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Challenges and Policies of Sugar Industry

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Abstract – Sugarcane is a renewable, natural agricultural resource because it provides sugar, besides biofuel, fibre, fertilizer and myriad of byproducts/co-products with ecological sustainability'. The world demand for sugar is primarily derived from sugar cane. Sugar cane accounts for eighty per cent of sugar produced and the rest is made from sugar beets. Sugarcane predominantly grows in the tropical and subtropical regions, and sugar beet predominantly grows in colder temperate regions of the world. A few merchants began to trade in sugar - a luxury and an expensive spice until the 18th century. Before the 18th century, cultivation of sugarcane was largely confined to India. Sugarcane plantations, like cotton farms, are a major driver of large human migrations in the 19th and early 2O century.

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SUGARCANE IN INDIA

Sugarcane is one of the significant cash crops. The production has grown dramatically over past several years. Sugarcane growing area in India may be broadly classified into two agro-climate regions:

Region	States
Sub-Tropical	Uttar Pradesh, Bihar, Punjab, Haryana
Tropical	Maharashtra, Tamil Nadu, Andhra Pradesh, Karnataka

Sugarcane industry was initially set up in the sub-tropical region. Till 1950s, ninety per cent of area under sugarcane was in this region. With commencement of planning process, sugarcane found its route in tropical area. Sugarcane being a tropical crop finds favourable agro climatic conditions for its growth in this region i.e., higher yields. Now the tropical region is already developed and reached near saturation level. The biggest state in this region, Maharashtra faces acute problem of lack of water which effects cultivation of sugarcane. The sub-tropical belt, with fertile land, high water table and irrigation, appears to be the area for future growth.

INDIAN SUGAR INDUSTRY

The Indian sugar industry is a key to the rural development, supporting India's economic growth. The industry is inherently inclusive supporting over fifty million farmers and their families, in an era where there is a need for inclusive growth; the sugar industry is amongst the few industries that have successfully contributed to the rural economy. It has done so by commercially utilising the rural resources to meet the large domestic demand for sugar and by generating surplus energy to meet the increasing energy needs of India. In addition to this, the industry has become the mainstay of the alcohol industry and delivers value addition at the farm side. In general, sugarcane pride accounts for approximately seventy percent of the ex-mill sugar price.

The Indian sugar industry is characterised by the coexistence of private, cooperative and public sector. It is rural centric and hence a key driver of village level wealth creation. It has tremendous transformational opportunities to meet food, fuel and power needs and earn carbon credit.

Sugarcane and sugar production are seasonal with more than ninety per cent happening in the winter months of November to March. Crushing season lasts an average for 100-150 days in a year depending on the region, weather, irrigation, cultivation practices as well as sugar cane availability. The cyclicality of Indian sugar is less driven by nature and more accentuated by radical change in Government policies. The sugar industry caters to an estimated twelve per cent of rural population in these nine states through direct and indirect employment. Effectively, each farmer contributes to the production of 2.9 MT. of sugar every year.

The traditional sweeteners of India like Gur and Khandsari are consumed mostly by the rural population in the country. In the early 1930s nearly two third of sugarcane production was used for the production of alternate sweeteners like Gur and Khandsari. As accordingly because of the better standard of living and higher incomes, the sweetener demand has shifted to white sugar. Currently one third of sugarcane production is used by the Gur and Khandsari sectors.

India has, in recent years emerged as the largest sugarcane and sugar producing country in the world, The cane sugar industry of India spread over vast regions of the country occupies an important place in the economic and social life of the country in view of the wealth generated as well as the employment provided to laths of people in rural areas of the country. The industry has the potential to produce a number of essential chemicals from its by products and generate extra power for supply to other industries or to state grids.

The modern sugar industry of India since it was established in the early thirties has witnessed vast technological changes over the past six decades, thanks to the research and development work carried out in the field of sugar cane manufacture in the country and also in the world sugar industry. Subsequent growth of the industry has been accompanied by the technological advance in the production of raw material as well as the manufacture of sugar and the country is now in a position to export both raw and white sugar after meeting the internal demand of this sweetening agent. However, technological progress is key to any further growth in the manufacturing sector and it is essential for the technologists engaged in the sugar cane manufacture to keep abreast of the developments taking place in different parts of the world in the field of technology of sugar production.

In the year 1930 there was an advent of modern sugar processing industry in India which was started with grant of tariff protection to the sugar industry. In the year 1930-3 1 the number of sugar mills increased from thirty to one hundred and thirty five. In the year 1935-36 production was increased from 1.20 lakh tonnes to 9.34 lakh tonnes under the dynamic leadership of the private sector. In the year 1950-51 the era of planning for industrial development began and Government laid down targets of sugar production and consumption, licensed and installed capacity, sugarcane production during each of the sugar companies have been established in large sugarcane growing states like Uttar Pradesh, Maharashtra, Karnataka, Gujarat, Tamil Nadu, and Andhra Pradesh and are the six states contributing more than eighty five per cent of total sugar production in India. Fifty seven per cent of total production is together contributed by Uttar Pradesh and Maharashtra. Indian sugar industry has been growing horizontally with large number of small sized sugar plants set up throughout India as opposed to the consolidation of capacity in the rest of the important sugar producing countries and sellers of sugar, where there is greater concentration on larger capacity of sugar plants.

Both sugar and sugarcane are treated as essential commodity. The Governments focus to give high sugar cane price to farmer and concomitantly maintain low sugar price for the consumer is socially unexceptionable but economically unsustainable. Low sugar price leads to unremunerative sugar cane price and its delayed payment forcing the cultivator to switch over to other crops. This kick-starts sugar shortage and high sugar price, in turn prompting higher sugar cane price to lure the farmer back to sugar cane. This cycle gets repeated endlessly with resultant spike in sugar production causing demand-supply disequilibrium and driving sugar prices on a roller-coaster ride.

OBJECTIVE OF THE NATIONAL SUGAR POLICY

The overall objective of sugar policy is to institutionalize harmony among all the Sugar industry stakeholders in order to promote and sustain steady industrial growth and development, and transform and diversify the sugar Sector to become competitive and modernized. The specific objectives are:

(i) Establish a sugar sector regulatory mechanism to oversee, monitor and possibly arbitrate in respect to major issues concerning the sugar sector.

(ii) Establish cane growing zones for the mills to be within economic growing distance of large land suitable for cane growing.

(iii) Provide a framework for product pricing based on market forces.

(iv) Promote research and development into all aspects of sustainable sugar cane growing, sugar processing and value addition to by-products, in order to support the growth and productivity of the sector.

(v) Promote sustainable land management practices in order to improve productivity of land and protect against destruction of the surface of land.

(vi) Review the role of the sugar industry in order to formulate future plans for expansion of cane growing, sugar production and product revenue sharing.

(vii) Develop relevant and meaningful social responsibility development projects within sugarcane growing areas.

(viii) Provide a framework for development of sugar stakeholder associations.

POLICY MEASURES FOR THE SUGAR SECTOR :

Institutional Development :

(i) Government shall establish a sugar regulatory mechanism to mediate and administer sugar sector related matters.

(ii) Government will require every cane out-grower in a particular zone of a sugar company, to register as a member of the respective cane out- growers' associations.

Sugar Cane growing areas

In order to harmonize cane growing, it is absolutely important that established and new sugar mills have sufficient acreage to grow and expand their operations, depending on the geographical distribution and the availability of areas for cane cultivation. This should also take into account self-sufficiency in food crop production as well as environment sustainability. Specifically the following policy measures will be applied:

(i) Sugarcane growing areas shall be planned within a radius of 25 kilometres, new sugar mills shall not be licensed within 25 kilometres radius of an existing mill. 30% of the area within this radius shall be used for cane growing and the remainder of the land shall be reserved for food security and other activities. This cane radius will enable the factories to expand and enjoy economies of scale. See Annex demonstrating the various scenarios.

(ii) Government, through UIA shall issue licenses to new sugar factories, with a nucleus estate of at least 500 hectares or sizeable land to enable the factory to financially break even, to grow cane and produce sugar.

(iii) All sugar mills shall have binding contracts with farmers. The conditions and terms of the contract activities shall be negotiated between the miller, representative farmer's association and Government using the sugar regulatory mechanism.

(iv) Independent farmers growing cane on commercial scale are free to negotiate and sale their cane to the highest buyer. The cane payment formula shall be negotiated and agreed upon between the millers, the respective sugar cane out-growers' associations and Government using the sugar regulatory mechanism. Jaggery and open pan mills shall be licensed for farmers outside the cane growing zones who wish to add value to their cane.

(v) In expanding cane growing, the millers and farmers shall ensure that food security in respective areas is guaranteed.

(vi) Farmers shall be encouraged to form Co-operatives Societies to enable them to; strengthen members bargaining powers, as well as access technical guidance and capacity building services..

Diversification of sugarcane products

Globally, diversifying along the value chain results into sustainable and competitive sectors is paramount. But appropriate technologies and appropriateness of the products in the local or regional markets have to be carefully studied, as also the political, social and economic benefits of the projects being considered for implementation. Specifically;

(i) Government shall support sugar companies to convert bagasse into electrical power.

(ii) Power generation should be on the basis of take or pay i.e. payment to be made on the agreed power generated. Tariff shall be based on the market value.

(iii) Government shall set up supportive schemes to the sugar mills that specifically target technology and productivity improvements.

(iv) Millers shall use molasses for production of ethanol, sweets, animal feeds and inorganic fertilizers.

Marketing and Trading of Sugar

Whereas the protection of consumers is paramount, market forces shall decide sugar price. Specifically;

(i) The sugar manufacturers shall produce quality sugar to meet the needs of the market.

(ii) Government shall regulate importation of sugar through appropriate tariff regimes.

(iii) Government through use of input/ output data shall monitor importation of sugar by beverage and confectionary industries.

(iv) Promote use of locally produced sugar as a raw material by beverage and confectionary industries.

Financial Services to Cane Growers

Government is implementing a number of programmes that improves access to financial services by various communities across the country. These services include the SACCOs, PFA, and NAADS. Government shall;

(i) Encourage formation of Savings and Credit Co-Operative Societies (SACCO5) in farmers' respective areas to save money and access government financial assistance.

(ii) Prioritize support to out-growers under NAADS and other farmers financial services available to the Agricultural sector.

SUGARCANE PRICING POLICY

With the amendment of the Sugarcane (Control) Order 1966 on 22 October 2009 the concept of Statutory Minimum Price (SMP) of sugarcane was replaced with the 'Fair and Remunerative Price (FRP) of sugarcane for 2009-10 and subsequent sugar seasons. The cane price announced by the Central Government is decided on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP) after consulting the State Governments and associations of sugar industry.

Under the FRP system, the farmers are not required to wait for the end of the season or for any announcement of the profits by the sugar mills or the Government. The new system also assures the margins on account of profit and risk to farmers irrespective of the fact whether the sugar mills generate profit or not and is not dependent in the performance of any individual sugar mill. In order to ensure that higher sugar recoveries are adequately rewarded and considering variations amongst sugar mills the FRP is linked to a basic recovery rate of sugar with a premium payable to farmers for higher recoveries of sugar from sugarcane.

Citing difference in the cost of production productivity levels and also as a result of pressure from farmers' groups some States like Uttar Pradesh, Punjab, Haryana, Tamil Nadu and Uttrakhand declare State specific sugarcane prices called State Advised Prices (SAP) usually higher than the FRP. Statutory Minimum Price/Fair and Remunerative Price for the last ten years given as under:

Table 1.1

Statutory Minimum Price/Fair and Remunerative Price

(Rs./Quintal)

SUGAR SEASON	SMPIFRP	Minimum Recovery %	Premium for every 0.1% increase
2002-03	69.50	8.50	0.82
2003-04	73.00	8.50	0.85
2004-05	74.50	8.50	0.88
2005-06	79.50	9.00	0.88
2006-07	80.25	9.00	0.90
2007-08	81.18	9.00	0.90
2008-09	81.18	9.00	0.90
200910*	107.76 (SMP)	9.50	1.13
129.84	(FRP) 9.50	1.37	
2010-11	139.12	(FRP) 9.50	1.46
2011-12	145.00 (FRP)	9.50	1.53
2012-13	170.00 (FRP)	9.50	1.79
2013-14	210.00 (FRP)	9.50	2.21
2014-15	220 (FRP)	9.50	2.32
2009-10*	107.76 (SMP)	9.50	1.13
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Source: Directorate of Sugar 2014.

PLIGHT OF SUGARCANE FARMERS

Sugarcane growers are facing unprecedented uncertainty because of mounting cane arrears due to sugar mills. The payment to sugarcane farmers by sugar mills though statutorily supported by various statues and enforced by the State Government get affected by the dynamics of domestic market price as well as international situation related to export possibilities.

The position of cane price payments and arrears for the past few sugar seasons on a similar cut-off date is as under :-

Table 1.2

Season-Wise Cane Price Arrears Position

(in **crores)**

SUGAR SEASON	SMPIFRP	Minimum Recovery %	Premium for every 0.1% increase
2002-03	69.50	8.50	0.82
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Source: Directorate of Sugar, 2014.

CHALLENGES FOR SUGAR INDUSTRY

Sugar is an agro based industry so the prices always fluctuate with monsoon. The low yield of sugarcane, short crushing season, unsatisfactory location of industry in Uttar Pradesh and Bihar and inadequate supply of cane create problems for sugar mills having low milling efficiency. Low Recovery of sugar from sugarcane also poses a problem for sugar industry. Further Indian sugar mills do not have sugar plantalions of their own and hence do not have control over quantity and quality of sugarcane supplied by various cane growers. Another problem of sugar industry is that the by-products of sugar mills are not fully utilized like molasses and bagasse. Levy sugar obligations causes huge financial burden on mills under which mills are bound to sell sugar for distribution under public distribution system at price determined by the Government which is way below the cost of production. Arbitrary fixation of cane prices by the State Governments above the Fair Remunerative Price (FRP) fixed by the Centre has been adversely affecting the sugar mills. Due to all these reasons 189 mills were out of operation in 2013-14 sugar season while 166 mills were not operating in 2012-13.

GOVERNMENT INITIATIVES FOR THE REVIVAL:

The Sugarcane (Control) Order 1966 stipulates payment of cane price within 14 days of supply, failing which interest at the rate of 15 per cent per annum on amount due for the delayed period beyond 14 days is payable. The powers for enforcing this provision are vested with the State Governments/Union Territories Administrations. Further the Central Government advises the State Governments/ Union Territories from time to time to ensure timely payment of cane dues to the farmers and to take action against the defaulting sugar mills.

In order to facilitate clearance of cane price arrears of previous sugar seasons and timely settlement of cane price of current sugar season to sugarcane farmers, the Central Government on 3 January 2014 had notified a Scheme for Extending Financial Assistance to Sugar Undertakings (SEFASU-2014), envisaging interest free loans worth Rs. 6600 crores by bank as additional working capital to sugar mills. Under the Scheme all loans were to be sanctioned by 30 June 2014 and disbursed by 30 September 2014. Out of sanctioned loan amount, loan amounting to Rs. 6420.09 crores have been disbursed upto 30 September 2014. The beneficiaries sugar mills under the Scheme had time upto 3l December 2014 to utilize the loan for cane payment arrears.

An additional grant of interest-free loans of Rs. 4,400 crore to factories for settlement of cane dues was announced in June 2014. To encourage sugar factories to export raw sugar, in view of high sugar inventories, a scheme was notified in February 2014 which allows incentives for marketing and promotion services for raw sugar production targeted for export markets for 4 million tonnes during the 2013-14 and the 2014-15 sugar seasons from Sugar Development Fund (SDF). This export incentive has been extended till September 2014. An increased provision for blending of a cane by-product viz, ethanol with petrol from 5 per cent to 10 per cent has also been made. These measures have been announced with a view to raise demand for sugar and sugar products and to increase the liquidity of the sugar mills so that they can clear the cane dues.

DE-REGULATION OF SUGAR SECTOR

The Central Government considered the recommendations of Dr. C. Rangarajan Committee on de-regulation of sugar sector and decided to do away with levy obligation on sugar mills for sugar produced after September 2012 and dispense with the regulated release mechanism on open market sale of sugar. The de-regulation of the sugar sector is likely to improve the financial health of the sugar mills, increase the cash flow, reduce their inventory cost and also result in timely and better payment of cane price to sugarcane farmers in the country. The recommendations of the Committee relating to Cane Area Reservation, Minimum Distance Criteria and adoption of the Cane Price Formula have been left to the State Governments for adoption and implementation, as considered appropriate by them.

CURRENT SCENARIO (SUGAR SEASON 2014-1 5)

The sugar season 2014-15 has started from October 2014 with a carryover stock of 75 lakh tons. The production in new season is estimated to be around 250-255 lakh tons. Thus there will be about 330 lakh tons of sugar available as against consumption requirement of 245 lakh tons. The cane price arrears of about Rs.5900 crores of 2013-14 still remain unpaid. Sugar prices are ruling around Rs.2650 per quintal much below the cost of production. Meanwhile The Central Government has increased the FRP by Rs.10 per quintal leading it to Rs.220 per quintal for 2014-15.

In Karnataka Hon'ble High Court has upheld the notification of the State Government notifying cane price at Rs.2500 per ton for 2013-14. The mills have only paid FRP fixed by the Centre at Rs.210 per quintal. The Uttar Pradesh Government has decided to maintain previous years State Advised Price of Rs.280 per quintal for 2014-15 season but farmers in Uttar Pradesh are demanding cane price at Rs.350 per quintal while in Maharashtra farmers are demanding Rs.2700 per ton in current sugar season13.

The 2014-15 sugar season has started with a lot of uncertainities, as to whether the mills would be able to begin operation due to their grave financial constraints and due to cane pricing policy implemented by State Governments. Mills in all States including in Uttar Pradesh, Karnataka and Maharashtra are facing issues relating to cane pricing and payment to the cane farmers14.

In order to ensure sustainable good health of the Sector, a revenue sharing formula should be evolved between the sugar mills and the cane farmers in the ratio of their relative cost as per the recommendation of the Rangarajan Committee. As per Committee recommendations the ideal value-sharing is 70 per cent for cane growers and 30 per cent for mills including revenue from sugar and its by-products. Few States like Maharashtra and Karnataka have already constituted Sugar Control Board to implement the revenue sharing formula. For successful implementation, cane growers are to be guaranteed FRP payments, irrespective of the sugar market behaviour. In case the revenue in a particular season warrants higher payments to growers, they should be entitled to a second payment.

Problems of Sugar Industry :

1. It's an agro based industry so the prices always fluctuates with monsoons, The sugar cane prices are fixed by government that is generally arbitrary.

2. After the removal of stalk sucrose content of sugarcane begins to decrease by the time, & SO the mills must be Located in close proximity to the sources of raw material.

3. The percentage of co-operative sugar mills is less. (Cooperatives can act as a good way of profit distribution entities)

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4. In India the percentage of sugarcane per acre and percentage recovery of sucrose is low as compared to other countries. E.g. the sugarcane productivity of other countries on an average is 1: 30 tonnes per acre and India's productivity is 70 tonnes per acre.

5. Problems for production of sugarcane include low yield of sugarcane, short crushing season, unsatisfactory location of sugar industry.

6. Indian sugar factories have low milling efficiency and recovery of sugarcane is very low.

7. Indian sugar industry don't have their own sugar plantation due to that they don't have control over quantity and quality of sugarcane which is supplied by numerous sugarcane growers.

8. The uneconomic nature of production in sugar mill, low yield, short crushing season, high prices of sugar and high excise duties are responsible for high sugar prices in India. The Indian sugar prices are relatively higher than other countries.

9. In India the by-products of sugar mills are not fully utilized like that of western countries. The by-product of sugar industry are bagasse and molasses. These by

products can be used for various other purposes like making paper.

10. Government policies regarding sugar industry are highly centralized 3 and are not dependant on market forces. There is no dependant on market forces. There is no price control on the sales of free sugar.

11. There are price and distribution control on molasses also which is a major byproducts of sugar mills.

12. The main reason for sickness in sugar industry is due to the reason that most of the mills are closed due to various reasons.

SOLUTIONS

1. By-product utilization: More utilization of molasses for ethanol production, Which is alternative to petroleum products. And ethanol is now blended with petroleum products.

2. The adequate' relief and concessions would he required from state government, banks and financial institutions for the revival of sick and closed sugar mills.

3. Use of bagasse for electricity generation, and encouragements of bagasse based power generation. A sugar industry should at least be forced to produce enough electricity for itself.

4. The prices of sugar, gull, khandsari (raw sugar) should not he competitive.

5. All the remaining sugar industry should be converted into cooperative so that most of the profit will be distributed among farmers i.e. between the ultimate producers rather than getting concentrated in the hands than getting concentrated in the hands of some contractors.

6. Sugar industry should be placed in close proximity to areas of sugar production so that wastage of sucrose content can be minimized.

7. Modern technology should be introduced in sugar industry so that amount of recovery of sugar from sugarcane can be increased.

Major Legislations

The major legislation and policies concerning the sugar industry in India are as follows :

(i) The Essential Commodities Act, 1955

(ii) Sugar Control Order, 1966

(iii) Sugarcane Control Act, 1966

(iv) Levy Sugar Supply (Control) Order, 1979

(v) Sugar (Packing and Marking) Order, 1970

(vi) Sugar Export Promotion Act, 1958

(vii) Sugar Cess Act, 1982

(viii) Sugar Development Fund Act, 1982 and 2002

(ix) Levy Sugar Price Equalization Fund Act, 1976

(x) Molasses Control Order, 1961 and Decontrol, 1993

(xi) Excise and Custom Rules

(xii) State Sugar Policies

(xiii) Power Purchase Agreements

(xiv) Environment Norms by State Pollution Control Boards.

CONCLUSION

Sugar industry is the second largest agro-based industry in India. Sugar factories, particularly cooperative sugar factories in Maharashtra and other states have been instrumental in building confidence among rural people and strengthening industrial base in rural India. In the era of globalization, sugar industry needs more competitive edge which can be given by way of modernization, enhancing productivity, and manufacturing excellent quality sugar at competitive prices. It needs quality management at every level of activity to enhance its performance. The need of the hour is to liberalize industry from clutches of unprofessional people. Most of the sugar units do not have byproduct utilization plants. Projects based on bagasses and molasses should be initiated. Ethanol, alcohol, and paper projects have tremendous scope for development in India. In future, 10-15% ethanol may be allowed to be blended with petrol. Bagasses based power generation projects installed adjacent to each sugar factory would fulfill need of power. NABARD should provide adequate and timely refinance to these projects at concessional interest rates. New sugar units should be set up taking into consideration sugarcane availability. Research program should be undertaken in area of sugarcane cultivation, enhancing sugarcane productivity, and sugar recovery. Sugarcane prices should be fixed on basis of sugar recovery. Attention is to be given on manufacturing quality sugar as per international standards at competitive prices.

REFERENCES:

Nain N, Khatkar R.K. and Singh V.K. (2002). Role of sugarcane processing industry and efficiency of processing in Haryana. Indian Journal of Agriculture Marketing. conf. spl. 16 (3). pp. 97-103

Narian, Lashmi (1981). "Organization structure in large Public Enterprises". Ajanta Publications. Delhi.

National Federation of Cooperative Sugar Factories Limited, Cooperative Sugar. 2014. p. 3

Nikam, G.A. (1988). "General Efficient of Sugar Co-operatives : A Recovery Approach, Indian Co-Operative Review." Vol. no. 1.

Panday, Dr. Adya Prasad (2007). Indian Sugar industry a strong Industrial base for rural India. MPRA, Banaras Hindu University.

Peter Griggs (2004). Improving Agricultural Practices : Science and the Australian Sugarcane Grower. Agricultural History Society. Vol. 78. No. 1. pp. 1-33.

Prasad Lallan and Benerge, A.M. "Management of Human Resources." Sterling Publishers Pvt. Ltd. New Delhi.

Rajeshwera Rook. and Sadanandam, R. "Sugar Industry An Investigation." Productivity. Vol. xxvi. No. 3.

Rao, Dr. Venkateswara (2014). "Problems of Indian Sugar Industry". Indian Journal of Research. pp. 126-127

Suhag K S, Masresha T and Kundu K. K. (2000). Factors affecting production instability in Principal crops of Haryana. Agricultural Situation in India 55 (4): pp. 201-204.

Suhag. K.S. Marresha and Kundu. K.K. (2000). Factor affecting Production instability in Principal crops of Haryana. Agriculture situation in India 55 (4). pp. 201-204.

www.cacpdacnet.nic.in, Price Policy for Sugarcane, 2015-16, p.5

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