

# Postrainy Season Sorghum Marketing in India: Constraints and Opportunities

## Marketing Brief

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### Introduction

Indian agricultural marketing systems function relatively well although a number of critical issues impinge on their efficient functioning. For example, markets in the hinterland are generally thin, localized and segmented - smallholders dominate the agricultural system and this leads to low marketed surplus.

The process of price discovery is often non-transparent; markets are 'multi-level' with many intermediaries, leading to high transaction/marketing costs, so, to sell their produce, farmers are dependent on intermediaries to avail of credit facilities in interlinked markets (credit/input and output markets). Lack of grading and storage facilities and lack of information on market intelligence.

A distress sale, for immediate cash to meet household needs and to repay debts immediately after harvest, is common among smallholder farmers. Lack of credit facilities and high transactions costs serve as a disincentive to seek out the best prices for their produce. Owing to inadequate facilities related to handling, transportation and storage at the field level, post-harvest losses are high. The estimated post-harvest losses in India amount to 10% for cereals and pulses production.

Due to these constraints, the focus of agriculture growth has now shifted from production to processing and marketing. This brief thus looks at the current marketing systems and practices for postrainy (rabi) season sorghum, and addresses the opportunities in the marketing of postrainy season sorghum for the smallholder farmers in general and for the clusters where the HOPE project is being implemented in particular.

### Sorghum Marketing Systems

Sorghum is sold through both regulated and unregulated channels. Regulated markets are those in which business is done in accordance with the rules and regulations framed by the statutory market organization, the agricultural produce market committee. The marketing costs in such markets are standardized and the practices regulated. In addition to the regulated channel, farmers also sell their produce through various unregulated channels. These include sales to neighbors, family members, creditors, and landlords; sales at unregulated village markets commonly known as 'shandies', and sales to village middlemen who buy in large quantities for shipment to secondary markets in urban centers.

After harvest, the bulk of the grain is retained for home consumption and the rest sold in regulated markets



*Rabi sorghum grain to be auctioned at Pune Market, HOPE cluster, Maharashtra.*



*Market Yard, Beed Market, HOPE cluster, Maharashtra.*



**Rabi sorghum grain graded by variety and quality, Barsi Market, HOPE Cluster, Maharashtra.**

and/or through village middlemen and unregulated markets. A part of the grain is used for payment in kind (wages), and of the remaining, a small quantity is retained for seed. The marketed surplus of post-rainy season sorghum varies by farm size; large farmers sell a larger portion of their grain (66%) than smallholder farmers (37%). For post-rainy season sorghum, on an average about 40-50% of the total production is sold in different channels and the rest is utilized for home consumption (survey findings of HOPE project, 2010). Although the regulated markets can be divided into primary, secondary and terminal markets, this is not fixed, and there are overlaps. For example, in practice, many markets have primary and secondary market functions, both of which are important. Typically, in

the major sorghum growing areas, farmers and village traders will travel up to 60 km to sell their sorghum, and in rare cases, up to 100 km. Wholesalers in these markets may also buy/sell sorghum to/from other markets in the state, and also to/from other states—perhaps 500 km away—at times when there are local shortages.

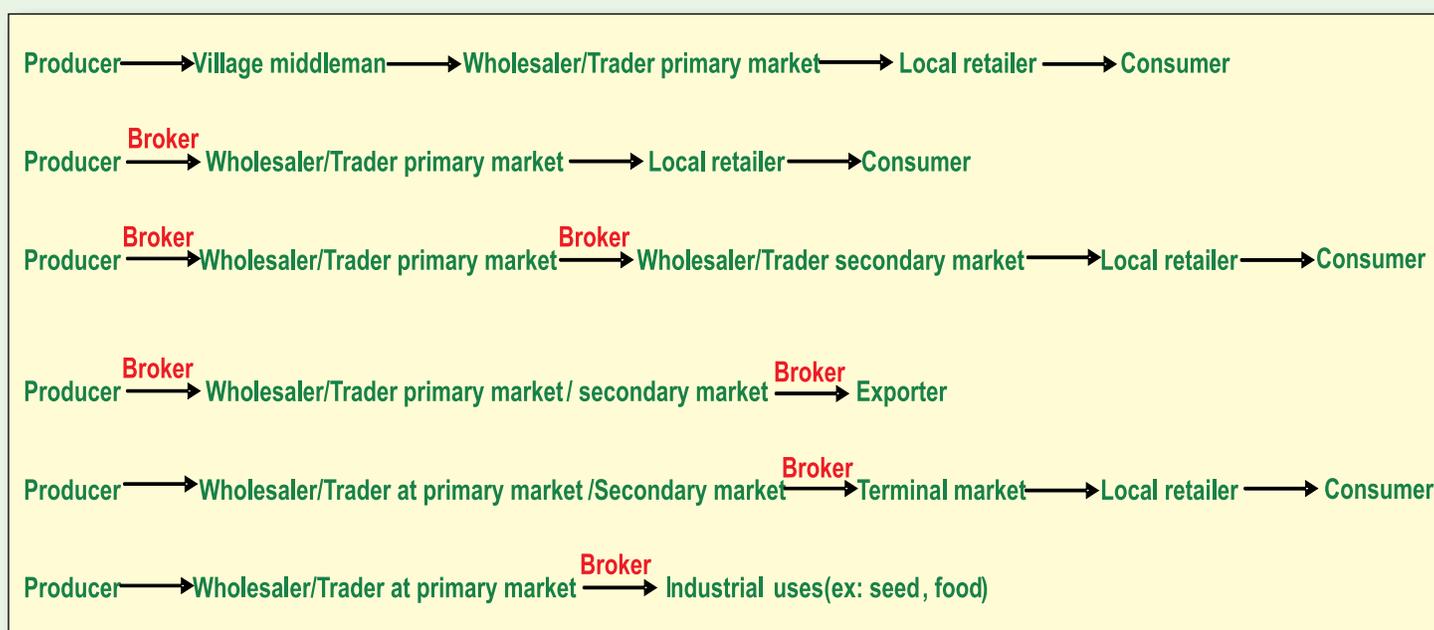
Sorghum for food-use is traded between the major growing regions. Post-rainy-season, sorghum is shipped to rainy-season sorghum-growing areas and vice versa, to meet the demand for sorghum from middle-income consumers (for post-rainy season sorghum) and lower-income consumers (for rainy season sorghum).

Post-rainy season sorghum is normally consumed as food. However, its grain is shipped from the major growing areas of Maharashtra to Gujarat and to northern states as seed for fodder. Mixed varieties of post-rainy sorghum of a lower quality are sold as seed, and to some extent, exported to other countries as feed.

For the rainy season sorghum, besides food-use, it is traded over long distances for various non-food uses i.e., cattle feed, poultry feed, bird feed and alcohol. In the major centers of North India, industrial users of rainy-season sorghum account for a large proportion of the total sales, especially low quality grain or when grain is blackened due to rain at harvest time.

Movement of post-rainy season sorghum from producer to consumer through various channels is given below. A schematic diagram of the flow of post-rainy sorghum grain from farmer to consumer is shown in Figure 1.

### Marketing channels for post-rainy season sorghum grain



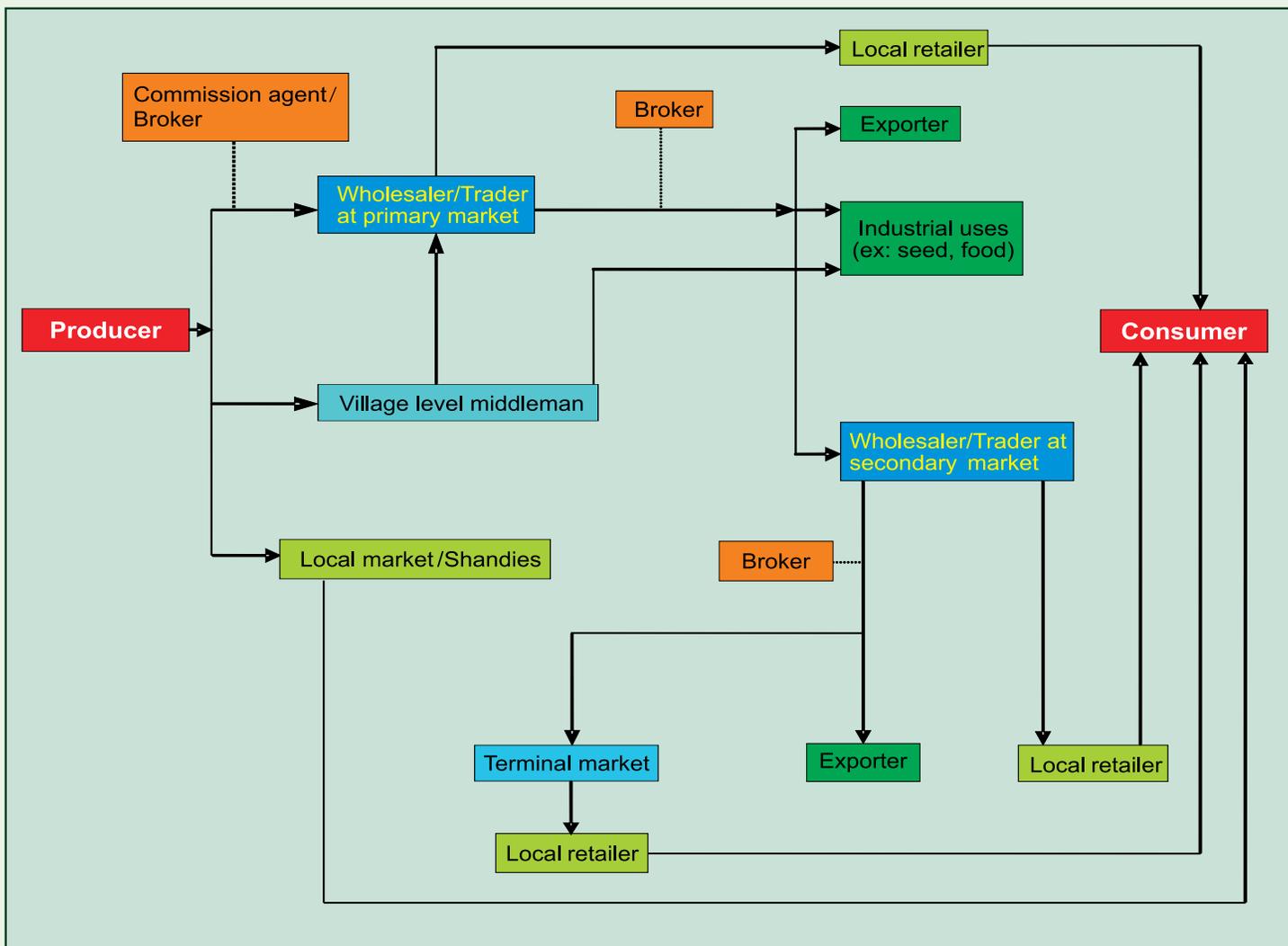


Figure 1: Postrainy season grain marketing chain in India.

## Postrainy Season Sorghum Markets in India

Maharashtra accounts for the largest volume of sorghum arrivals at regulated markets - about 60% of recorded arrivals,- followed by Madhya Pradesh (14%), Karnataka (8%), and then Andhra Pradesh, Tamil Nadu, and Uttar Pradesh, all contributing around 5%.

Maharashtra, Karnataka, Andhra Pradesh and Gujarat are the major states that consume postrainy season sorghum in India. Accordingly, the primary and secondary markets dealing in postrainy season sorghum are located in these four states. Some of the primary markets in these states are Barsi, Jalna, Beed, Solapur, Bijapur, Belgaum, Gulbarga, Hubli, Dharwar, Mahabunagar and Kurnool. The secondary and terminal markets centers are primarily the big cities of these states, such as Aurangabad, Pune, Mumbai, Latur, Parbhani, Kolhapur, Davanagere and Koppal.

## Opportunities in Marketing Postrainy Sorghum

The produce of postrainy season sorghum is generally retained for home consumption and the surplus is sold locally in primary markets. Large quantities of postrainy season sorghum arrive from nearby villages in a few markets of western Maharashtra, such as Barsi, Solapur, Beed, Jalna and Osmanabad. The grain is then cleaned and graded by traders with small sieving equipment, or on a large scale, with big machines. The cleaned and graded produce is exported to terminal markets such as Pune and Mumbai and cities in Gujarat. These markets fetch a high price - in the range of 1800-2100 / quintal (in 2010), which is higher by Rs. 400-500/quintal compared to local market prices. Cleaned and graded grain is also sold under select brand names - for example; Kohinoor, President and Gold coin in supermarkets in big cities.



**Discussion with rabi sorghum grain trader, Jalna Market, HOPE Cluster, Maharashtra.**

The opportunity for farmers to realize higher prices for their produce, is to clean and grade the produce before bringing it to the market. The opportunity also lies in the form of procuring equipment for cleaning and grading, with minimum investment under the co-operative set-up, to process the produce before selling, either in the market, or directly to the demand centers.

Small Self Help Groups (SHG), NGO's, processors and hotels in Maharashtra also procure post-rainy season sorghum for preparation of sorghum *rotis* and *papad*. Opportunity lies in the form of selling the produce directly to these demand centres. The farmers could form associations or groups, bulk the surplus grain, clean and grade the produce and sell in bulk.

The opportunity for post-rainy season sorghum, also lies in the form of the cleaned grain being used exclusively as seed, to grow sorghum as a fodder crop in Gujarat and in other neighboring states.

### **Current Constraints in Marketing Post-rainy Season Sorghum**

**High transaction costs and price spread** – High transaction cost is the outcome of multiple intermediaries. The farmer with a small land holding finds it difficult to choose a buyer for his produce. Therefore, he sells his produce through a broker who in turn charges him a commission at a rate higher than the existing rate.

**Market information and Price dissemination** – A *mandi* trader market remains the only option to the local producer to sell his produce at a price offered by the traders at that particular *mandi*. In general, farmers do not have access to reliable sources of price information, and as a result of this, they become hostage to the closest source, i.e., the local *mandi*.

**Distress sale** – Farmers typically, can hold their produce for a short period, due to several compulsions, i.e.,

monetary needs and lack of storage facilities. Distress selling is a common phenomenon in the traditional supply chain as a consequence of the increased arrival of commodities during the peak harvest days, leading to a glut situation. To ward off supply gluts, the provision of warehouse financing that exists is grossly inadequate, and is restricted to only a few major commodities/markets.

**Exploitation by intermediaries** – Apart from a large number of intermediaries, the intermediaries do not adhere to the norms that have been laid down. For example, in Andhra Pradesh, commission agents charge commissions between 3-4% against the Government stipulated norm of 1.75%.

**Place and time of convenience** – This refers to the place and time of marketing the produce. The markets are located at fairly long distances from the villages. It therefore, becomes difficult for the farmers to bring their produce to the *mandi* at the time of the auctions, especially when the produce is small, as the per-unit cost of transportation increases. In this case, the farmer is forced to sell the produce to the village trader at a low price.

### **Grading**

Grading means sorting of the homogenous lots of the produce according to fixed grade standards. Produce is graded in accordance with various quality factors. (Table 1)

Benefits:

- The grading of sorghum is beneficial to farmers, traders and to consumers.
- Grading of produce before the sale enables farmers to get a better price for their produce.
- Grading helps consumers to get standard quality produce, at fair price.
- After grading, it is easy for the consumer to compare the prices of different qualities of produce in the market.
- Grading also reduces the cost of marketing.

The AGMARK grade specification and definition of quality of post-rainy season sorghum requires that it be:

- the dried mature grains of sorghum raised in the post-rainy season
- sweet, hard, clean, wholesome, uniform in size, shape, color and in sound merchantable condition
- free from added coloring matter, moulds, weevils, obnoxious substances, discoloration, poisonous seeds and all other impurities except to the extent indicated in the schedule

- free from rodent hair and excreta
- with uric acid and aflatoxin not exceeding 100 milligrams and 30 micrograms per kilogram respectively
- Compliant with the restrictions in regard to pesticides/insecticides residue (Rule 65), poisonous metals (Rule 57), naturally occurring toxic substances (Rule 57-B) and other provisions prescribed under the Prevention of Food Adulteration Rules, 1955, and as amended from time to time.

Note: (i) In foreign matter, the impurities of animal origin shall not be more than 0.10% by weight.

(ii) Ergot affected grains shall not exceed 0.05% by weight in damaged grains.

### Improving Farmers' Access to Markets through Institutional Innovations

A number of innovative market models are being implemented to overcome some of the constraints and bottlenecks mentioned above. Different forms of linkages have emerged that are based on risk reduction and reduced transaction costs etc. Linkages can be categorized as follows:

- Farmer to domestic trader /retailer / supermarkets
- Linkages through a leading farmer, cooperatives, associations and self help groups
- Farmer to agro-processor /exporters and private companies
- A combination of all the above under contract farming

Typically in coarse cereals markets, smallholder farmers have been growing these commodities for home consumption and they market small surpluses in the food grain markets, either directly or through middlemen. Owing to small surpluses, the marketing and transaction costs are generally high. However, under the changing agricultural scenario, industrial processors demand bulk quantities of these grains. There is thus a need to group small-scale farmers into commodity groups and link them to industrial users. Industrial



**Discussion with commission agent on marketing practices, Jalna Market, HOPE Cluster, Maharashtra.**

buyers are cost and quality conscious, therefore they enter into contracts with producers for assured quantity and quality. Institutions such as cooperatives, growers' associations, bulk marketing, and contract farming are considered the way to reduce both risk, and marketing and transaction costs, by providing markets to farmers at their doorsteps.

### Bulk marketing

The rationale for the new marketing arrangement includes the following:

- Potential demand for rainy season sorghum grain in emerging alternative uses that include poultry feed and brewery.
- Potential demand for post-rainy season sorghum in the processed food industry
- Non-availability of grain in bulk quantities, due to scattered and variable surplus production over subsistence needs.
- Need for assured supply of quality grains in bulk quantities.
- There are a number of advantages to both the buyers and sellers due to bulk marketing. Better price realization due to output linkages; minimizes middlemen charges/transaction cost; increase in bargaining capacity; improves market intelligence; and finally leads to market expansion.

**Table 1. Maximum tolerance limits of some characteristics for different grades of post-rainy season sorghum**

Grade designation	Maximum limits of tolerance (% by weight)						
	Moisture	Foreign matter		Other edible grains	Damaged grains	Immature and shriveled grains	Weevilled grains
		Organic	Inorganic				
Grade I	12	0.1	nil	1	1	2	0.5
Grade II	12	0.25	0.1	1.5	2	4	1
Grade III	14	0.5	0.25	2	3	6	2
Grade IV	14	0.75	0.25	4	5	8	6



*Rabi sorghum being weighed and traded, Lathur Market, HOPE Cluster, Maharashtra.*

The advantages for the buyers include: Overcoming multiple transactions; assured supply of produce; overcoming seasonality in purchase to some extent (grain availability throughout the year); assured quality of the produce and origin.

### **Cooperative marketing**

India's dairy cooperative model is a successful model to link farmers to markets and it saves the producers' from exploitation by the middlemen/informal traders. It improves their bargaining strength, and economies of scale in marketing. Cooperative marketing is the system of marketing in which a group of producers join together and register themselves under the respective state cooperative societies act, to market their produce jointly. The members also deal in a number of cooperative marketing activities ie, processing of produce, grading, packing, storage, transport and finance.

The cooperative marketing structure in different states consists of

1. Mandi level- Primary Marketing Society (PMS).
2. State level- State Cooperative Marketing Federation (SCMF).
3. National level- National Agricultural Cooperation Marketing Federation of India Ltd (NAFED).

### **Contract farming**

Contract farming, though prominent in poultry and dairy, is practiced in many agricultural commodities, including wheat, basmati rice, fruits, vegetables and medicinal plants. Agribusiness firms follow different models of contract farming, ranging from bi-partite, to multi-partite agreements. A bi-partite contract is an agreement between producers and firms, and this may take the form of a market specification, or a resource-providing

contract. Inclusion of other agencies by agribusiness firms to provide inputs, credit and insurance, gives rise to multi-partite contracts. In contract marketing, a producer produces a crop and delivers to the contractor a quantum of the required quality of produce, based upon anticipated yield and contracted acreage, at a pre-agreed price.

The advantage of contract marketing from a producer's perspective is that it minimizes the price risk, reduces post harvest handling losses and minimizes the malpractices during the marketing of produce. For the contractor, the supply of the desired quality of produce is assured, and the risk of raw material supply is minimized.

### **Growers' associations**

Growers' associations are informal cooperatives managed by farmers themselves.

SAFAL – village level associations promoted by the Mother Dairy Fruits and Vegetables Limited (MDFVL), has been quite successful in linking fruit and vegetable farmers to markets. SAFAL was first established in 1988 to cater to the growing demand for fruits and vegetables in the metropolitan city of Delhi. At present, there are 250 SAFAL associations with about 20,000 farmer members in the country. There are also grower's associations for other commodities. Two notable examples include Self-Help Groups (SHGs) promoted by Appachi Cotton Company Limited in Tamil Nadu, and Agrocel Pure & Fair Cotton Growers' Associations, promoted by Agrocel Industries Limited in Gujarat.

### **Forward and future markets**

Forward trading, is an agreement or a contract between a seller and a buyer for a kind and quantity of a commodity at contracted price, with deliveries and settlement at a future date. It is a type of trading that provides protection against the price fluctuations of agricultural produce. The producer utilizes future contracts to transfer the price risk.

At present, future markets in the country are regulated through the Forward contracts (Regulation) Act, 1952. The forward markets commission (FMC) performs the functions of advisory, monitoring, supervising and regulating future and forward trading. Forward trading transactions are performed through exchanges owned by the associations registered under the act. The advantages of future trading is that price variations reduce, encouraging competition and providing competitive prices to farmers; ensuring a balance in the demand and supply position throughout the year and promoting an integrated price structure throughout the country.

## ICT-enabled supply chains

India is witnessing a revolution in Information Communication Technology (ICT). Its applications in linking farmers to markets are on the rise. The E-chaupal initiative of the Indian Tobacco Company Limited (ITC) is such an initiative. ITC provides information on market prices, agronomic practices, inputs, weather, etc, through internet kiosks, free of charge. A farmer can sell produce to ITC at the market price, and can also avail inputs from it, if so desired. There are many such initiatives being taken by big business houses.

## Packaging

Good packaging is necessary for easy handling, transportation and storage. The sorghum is transported from the field (threshing floor), to the market and warehouse in gunny bags. Good quality gunny bags, either new, or used more than once, with proper treatment, are necessary to avoid spoilage and to protect the sorghum from moisture and insect attack. Packaging and branding are becoming important for the sale of post-rainy season sorghum in urban areas, particularly through supermarkets.

## Scaling up Emerging Market Linkage Models

The government of India is taking a number of initiatives under agricultural marketing that includes: Model

Agricultural Produce Marketing Act 2003; agmarknet portal; internet connectivity between markets; construction of rural godowns; strengthening of market infrastructure and grading and standardization. Among these, the Model Marketing Act has the potential to transform the marketing system in the coming years.

## Model Agricultural Produce Marketing Act

The Act promotes competitive marketing to overcome the monopoly of regulated markets; smooth raw material supplies to agro-processing industries; competitive trading; organized retailing; information exchange and adoption of innovative marketing systems and technologies. The act aims at structural and institutional reforms to make the present agricultural marketing system competitive and efficient.

The key provisions include:

- Provision of 'Special Markets' or 'Special Commodities Markets' to be operated in any market area for specified agricultural commodities, in addition to existing markets.
- No compulsion on the growers to sell their produce through existing markets administered by the Agricultural Produce Market Committee (APMC).
- Formation of a Farmers Association for bulk marketing
- Provision of contract farming

Channel	Source	Information provided
News paper	Local language	Information on new varieties, and data on prices
TV	Local channels	Pest and disease management in crops, livestock rearing, market prices of agricultural commodities,
Radio	Medium wave bands	Market prices, pest and disease management
Directorate of Marketing and Inspection (DMI)	<a href="http://www.agmarknet.nic.in">www.agmarknet.nic.in</a>	<ul style="list-style-type: none"> <li>• Construction of rural godowns.</li> <li>• Agriculture marketing information.</li> <li>• Training in Agricultural marketing.</li> </ul>
Food Corporation of India (FCI)	<a href="http://www.fciweb.nic.in">www.fciweb.nic.in</a>	Procurement of food grains for effective price support operations for safeguarding the interests of the farmers.
Central Warehousing Corporation (CWC)	<a href="http://www.fieo.com/cwc/">www.fieo.com/cwc/</a>	Provide scientific storage and handling facilities.
Agricultural and Processed Food Products Export Development Authority (APEDA)	<a href="http://www.apeda.com">www.apeda.com</a>	<ul style="list-style-type: none"> <li>• Fixing of standards and specifications for the purpose of export of scheduled products.</li> <li>• Registration of exporters for scheduled products.</li> </ul>
National Cooperative Development Corporation (NCDC)	<a href="http://www.ncdc.nic.in">www.ncdc.nic.in</a>	Planning, promotion and financing program for production, processing, marketing, storage, export and import of agricultural products.
Director General of Foreign Trade (DGFT)	<a href="http://www.nic.in/eximpol">www.nic.in/eximpol</a>	Provide guideline /procedure of export and import of various commodities.
State Agricultural Marketing Board	<a href="http://www.msamb.com">www.msamb.com</a>	Provide infra-structure facilities for the marketing of notified agricultural produce.

- Pledge-financing and instituting a system of negotiable warehouse receipts
- Forward and futures contracts
- Promotion of information technology in agricultural marketing
- Promote public – private sector partnership in the management of agricultural markets
- Extension and training services needed to focus on assisting small-scale and marginal farmers in (a) marketing of their produce, (b) advice on production planning, (c) market information, (d) alternate marketing channels, (e) improved marketing practices including grading and packing, and (f) advantages of group marketing
- Wider role of State Marketing Boards in training and extension in market related areas.
- Under the act, new markets are expected to be established by the private sector and other legal entities, and farmers are free to sell their produce in any market. It will create competition between existing and new markets thus ensuring a fair deal to the producers. Thus the Act is expected to promote public-private partnership in the management of agricultural markets.

Farmers can make use of the benefits from such institutional linkages and improvements in the market system, and be assured of the right price for their produce.

### Market Information Source

The market information flow for postrainy season sorghum is no different from other crops across markets

in the country. The farmers can access information from various sources such as news papers, radio, TV, display boards (digital & fixed) at APMC's and more recently, through web portals. Table 2. shows market information that is made available through various sources.

In the recent year, ICT enabled services such as call centres & mobile service providers are also providing market information to the farmers by charging an annual fee. Utilizing these advanced information dissemination sources by farmers would help them to sell their produce at the right place, at the right time and the right price.

### Implications for Marketing of Postrainy Sorghum

Postrainy season sorghum is consumed exclusively as food, owing to the higher quality of the grain and hence it commands a significant price premium. Therefore institutional innovations that concentrate on improving post-harvest value addition technologies, establishing more effective and sustainable linkages between farmers and the processed food industry is required. The demand for postrainy season sorghum grain, for processed products such as ready-to-eat *rotis (flat bread)*, flour, papad and roasted grain, is showing an increasing trend in recent years although from a low base. Promotion of value added products for postrainy season sorghum, through linking farmers to input dealers, credit agencies and end users and providing financial support and an enabling environment for the processing sector, will lead to a win –win situation, benefiting both the producer / processor and the consumer.

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### About ICRISAT



The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, and 644 million of these are the poorest of the poor. ICRISAT and its partners help empower these poor people to overcome poverty, hunger, malnutrition and a degraded environment through better and more resilient agriculture.

ICRISAT is headquartered in Hyderabad, Andhra Pradesh, India, with two regional hubs and four country offices in sub-Saharan Africa. It belongs to the Consortium of Centers supported by the Consultative Group on International Agricultural Research (CGIAR).

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