



Research Article

Value chain analysis of maize in Davanagere

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SUMMARY : An attempt was made in this study to analyze the maize value chain in Davanagere district. The value chain for maize in Davanagere was well established where farmers, traders, poultry feed manufacturers and poultry farms were the major stakeholders identified. Among these stakeholders poultry feed manufacturers earned the highest gross value in the maize value chain. The maize arrivals in Davanagere market showed an increasing trend over the years and the pattern of maize storage and transportation was found to be efficient which in turn complemented the maize value chain.

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BACKGROUND AND OBJECTIVES

The importance of maize or corn lies in its wide variety of applications besides serving as human food and animal feed. It is a source for a large number of industrial products - maize corn, corn starch, corn oil, baby corn, popcorn, dairy feed, poultry feed, piggery, agro-industries, and so on. The huge potential for exports has added to the demand for maize all over world. Maize is now widely cultivated around the world, and a greater weight of maize is produced each year than any other grain. While the United States produces almost half of the world's harvest, other top producing countries are as widespread as China, EU-27, Brazil, Mexico, India, Argentina, France, Indonesia, and South Africa. Major consuming nations of corn are China and USA.

India is the sixth largest producer of maize in the world contributing to 2.3 per cent of the global production. Among the major producing states, Andhra Pradesh tops the list with the contribution of 19 per cent to the total Indian maize production. Other producers are Karnataka (17 %), Bihar (10 %) and Madhya Pradesh (5 %). The average area under maize cultivation in Karnataka during 2009-10 was 1.2 million hectares with a production of 3.17 million tonnes. Davanagere is the major Maize producing district in Karnataka, accounting for 30

per cent of the state's production (0.95 million tonnes).

An attempt was made to identify and map value chain for maize in Davanagere and to study the pattern of arrivals, storage and transportation in relation to value chain.

RESOURCES AND METHODS

Davanagere district was selected as the study area as it is the major maize producing district in Karnataka. The Davanagere maize market area consists of the entire area of the Davanagere taluka. Hence this taluka was purposively selected for the study. Further 50 market functionaries viz., 30 traders, 15 up country market exporters and 5 overseas market exporters from Davanagere market were selected for extracting the primary data. The price data pertaining to the farmers were collected from the traders as farmers were not considered for sampling. The selling price of the farmer was synonymous to the purchasing price of the trader and hence it served the purpose. There were 3 poultry feed manufacturing units viz., Feeds India Private Limited, Gopi Feeds and Pragathi Feeds in Davanagere district. The data pertaining to poultry feed was collected from these units. The secondary data pertaining to the annual arrivals of maize was collected from the register maintained

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in Davanagere APMC.

Value chain mapping was done to identify the major stakeholders involved in the maize value chain. Trend analysis was carried out to document the pattern of maize arrivals over the years and to assess the trend values. Tabular analysis was conducted to study the pattern of storage and transportation of maize.

OBSERVATIONS AND ANALYSIS

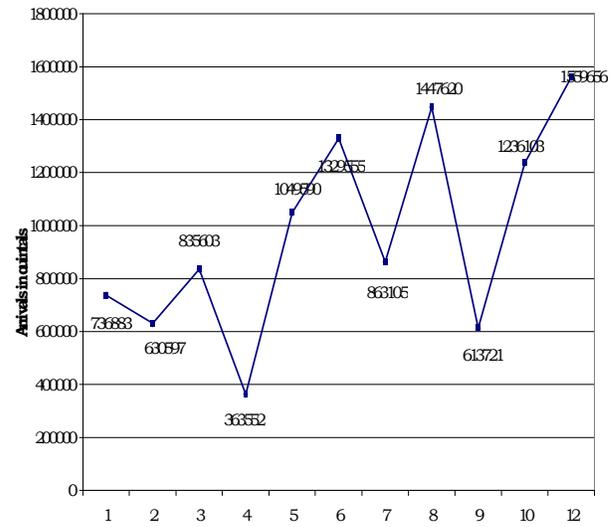
The value chain map for maize in the study area is depicted in Table 1. In this chain farmers, traders, poultry feed manufacturers and poultry farmers were the major stakeholders pertaining to the study. Bulk of the maize arrivals to the market was directed towards poultry feed industry via traders. Poultry feed was the sale value added maize product manufactured in this region. These poultry feed manufacturers sold their products from their own retail outlets which had negated the wholesalers action from the maize value chain. The poultry farmers in the district were the ultimate end users of the poultry feed.

Table 1 : Mapping and analyzing the value chain for maize in Davanagere

Stakeholders	Average price received per quintal of maize (Rs.)
Farmers	879.5 (26.04)
Traders	897.09 (26.56)
Poultry feed manufacturers	1600 (47.38)
Total	3376.59

The other stakeholders such as processors, starch industry and exporters were the other possible avenues for the maize value chain outside the study area. The processors like LTC, Suguna etc. procured maize from the farmers through contract farming, but the processing activities were undertaken outside the study area. The starch industry located outside the study area played second fiddle to poultry feed industry as it absorbed the remaining quantity of maize left in the hands of traders. Some traders exported maize to upcountry markets like Chennai, Kolkata, Nizamabad, Ahmedabad, Coimbatore, Cochi, Delhi etc. and there were some overseas market exporters who procured maize from the traders and exported to Vietnam, Bangladesh, Malaysia etc.

There was a string of institutions involved along the maize value chain in Davanagere. These institutions acted as a catalyst at produce, each stage of the value chain. APMC provided the required platform to the farmers for the sale of their where as the financial institutions fulfilled their credit requirement (Fig. 1). The corporate sector secured the farmers by indulging them in contract farming. NCMSL (National Collateral Management Services Limited) provided storage facilities to the maize traders in the form of rented godowns.



*Significant at 5 per cent level of significance

Fig. 1 : Maize arrival pattern in Davanagere market

NCDEX (Table 2 and 3).

Table 2 : Pattern of maize arrivals in Davanagere market

Years	Arrivals (q)
2000-01	736883
2001-02	630597
2002-03	835603
2003-04	363552
2004-05	1049590
2005-06	1329555
2006-07	863105
2007-08	1447620
2008-09	613721
2009-10	1236103
2010-11	1559656

Source: Davanagere APMC Register (2010)

Table 3 : Trends in arrivals of maize in Davanagere market (2000-01 to 2010-11)

Name of the market	Intercept	Regression coefficient	R ²	F
Davanagere	541349.873**	71380.8545**	0.3797	5.509**

The pattern of maize storage and quantity stored is presented in the Tables 4 and 5, respectively. Here the market functionaries such as traders, upcountry market exporters and overseas market exporters were considered to study the pattern of storage and transportation of maize. NCMSL (National Collateral Management Services limited) godowns

Table 4 : Pattern of storage

Market functionaries	Storage			Packaging	
	NCMSL go downs	Godowns (owned)	Ware houses	Gunny bags	Corrugated boxes / cartons /sheets
Traders	27 (90)	3 (10)	-	30 (100)	-
Exporters (upcountry markets)	13 (87)	2 (13)	-	15 (100)	-
Exporters (overseas markets)	-	-	5 (100)	-	5 (100)

Table 5 : Quantity stored

Market functionaries	Quantity stored (q)		
	NCMSL godowns	Godowns (owned)	Warehouses
Traders	562950	62550	-
Exporters (upcountry markets)	195750	29250	-
Exporters (overseas markets)	-	-	150000

Table 6 : Pattern of transportation

Market functionaries	Mode of transportation		
	Lorry / tractor /tempo	Railway wagons	Ship
Traders	30 (100)	-	-
Exporters (up country markets)	-	15 (100)	-
Exporters (overseas markets)	-	-	5 (100)

Table 7 : Quantity handled

Market functionaries	Quantity handled (quintals)		
	Lorry / tractor / tempo	Railway wagons	Ship
Traders	625500	-	-
Exporters (up country markets)	-	225000	-
Exporters (overseas markets)	-	-	150000

were used for maize storage by 90 per cent of the traders and 87 per cent of the upcountry market exporters on rent basis. The rent charged per bag for duration of one month was 5.45 Rs. whereas, the remaining 10 per cent of the traders and 13 per cent of the upcountry market exporters stored in their own godowns. The storage period was up to 3 months.

Gunny bag was the packaging material used by all the traders and upcountry market exporters for storing in godowns. There were also some overseas market exporters who stored their stock in warehouses. These exporters used sophisticated packaging materials like corrugated boxes, cartons and sheets in order to preserve the value of their stock.

The pattern of maize transportation and quantity handled is presented in the Tables 6 and 7, respectively. Traders used the services of lorries, tractors and tempos for transportation which possessed the risk of value deterioration due to the bad condition of the roads. The upcountry market exporters opted railway wagons for transportation where the risk of value deterioration was minimal. The overseas market exporters preferred ships to export their stock to foreign destinations as the risk of value deterioration was almost nil due to the state of the art storage facility which was made available in the ships

Conclusion:

It was observed from the study that there existed a well established value chain for maize in Davanagere where farmers, traders, poultry feed manufacturers and poultry farms were the major stakeholders. The maize value chain in Davanagere was confined to poultry feed as there were no other avenues for maize value addition due to lack of maize processing units in the study area. Hence, there is a lot of scope for the establishment of maize processing units which will upgrade the maize value chain. There has been an increasing trend in the arrivals over the years. Therefore the APMC needs to plan for providing the necessary infrastructural facilities like electronic display boards, internal roads and parking facilities to handle the situation. The government should give more emphasis on strengthening and the effective functioning of regulated markets in terms of upgrading the storage structures and packaging.

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