4. In channel-I, producer's share in consumer's rupee was 57.45 per cent. Marketing cost was estimated Rs./qtl 297.21/- (5.15 per cent) and marketing margin was Rs./qtl 5469.49/- (94.85 per cent). In channel-II, producer's share in consumer's rupee was 62.60 per cent. The total marketing cost and total marketing margins were found to be Rs./qtl 305.53/- (4.62 per cent) and Rs./qtl 5461.17/- (95.38 per cent). It is important to note that more producer's share in consumer's rupee in channel-III (68.41 per cent). It was due to decreasing the total marketing cost, which was found to be Rs./qtl 249.59/- (4.33 per cent).

The study was found that producer's share in consumer's rupee was increasing with decreasing the marketing intermediaries. The study revealed that the highest marketing margins and marketing cost received by wholesaler/ processor than that of other marketing intermediaries.

**Table 4:** Marketing cost, marketing margins and percentage share in consumer's price of raw and final chickpea product producers to consumer (in Rupees/quintal)

S.N.	Particulars	Channel-I				Channel-II				Channel-III			
		PR	PP	TMC	TMM	PR	PP	TMC	TMM	PR	PP	TMC	TMM
A.	Raw Material												
1.	Farmers	3332.48		19.34 (0.34)	3313.14 (57.45)	3637.80		27.64 (0.48)	3610.16 (62.60)	3992.86		47.71 (0.83)	3945.15 (68.41)
2.	Village trader	3637.80	3332.48	39.00 (0.68)	266.32 (4.62)								
3.	Retailers	3992.86	3637.80	37.01 (0.64)	318.05 (5.52)	3992.86	3637.80	37.01 (0.64)	318.05 (5.52)				
4.	Wholesalers /Processor		3992.86	100.92 (1.75)			3992.86	100.92 (1.75)		3992.86	100.92 (1.75)		
	Sub-total			196.27 (3.40)	3897.55 (67.59)			165.57 (2.87)	4283.27 (68.12)			148.63 (2.58)	3945.15 (68.41)
B.	Final Product												
1.	Wholesalers /Processor	5009.06		73.32 (1.27)	841.96 (14.60)	5009.06		73.32 (1.27)	841.96 (14.60)	5009.06		73.32 (1.27)	841.96 (14.60)
2.	Retailer	5766.70	5009.06	27.64 (0.48)	730.00 (12.66)	5766.70	5009.06	27.64 (0.48)	730.00 (12.66)	5766.70	5009.06	27.64 (0.48)	730.00 (12.66)
3.	Consumer		5766.70				5766.70				5766.70		
	Sub-total			100.96 (1.75)	1571.96 (27.26)			100.96 (1.75)	1571.96 (27.26)			100.96 (1.75)	1571.96 (27.26)
	Grand Total (A+B)			297.21 (5.15)	5469.49 (94.85)			305.53 (4.62)	5461.17 (95.38)			249.59 (4.33)	5517.11 (95.67)

**Note:** 1. Figures in the parentheses indicate the percentage to the percentage share in consumer's price.

2. PR, PP, TMC and TMM are retort to below as

PR = Price Received, PP = Paid up Price, TMC = Total Marketing Cost and TMM = Total Marketing Margin.

### Conclusion

The study area have not sufficient number of dal processing unit. Therefore, it is an urgent need to established more unit of dal mill in chickpea growing area. The opinion of most of the chickpea growers was elicitate that the chickpea crop was less profitable due to poor marketing system as compared to paddy and sugarcane production. It is therefore, being suggested that chickpea should also be procured by the Government at village level. The chickpea growers have their how produce so it is suggested that farmers should form their Farmers Producers Organization (FPO) which provide safe gourd in prices fluctuation at the time peak period of arrivals. There was lack of storage facility so, it is being suggested that storage facilities should be generated at low cost.

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