

Sugarcane Agribusiness : A Case Based Analysis: Indian Scenario

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Abstract:

Sugarcane agribusiness is a vast, multi-billion dollar global industry encompassing farming (cultivation, mechanization, tech adoption for high yields), processing (sugar, ethanol, bioelectricity), and distribution, supporting millions through a complex supply chain from field to consumer, with major players like Brazil and India driving production for sugar, biofuels, and other derivatives. It's a key agro-industry, crucial for rural employment, focusing on efficiency, sustainability, and innovation in cultivation and processing to meet global demand. **Cultivation & Farming:** Growing the crop using advanced techniques like mechanized planting/harvesting, precision irrigation, and high-yield seed varieties, often supported by government schemes (e.g., Haryana's TMS). **Processing:** Mills extract sucrose for white sugar, but also produce ethanol (biofuel) and use bagasse for bioelectricity, creating diverse revenue streams. **Supply Chain:** Includes research, technical assistance, financing, transportation, marketing, and export, all centered around the mill. **Innovation:** Agri-tech, digital tools, and breeding new hybrid varieties (like using wild sugarcane for disease resistance) are key to overcoming challenges and boosting productivity. **Economic & Social Impact:** Global Scale: World's largest crop by volume, with a booming market value. **Employment:** Supports millions of farmers and factory workers globally, particularly in major producing nations like Brazil and India. **Rural Economy:** A vital cash crop, providing income and stability for farming communities.

Keywords: global, research, scale, economy, interdependence

Introduction:

Agriculture is the mainstay of the economy of India as nearly 70 percent of its population derives the livelihood from agriculture. Annually reducing and drastically insufficient monsoon has created a sense of urgency to pay more attention to agriculture and food security. Well aware of the fact, Government policy and strategies have been given higher weightage the 11th Five Year Plan, as in every five-year plan, creating a green revolution and are aimed at giving a strong base to Indian agriculture. Indian Council of Agricultural Research – National Agricultural Innovation Project (NAIP) is also taking many efforts.

The agriculture segment and agribusiness have remained most unproductive and too dependent on subsidies rather than becoming self-reliant. So, it is not at all sustainable. Government is also aware of the fact and continuously taking economic initiatives to help the farmers. (Rayate & et.al., 2013) The subsidy policy is just a short-term firefighting measure. It is not at all a long-term sustainable measure. (Krishna, 2006) Our economy is stuck in the cycle

This will continue till we adopt sustainable measures. Subsidy policy will not eliminate the root problem that farmers are facing but will make them excessively dependent upon Government. So, bold action from policy makers, like Planning Commission, Reserved Bank of India, NABARD will be required to shift away from the existing subsidy-based regime that is no longer sustainable, to build a solid foundation for a highly productive, internationally competitive, diversified, self-reliant and sustainable agricultural sector.

Review of Literature:

India is having agriculturally based economy. Still the farmers are at the corner of the economy. Even the manufacturers of tiny needles fix the price for their product. But the farmers who shed their sweat all along growing grains, coconut, sugarcane, onion, tomato, potato etc. are not in a position to determine the price for their yield. It is the fact not only for the items listed here but for all the goods produced by the farmers in the field. Factories that produce tomato ketchup and potato chip-flakes fix their price and run smoothly throughout the year, but on the contrary, the farmers who grow those tomato and potato appeals for minimum support price after every harvest. Many times, he helplessly watches his crop perishing in the field as he can't afford to harvest. (Pailoor, 2010)

Despite technological advancement in all spheres, is it possible to grow wheat, rice, and dal in factories? If we search for 'wheat' in Google, we get thousands of links which are resourceful. But we can't live on it. We need to depend upon the farmers to grow it and fill our stomach and subsist. Then why are farmers not getting importance. (Pailoor, 2010) Forget about the importance, he is not getting worth his investment and efforts. It is his right to get it. At the same time, the end consumers have to purchase these goods at premium prices.

Agriculture is the most non-organized sector. As the farmers are not getting the right price for their product, the agriculture sector is becoming non-profit making, rather a liability. Still, it is essential. So, the Government has to assist this sector in the form of subsidy policy, so the funds actually meant for infrastructural development are diverted as the subsidy. It makes the agricultural sector more lethargic, non-performing and not sustainable. On the other hand, the country lacks infra development which hampers the overall growth.

The retail revolution and entry of big corporate houses like Reliance, Bharti, ITC, and PepsiCo, has galvanized the agribusiness landscape in the country, literally. This vindicates the huge, untapped potential of the country's farm sector but on the other hand the sector also faces several challenges. For instance, the cultivable land for food grains has remained stagnant at 120 million hectares and there has been no improvement of this land either in terms of profitability or size of land holdings. Also, it is estimated that a third of perishable produce like fruits and vegetables is lost in the absence of food-processing facilities, storage and transportation. Against this backdrop, the book attempts to provide insights into agribusiness in India, its prospects and major challenges. Besides, the book covers some major trends such as contract farming, food retailing, e-agribusiness, agri-clinics, role of technology in agribusiness and globalization and the measures needed to boost agribusiness in the country. (Rao & Sisodiya, 2008)

It is also seen that the investment in the agriculture sector is recording increasing trends. In this era of globalization, liberalization and privatization the significance of agri-business management and rural development has been well recognized and the investment in these sectors has been increasing regularly by the big business houses and the Government. As a result of this employment opportunities in rural areas are increasing and workforce migration to urban areas is also declining. Central/State Governments are running a

number of programs aiming at agricultural and rural development, and alleviation of poverty from rural areas. Small and marginal farmers are getting better opportunities to have better prices for their produce as agro-food processing industries are sharply coming up in the country. (Swaminathan, 2013)

For providing remunerative prices for the agricultural produce, it is important that the production advantage available to India is transformed into the processing advantage. The Indian food industry has no dearth for market opportunities on account of thriving domestic consumption and new avenues of foreign demand. Food processing is an important link between agriculture and industry. Scale of operations along with a fragmented supply chain is the major impediment in the path of speedy growth of food processing in India. Concentration at the level of production, processing and retailing can provide much-needed impetus for the sector. The Government of India has identified food processing sector as the sunrise sector. Several initiatives are being put in place for promoting primary as well as secondary processing. For an unhindered growth it becomes important to address the demand and supply side constraints of food processing in India. Agriculture will keep on playing a vital role in the Indian economy and food processing will go a long way for providing opportunities for sustainable and profitable agriculture in time to come. (Dharni & Sharma, 2008)

The paper explores the Indian food processing industry, its contribution to the gross domestic product (GDP), expectations from it and key drivers and challenges for it in India. (Hyder & Bhargava, 2016) Apart from these challenges, again these processing units normally not belong to the farmers, hence farmers are not benefitting from this.

In the recent era of rapid economic changes, slow agricultural growth has become a major area of concern in academic and public domains. In order to galvanize this sector, there are increasing efforts from various corners of the economy through an alternative institutional arrangement. In response to this, contract farming has evolved as an alternative institution. However, there is a growing debate in the academic world whether contract farming would benefit Indian agriculture or not. The pro-contract farming researchers argue that the contract-farming system could raise the income of farmers by increasing productivity. (Swain, 2009)

The paper articulates that India has very little share in the world trade of agricultural commodities. This paper states that the importance of external trade lies with the linkage it has with the other sectors of the economy like the terms of trade, level of prices, trade balance, etc., which act as a mechanism to enhance growth in the economy. Further, this study examines the relationship between exports and growth in GDP in agriculture and finds that there is a two-way causation between the two, seen through the trends in simple growth rates and also through the results of the Granger Causality Test. An increase in export growth is preceded by a favorable growth in GDP in agriculture. (Deepika, 2006) Further, it lacks professionalism and adaptation of modern tools and techniques.

The Commission for Agricultural Costs & Prices under the Ministry of Agriculture decides MSP analyzing the following factors-

Demand and Supply, Cost of Production, Price trends in market (both domestic & international),
Inter-crop price parity, Terms of trade between agriculture and non-agriculture, Likely implications of MSP on consumers of that product. (Commission of Agricultural Costs and Prices)

Even the MSP was found to be much lower than the unit cost. Upon further investigation, it was observed that the farmers in the proximity of the urban area are getting fair income. So, the ease and time to carry the crop to the end market is having major impact on the income of the farmers.

Still, Cost of production is a major factor for farmers and the MSP should never be below the cost of production. Still, many times MSP is much lower than the COP and hence not at all affordable to the farmers. Of course, the parameters like yield play a crucial role in that. A marginal support price hike will

contain inflation and help RBI lower lending rates. (Mathur, 2014) There has been a lot of discussion on the issue. Mint claimed that the yield variance of cotton differed by over 300%, and some cases 20 % in case of paddy and 16% for soybean, as against the acceptable level variance is just about 2-3% between methods of yield calculation. (Misra, 2014)

So brainstorming was done to analyse the issue. It was very easy to demand price more than the unit cost, but that could have been biased demand. So, an attempt was made to take the 360-degree view of the concern and propose balanced solutions.

Case Method:

The Fair and Remunerative Price (FRP) for sugarcane in Maharashtra for the 2024-25 sugar season is ₹340 per quintal:

- **Fixed FRP:** ₹340 per quintal for a basic recovery rate of 10.25%
- **Premium:** ₹3.32 per quintal for every 0.1 percentage point increase above 10.25% in the recovery
- **Minimum price:** ₹315.10 per quintal for recovery of 9.5% (India, 2024)

The FRP is the minimum price that mills have to pay to sugarcane growers. The FRP is based on the recovery of sugar from the cane, and the higher the recovery, the higher the FRP. The FRP for the 2024-25 season is about 8% higher than the FRP for the current season. (Desk, 2024)

The FRP was determined after consultation with state governments and other stakeholders, and on the basis of recommendations of the Commission for Agricultural Costs and Prices (CACP). (India, 2024)

Sugar Industry

Government declares rate for sugar cane i.e. FRP (Fair Remunerative Price) below which sugar industry can not offer rate to the farmers, which is currently 1700/-.

100 kg = 1 Quintal

1000 kg = 1 ton

Now, from farmers point of view:

Capital cost: Land cost assume 2500000/- per acre

Interest @ = 100,000/- (4% just for calculation)

Water storage @ 25,000/- (Normally is close to 3-4 Lacs)

Variable cost-

Ploughing, flattening, sari etc 3600/-

Seed 8000/-

Water bill 5000/-

Plantation 3000/-

Watering, fertilizers, 4000/-

So total @ 70000/-per acre

Farmers own efforts say 50,000/- (normally complete family)

So total he should get 150,000/- per acre (variable cost + survival cost)

This costing is without considering farmer's capital cost, interest on the capital, depreciation involved in the cultivation.

(ref. Prof. Dr. Vijay Kakade, Daily Sakal, dtd. Nov. 2012, Sunday, Saptaranga)

Thus here Cost management, rather than panicked cost cutting, helps sustain businesses in the long run, is necessary as explained by Andrew Wileman, author of 'Driving down cost: how to manage and cut costs intelligently.

Sugar Factory point of view

Present FRP for sugarcane Rs. 340/- per Quintal

Considering 10% recovery rate, Sugar produced from 1 ton sugarcane is equivalent to 100 kg, so sugar produced worth 4225/- (considering average wholesale rate 4225/- Quintal)

Additionaly 40 kg molasis (mali) per ton (rate is 160/- per ton)

Biogas @ 3100/- per ton (at 150/- per ton)

Let the conversion cost 1000/- per ton

Consider tax, depreciation etc 2000/- per ton (Kakade, 2012)

So per ton sugar cane, factory gets @ 4725/-

Hence Sugar factories have 1325/- per ton surplus margin

All the calculations are explained in Table 1 below

Table 1: Cultivation and conversion cost

<u>Per Ton Calculations</u>				<u>Cost of Cultivation</u>					
For Sugar Factory				Per Acre					
Per ton	Quantity	Rate	INR	Fixed Land Cost	@	2500000			
Sugar Produced	100 kg	4225	4225	Interest	at 4% rate	100000			
Molasis	40 Kg.	160	400	Water Storage		25000			
Biogas	20 Ton	150	3100	Variable Cost					
			7725	Land Preparation	(Ploughing, Flattening, sari etc		3600		
Conversion Cost			1000	Sugarcane seed			8000		
Tax and depreciation			2000	Plantation			3000		
Faction earnings			4725	Watering, Fertilizers			5000		
FRP for sugarcane (2024-25) is ₹340 per quintal				Farmers own labour charges			50000		
Per Ton	3400		3400	Total Virable cost per acre			69600		
<i>Additional margin</i>				Total per acre cost					
				(Considering Land cost borrowed at 4%)					
				Income	Ton	FRP			
				Sugarcare	40	3400	136000		
					30	3400	102000		
**FRP for 2024-25 - 340/quintal so 3400/ ton									

Source: Calculations by authors using primary data

Findings:

It is very clearly visible from the case that the MSP, FRP all are much below than the actual cultivation cost. Further, those are considering the ideal conditions. But the fact is that the yield is much below than the ideal estimation, as it depends lot on soil fertility, watering facility, weather, watering intervals and method, fertilizers, timely plantation as well as cutting after ripening.

The FRP normally marginally above the bare cultivation charges, that too in ideal conditions. Most of the times, the yield is much below than that. Further, the capital cost as well as farmer and his family's labour charges not considered, or not fully considered.

Discussion:

To propose a balanced solution, deliberate thought was given to understand the detailed picture.

The base price like MRP on Industrial goods should be decided and all the agricultural goods should be sold at that base price, all over the country. The base price should also include middlemen commission, like @ 30% in industrial goods, thus, will take care of that sector also. Pricing also should take care of infrastructural development requirements like cold storage, effective communication system, and supply chain management. In such cases, Government can decide some incentive for promotion of export if required.

The advantage of this solution will be that the farmers will get an opportunity to earn a fair income. This will take the agricultural sector to a profit-making sector. Naturally they will not require any support of subsidies and thus, the Government can come out of the cycle of subsidy. In turn, the pressure on tax collection will come down, so little relief can be passed on to the taxpayers also. It can bring revolution in the economy and India can set an example in front of the world.

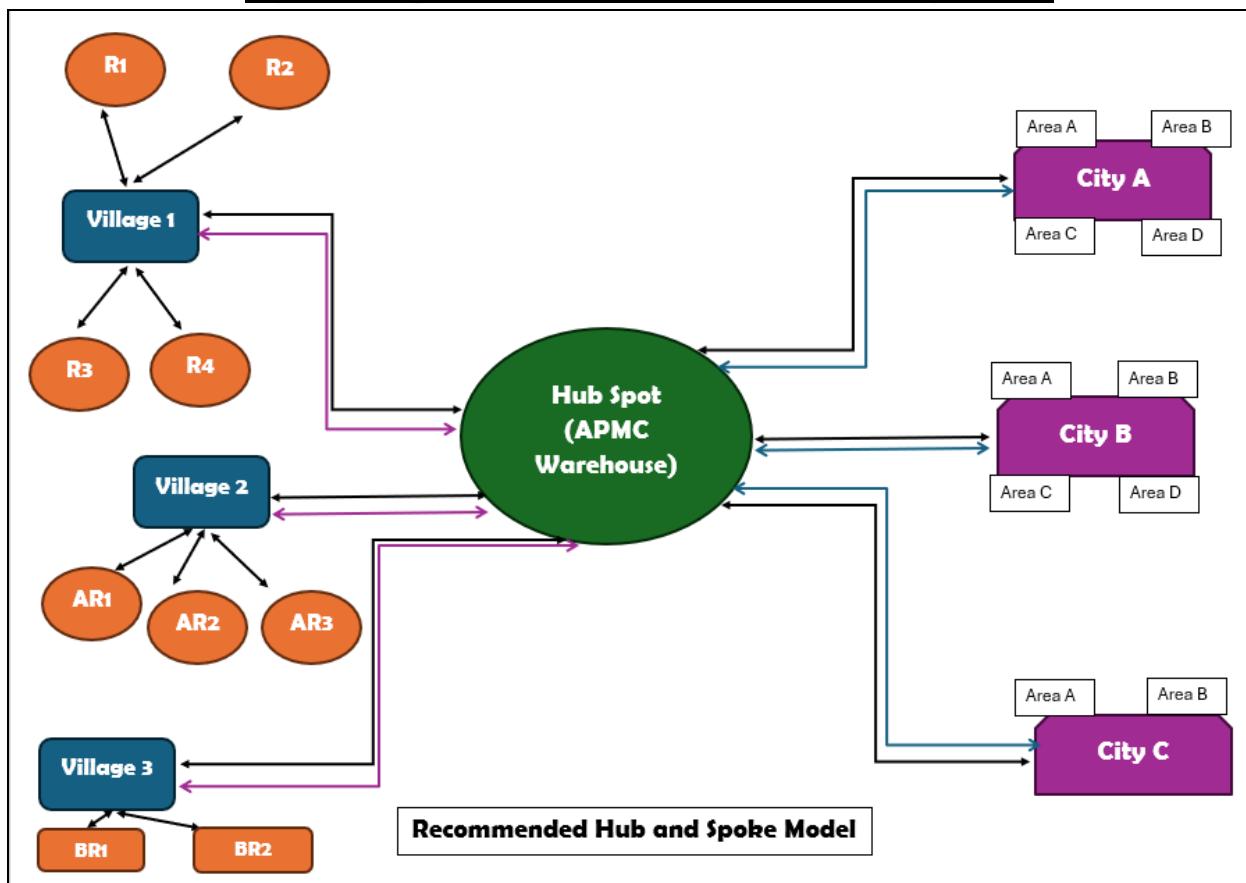
APMC stands for the Agricultural Produce Market Committee. APMCs are autonomous bodies that regulate the marketing of agricultural and pisciculture produce. They are established by the government and act as centralized marketplaces for buyers, sellers, and agents to meet

Another solution was that the Government can purchase all produce at MSP or certain decided price above MSP and sell directly through some infrastructure like NAFED, Bajar Samiti, co-operatives or agricultural society.

The proposed purchase and sales network through APMC is shown in figure 1

APMC can collect the argi produce from each village (e.g. village 1, area R1, R2, R3, R4,) via Spoke-to-Hub model, can bring it to central warehouse for crossdocking and distribute to each area city-wise (e.g. City A, area A, B, C, D,) via Hub-to-Spoke model.

To optimize the transportation cost, the empty trips from city to village can be utilized for transportation of requirements of village from cities like FMCG products, requirements of retailers in the villages, Postal and courier services etc.

Figure 1: Proposed Purchase and Sales Network through APMC

Source: Derived by the authors

The current middlemen can be employed there, so no sector will be hampered. Then it will not be required to decide MEP as the Government can decide what produce to be exported, at what price, when and where. Thus, the entire cost management will be under the control of the Government. Cost management, rather than panicked cost cutting, helps sustain businesses in the long run, according to Andrew Wileman, author of 'Driving down cost: how to manage and cut costs intelligently'. (Wileman, 2008)

Advantages

The advantage will be that the farmers will get an opportunity to earn a fair income. This will take the agribusiness to a profit-making sector and thus sustainable. Naturally they will not require any support of subsidies and thus, the Government can come out of the cycle of subsidy. In turn, the pressure on tax collection will come down, so little relief can be passed on to the taxpayers too. End consumers also will get the agri-produce at a right price. It can bring revolution in the economy and India can set an example in front of the world for providing mutually benefiting balanced pricing of agricultural goods for both farmers and consumers.

Farmers will start making a profit, thus improvisation on loan repayments, and reduction in suicidal incidences also. Further, it will help control NPAs of all banks. Farmers can then think of insurance on an agricultural produce, so Government liability in case of natural calamities will be drastically reduced. Rather the insurance sector can grow. The middlemen also continue to make their bread & butter, thus, employment in that sector can be maintained as it is. The subsidy cycle will vanish. Tax burden can be reduced drastically

as the major share of tax is utilized for subsidy purposes. Funds can be allocated for infrastructural development and thus growth of country will be sustainable and increase exponentially.

Summary

The transition of agribusiness from MSP to MRP has the potential to provide globally accepted solutions to sustainable agribusiness. Treat the agriculture sector, the same as industry sector, in terms of pricing as well as survival. Decide premium prices as against minimum support prices for various agri- produces, nation / state wise, by policymakers to seek balance. The proposed Agri-pricing strategy will assist the Planning Commission / RBI to decide MRPs for agricultural products, with equal justice to farmers as well as consumers. Further, it will boost infrastructural development that will be sustainable development. It can further promote and control exports, as necessary. Frequent and drastic rise and fall in the prices can be controlled and balance in the economy can be achieved. The current middlemen also can earn fair income in the proposed model.

Glossary

FRP - Fair and Remunerative Price

MRP – Maximum Retail PRice

MSP – Minimum Support Price

MEP - Minimum Export Price

NPA – Non-Performing Assets

COP – Cost of Production

COC – Cost of Cultivation

RBI - Reserved Bank of India

NABARD – National Bank for Agriculture and Rural Development

NAFED - National Agricultural Cooperative Marketing Federation of India Ltd

ICAR - Indian Council of Agricultural Research

NAIP - National Agricultural Innovation Project

APMC - Agricultural Produce Market Committee

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