

Leveraging E-Marketing for Sugarcane By-Product Commercialization: A Comprehensive Review

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Abstract

Agriculture is the main source of income for a large part of the Indian population. Directly or indirectly, they are dependent on agriculture. Not only this, agriculture also contributes to the Indian economy. In the last few years, there has been a revolution in the agriculture sector through the Internet. Through e-marketing, emphasis has been laid on connecting farmers to markets, customers, presenting their products to customers and establishing themselves as entrepreneurs. The advancement of technology has helped farmers to know information about markets; price information and information related to the behavior of their customers. Yet farmers have never been able to learn to use it properly. As we know farmers are like the backbone of India, hence we cannot even imagine without them. These platforms have been created for farmers only so that their income can increase. Farmers can operate these e-marketing platforms from their phones.

Keywords: Agriculture sector, Sugarcane, Farmers, E-marketing, Internet.

Introduction

Out of the three sectors of the economy, the agriculture sector is the most important sector. India is called the land of agriculture. A large part of the Indian population depends on agriculture for their livelihood. Agriculture does not only produce food items. Many small and big industries get raw material from agriculture, medicines, biofuels etc. are also obtained from agriculture.

Various types of crops are produced from agricultural fields, one of which is sugarcane. Sugarcane crop has special importance in the Indian economy. Sugarcane produces sugar, jaggery, bagasse, molasses, press mud, filtra mud and ethanol, which are used by various industries in different forms.

Sugarcane or sugar cane is a species of tall, perennial grass (in the genus *Saccharum*) that is used for sugar production. Different species of sugarcane are grown in about 80 countries around the world. Sugarcane is a commercial crop from which millions of farmers and workers earn their livelihood. The products obtained from the sugarcane crop are the main reason for its importance. The most important product obtained from sugarcane is sugar which is used all over the world. Sugar is used in the food and beverage industry and is also consumed in large quantities. Apart from sugar, many other products are also made from sugarcane. By-products like bagasse, molasses, press mud, filter cake etc. are obtained from sugarcane.

Bagasse is the substance left after extracting juice from sugarcane. It is a waste product of sugarcane. Earlier it was considered waste but now it is used in making various products. Actually, bagasse was primarily used for fuel in sugar mills and for animal feed. But at present bagasse is being used mainly for the production of energy, in the paper industry to make paper and board, as an alternative to plastic, for food packaging and in the manufacture of other products. The reason for so much use of bagasse is its biodegradability. It can also be converted into fertilizer.

Table 1. Chemical composition of sugarcane bagasse

Name of the Content	Percentage
Cellulose	26–47

Name of the Content	Percentage
Hemicellulose	19–33
Lignin	14–23
Ash	1–5

Products that can be obtained from bagasse

Bagasse cutlery

Spoons, plates, forks, knives, bags etc. are being manufactured from bagasse. These things made from bagasse can be reused once they are used. All these products are more durable and cheaper than the plastic products prevalent in the market. Bagasse products promote sustainability as well as reduce carbon emissions. These products are self-compostable.

If we look at the market of bagasse products, it is an emerging sector.

According to Mitcon, there has been satisfactory growth in the Indian sugarcane bagasse cutlery market. In 2021, the Indian sugarcane bagasse cutlery market was 161.37 million USD, which is expected to increase to 365.21 million USD by 2030 at a CAGR rate of 9.5%.

Bagasse can also be used as a filler in building materials. It is also used as acoustic tiles due to its sound absorbing properties. Bagasse is not only used in the manufacturing of other products but it is also a good alternative to fossil fuels for the environment. It is used as fuel in sugar mills which also reduces the greenhouse effect.

Apart from the above, it is engaged in making clothes and garments using bagasse, whose main aim is to provide eco-friendly and sustainable clothing. Apart from the above, many companies are engaged in making clothes and garments using bagasse, whose main aim is to provide eco-friendly and sustainable clothing. In India, Cane India, Growood India, JMD Fabrics, Hanuman Creation are some of the companies that are manufacturing clothes from sugarcane bagasse.

Molasses

Molasses is obtained by grinding sugarcane to make sugar from it. It is a brown, thick viscous liquid. It is mainly used as a raw material in ethanol production, food products.

Use in cooking

Molasses is used in making ginger bread, cookies, cakes. Due to its liquidity and being obtained from sugar crystals, it is a natural sweetener. Molasses is used in making ginger bread, cookies, cakes. Due to its liquidity and being obtained from sugar crystals, it is a natural sweetener.

Brown sugar

Brown sugar is made by mixing molasses with white sugar. Brown sugar is used to sweeten cakes, cookies, to make coffee and other beverages, and also in cosmetics. Apart from this, vinegar and citric acid are made from molasses. Molasses is a main ingredient in the distillation process of rum.

Ethanol

Ethanol is produced from molasses through the process of fermentation and distillation. After diluting the molasses, it is fermented through yeast which converts it into ethanol and carbon dioxide. Ethanol is then separated from the liquid obtained by distillation. This is a commercial by-product which is used by various industries.

Different uses of Ethanol

- a) **Bio-Fuel:** The primary use of ethanol is as a biofuel. Ethanol is blended with gasoline to reduce vehicle emissions and reduce dependence on imported crude oil.
- b) **Industrial Solutions** Ethanol is also used in the manufacture of paints, plastics, and other industrial products.

- c) **Food and Beverages** Ethanol is used for vaporizing and coloring food items.
- d) **Disinfectants** Ethanol is used to make hand sanitizers and other disinfectants.

According to an article by IMARC Group, the current market size of Ethanol in India has reached USD 3.00 billion. The market size of Ethanol is estimated to grow to USD 10.07 billion during the period of 2025-2033 at a growth rate (CAGR) of 14.40%.

Despite using sugarcane in various forms, farmers are not getting proper results. The reason is not using marketing process properly. In today's era of technology, various industries use e-marketing to increase the sale of their products.

E marketing is a modern process of marketing in which any product or service is marketed through internet. Through this, contact is easily established with the target market or target consumer.

In traditional marketing, radio, television, billboard, print media are used for promotion. In e-marketing, instead of the above mediums, means like emails, social media, influencer marketing, pay per click etc. are used. Marketing is also known as web marketing, online marketing, internet marketing, virtual marketing.

Despite the many benefits of e-marketing, e-marketing has not been fully used yet. If farmers use e-marketing, they can get many benefits such as a bigger market, easy relationship with customers, saving of time, reduction in cost, etc.

Advantages of E- Marketing for Farmers

Expanding market reach

- a) **Global customers:** With the help of e-marketing, farmers can take their products to the global level. Customers from any corner of the world can reach the producer and contact him.
- b) **Low-cost medium:** E-marketing is a much cheaper medium than traditional medium. This also affects the cost of products.

Strengthening brand value

- a) **Increasing the visibility of the product:** It is a good medium to tell customers about the various by-products of sugarcane and their various uses.
- b) **Building trust:** Direct communication with customers leads to transparency, due to which customers easily trust the product.

Improvement in customer engagement

- a) **Direct communication:** Through e-marketing, there is direct communication between the customer and the seller or producer, which also leads to quick resolution of customer queries and problems.
- b) **Getting feedback:** Through online channels, firms can receive feedback from customers regarding any product or service. So that the product or service can be improved.

Increase in income and sales volume

- a) **Direct selling:** Through various online platforms, the seller can sell his products directly. This will increase the sales volume which will help in increasing the income.
- b) **Helpful in understanding consumer behavior:** E-marketing platforms help the seller to understand consumer behavior. Due to which firms can increase sales volume by adapting their strategies according to consumer behavior.

How e-marketing can transform marketing of sugarcane by-products

Direct selling to customers: E-marketing helps farmers to sell goods directly to their customers without involving any middleman. This also reduces the cost of goods, which increases the income of farmers and reduces the cost of goods for customers. Also, farmers can establish a direct relationship with their customers and also get feedback from them.

Use of mobile phones and digital tools: Mobile phones and digital tools play an important role in e-marketing. With the help of these tools, farmers can advertise their products on different platforms, get all the market information like weather information, new methods of crop management.

Social media platforms and content marketing: Farmers can promote their products themselves on social media platforms like Facebook, Instagram, Twitter and other platforms. Not only this, they can also talk directly to their customers. With the help of content marketing, they can reach their customers through photos, videos and blogs of their products.

Challenges and Difficulties in Using E-Marketing for Marketing Sugarcane By-Products It is believed that e-marketing has a lot of benefits in the agriculture sector but just like every coin has two sides, there are some challenges and difficulties in using e-marketing for sugarcane by-products –

Digital Literacy and Access

The first challenge in e-marketing sugarcane by-products is to educate farmers on digital tools and technology. Many farmers are still unaware of the internet and technology or those who have some knowledge are not proficient in using them. Internet availability has not fully extended to rural areas, which acts as a barrier in the use of e-marketing.

Trust and Security

E-marketing will be considered successful only when there is trust between farmers and consumers. Farmers need to assure customers that the product shown online is the actual product and that the transaction is completely safe. If there is a difference between the product displayed online and the actual product then it will have a negative impact on the business.

Competition and market dynamism

As farmers start adopting e-marketing strategies in agribusiness, the level of competition may increase. If agribusinesses want to differentiate themselves then they need to have unique selling propositions for their agri business and also adopt such e-marketing strategies that can make them superior in the overall market. Along with this, they have to monitor the dynamics happening in the market so that they can keep themselves ahead in the competition.

Some E-marketing platforms initiate by Government

National Agriculture Market (e-NAM)

National Agriculture Market or e-NAM is a platform for trading agricultural commodities in India through the Internet. It is a pan India electronic platform with an aim to integrate all the Agriculture Product Mandis Committees (APMC) with the objective of creating a market for agriculture products. It is fully funded by the Central Government and implemented by Small Farmers Agribusiness Consortium (SAFC).

The objective of launching e-NAM was to provide farmers a convenient and better marketing opportunities for marketing their agricultural produce and facilitating transparency price discovery through online trading. This platform helps farmers to connect with multiple markets, buyers and service providers. This platform maintains transparency in the dealings between farmers and all other stakeholders. This platform helps farmers to connect with multiple markets, buyers and service providers. This platform maintains transparency in the dealings between farmers and all other stakeholders. It also provides the facility of online payment and makes the processes of business dealings simple and easy.

Main Features of e-NAM

- a) **E-Trading:** Buying and selling of agricultural products online
- b) **E-Bidding:** Online bidding system for buyers to buy agricultural products
- c) **E-Auction:** Auctioning of agricultural products online
- d) **Testing:** Facility for checking the quality of products.

SAMPADA PM Kisan Sampada Yojana was launched by the Central Government in 2017. It was earlier named Sampada Scheme for Agro-Marine Processing and Development Agro-Processing Clusters which was later renamed as

Pradhan Mantri Kisan Sampada Yojana. PM Kisan Sampada Yojana is a comprehensive scheme to provide sustainable supply chain management with modern infrastructure to deliver agro products from the doorstep of farmers to the retail outlets.

Through PM Kisan Sampada Yojana, farmers are getting good returns on their products. The objective of this scheme is to identify farmer groups and provide them subsidy so that they can deliver the agro products to the retailers or consumers as soon as possible.

The goal of PM Kisan Sampada Yojana is to bring together old and new ongoing schemes so that farmers can deliver their products to the market without spoiling or perishing the goods, consumers can get good quality fresh products at reasonable prices, farmers can get the price of their products.

Objectives of e-NAM

- a) To act as a supplement to agriculture.
- b) To preserve agro products and increase the efficiency of processing units.
- c) To increase the value of agro products by reducing their wastage and using them for other purposes.
- d) Improving the supply chain management system.

SCHEMES TO BE IMPLMENTED UNDER P.M. KISAN SAMPADA YOJANA

Mega Food Parks

- a) To provide a mechanism for manufacturers, processors, retailers to work together to strengthen the supply chain system.
- b) To facilitate access to modern technology.
- c) To ensure value addition to agricultural products including dairy products and fisheries.
- d) To facilitate a raw material supply chain system for each cluster.

Creation/ Expansion of Food Processing/ Preservation Capacities (Unit Scheme)

- a) Under this scheme, existing processing and preservation units in the country are being expanded with the help of modern technology or new units are being set up.
- b) Under this scheme, emphasis will be laid on modernizing the existing units or setting up new units as per the requirement and efforts will be made to reduce the amount of wastage and add value to the products.

Integrated Cold Chain and Value Addition Infrastructure

This scheme provides integrated cold chain and value addition infrastructure for storage. In this, facilities like naming of products, weighing, sorting, pre-cooling, cold storage at farm level for multi-product/multi temperature etc. are provided.

Creation of Backward and Forward Linkages

This scheme provides forward and backward linkages to bridge the gap between raw material availability and supply chain management.

Financial assistance is also provided for setting up primary processing centres, modern outlets and refrigerated vehicles to reach the market.

Food Safety and Quality Assurance Infrastructure

- a) Establishing a surveillance system to check the quality of products.
- b) To check samples received from the processing industry.
- c) Trying to reduce the time taken in checking samples.
- d) Improving quality control mechanisms or establishing new systems.

Agricultural Market Information System

The full form of AG MARKNET is Agricultural Market Information System. This comprehensive scheme has brought about significant changes in the functioning of agricultural marketing, thereby empowering both farmers and consumers.

It is a scheme run by the Central Government to connect the agricultural sectors across the country and to create an environment of digital marketing in the agricultural sector.

On this portal, information is collected from about 3700 agricultural markets of 28 states and 5 union territories by collecting and analysing data. Weekly arrivals and price trends of specific commodities of major markets are analysed through AG MARKNET. Market information helps farmers to take right decisions regarding production and to get right price by marketing their produce.

Objectives of AG MARKNET

The main objective of AG MARKNET is to provide farmers with information about the actual price of their products. So that they can decide where and when to sell their products so that they can get proper results of their hard work.

Market Integration: AG MARKNET integrates various markets physically and digitally. This integration bridges the gap in information, market trends and prices to reach all farmers and people associated with the sector.

Quality Assurance: The success of any product depends on its quality. Agmarknet is responsible for standardizing the products as per the export standards and ensuring quality assurance for the safety of the customers.

Reducing Middlemen: Through AG MARKNET farmers can sell their produce directly to customers, due to which the number of middlemen and brokers in agricultural supply chain has reduced. Due to this reduction, the price of the produce reduces and the farmer's profit also increases.

Desta Mart: Desta Mart is an Indian B2B e-commerce model focused on the agricultural sector that primarily works to connect agricultural companies with rural area Agri Stores. It was founded in 2010 by Desta Global, a tech-based social enterprise. Desta Mart aims to reduce complexity of the ordering process, provide convenience in transactions and ease market access for producers and customers.

Components of Desta Mart: Desta Global Initiative: Desta Mart was founded in 2010 by Desta Global, a tech-based social enterprise whose main business is related to the agriculture sector.

B2B E-commerce Portal: Desta Mart is a B2B e-commerce model. It is an online marketplace where producers and suppliers of agri inputs can connect with agri stores in rural areas.

Focus on rural areas: Desta Mart works to connect producers and suppliers with Agri stores in rural areas. So that the distance between producers and rural areas can be reduced.

Focus on Agri Inputs: This platform mainly sells agricultural products like seeds, pesticides or other products used in farming.

Reducing the complexity of the ordering process: This counter works to reduce the complexity of the ordering process so that customers can easily get whatever product they need.

Siddhi Kisan App: Desta Global has its own app named Siddhi Kisan App which connects farmers and provides them information about agri inputs.

E Chaupal: E Chaupal is an initiative started by ITC to promote agricultural sector in India. In which farmers are directly connected through internet and information regarding those markets is also provided. Its objective is to provide information to farmers, increase farmers' participation, eliminate middlemen and increase farmers' income. Till now e-Chaupal has been installed in about 35000 villages of Madhya Pradesh, Karnataka, Andhra Pradesh, Maharashtra, Rajasthan, Uttarakhand, Tamil Nadu.

Objective of e-Chaupal:

Empowering farmers: The primary objective of e-Chaupal is to empower farmers by providing them market related education and increasing their income.

Adopting sustainable agricultural practices: e-Chaupal encourages farmers to adopt agricultural practices that are eco-friendly i.e., do not harm the environment.

Helpful in reducing costs: Costs can be reduced by reducing the number of intermediaries in the supply chain. This will benefit both the farmer and the consumer.

Focus on community development: e-Chaupal not only works for the development of the agriculture sector but it also focuses on the development of the community by strengthening the infrastructure, providing education, and fulfilling health related needs.

Conclusions

In India, many people are directly and indirectly connected with the agriculture sector. In such a situation, there is a need to pay special attention to the agriculture sector. Today, all industries are engaged in promoting their industries by using the Internet or e-marketing in some way or the other. Therefore, it becomes necessary that e-marketing should be used in agriculture sector also, which will benefit lakhs of people associated with this sector. For this, various e-marketing platforms have been developed by both government and non-government organizations. By using these apps, farmers and all stakeholders in the agriculture sector will benefit.

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