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A comparative study of constraints in the cultivation and marketing of gram in Narsinghpur district of Madhya Pradesh state in India

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Abstract
The study was limited to Narsinghpur district of Madhya Pradesh. Narsinghpur district consists of six blocks. Narsinghpur, Gotegaon, Chawarpatha, Chichli, Saikheda and Kareli districts of Madhya Pradesh were selected purposefully as gram is the main rabi crop in pulses in the district. Chickpea is a viable crop because of its consistent yield and low price volatility, and its adoption by farmers even with low yield potential indicates that it is economically viable. Chickpea (*Cicer arietinum* L.) is the most important pulse crop of India with an area of more than six million hectares. It is mainly grown under soil moisture conditions which decrease during the rainy season as a rainfed crop. On an average, marketable surplus was 92.54% and marketable surplus was observed at 89.91%. On an average, chana growers disposed 72.94% of chana through tractor cars followed by bullock-drawn carts (27.06%). The maximum number of grams available through channel II was produced by small, medium and large farmers, i.e. 63.09%, 70.90% and 79.78% using channel III. The details of marketing cost under Channel 1, Channel II and Channel III are Rs. 38/quint, Rs. 45/quint and Rs. 50/quint was told. Channel III had the highest total marketing cost (Rs.193/qtl), followed by Channel II at Rs.105/qtl and Channel I at Rs.38/qtl.

Keywords: Marketing, price spread, market surplus, marketing channel

Introduction
India topped the global rankings for both gram production and acreage, followed by Pakistan, Australia, and Iran. The gram crop is India's major pulse crop. The importance of pulses in Indian agriculture hardly needs to be emphasised; India is a world leader in the production of pulses. Due to their compatibility with the crop rotation and crop combinations used by farmers across the nation, pulses constitute an essential component of their cropping systems. Pulse crops restore the soil by simulated nitrogen fixation from the atmosphere in addition to being high in protein and several important amino acids. India is the leading producer of pulses in the world, with an area of 22.47 million hectares and an annual production of 300.5 MT during 2016–17. The average yield of legume crop is estimated at 890 kg/ha. Due to uncontrolled growth of population on one hand and non-increasing production of pulses on the other hand, the per capita availability of pulses in our country is decreasing day by day. The daily availability of legumes has decreased to 31.6 grams in 2011.

The basis of India's economy, which has a long history, has been agriculture. The shift from the traditional agricultural economy to industry and service sectors has resulted in a decline in the share of agriculture and related industries in India's GDP, down to 7.1% in 2016–17. Food grain production increased from 230.8 million tonnes in 2007–2008 to 300.5 million tonnes in 2016–2017, despite a decline in the sector's contribution to GDP. With India's general economic growth, the economic contribution of agriculture to the GDP is steadily declining. Nevertheless, agriculture is the largest economic sector in India by population and contributes significantly to the overall socio-economic structure of the country. About 70% of the population still depends on agriculture for their livelihood.

Materials and Methods
A research programmer needs a thorough understanding of the study area in which the research is to be done. General characteristics of the study area will facilitate a discussion about the similarities and variations in the various components, helping to provide background to the area and the significance of the study. This objective deals with the description of the

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study area, selection of respondents, data source and analysis of the data. Research methods are classified according to the cost concept used. The study was limited to Narsinghpur district of Madhya Pradesh. Narsinghpur district consists of six blocks, namely Narsinghpur, Gotegaon, Chavarpatha, Chichli, Saikheda and Kareli districts of Madhya Pradesh have been purposely chosen because gram is the main rabi crop in the pulses of the district. The researcher also knows the farmers of the area very well, which can help in gathering relevant information. Only Chavarpatha block will be selected as this block has maximum area under one village.

Marketing Analysis
1. Marketable Surplus = TP-TC

Where TP= Total Production of gram and
TC= Total Consumption of gram

2. Marketed surplus = Marketable surplus + stock of the previous year

3. Total functional Cost = Cost of bug, loading cost / Unloading cost, Storage cost, Transportation cost, Weighing cost, Market Fee, commission charges

4. Price Spread (in percent) = $\frac{\text{(Consumer Price – Producer Price)}}{\text{Consumer Price}}$ x 100

5. Producer share in consumer rupee = $\frac{\text{P+ C – M}}{V}$ x 100

Results and Discussion
1. Marketed Surplus
Table 1 presented that the Marketed and marketable surplus is given and the quantity retained for consumption was maximum in medium farmers for food consumption was 83.67% followed by the large farmer was 34.20% and the small farmer was 26.06% and for retain seed in small farmer was 73.94% followed by the large farmer was 65.80% and the medium farmer was 16.33%, respectively.

Table 1: The Marketed surplus of Gram at different farm size

Particulars	Small	Medium	Large	Total
Total production	8.11/100	13.45/100	16.51/100	38.07/100
Retain for seed	1.05 (73.94)	0.08 (16.33)	1.27 (65.8)	2.4 (62.5)
Food consumption	0.37 (26.06)	0.41 (83.67)	0.66 (34.2)	1.44 (37.5)
Total consumption	1.42(100) /17.51	0.49(100) 3.64	1.93(100) /11.69	3.84(100) /10.09
Marketable surplus	6.69 /82.49	12.96 /96.36	14.58 /88.31	14.23 /89.91
Stock (old)	0.30	0.20	0.50	1.00
Marketed surplus	6.99 /86.19	13.16 /97.84	15.08 /91.34	15.23 /92.54

At the overall level was found 62.5% retain seed and food consumption was 37.5% per gram, total consumption of gram observed in small, medium, and large farmers was 17.51%, 3.64% & 11.69% of the total production under the following these categories. The lower production of gram crops is not preferred by the producer for payment of wages in kind to the labour due to the price very high in comparison to other kinds. The average marketed surplus was 92.54 percent; this was due

to the old stock of grams with all categories of farm households. The marketable surplus was observed in 89.91% of the area under study.

2. Mode of transportations
An average gram producer extracted 72.94% gram through tractor cart followed by bullock cart (27.06%). As the size of farms increased, the provision of agricultural products by truck tractors decreased, with 81.21% of large farmers using the mode of transport as compared to 57.38% of small farmers, while in the case of oxen-pulled trucks. The percentage of agricultural produce by small farmers ranged from 42.62% to 81.21% by large farmers. In Table 2 the big farmers were 18.79% respectively.

Table 2: Mode of transportations at size of farm house hold's (Q1)

Particulars	Small	Medium	Large	Average
Tractor trolley	8.24 (57.38)	12.56 (75.91)	18.72 (81.21)	16.63 (72.94)
Bullock cart	6.12 (42.62)	4.08 (24.09)	4.33 (18.79)	6.17 (27.06)
Total	14.36 (100)	16.94 (100)	23.05 (100)	22.8 (100)

3. Disposal of produce through different marketing channels
Table 3 indicates that the gram was eliminated through the three channels mentioned below, but 72.94% of the total product was eliminated through Channel-III at 22.80 quintals, followed by the merchants of the town with the 23.11% and local merchants. The settlement was 3.95%. The maximum disposition of grams through channel II was made by small, medium and large farmers, that is, 63.09%, 70.90% and 79.78% through channel III. Gram disposal through Canal-I and Canal-II has been reduced with the increase in the size of farms from small farmers to large farmers. Increase in the disposal of grams through Canal-III with an increase in the size of the farm. Therefore, the regulated market channel is the main link for gram disposal that can help traders and producers to compete in the open market.

Table 3: Disposal of produce through different marketing channels (qlt.)

Particulars	Small	Medium	Large	Average
Village merchant	3.46 (24.09)	3.7 (21.84)	4.16 (18.05)	5.27 (23.11)
Local trader	1.84 (12.81)	1.23 (7.26)	0.5 (2.17)	0.9 (3.95)
Regulated market	9.06 (63.09)	12.01 (70.9)	18.39 (79.78)	16.63 (72.94)
Total	14.36 (100)	16.94 (100)	23.05 (100)	22.8 (100)

4. Marketing Channels
Marketing costs incurred in various functions. The regulated market from producer to city trader, producer to city trader to wholesaler and producer to city trader to wholesaler has been studied and presented in Table 4. The marketing cost in Channel I, II and III was reported as Rs.38, Rs.45/quintal and Rs.50/quintal respectively. Channel II and III village trader's level is observed as Rs.62 per quintal and Rs.65 per quintal and channel III local trader/wholesaler's level is reported as Rs.78 per quintal. The margin to the village trader under Canal II was Rs.62/quintal and II was Rs. 80/quintal was observed in the study area.

Table 4: Different marketing cost incurred in different functions

Particular	Channel-I	Channel-II	Channel-III
Marketing cost at producer level	38	45	50
Marketing cost at village merchant level		62	65
Marketing cost at wholesaler's/local trader level***			78
Price received by producer's	5500	5800	6300
Sale price of the producer's	5538	5907	6293
Village merchant's margin		62	80
Selling price of village merchant		5969	6373
Wholesaler's margin			105
Wholesaler's selling price			6478
Producer share in consumer rupee (in %)	99.31	97.17	94.16

While the margin under channel -III was Rs. 105/qtl of Wholesaler's. The producer share in consumer rupee channel-I, II and III were 99.31%, 97.17% & 94.16% respectively. It means channel III effectively influence the producer share in consumer rupee *i.e.* more than 10% Singh *et. al.*, (2007) [10] have studied on marketing cost in study area.

5. Market margin and price spread in different marketing channel
Marketing cost and market margin achieved in different marketing channels were analyzed and presented in Table 5.

The data shows that on an average, chana growers got 94.16 per cent share in wholesale price and 5.84 per cent price difference in chana trade. The marketing cost of channel III was highest (Rs 193/quintal), followed by channel 2 at Rs 105/quintal and channel 1 at Rs 38/quintal. Net cost of trade for miscellaneous and perishable commodities (Rs 136/quintal) after bags (Rs 65/quintal), loading/unloading/weighing Rs 57/quintal, transportation Rs 52/quintal and unloading/storage (26%), Etcetera. The price gap increases with the length of the channel.

Table 5: Market margin (Rs/Qt!) price spread at different marketing channels

S. No.	Particular	Channel-I		Channel-II		Channel-III	
		Rs./qtl	%	Rs./qtl	%	Rs./qtl	%
1	Producer's Net Share	5500	99.31	5800	96.67	6100	94.16
2	Producer's Cost	38	0.69	45	075	50	0.77
3	Village Merchant's Purchase Price / Producer's Sale Price	5538		5845		6750	
4	Wholesaler's Cost					65	1.00
5	Wholesaler's Margin					80	1.23
6	Wholesaler's Sale Price / Retailer's Purchase Price					6295	
7	Village Merchant's Cost			60	1.00	75	1.20
8	Village Merchant's Margin			78	1.30	105	1.62
9	Village Merchant's Sale Price / Consumers Purchase Price	5538	100	5983	100	6478	100

6. Different Constraints in adoption of gram production
The selected farmers were observed the constraints in production as well as in the marketing of gram cultivation and presented in table 6.
The per cent of the farmers faced the problem of irregular distribution of irregular distribution of rainfall (96.7%) followed by unavailable of skilled labour at timely (85%), lack of knowledge about proper fertilizer dose (80%), unavailability of improved seed (78.3%), Problem of availing credit to meet the marketing cost was also reported by

(78.3%), high cost of input material-fertilizers, pesticides and fungicides and wage rate of labour (76.7%), lack of market information (70%), traditional culture (68.3%), lack of high-tech agriculture implement (61.7%), the lack of knowledge of improved variety due to maximum farmers were did't receive the good quality seed by different producer society and other (51.7%), lack of knowledge about plant protection doses (45%), lack of knowledge about seed treatment (30%). lack of extension services (28.3%) and lack of irrigation facilities (13.3%)

Table 6: Constraints in adoption of improve gram production

Particular	Frequency	% (n=60)
Lack of knowledge of improved variety	31	51.7
Unavailability of improved seed	47	78.3
Lack of knowledge about seed treatment	15	30.0
Lack of knowledge about proper fertilizer dose	45	80.0
Lack of knowledge about plant protection doses	27	45.0
Lack of high-tech agriculture implement	37	61.7
Lack of irrigation facilities	8	13.3
Irregular distribution of rainfall	58	96.7
Lack of market information	12	70.0
Lack of credit availability	47	78.3
Lack of extension services	17	28.3
Traditional Culture	41	68.3
High cost of input material	45	76.7
Unavailable of skilled labour at timely	51	85.0

Conclusion and Suggestions

On an average marketed surplus was 92.54 per cent and marketable surplus was observed 89.91% in the area under study. On an average gram grower disposed of their 72.94% of gram through tractor trolley followed by bullock cart was 27.06%. The maximum disposed of gram through channel II was done by small, medium and large farmers i.e. 63.09%, 70.90% and 79.78% they using channel III.

The breakup of marketing cost under Channel 1, II and III was reported as Rs 38, Rs 45 and Rs 50 respectively. The highest total marketing cost under Channel-III is Rs. 193/q after Channel-II Rs. Was 105/Q and Channel-1 Rs. 38/Q. On an average, gram growers got 94.16% share in wholesalers' rupees and 5.84% price spread in marketing of gram. There should be connectivity between all regulated markets. The agents should be completely removed from the market platform.

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