



ISSN (E): 2277- 7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.03  
TPI 2021; 10(3): 472-474  
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[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 15-01-2021  
Accepted: 19-02-2021

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## Value chain mapping of *Katarni* rice

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### Abstract

The present study was conducted to map *Katarni* rice value chain in the Bhagalpur, Banka and Munger district of Bihar. A random sample of 90 *Katarni* rice growers, 30 non- *Katarni* rice growers and 30 market intermediaries were interviewed and number of focused group for discussion were held.

Findings of the study revealed that their exist six major types of *Katarni* rice value chain through which more than 90 percent of *Katarni* rice product movement and value creation takes place. It was also observed that local rice processor play an important role in *Katarni* rice value chain and their engaged in more than 48 percent of *Katarni* rice value creation and product movement.

**Keywords:** chain mapping, *Katarni* rice

### Introduction

India is primarily an agricultural country and about 70 percent of its rural households still depend primarily on agriculture (FAO, 2018) and 54.6 percent of the total workforce is engaged in agricultural and allied sector activities (MAF&W-2019). The rank of India in rice production is second only after China but in prospects of aromatic rice production and export it stand first (DGCI&S- 2019). During 2018-19, the export of aromatic rice alone was 4.41 million tone with the value of 4712.44 \$ Million (DGCI&S-2019)

However, the export of non-Basmati rice during the said year was only 0.3 million tonne with the value of 93 \$ Million and export of aromatic rice from Bihar was 0.02 million tonne only with the value of 1.77 \$ Million (APEDA-2019) while there is no data available regarding export of *Katarni* rice. *Katarni* rice is the most preferable, ceremonial and finest quality scented rice of Bihar and it is famous for its aromatic flavour, palatability, and *Chura* (beaten rice) making qualities. The geographical area of production of *Katarni* Rice includes districts of Zone IIIA of Bihar comprising of the south alluvial Gangetic plane of Munger, Banka and South Bhagalpur. The unique aroma in the *Katarni* grain is developed only when it is grown in few blocks namely Jagdishpur, Sanhaura, Sakhund and Sultanganj in Bhagalpur District; Tarapur and Asharganj in Munger District and Amarpur, Shambhuganj, Rajaun, Barahat, Chanan and Katoria in Banka District. The farmers in this tract are growing this special rice since long mainly in the surrounding catchment areas of tributary rivers of Ganga like Chanan in Banka district. *Katarni* rice is tall and photosensitive and prone to lodging due to its weak culm and hence low yielder.

The *Katarni* rice value chain mapping was done to understand the nature of stakeholders in the value chain, their role in value creation process and the pattern product movement along the value chain. The analysis of *Katarni* value chain map revealed that the six major type of *Katarni* value chains of more than 90% of product movement and value chain creation sequence. However six major forms of *Katarni* value chain maps, there few more forms which together made the value chain pattern through which less than 5% of the total *Katarni* rice moves.

### Materials and methods

The focused on the *Katarni* rice marketing situation, mapping of *Katarni* rice value chain in Bihar. There were three different sets of respondents i.e. *Katarni* rice growers, non-*Katarni* rice growers and market intermediaries. The *Katarni* growers were selected using simple random sampling from the list of *Katarni* rice growers developed for each district. Three districts of Bihar were selected purposively, namely Bhagalpur, Banka and Munger and from each district one blocks namely Jagdishpur Rajoun and Asharganj were selected purposively. So all together from three seected block 90 *Katarni* rice growers and non-*Katarni* rice growers were selected by using simple random sampling method and further 30 of market intermediaries were selected from all three selected block by using snowball sampling method.

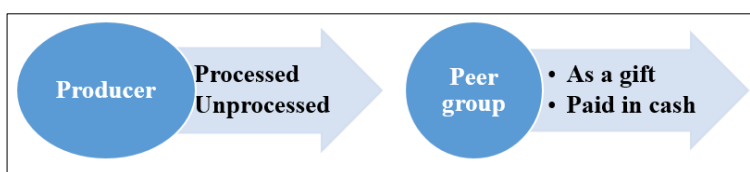
**Result and discussion**

**Table 1:** Value chain of *Katarni* rice growers

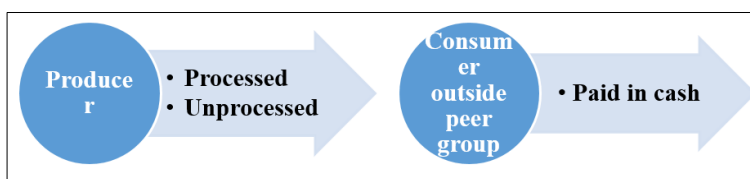
S.N.	Market entities			f (%)	Estimated proportion (%)
1	Producer		Peer group Consumer	85 (94.40)	6
2	Producer		Consumer outside peer group	30 (33.33)	9
3	Producer	Local processor	Consumer	65 (72.22)	21
4	Producer	Local processor	Retailer Consumer	65 (72.22)	27
5	Producer	Trader (not processing)	Retailer Consumer	48 (53.33)	20
6	Producer	Retailer	Consumer	25 (27.78)	9
7	Others			18 (20.00)	8

The analysis of *Katarni* value chain map revealed that there are six major type of *Katarni* value chains of more than 90% of product movement and value chain creation sequence. However these six major forms of *Katarni* value chain maps, there few more forms which together made the value chain pattern through which less than 5% of the total *Katarni* rice moves. Therefore the discussion of value chain mapping was limited in the study to only these six types of value chain maps.

The simplest & most common value chain consisted of only two entities i.e. the producer and peer group consumer. In this value chain map, it was observed that farmer sell/exchange/ gift the *Katarni* rice to their peer groups either in the form of unprocessed paddy or processed rice (dihusked) or in the form of beaten Rice (locally known as ‘Chura’). It was observed that this is widely practiced among farmers (94.40%) however among small proportion of total production (i.e. 6%) is supplied to consumer through this value chain.



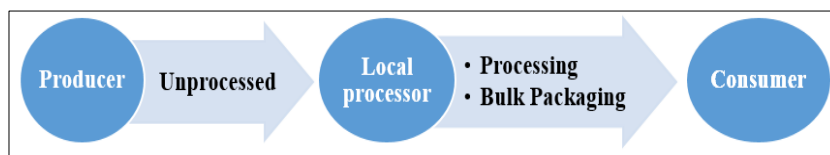
**Fig 1:** Map1: Producers → Peer group value chain



**Fig 2:** Map 2: Producers → Consumers outside peer group value chain

The second simplest form of the *Katarni* rice value chain mapping consisted of producers and consumers outside peer group. The value chain map of this pattern is presented in Fig 4.2. In this case, the producers were selling consumers the *Katarni* rice either in the form of paddy (43.3%) or in the

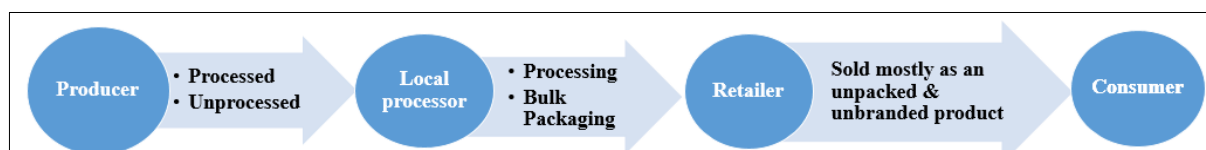
form of Rice (40.00%) and rarely thus sold it to the consumers outside peer group in the form of beaten Rice (i.e. *Chura*). It was observed that around 9% of total production is directly sold by farmers to consumers outside peer group.



**Fig 3:** Map 3: Producers → Local processor → Consumer value chain

The third type of *Katarni* rice value chain mapping is depicted in Fig 4.3 consisted of three market entities. In this type, in addition to the producer and consumer, the local processors were also found to be playing entire role in value chain. It was observed that 72.22% of the *Katarni* rice growers sold around 21% of their total production through this value chain. In this

case the farmers role is only limited to production of paddy. Almost all the postharvest including milling of paddy, bulk packaging are carried out by the local processors. It was observed that around 55% of the processed *Katarni* was sold to consumers in the form of dehusked rice. Whereas 65% of the 45% of it was sold in the form of beaten rice



**Fig 4:** Map 4: Producers → Local processor → Retailer → Consumer value chain

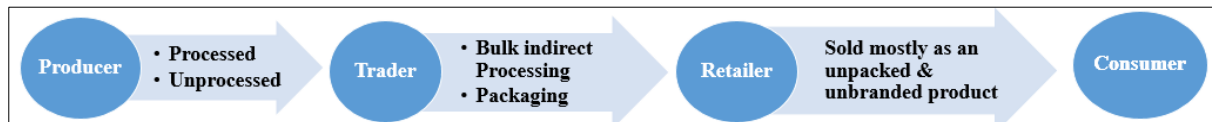


Fig 5: Map 5: Producers → Trader → Retailer → Consumer value chain



Fig 6: Map 6: Producers → Retailers → Consumer value chain

The fourth pattern *Katarni* rice value chain mapping indicated in Fig 4.4 It consisted of four market entities. In this case product move from producer to local processor to retailers to consumers. It was observed that around 27% of the *Katarni* is sold to consumers through this value chain. Similar to earlier case, the farmers role was largely limited to *Katarni* rice production. Whereas the processors role was limited to processing & bulk packaging. The role of retailer in this case was limited to procurement of processed *Katarni* either in the form of dehusked rice (55%) or beaten rice i.e. Chura (45%) and selling it to consumers in the form of loose, unpacked product. It was observed that more than 90% of the product was sold as the unbranded and unprocessed product.

The fifth type of *Katarni* rice value chain mapping is depicted in Fig 4.5 It is similar to the previous value chain map. However, in addition to the market entities presented in Fig 4.4 it also consists of local trader. This value chain map differs from previous one in the fact that role of processors was passive. The local traders aggregate unprocessed raw paddy from farmers and get it processed from the local processing mill and pay the charges for processing. Most of the processed product in this case i.e. in the form of Rice (66%) whereas only 34% of the product is processed for traders to the form of beaten rice. The local traders sold *Katarni* either in the form of dehusked rice (60%) or in the form of beaten rice (25%) to the retailers, who further sell it to consumer as loose, unbranded product. Around 20% of the processed *Katarni* is supplied to consumers through this value chain mapping.

The last significant *Katarni* rice value chain mapping is depicted in Fig 4.6. This is another simple value chain where role of farmer is to produce *Katarni* rice & sell it to retailers in the form of dehusked rice (88%) or beaten rice (12%). It was observed that farmers largely limit their processed product sale to *Katarni* rice and only 12% of the products they sell to retailers is in the form of beaten rice. It was also observed that only 9% of the *Katarni* rice is sold to farmers through this value chain.

## Conclusion

The demand for *Katarni* is highly seasonal and most of the demand for *Katarni* rice is the form of puffed rice and the demand period is especially limited to festive season of January shortly after harvest of crop and this short & intense demand nature provides favorable condition for adulteration and sale of non-genuine *Katarni* rice. Large majority of the *Katarni* rice is sold on the farm gate within few days of harvesting season without processing so the sales of *Katarni* rice as a uniformly processed and well packed branded product was not observed and hence it may be considered as rarely practiced in value chain. The Processing unit owners

play major role in distribution of *Katarni* rice in the market both as processor and traders and also processors play an important role in direct sale of processed product to consumers, especially in the form of puffed rice

The significant proportion of consumers buy produce directly from farmers indicating at high amount of adulteration and sale of fake product in market and more than half of the produce sold by the unorganized small-scale processors is in the form of puffed rice.

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