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Value Chain Analysis of Chickpea in Kurnool District of Andhra Pradesh

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ABSTRACT

The present investigation was conducted to identify value chain actors and assessed the value addition by each actor of chickpea in Kurnool district of Andhra Pradesh. The primary data was collected from 200 respondents in two blocks of Kurnool having higher area under chickpea. The study identified village traders, commission agents, dal millers, wholesalers, retailers and consumers as major value chain actors in the study area. It was found that the farmers sell their produce to the village trader at the farm gate itself in absence of any market information. Other than that, farmers used a marketing channel where the margins and costs were higher, causing more price spread and lower producer's share in consumer's rupee and evidently low marketing efficiency. The analysis of value chain of chickpea revealed that the farmer/producer was the least profit earners compared to other stakeholders. The dal miller added highest value to the chickpea while the least was added by the producer.

Keywords Chickpea, Value chain, Price spread, Marketing efficiency, Kurnool.

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INTRODUCTION

India is one of the largest producers, consumers and also among the largest importers of pulses in the world. Pulses contribute around eight per cent to the total food grain production in India. In 2018, the country accounted for about 38% to world area and 28% to world production of pulses chickpea, red gram, lentil, green gram and black gram are the important pulses grown in India. Pulses find acceptance among the vegetarian population and also among

those who cannot afford animal protein. These are rich protein supplementsand pulses such as chickpea have potential of eradicating protein malnutrition among vegetarian children and nursing mothers.

Chickpea (*Cicer arietinum*), also called Bengal gram or Chana, is considered as an important pulse crop globally. In 2018, the cultivated area under chickpea was178.15 lakh hectares and production was171.92 lakh tonnes, both contributed around 19% to global acreage and production of pulses (FAO Statistics 2018). In India, chickpea is considered as major pulse crop and accounted for 32.75% of area and 45.02% of total pulse production, respectively during 2018-19. Chickpea is also among the largest exported pulse crop from the country as it contributed 80% share in the total pulses exports during 2018-19 (DGCI and S, Ministry of Commerce).

In India two varieties of chickpeas are grown viz., 'Desi' having dark brown color, small size and thick seed coat and 'Kabuli having whitish cream color, large size and a thinner seed coat. Andhra Pradesh, alongside Maharashtra, Uttar Pradesh, Karnataka and Rajasthan are major chickpea producing states of India. In Andhra Pradesh, the area under chickpea was assessed at 477.88 thousand hectares and production at 242.65 thousand tonnes during 2018-19. However, out of 13 districts in the state, only eight districts grow chickpea. Major pulses cultivating districts of Andhra Pradesh were Kurnool, Prakasam and Ananthapuramu during 2018-19. Despite contribution of more than 70% area under chickpea to global chickpea acreage and production, India still imports chickpea on account of high national demand.

Supply Chain vs. Value Chain

Supply chain and value chain are two different networks which help to provide quality product to the consumers. Supply chain is an interlink of all the functions that start from manufacturing of raw materials into final product and ends when the product reaches the end user. It originates from operation management and its objective is customer satisfaction, whereas value chain is chain of activities in which products pass through all the activities in order and some value is added at each level of activity to the product. It is related to business management and its objective is to get competitive advantages. Value chain comprises of series of business operations and at each operation some utility is added to the goods and services offered by the firm to enhance customer value.

The value chain analysis (VCA) is defined as the full range of activities that are needed to bring products or services from its conception through the different stages of production, delivery to the final consumers and final disposal after use (Kaplinsky and Morris 2000). An efficient value chain analysis gives a snapshot of an enterprise at a particular time, while value chain mapping depicts the different steps a product passes starting from raw material to end markets (Amatya 2009). Mapping is a crucial part of value chain analysis, it is a flow diagram (i.e. demonstrating the core transaction of value chains) it shows how the product is moving from one player to another till it reaches the final end user. It also depicts the transformation, value added and transaction from sourcing raw material and inputs, to production, to further processing and to marketing the final product for sale. These maps also illustrate costs, value added at each stage, secondary services (such as finance or communication infrastructure) important to each stage, critical constraints and the relative clout of players along a value chain. It also taps the range of actors along the value chain.

In agricultural value chain, cultivators, village traders, wholesalers, retailers, large retail chains and consumers are considered as major value chain actors performing various role and responsibility and adding some value to the product at each stage (Aksoy 2005). In chickpea value chain, cost incurred for production, marketing cost, processing cost, marketing channel, value added to the commodity at each stage, is also included into value chain maps.

Participatory approach

A participatory approach is essential during value chain analysis, which involves information collection primarily through semi-structured interviews with informed respondents to facilitate focused, conversational, two-way communication. This is followed

Table 1. Different marketing channels and quantity of produce processed through each marketing channel in the study area.

Sl. No.	Market channel	No. of respondents	Quantity of produce processed through the channel (in quintals)
I.	Producer- Village trader-Commission agent –Processor-Wholesaler-Retailer-Consumer	21	294
II.	Producer- Commission agent- Processor-Wholesaler- Retailer- Consumer	48	2304
III.	Producer- Processor-Wholesaler-Retailer-Consumer	31	837
	Total	100	3435

by analysis of the information together with industry stakeholders to ensure that it accurately reflects the local reality.

Chickpea value chain narrates the roles and interrelation of the various actors within and along the chain and how they are linked to existing market system. It also narrates the flows of the commodity and value-adding activities between the different actors of value chain to the end users. The good quality seed is the most important input of the chickpea industry and wide range of labor is needed in the value chain of chickpea. After chickpea production, a pre-requisite for a good and efficient marketing system is needed and it's the potentiality of the producers to decide on the best way to store and move their products down to their market destination with a good profit margin in return.

The price fluctuations are the major difficulties in a prolonged value chain with a huge marketing costs and margins procured by the actors at each stage. To overcome these difficulties, it is predominant to inspect the activities of different actors in the value chain of chickpea. This value chain analysis becomes more useful to make proper marketing procedure and pricing policy of chickpea in the nation. The value of chickpea is changed with the activities carried out by the actors at each stage in various ways.

Table 2. Value addition to chickpea by farmer/producer in the study area.

Value addition activity	Price	Value addition (Rs/quintal)	Value addition (in percent)
Value addition due to packing	Chickpea price before packing	3860	
	Chickpea price after packing	3950	
	Packing cost (gunny bags, bagging & weighing)	50	
	Marketing margin (value addition)	90	2.3
	Net marketing margin	40	
Value addition due to marketing	Farm gate price of chickpea	3860	
	Market price of chickpea	3930	
	Marketing cost	20	
	Marketing margin (value addition)	70	1.8
	Net marketing margin	50	
Value addition due to storing chickpea	Price before storing chickpea	3860	
	Price after storing chickpea	3950	
	Storing and Marketing cost	40	
	Marketing margin (value addition)	90	2.3
	Net marketing margin	50	

Table 3. Value addition to chickpea by village traders in the study area (in channel I).

Particulars		Price (Rs/quintal)	Value addition	Marketing margin (in percent)
Purchasing price of chickpea		3950		
Selling price of chickpea		4114.68		
Marketing cost	Variable cost	96		58.29
	Fixed cost	19		11.5
	Total cost	115		69.83
Value addition (marketing margin)		164.68	4.1	100
Gross margin		68.68		41.7
Net margin		49.68		30.1

Storage of produce (time utility change) : Producers or traders store the produce and sells in the market during off-season or when there is scarcity of the produce in the market at comparatively high prices and thus storing add some value to the produce. Farmers or traders store chickpea when the supply is in plenty in the peak season until when supply is scarce. Farmers and the traders expect the higher price of chickpea in the off-season.

Form change (form utility change) : By changing the form of the product or by processing. Chickpea is converted into dal, fried dal and flour.

Place change (place utility) : By moving dal from one place to another, some extra costs are added to the product by marketing and cost incurred by the value chain actors.

Grading and standardization : Value can be added to a commodity by grading, sorting, cleaning in this mainly grading and standardization are done to categorize product according to the size, shape, color, texture, quality and otherattributes. Whole and split Chickpea can be standardized by varieties (desi or kabuli), size, color, moisture content.

In last few recent years, value chain analysis of different crops has received attention by the researchers, because a considerable amount of consumer's rupee goes to different value chain actors. Among pulse crops, chickpea one of the important pulse crops and has been selected for the study because next to the cereals and millets, pulses are highly consumed in our country. In fact, there are no enough works done on the value chain of chickpea. In India, most of the farmers fall under category of marginal and small who sell their produce immediately after the harvest for fulfilling their immediate cash requirement. Due to improper functioning of the market, without following any rules and regulation, the bargaining power lies in the hands of intermediaries. This leads to the varied profit remains margins by the actors at each stage of the value chain of chickpea. The improved value chain ensures the optimum quality of chickpea and dal, which in return benefit both the actors and the final consumers with total satisfaction.Value chain study includes economic costs along the value chain, determination of where the most value added was occurring, importance of different actors, structure (who decides on what, how and when has to be done); how strong are the different actors and what "drives" the different actors, institutional framework, policy framework, identification and analysis of bottlenecks. Hence, the need for a comprehensive study with

Table 4. Products obtained from one quintal of chickpea in the study area.

Products	Amount (kg)	Percent of total	Price per unit	Total value
Dal	78	78	60	4680
Broken dal	3.75	3	25	93.75
Husk	17.25	18	15	258.75
Weight loss	1	1	-	20
Total	100	100	-	5052.5

Table 5. Value addition of dal millers in the study area.

Particulars	Channels Rs/quintal I	II	III	Value addition (in percent) I	II	III
Purchase price of chickpea	4241.93	4590.16	3850			
Returns from chickpea (dal and by-product price)	5438.21	5866.74	5139.95			
Weight loss	20	20	20			
Total return excluding losses	5418.21	5846.74	5119.95			
Marketing margin (value addition)	1176.28	1256.58	1269.95	27.7	27.37	32.98
Net marketing margin	730.6	745.87	696.26			

respect to value chain analysis of chickpea was felt this study was conducted for the Kurnool district in Andhra Pradesh.

Methodology

Kurnool district in Andhra Pradesh was selected purposely for the present study. Out of 13 districts in Andhra Pradesh, Kurnool district has largest area under chickpea cultivation. For study purpose, two blocks having higher chickpea production were selected purposely. In the same manner one village from each block was selected purposely and from selected villages, all actors along with the producer and stakeholders involved in the value chain of chickpea were randomly selected. Actors in the value chain of chickpea are producers, middlemen (village traders, commission agents, brokers, dal millers, wholesalers and retailers) and consumers. From each selected block, 50 producers and stakeholders (village traders and commission agents-12, processors-5, wholesalers-10, retailers-10 and consumers-13, total 50 samples from each block/taluk) at each level were selected randomly thus making a total of 200 sample respondents.The survey was carried out during 2018-2019. Primary data was collected from the respondents for agricultural year 2017-2018 for different agricultural activities such as agricultural production, marketing of agricultural commodities, value chain marketing and information regarding various stakeholders (farmers, village trader or commission agent, dal millers, wholesalers, retailers and consumers) in the study area. Tabular analysis was done to address the objective of the investigation.

RESULTS AND DISCUSSION

Role of intermediaries in the value chain of chickpea

A value chain is a set of associated activities that work to add value to a product. It consists of actors and actions that improve a product while linking commodity from producers to processors and markets. Value chains work is efficient when their actors collaborate to produce higher-quality products and generate maximum possible income for all participants along the chain, as opposed to the simplest kinds of value chains, in which producers and buyers exchange only price information, often in an antagonistic mode.

Value addition is the process that transforms the raw agricultural product into something new through packaging, processing, cooling, drying, extracting, and other processes that change a product from its original raw form. These value addition activities are mainly distressed with the changes of utilities occur due to value added to the product. In economics, the

Table 6. Value addition to per unit dal by dal miller in the study area.

Particulars	Amount (kg)		Total value
Required amount of chickpea	128		5410.56
Obtained dal	100		6000
Value addition (Rs)		589.44	
Value addition (percent)		10.89	

sum of the unit profit, the unit depreciation cost and the unit labor cost refers to the unit value added to the product. Outside of economics, value added refers to "extra" feature(s) of an item of interest (product, service, person) that go beyond the standard expectations and provide something "more", even if the cost is higher to the client or purchaser.

Hence, in this objective it is concerned to find out the value addition of chickpea at different value adding stages by farmers, commission agents or traders, processors or millers, wholesalers and retailers.

Marketing channels in marketing of chickpea

The research work which was carried out in the respective study area discovered two different marketing channels in chickpea. First, chickpea marketing channel which was producers to miller and second, dal marketing channel which was millers to ultimate consumers. Actors in chickpea marketing channels included village traders, commission agents and dal millers. Actors in dal marketing channel included dal millers, wholesalers and retailers. No specific marketing channels for marketing of chickpea and its product was prevailing in the Kurnool district of Andhra Pradesh. Marketing channel which were commonly used by the respondents were identified and details are presented in Table 1.

Marketing is as critical in agriculture as farming itself. Although a considerable progress have been achieved in technological improvements in agriculture by the use of high-yielding variety of seeds and chemical fertilizers and by the adoption of plant protection measures. The rate of growth in farming in developing countries is still limping behind the desired levels. This has been largely attributed to the fact that not enough attention has been devoted to the facilities and services which must be available to farmers that would support agricultural sector for its development. Marketing is one of those facilities needed for overall economic development of nations.

Taking into account, the significance of marketing of produce in the study, significant marketing channels were pointed out and responses of chickpea producers were recorded. Three marketing channels wereoperating in the respective study region and the marketing channel-II was commonly followed more in that region.

Reasons behind the selection of particular marketing channel

The selection of marketing channel is very important for the producers. These different channels yield dissimilar share in the consumer rupee to the producers. So, the selection of more efficient marketing channel is significant. There are various reasons for the selection of particular marketing channel which are stated by each producer.

The main reasons for the selection of a particular marketing channel are economic condition of the family, prices prevailing in the market and distance from the processing unit. Based on the response of the producers in the respective study area, three most dominant marketing channels were identified. The marketing channel II was the most common type of channel preferred by the producers compared to marketing channels I and III. Marketing channel II was followed by 48 respondents, whereas channel III and channel I were followed by 31 and 21 respondents, respectively. Next to the channel II, channel III was preferred more to channel I. These preferences to a particular channel were due to the reasons which were listed above. The producer selected the channel II more as it was efficient compared to the other channels I and III. It is said to be more efficient as the producer share in rupee was high and with less marketing cost and margins compared to other marketing channels I and III. In the channel III, producers nearer to processing units followed this marketing channel due to less transportation cost and less intermediaries involved in the marketing channel which enhanced the producer share in consumer rupee. The channel-I was followed by the producers who were far from the processing units and market, with more involvement of intermediaries which led to high marketing cost and margins. This made the marketing channel I less efficient as compared to the channels II and III.

The amount of produce processed through each marketing channel is presented in Table 1. Perusal of the table revealed that the quantity processed through

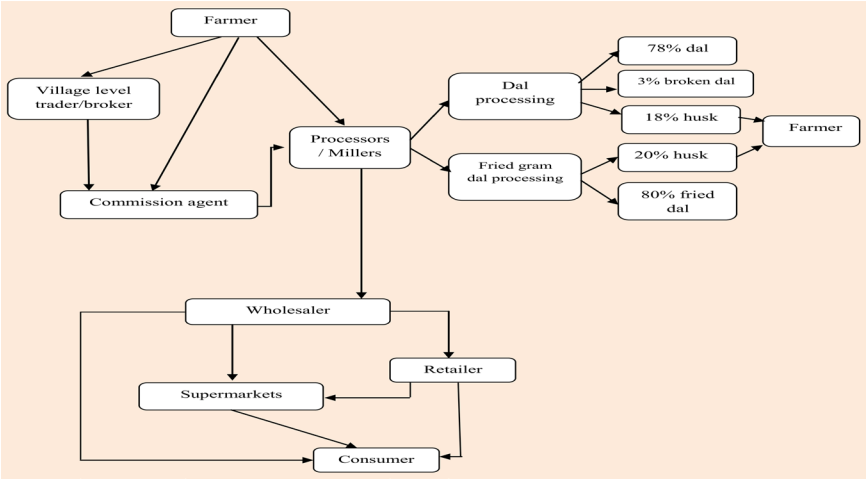

Fig. 1. Schematic diagram of stakeholders involved in value chain of chickpea in the study area.

channel II was comparatively high (2304 quintals)on account of involvement of more number of farmers as compared to other channels. In the channel I and III, the processed amounts were about 294 quintals and 837 quintals, respectively.

Value chain map of respective study area

The value chain map depicted three different marketing channels which were more common in the study area.These marketing channels designated that regulated markets were effective in the state of Andhra Pradesh and helped the farmers to sell the produce directly through village traders or commission agents for remunerative prices.

As evident from the figure, in one of the marketing channels, some the farmers were selling the produce at the farm gate directly to the processors at the economic price (less than the regulated market price). Most of the farmers sold the produce through private stakeholders without storing for the long period, because prices charged for the godown services were very high.

Value addition to chickpea by farmer/producer in the study area

In the survey, it was perceived that the cost incurred by farmer for the cultivation of chickpea was high in the study area with respect to the economic status

Table 7. Value addition to dal by wholesaler in the study area.

Particulars	Rs/quintal Channels I	II	III
Purchase price of dal	5438.21	5866.74	5139.95
Selling price of dal	6077.09	6443.31	5664.85
Marketing margin (value addition)	638.88	576.57	524.9
Value addition (percent)	11.74	9.82	10.21
Gross margin	441.38	404.57	355.9
Net margin	231.38	219.57	175.9

Table 8. Value addition to dal by retailers in the study area.

Particulars	Rs/quintal Channels I	II	III
Purchase price of dal	6077.09	6443.31	5664.85
Selling price of dal	6891.69	7141.41	6329.19
Marketing margin (value addition)	814.6	698.1	664.34
Value addition (percent)	13.4	10.83	11.7
Gross margin	576.5	474.1	472.54
Net margin	321.5	232.1	262.54

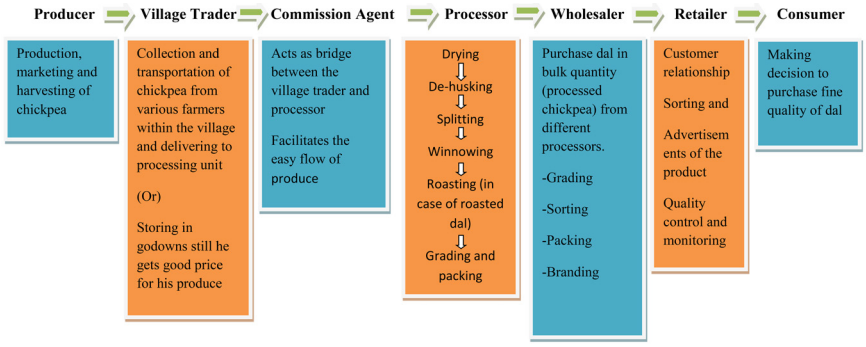

Fig. 2 Activities carried out by different stakeholders in the value chain of chickpea.

of farmer. The reason behind this higher cost of production was due to higher input cost and they were not getting good remunerative price for the produce. Most of the marginal farmers have large family with very limited alternative income sources and they were not in position to add effective value to the produce because of their immediate capital requirements, they were forced to sell their produce just after harvesting from the farm gate itself, without adding any value to their produce. Small farmers stored a little amount of produce to get a good price in future and remaining amount was sold for immediate capital needs and also due to lack of storage facility. Large farmers, who were good in economic status, added value to their produce by packing and storing and fetched good price.

From the survey, it was also found that most of the farmers don't have proper idea about value chain activities and their benefits and majority of farmers were also lacking good market information. Without knowing, they used to add value to the produce at the farm gate by following some traditional activities like packing, cleaning and sorting. Most of the farmers were not aware and not able to adopt modern value chain activities, as the transportation and market infrastructure were not fully developed in the study area. As the processing units were far from the producing area, the transportation cost was high which couldn't be afforded by the farmer. Due to this they sold their produce at the farm gate itself at a very low price. Therefore, chickpea marketing by the farmers was expensive, due to higher marketing costs and in some cases it was not beneficial by selling produce at low price. Most practiced value chain activities by producers in respective study area have been shown in the Table 2 reveals the activities practiced by the farmer at the farm gate and also the total value added to the produce by carrying these activities. The farmers were adding value through packing, marketing and storing of the produce. The value addition done by packing produce was calculated to be 2.3% amounting to Rs. 90 per quintal and in case of value addition due to marketing of produce farmers were possibly added 1.8 per cent accounting to Rs.70 per quintal and 2.3% accounting to Rs 90 per quintal in case of storing of produce. The value added by the packing and storing activities which were practiced by the farmer was found to be higher and more profitable (Rs 90/quintal) than marketing the produce (Rs 70 per quintal) in the study area.

Table 9. Value added by different stakeholders in the three different marketing channels in the study area.

	Value addition (percent)		
Particulars	Channel I	Channel II	Channel III
Producers/Farmers	2.3	2.0	2.6
Village trader	4.1	……	……
Commission agent	3.09	4.32	……
Processor/Miller	28.2	27.8	33.5
Wholesaler	11.7	9.8	10.2
Retailer	13.4	10.8	11.7

Table 10. An overall view of value added by each stakeholder in different channels of chickpea value chain.

Sl. No.	Particulars	Channel I (Rs/quintal)	Channel II (Rs/quintal)	Channel III (Rs/quintal)
1.	**Farmer**			
	a) Farm gate price	3860	4310	3750
	b) Selling price	3950	4400	3850
	c) Marketing margin	90	90	100
	d) Value addition (in percent)	2.3	2.0	2.6
2.	**Village Trader**			
	a) Purchasing price	3950	-	-
	b) Selling price	4114.68	-	-
	c) Marketing margin	164.68	-	-
	d) Value addition (in percent)	4.16	-	-
3.	**Commission Agent**			
	a) Purchasing price	4114.68	4400	-
	b) Selling price	4241.93	4590.16	-
	c) Marketing margin	127.25	190.16	-
	d) Value addition (in percent)	3.09	4.32	-
4.	**Processor/Miller**			
	a) Purchasing price	4241.93	4590.16	3850
	b) Selling price	5438.21	5866.74	5139.95
	c) Marketing margin	1196.28	1276.58	1289.95
	d) Value addition (in percent)	28.20	27.8	33.5
5.	**Wholesaler**			
	a) Purchasing price	5438.21	5866.74	5139.95
	b) Selling price	6077.09	6443.31	5664.85
	c) Marketing margin	638.88	576.57	524.9
	d) Value addition (in percent)	11.74	9.8	10.21
6.	**Retailer**			
	a) Purchasing price	6077.09	6443.31	5664.85
	b) Selling price	6891.69	7141.41	6329.19
	c) Marketing margin	814.6	698.1	664.34
	d) Value addition (in percent)	13.40	10.83	11.72

Value addition to chickpea by village traders in the study area

Next to farmers, village traders were important intermediaries involved in the value chain of chickpea. Another type of actor involved in the value chain was commission agent. Village trader was the important and main actor between the farmers and processors. Village traders were the ones who were involved in trading at village level, who purchased the produce from the farmer at the farm gate itself at a low price. These traders collected the produce from farmers in the village and sold this produce in bulk to the processors or in a regulated market to the traders at block/district level. Hence, taking it into consideration the present work perceived to survey the village traders in the study area and the findings are presented in Table 3.

Table 3 revealed that, in the study area, average purchasing price of chickpea was Rs 3950 per quintal and average selling price of chickpea was Rs 4114.68 per quintal. Average value addition by the marketing cost of chickpea was Rs 115 per quintal which was about 69.83% in the study area. The total marketing cost included the variable cost and fixed cost of about Rs.96 per quintal and Rs.19 per quintal which was 58.29% and 11.5% of the total cost, respectively.

Value addition to chickpea by dal miller (processor)

Dal millers were the third important intermediaries involved in the value chain of chickpea and added more value in the chickpea value chain. The main part of the chickpea value chain work took place in dal mills only by converting chickpea into dal. In present study, it was observed that dal millers were adding value to dal in three different forms i.e. in purchasing of chickpea, milling of chickpea and selling of dal. The dal mills present in the study area were of traditional huller and only few were modern large dal mills. These dal mills were present only at taluk and district level which were far from the chickpea production areas. On account of comparatively high production of chickpea in Kurnool and Prakasam districts, there were large numbers of dal mills in that district of Andhra Pradesh.

Table 4 showed that products obtained from one quintal of chickpea and price of the produce in the study area. The recovery rate from one quintal of chickpea included 78% of dal, 18% of husk, 3% of broken dal and 1% was the weight loss. The fine quality of dal obtained from one quintal of chickpea was 78 kgs and per unit price of dal is Rs 60 per kg in the study area. The other by-products obtained were 17.75 kg of husk which was used as feed for the livestock and per unit price of husk was about Rs 15 per kg. The broken dal obtained was 3.25 kg costing about Rs 25 per kg which was converted into flour for making snack products. The total income obtained from one quintal of chickpea which included the main and by-products was about Rs 5052.5 in the study area.

Table 5 showed that dal millers added a value of total Rs.1176.28, Rs.1256.58 and Rs.1269.95 per quintal in the marketing channels I, II, and III respectively. The value obtained included purchasing of chickpea, converting chickpea into dal and dal marketing in the study area. They added 27.7%, 27.37 % and 32.98% extra value for their whole activities in respective marketing channels in the study area. Net margin or profit of wholesalers was found to be Rs 730.6 per quintal, Rs 745.87 per quintal and Rs 696.26 per quintal in three marketing channels, where marketing channel II was found to be more profitable to miller. Value addition was calculated per quintal chickpea then final selling price was calculated for each component of one quintal chickpea (dal, husk, broken dal). By summing up the selling price of all products the total value for one quintal chickpea was found to be Rs 5052.50.

Value addition by dal miller in the study area

Dal millers were the highest value adding actors in the chickpea value chain. On an average, dal miller added value of about Rs 1176.28, Rs 1256.58 and Rs.1269.95 per quintal chickpea in all the marketing channels operating in the study area. Value addition started from purchase of chickpea from the village traders to selling dal to wholesalers. For obtaining one quintal dal, millers have to use about 1.28 quintal of chickpea and added value of about Rs 589.44, which was about 10.89%.

Value addition to dal by wholesaler in the study area

After the conversion of chickpea into dal the next important activity was successful marketing of the processed produce. The identified dal traders in the study area were mainly wholesalers and retailers. It was observed that sometimes wholesalers worked as retailers and most importantly some of the dal millers also worked as wholesalers in the study area. Wholesalers have limited opportunity to add value among all other value adding actors. The value addition by wholesalers is presented in the Tables 7–8 which showed that purchasing price of dal was Rs 5438.21 per quintal, Rs 5866.74 per quintal and Rs 5139.95 per quintal, selling price was Rs 6077.09 per quintal, Rs 6443.31 per quintal and Rs 5664.85 per quintal in all the respective marketing channels of the study area. The value addition was found to be 11.74 % (Rs 638.88 per quintal), 9.82% (Rs 76.57 per quintal) and 10.21% (Rs 524.9 per quintal) of dal in the three channels, respectively. Net margin or profit of wholesalers was found to be Rs 231.38 per quintal, Rs 219.57 per quintal and Rs 175.9 per quintal in three marketing channels which were operational in the area under investigation. The first marketing channel was found to be more profitable to the wholesaler than that of the other two channels.

Value addition to dal by retailers in the study area

Next to wholesalers, retailers were the final actor in the chickpea value chain and they were the important source for dal to the common people in the society. Like wholesalers even retailers were also least value adding stakeholder in the chickpea value chain activity. Retailers in the study area were purchasing dal from corresponding source at a price of Rs 6077.09 per quintal (channel I), Rs 6443.31 per quintal (channel II) and Rs 5664.85 per quintal (channel III) and selling prices were Rs 6891.69 per quintal (channel I), Rs 7141.41 per quintal (channel II) and Rs 6329.19 per quintal (channel III). They were adding value of about 13.4%, 10.83% and 11.7% to dal which accounted to Rs 814.6 per quintal, Rs 698.1 and Rs. 664.34 per quintal in all the respective marketing channels found in the study area. Net margin or profit of retailers was calculated to Rs 321.5 per quintal, Rs. 232.1 per quintal and Rs 262.54 per quintal.

Value added by each stakeholder in chickpea value chain

Table 9 presents the purchase price, selling price, marketing margin and value addition of different stakeholders at each stage in chickpea value chain. The table indicated that possession of chickpea in various hands along three marketing channels stated in the study area. It also revealed the marketing channel which offered a good income to farmers and at each stage of value chain.

Table 9 depicts the value added by each stakeholder in the three marketing channels found in the study area. The value addition by processors was more in all three marketing channels of chickpea and was assessed to be about 28.2%, 27.8% and 33.5% respectively. Next to processors, it was retailers who added more value to the chickpea followed by wholesaler, commission agent and village trader.

Table 10 reflected the stakeholders involved in chickpea value marketing chains. The important value chain actors were village traders, commission agents, dal millers, wholesalers and retailers. It was observed that in the all the three marketing channels processor added more value to the produce as compared to the other stakeholders in the value chain. Next to processor it was retailer, followed by wholesaler who added more value to the produce. The least value added to the produce was by the farmer which was almost 2-3% in all the channels. In the channel III, the farmer sold chickpea directly to the dal millers and fetched comparatively good price. The dal millers were also getting produce on the economic price as it was better option to purchase directly from producer than that from village traders. Hence, the millers were getting opportunity to add more value in this channel (Figs 1–2).

CONCLUSION

The study found that different value chain actors in value addition of chickpea were village traders, commission agents, dal millers, wholesalers, retailers and consumers. Three marketing channels were identified for chickpea in the study area. Channel II was main channel followed 48 farmers and channel I and II were followed by 21 and 31 farmers, respectively. The farmers were the first value adding actors in the value chain of chickpea. The values added to the produce by farmers through different activities were computed to be Rs 90 per quintal in packing, Rs.70 per quintal in marketing and Rs 90 per quintal in storing of produce. Farmers were less aware about the value addition activities in the study area. Village traders were the second important stakeholder and added value of Rs 164.68 per quintal (4.1%). Commission agents acted as a bridge between village trader and dal miller,and charged a margin of Rs 127.25 per quintal and Rs 190.16 per quintal in the channel I and II, respectively. The dal millers were the important actors in the value chain of chickpea and value addition by dal miller was calculated to be Rs 1196.28 per quintal, Rs 1276.58 per quintal and Rs 1289.95 per quintal accounting for 28.20%, 27.8% and 33.5% in the marketing channels I, II and III, respectively. After milling, the processed produce was marketed by the wholesaler and added value to the chickpea accounted for Rs 638.88 per quintal, Rs 576.57 per quintal and Rs.524.9 per quintal sharing percent of 11.74%, 9.8% and 10.21% in total value addition through the marketing channels I, II and III, respectively. Retailers were the final value chain

actor and value added to the chickpea by retailer was assessed to be Rs 814.60 per quintal, Rs 698.10 per quintal and Rs 66434 per quintal sharing 13.40%, 10.83% and 11.72% in the marketing channels I, II and III, respectively. Consumers were the ultimate person who had designated position in value chain, even though they were not main actors in value chain.

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