



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 8.4  
IJAR 2020; 6(11): 440-443  
[www.allresearchjournal.com](http://www.allresearchjournal.com)  
Received: 14-09-2020  
Accepted: 20-10-2020

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## **A study on economics of sugarcane cultivation with special reference to India**

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### **Abstract**

India has been known as the first home of sugarcane and sugar. India is the second biggest maker of sugar in the World after Brazil and creates a greater amount of genuine sweetener and not beet sugar. Sugarcane is the significant business harvest of the nation. In India, sugarcane is the key crude material, planted once every year during January to March. Sugarcane is a significant money crop in India answerable for the general financial advancement of the cultivating network. Molasses, sugar and Khandsari and so forth, are created from the juice of sugarcane.

The examination of the optional information on creation of sugarcane in India has uncovered that there were varieties underway. It was obvious from the pattern conditions that there were vacillations in the creation of sugarcane in India, no uniform example of development was noticed. It is thus to infer that the significant explanation behind low creation and low efficiency is the eccentric storm conditions. Hence activities on appropriate water system the board would empower the degree and increment the creation of sugarcane in India.

**Keywords:** Sugarcane, harvest, crop, water system

### **1. Introduction**

Presently a-days trend setting innovation is utilized in varying backgrounds, so Indian horticulture isn't at all an exception to it. Agribusiness is a wellspring of occupation to 66% of the labour force in the economy. Around 43 percent of India's geological assets are utilized for agrarian exercises. Indeed, even than the portion of Indian agribusiness to GDP has consistent declined. However at this point India's general financial condition is exceptionally relying on India's farming since it isn't just a wellspring of work yet it is a wellspring of crude materials to agro-based enterprises. One of the greatest examples of overcoming adversity of free India is the quick walks made in the field of agribusiness. India to-day isn't just independent in food grain creation yet it has generous stores. Division of Indian rural imports and emergencies of food deficiency experienced in 1960 persuaded organizer's that India's developing populace just as worries about public freedom, security and political dependability required independence in food creation.

### **1.1 Overview of Sugarcane development in India**

Development of sugarcane in India goes back to the Vedic period. The most punctual notice sugarcane development is found in Indian compositions of the period 1400 to 1000 B.C. the word 'sugar' is gotten from the Sanskrit word 'Tropical stick may have begun in a portion of the bigger islands of Occania, most presumably in New Guinea. Is additionally presumed that it began in New Guinea, where different types of thick, tall tropical stick have been developed from old time. Sugarcane and sugarbeet are the primary wellsprings of sugar on the planet. Out of absolute sugar delivered on the planet to 60 percent is gotten distinctly from sugarcane. In India, sugar industry is one of the biggest preparing enterprises next just cotton materials. There are 414 sugar factories in India and the sugar out-turn is at 238 m.t. creation of stick has expanded structure a low degree of 57.1 m.t. in 1950-51 and in 1990-91. In India, Uttar Pradesh is the significant sugarcane developing state developing stick are Karnataka, Maharashtra, Andhra Pradesh, Tamil Nadu and Bihar. All in all, January to March is the time of planting and December-March is the time of reaping. After the collect commonly a ratoon crop is developed. In numerous nations, 2.6 ratoon crops are permitted.

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## 2. Review of Literature

Govindan and Thirumurugan (2003) sugarcane involves an essential situation in India's economy and it is one of the main business crops in numerous conditions of India. It is developed under dry land conditions in specific states like Andhra Pradesh, Orissa, Bihar and Uttar Pradesh. Sugarcane supports a great many ranchers, laborers and experts in India. The harvest likewise offers the possibility to create different results like molasses, bagasse, channel mud, was stick waste and so forth. Pavadai (2008) sugarcane and sugar-beet are two primary yields that contribute around 56 and 44 percent individually of the absolute sugar creation on the planet. Sugarcane is the principle wellspring of sugarcane in India and holds a noticeable situation as a money crop. It involves around 1-8 percent of the absolute trimmed region in the nation. The region under sugarcane has been fluctuating from year to year. In the previous decade, it has been swinging somewhere in the range of 2 and 2.7 million hectares.

Kumaran (2002) sugarcane is filled in practically all the conditions of the nation aside from Jammu and Kashmir. The rainstorm has so far been powerless in the Western, Southern and focal pieces of the nation and it is accounted for that it might restore.

Suresh (2004) sugarcane is a significant business crop in India, developed in 3.6 million hectares with a creation of 273 million tons of stick. In this way it warrants the administration of dry season to acknowledge most extreme yield in sugarcane. The board techniques to beat the dry season and to expand the yield of stick are.

Kakde (1985) sugarcane sets for planting should be taken uniquely from a solid harvest. Great sets brought up in exceptional nurseries are accessible through horticultural offices and reformist ranchers. Planting material from zones influenced with red rot and shrink should be chosen with most extreme consideration, all around depleted.

Keshabananda Das (1995) the made of tillering in sugarcane is unpredictable to the point that any assessment needs a cautious uncovering and dismemberment of the underground parts, of the plants. Tillering must be continued relying on the speed and degree of the fledgling

development. Turners or youthful sticks diminish the nature of the Juice by virtue of their high substance of glucose.

Rajendra Prasad (2006) at sugarcane reproducing Institute, during the long stretches of October, November and December, hybridization (crossing) will be affected between chosen male and female guardians. The seed is used to empower the sugarcane raisers to conceivably deliver a large number of seedlings in a seedling nursery.

## 3. Research Design

The investigation is systematic in nature. This examination depends on optional information. The information on sugarcane creation in India was gathered from different sources, for example, sites, books, and journals.

## 4. Research objectives

- To study the pattern of sugarcane cultivation in India
- To analyze changes in area, production, productivity of sugarcane cultivation in India

## 5. Statement of the Problem

A specific financial movement is constantly connected with part of issues, so sugarcane development is likewise no exemption for it. However, sugarcane is developed in practically a wide range of soil and climatic condition. Alluvial soil and heat and humidity has yielded a greater amount of sugarcane per ha of land. However, different soils and climatic conditions have brought about helpless yield or low amount of sugarcane per ha of land. This is one of the issues looked by the sugarcane developing ranchers. Excellent seeds and new techniques for creation are not known by the sugarcane ranchers. This has at last brought down the yield per ha of land. For this situation mixture of normal composts and synthetic manures at required amount is expected to raise more sugarcane. Absence of information on the rancher in utilizing excrement and manure is another issue looked by the sugarcane ranchers. Farrowing the land threefold for in excess of three time prior to planting sugarcane is exceptionally critical. Sugarcane seeds are to be prepared before manor.

## 6. Key findings

**Table 1:** Statistics related to Area, production and productivity- Global overview

Country	Area (million ha)	Production (Million Tonns)	Productivity (Tonns/ha)
Brazil	5.343	386.2	72.3
India	4.608	289.6	62.8
China	1.328	92.3	65.5
Thailand	0.970	64.4	66.4
Pakistan	1.086	52.0	47.9
Monica	0.639	45.1	70.6
Colombia	0.435	36.6	84.1
Australia	0.423	36.0	85.1
USA	0.404	31.3	77.5
Philippines	0.385	25.8	67.1
Indonesia	0.350	25.6	73.1
Cuba	0.654	22.9	35.5
South Africa	0.325	20.6	63.4
Argentina	0.295	19.2	65.3
Myanmar	0.165	7.5	45.4
Bangladesh	0.166	6.8	41.2
World	20.42	1333.2	65.2

Source: <http://www.indiawaterportal.org>

**Table 2:** Statistics related to production efficiencies of cane and sugar - Global overview

	Country	Cane yield tonnes per ha.	Sugar recovery (%)	Sugar yield tonnes Per ha	Pol % cane tc/ts
1	Australia	77	13.99	10.52	7.15
2	Brazil	71	13.65	9.72	7.33
3	USA	77	1180	9.14	8.47
4	India	68	10.80	8.03	8.47
5	Thailand	70	10.33	7.23	9.68
6	China	66	10.60	7.03	9.43

Source: <http://www.indiawaterportal.org>

**Table 3:** Area, Production and Productivity of sugarcane in India

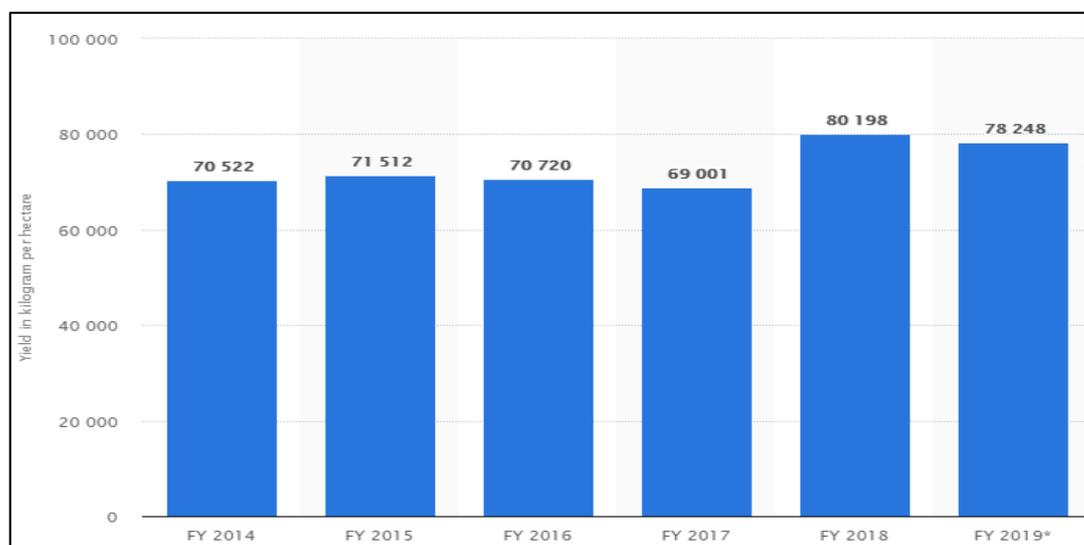
Year	Area '000 ha	Yield t/ha	Sugarcane (million tons)	Sugar (million tons)	Recovery%
2012-13	4998	68.3	341.198	25.141	10.03
2013-14	4993	70.5	352.141	24.360	10.23
2014-15	5067	71.5	362.333	28.313	10.37
2015-16	4927	70.7	348.448	25.125	10.62
2016-17	4436	69.0	306.070	20.262	10.48
2017-18	4732	79.6	348.448	32.328	10.73
2018-19	5114	78.3	306.070		
2019-20*	4867	77.6	376.905		

Source: Cooperative Sugar Vol. 51 (6), Feb 2020

**Table 4:** Statistics related to % change in utilization pattern of sugarcane in India

Year	Production of Sugarcane (million tons)	Production of White sugar (%)	Seed & Feed (%)	Gur & Khandsari (%)
2012-13	341.198	73.45	11.82	14.73
2013-14	352.141	67.64	11.16	21.20
2014-15	362.333	75.37	11.45	13.18
2015-16	348.448	67.87	11.62	20.51
2016-17	306.070	63.20	11.70	25.07
2017-18*	376.905	79.91	08.80	11.29

Source: Cooperative Sugar Vol. 51 (6), Feb 2020



Source: <https://www.statista.com/>

**Fig 1:** Statistics related to annual yield of sugarcane in India (2014 to 2019)

## 7. Key findings

- In monetary year 2019, the yield of sugarcane created across India was assessed to be around 78 thousand kilograms for every hectare. This was a reduction from the past monetary year's yield of more than 80 thousand kilograms for every hectare.
  - Sugarcane is a significant money crop in the nation. Uttar Pradesh delivered the most noteworthy volume of sugarcane that year, trailed by Maharashtra, Odisha and Tamil Nadu.
- Uttar Pradesh stands in every case first in the creation of sugarcane, endless kinds of various assortments which are dry spell safe, flood oppose, bother, bug safe and wind safe assortments are developed by the ranchers who are embracing most recent innovation in sugarcane development.
  - India possesses second spot underway of sugar. After homegrown utilization the overabundance nature of sugar is sent out to far off countries, So it an unfamiliar trade worker.

- India is delivering huge quantities of sugar close to Brazil, Uttar Pradesh in India has been the state creating more sugarcane than different conditions of India.
- Various horticultural colleges and examination focus' are scattered different assortments of sugarcane for expanding sugar substance of seeds sugarcane. The sugarcane ranchers are given preparing for picking legitimate seeds of sugarcane development.
- Fully developed assortment of sugarcane is favored by the sugarcane ranchers, instead of halfway assortment of sugarcane. The primary assortment has yielded more sugar a lot is aggregated in sugarcane limitlessly in the beginning phase of its development.
- It is discovered that an ever increasing number of ranchers even following five years have followed customary technique for sugarcane manor. From this it is perceived that more creation of sugarcane is conceivable simply by this specific technique for example customary technique.
- Even the little ranchers have utilized dribble water system for sugarcane development. A wide range of ranchers are monetarily wealthy. Minimal medium and enormous rancher have utilized trickle water system.

## 8. Conclusion

India is the biggest maker and buyer of sugar in the World. Around 45 million sugarcane ranchers, their wards and an enormous farming power, establishing 7.5 percent of the country populace, are associated with sugarcane development, collecting and auxiliary exercises. This empowered India to turn into the biggest maker of sugarcane and sugar on the planet departing the other significant makers Brazil and Cuba.

The significant sugarcane crop developing states in India are Uttar Pradesh, Bihar, Assam, Haryana, Gujarat, Maharashtra, Karnataka and Tamil Nadu. The sugarcane development and sugar industry in India assumes a crucial function towards financial improvement in the rustic zones by preparing country assets and producing higher pay and business openings. The serious issue of sugarcane in India depends on storm and water flexibly. The repetitive nature in sugar creation has caused contortions in the fare of sugar in India

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