

Growth and Development of Sugarcane Industries in India: An Empirical Study



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Abstract

The Sugar industry in India plays a vital role in the socio-economic development in the rural areas by mobilizing rural resources and generating higher income and employment opportunities. Over 5 crore farmers and their families besides a large mass of agriculture labour are involved in sugarcane cultivation and its harvesting operations. The growth of sugar industry has a distinct impact on the rural economy. The integrated sugar Industry (comprising sugar, Alcohol and Molasses) enjoys an annual turnover of about Rs. 50,000 Cores and contributes about Rs. 3,000 Cores in the Central Government Exchequer by way of central excise duty every year, beside state taxes on sugarcane and hefty taxes collected by state as excise and VAT on sale of spirit in the state which run into an estimated Rs. 10,000 Cores annually. The objective of our study is to find status of sugar industry in India. The data has been collected from secondary sources. And found Uttar Pradesh sugarcane acreage share has dominated all other states and stood first in India. Throughout the period Uttar Pradesh's sugarcane production share in the country has dominated all other States. The states like Kerala, West Bengal, Assam, Rajasthan etc., sugarcane production share found during the period is very little and therefore negligible.

Keywords: Sugarcane production, Sugar industry, Economic development, Employment

Introduction

The Sugar industry is the second largest organized industry next to textile sector, which plays an eminent role in the economic life of India. The Sugar industry has a great significance in its relation to the agricultural and industrial economy of the rural region of India. The sugar industry is an agro based industry, located in rural areas. The industry has served as an instrument for carrying progressive trends in rural areas. The most outstanding feature of the industry is that it is a link between the factory and the cultivators, whose interest and well being are interdependent. The Sugar industry is seasonal in nature and directly dependent on the monsoon for availability of adequate Sugarcane. India is the largest consumer and second largest producer of Sugar in the world, contributing over 15 percent of the world's Sugar production through over 500 Sugar factories situated in different parts of the country. The Sugar industry also provides valuable by-products like molasses and press mud. The availability of these by-products has led to setting up of alcohol / ethanol / co-generation of power and organic manure plants.

Relevance of the Study

The sugar industry is an agro – based industry created in the rural area. The industry has served as an instrument for carrying progressive trends onto rural society by providing rural employment. At present there are about over 600 registered sugar factories with an annual turnover of about Rs. 50,000 crores and contributes about 3,000 crores to the Central and State Government annually as excise duty purchase tax and cess. About 50 million sugarcane farmers and large a number of agricultural laborers are involved in sugarcane cultivation and ancillary activities, constituting 7.5% of rural population. Besides, the industry provides employment to 5 lakh skilled and semiskilled workers in rural areas. Sugarcane cultivation and development of sugar industry run parallel to the growth of human civilization and is as old as agriculture. Though sugarcane is considered to have spread in India from Polynesia, the importance and use of sugarcane and sugar in the country's socio-economic miller is deep -routed and immense.

India has the highest population level next to china. The average land holding is below 5 acres in contrast to other sugar producing and

exporting countries in the world. The per capita consumptions of the sugar were only 12.7 kgs during 1990-91. It has increased to 16 kgs during 1999-2000 and 19.09 kgs during 2008 -2009. It may be mentioned that in the Indian Sugar Industry two competing sectors are in existence, one is the authorized sector and the other in the unauthorized sector. The authorized sector consists of vacuum for white sugar factories and unauthorized sector consist of Gur and Khandasri units. The more serious and rerunning problem confronting the original sector is said to be large scale divisions of the unauthorized sector.

The problem with reference to sugarcane farmers and industry are land utilization, cost of cultivation, Government policies regarding fixation of levy prices, capacity utilization and recovery of sugar etc. Keeping these attributes in view an attempt is made to study the

Growth and development of sugarcane industries in India in past ten year (2004-05 to 2013-14) hoping and that this study would be very much beneficial to the sugarcane farmers, sugar factories, policy makers and the development of Indian economy. Keeping this in view, a modest attempt has been made to fill the gap. This study has a broad base which gains due weight to all the important aspect relating to sugarcane farmers of India.

Objectives of the Study

The present study is undertaken with the following specific objectives:

1. To know the state-wise sugarcane acreage in India
2. To know the area under sugarcane cultivation in India
3. To know the state-wise production of sugarcane in India
4. To know the status of Sugarcane production in India

Review of Literature & Research Gap

Tariff Commission Report (1969) pointed out that sugarcane offered a better return as compared to other agricultural products. The areas under sugarcane has tended to rise steadily, nevertheless the acreage has not been stable. A four year cycle, two of reduced area followed by two of expansion, had been the characteristic feature of sugarcane cultivation.

The Government of India (1975) appointed a committee to study the problems relating to inadequate supply of sugarcane to sugar factories in Maharashtra, under the chairmanship of Shri S.V. Sampath. The committee recommended measures for cane development, proper zoning for sugarcane area and some directives in issuing licenses to new units.

Tiwari and Singh (1982) reported from Rajendra Agricultural University Pusa, that intercropping with sugarcane not only provided a profitable proposition, but at the same time helped the farmer in reducing the per quintal cost of production of cane.

Jagdish Lal (1992) in his article "Sugar and sugarcane production, trends and policies" studies the production of sugar and its consumption trend and

examines the impact of sugarcane and sugar pricing and distribution policies. The study showed that there was an increasing trend in the case of production and consumption of sugar during the period 1950-1951 to 1990-1991.

Harish Damodaran and Harvi Singh (2007) in their article depicted the picture of sugar industry in Uttar Pradesh. Prior to independence, Uttar Pradesh was India's leading producer of both sugarcane and sugar. For every 30 tonnes of bagasse, there was 8-9 tonnes surplus available for mills to sell – especially to paper and particle board makers. This will replace conventional raw material such as bamboo and wood. With the processing of every tonne of cane today the mills can do additional business through selling 100 units of power and 9.9 liters of alcohol.

Ray Sarbapriya (2012) in their paper they have attempted to measure the economic performance of Indian sugar industry in terms of capacity utilization measured econometrically at aggregate level over a period from 1979-80 to 2008-09. In this study, Optimal output is defined as the minimum point on the firm's short run average total cost curve and the rate of capacity utilization is merely ratio of its actual output to capacity output level. Under Choice theoretic framework, the results suggest that a significant variation in the capacity utilization rates over years within same industry was found.

Chellaswamy Dr.P.& Revathi S.V. (2013) in their article they have taken 34 companies among 119 universal companies. The data were appropriately tabulated and classified to analyze the tools like Annual compound growth rate, trend analysis by method of least squares. The productivity ratios and the production function were computed by Solow model. Multiple Regression analysis was used to ascertain its impact on variables and they were tested by 5% level of significance. The analysis reveals that the relationship between Raw Materials and other independent variables i.e. the Capital, Labour and Sales has contributed 99 percent on dependent variable of the companies which started after green revolution period.

Rajan C.R. (2015) in their article they have tried to find reasons for sustainability of sugar mills despite poor economics. Through secondary research, the supply chain and key financial metrics of five selected sugar mills are analyzed. Correlation coefficient is computed for the crucial pairs of financial ratios (control variables). The results indicated that sugar industries are able to sustain by leveraging the profits from by-products and the industry is suffering from the government policies of pricing sugar and sugarcane. Arrears in payments to farmers by sugar millers could be a way to regulate the supply (cultivation) of sugarcane by the farmers in the catchment area of their mills.

Patil Dilip S. et al (2017) in their paper aims at making financial analysis of a sugar entity in terms of liquidity, solvency, operational efficiency and profitability. Management practices with professional approach tend to improve the financial performance of

sugar factories by implementing some innovative practices to reduce the controllable cost and generating additional revenues.”

The present survey of related literature indicates that, even a good number of studies have been conducted on sugarcane industries in India; there is also a perceptible gap, which needs for further study. There is a lot of scope for empirical study status of sugarcane industries in India.

Research Methodology

The study is based on secondary data which collected through various journals, publications, company reports, financial statements etc. The goal is to have an ideal mix of both real time and statistical data to decipher the trends in the industry and to understand whether these trends are in synchronise with the real life situation. The researcher has attempted to study the performance of sugar industry in India during last ten years i.e. 2004-05 to 2013-14

Data Analysis

State-Wise Sugarcane Acreage in India

Sugarcane growing areas in the country are broadly divided into two typical belts: the sub-tropical belt and the tropical. The sub-tropical belt comprises the States of Punjab, Rajasthan, Uttar Pradesh, Bihar, Madhya Pradesh, Orissa Assam and West Bengal. The States of Maharashtra, Gujarat, Andhra Pradesh, Tamil Nadu, Mysore and Kerala form the tropical belt. The two belt and characterized by marked differences in climate and agricultural conditions. Apart from factors like irrigation and fertilizer use, climatic and soil differences between the two belts have their effect on the average yield per acre as also on its quality. The yield per acre in the sub-tropical belt is about half of that in the tropical belt and the sucrose content of

the sub-tropical cane is, on an average, lower than that of the tropical cane. However, more than three-fourths of the area under sugarcane in the country has always been in the sub-tropical belt. The state wise sugarcane acreage in India in the thousand hectare units during 2004-05 to 2013-14 is presented in the table 1 The total area of sugarcane cultivation in India 2004-05 was 3661 thousand hectares and increased to 5151 thousand hectares in 2006-07. In the next years the total acreage decreased to 5055 and 4415 thousand hectares in 2007-08 and 2008-09 respectively and then increased to 4885 and 5100 thousand hectares in 2010-11 and 2011-12 years respectively. Later, in the year 2012-13 and 2013-14 again the total acreage of sugarcane in the country further increased to 5279 and 5341 thousand hectares respectively.

The above analysis infers that during the year 2004-05 a major share of the sugarcane acreage was taken up by the Uttar Pradesh (53.4%) followed by Maharashtra (8.85%), and Tamil Nadu (6.34%) and Gujrat (5.38%). In the next year the dominant state in sugarcane acreage was Uttar Pradesh (51.3%) followed by Maharashtra (11.9%), Tamil Nadu (7.97%). Later, from 2008-09 to 2009-10 years the sugarcane acreage shows a decrease, but Maharashtra, Karnataka and Tamil Nadu was increased their sugarcane acreage. Thereafter, in the next years the share of Uttar Pradesh decreased to 41.90 percent during 2012-13 but Karnataka, Tamil Nadu and Maharashtra increased their shares with 8.05 percent, 6.57 percent and 17.67 percent respectively in the year 2012-13. Overall, the sugarcane acreage area during 2013-14 is comparatively less than previous years.

Table 1 State wise Sugarcane Acreage in India During 2004-05 to 2013-14

(000 Hectare)

States	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Andhra Pradesh	210 (5.74)	230 (5.47)	264 (5.13)	247 (4.89)	196 (4.44)	158 (3.78)	192 (3.93)	204 (4.00)	196 (3.71)	192 (3.59)
Bihar	104 (2.84)	101 (2.4)	130 (2.52)	109 (2.16)	112 (2.54)	116 (2.78)	248 (5.08)	218 (4.27)	250 (4.73)	266 (4.98)
Gujarat	197 (5.38)	197 (4.69)	214 (4.15)	211 (4.17)	221 (5.00)	154 (3.69)	190 (3.89)	202 (3.96)	176 (3.33)	175 (3.28)
Haryana	130 (3.55)	127 (3.02)	140 (2.72)	140 (2.77)	90 (2.04)	74 (1.77)	85 (1.74)	95 (1.86)	101 (1.91)	102 (1.91)
Karnataka	178 (4.86)	219 (5.21)	326 (6.33)	306 (6.05)	281 (6.36)	337 (8.07)	423 (8.66)	430 (8.43)	425 (8.05)	420 (7.86)
Maharashtra	324 (8.85)	501 (11.9)	1049 (10.4)	1093 (21.62)	768 (17.39)	756 (18.11)	965 (19.75)	1022 (20.00)	933 (17.67)	937 (17.54)
Odisha	15 (0.41)	16 (0.38)	20 (0.39)	20 (0.40)	11 (0.25)	8 (0.19)	13 (0.27)	40 (0.78)	39 (0.74)	35 (0.65)
Punjab	86 (2.35)	84 (2.00)	99 (1.92)	110 (2.18)	81 (1.83)	60 (1.44)	70 (1.43)	80 (1.56)	83 (1.57)	89 (1.67)
Assam	24 (0.66)	23 (0.55)	27 (0.52)	26 (0.51)	29 (0.66)	27 (0.65)	28 (0.57)	25 (0.49)	35 (0.66)	
Tamil Nadu & Pondicherry	232 (6.34)	335 (7.97)	391 (7.59)	354 (7.00)	309 (7.00)	293 (7.02)	316 (6.47)	346 (6.78)	347 (6.57)	333 (6.23)
Uttar Pradesh	1955 (53.4)	2156 (51.3)	2247 (43.6)	2179 (43.10)	2084 (47.20)	1977 (47.35)	2125 (43.50)	2162 (42.39)	2212 (41.90)	2228 (41.71)

Uttaranchal	107 (2.92)	101 (2.4)	121 (124 (2.35)	124 (2.45)	107 (2.42)	96 (2.30)	107 (2.19)	108 (2.12)	110 (2.08)	104 (1.95)
West Bengal	16 (0.44)	15 (0.36)	17 (0.33)	17 (0.34)	17 (0.39)	18 (0.43)	14 (0.29)	15 (0.29)	21 (0.40)	22 (0.41)
Others	83 (2.26)	97 (2.35)	106 (2.05)	119 (2.36)	109 (2.48)	101 (2.42)	109 (2.23)	126 (3.07)	351 (6.68)	438 (8.22)
Total	3661 (100)	4202 (100)	5151 (100)	5055 (100)	4415 (100)	4175 (100)	4885 (100)	5100 (100)	5279 (100)	5341 (100)

Source: Indian Sugar, Indian Sugar Mills Association, New Delhi, April 2014.

Note: Figures in parenthesis indicates percentage to the total

Area under Sugarcane Cultivation in India

The table 2 indicates that the area under sugarcane cultivation in India during 2004-05 to 2013-14 has ups and downs. In the 2004-05, the area under sugarcane cultivation in India was 3661 thousand hectares, which in the next three years increased continuously to 4202, 5151 and 5055 thousand hectares in 2005-06, 2006-07 and 2007-08 respectively. Later, in 2008-09 and 2009-10 the area under sugarcane cultivation decreased to 4415 and 4175 thousand hectares respectively. Again the cultivation area increased to 4885 and 5100 thousand hectares during 2010-11 and 2011-12 years respectively. Later in 2012-13 and 2013-14 the area under sugarcane cultivation further increased to 5279 and 5341 thousand hectares respectively.

The analysis infers that from 2004-05 to 2013-14 the area under sugarcane cultivation shows an increasing trend.

Table -2

Area under sugarcane cultivation in India during 2004-2005 to 2013-14 (000 Hectares)

Year	Area under sugar cane	Total cane area % increase/decrease over previous year
2004-05	3661	-
2005-06	4202	(+) 14.8
2006-07	5151	(+) 22.6
2007-08	5055	(-) 1.9
2008-09	4415	(-) 13
2009-10	4175	(-) 5.4
2010-11	4885	(+) 17.0
2011-12	5100	(+) 4.4
2012-13	5279	(+) 3.5
2013-14	5341	(+) 1.2

Sources: Directorate of Economics & statistics, state Directorate of Agriculture, 2014.

State-Wise Production of Sugarcane in India

The production and availability of sugarcane in India largely depends on the area under sugarcane even though, it can be influenced by better and improved agricultural practices. The production of White sugar, Khandasari sugar and Gur are influenced by the production and availability of sugarcane. Table 3 shows the trends in sugarcane production in India 2004-05 to 2013-14.

The state-wise sugarcane production in India shows fluctuations during 2004-05 to 2013-14. The total production of sugarcane in 2004-05 was 237088 thousand tones and increased to 281172 thousand tonnes in 2005-06. In the next year i.e. 2006-07, the

total productions of sugarcane increased to 355520, but during 2007-08 and 2008-09 the total production of sugarcane decreased to 348188 and 285029 thousand tonnes respectively. Later, in the years 2009-10, 2010-11 and 2011-12 again there was increase of sugarcane production in the country and the production because 292302 and 342382 and 361037 thousand tonnes respectively. During 2012-13 the production decreased to 341200 thousand tonnes but ultimately there was an increase in the year 2013-14 in 348400 thousand tonnes.

During the study period from 2004-05 to 2013-14 data indicates that Uttar Pradesh has the highest share of sugarcane production with 50.07 percent in 2004-05. There is a decline in the years 2005-06 (44.62%) and 2006-07 (37.68%). From 2007-08 to 2009-10 the share of sugarcane production in India by the State increased from 35.8 percent to 40.07 percent. From the 2010-11 onwards, again the production of sugarcane decreased to 35.21 and 35.68 percent in the year 2010-11, 2011-12, and again increased to 38.81 percent and 38.66 in the year 2013-14.

The second highest sugarcane producing State in India is Maharashtra, produced 20475 (8.64%) thousand tonnes in 2004-05. Thereafter, the sugarcane production in this State increased continuously and reached to 88437 thousand tones with 25.40 percent share in country's total production in the year 2007-08. Later this state drastically decreased its sugarcane production during 2008-09 to 2009-10 from 60648 thousand tones to 64159 thousand tones. After that, in the year 2013-14 again the sugarcane production in this state increased to 75384 thousand tonnes.

The third State in sugarcane production is Karnataka. It is found to have 14276 thousand tonnes with the share of 6.02 percent of the total country's production in the year 2004-05 and this increased to 8.06 percent total share in 2006-07. Between the years 2008-09 and 2009-10 and 2010-11 the sugarcane production in this State increased to 39657 thousand tonnes from 23328 thousand tonnes. In the next two years i.e. 2011-12 and 2012-13 the sugarcane production decreased to 38808 and 35732 thousand tonnes respectively. Again in 2013-14 the production increased to 35910 and 23157 thousand tonnes respectively.

The States Andhra Pradesh, Gujarat, Haryana, Punjab and Bihar show an average, which is much less than the top three states. The sugarcane production in these States show 15739, 14570, 8060, 5170 and 4112 thousand tonnes in 2004-05. In

Andhra Pradesh there have been frequent ups and downs during the study period, and in 2013-14 it is 15168 thousand tonnes. In Gujarat, the sugarcane production moved from 14570 thousand tonnes in the year 2004-05 to 12630 thousand tonnes in 2013-14 with frequent ups and downs during the period. Bihar has recorded 4112 thousand tonnes of sugarcane production in 2004-05 and the highest production in the State was noticed in 2013-14 with 13157 thousand tonnes.

In the other State producing sugarcane is almost negligible with Uttarakhand 6441 thousand tonnes, Assam 884 thousand tonnes and Orissa 860 thousand tonnes in 2004-05. The other States viz., Kerala, Pondicherry, West Bengal and other have an average which was very low therefore negligible.

The above analysis infers that during the year 2004-05 a major share of the sugarcane acreage was taken by the Uttar Pradesh (50.07%) followed by Maharashtra (8.64%), Karnataka (6.02%), Tamil Nadu (9.87%) and Andhra Pradesh (6.64%). In the next year (2005-06) the dominant State in sugarcane production was Uttar Pradesh (44.62%) followed by Maharashtra (13.82%), Tamil Nadu (12.49%) and Karnataka (6.50%). Later, from 2006-07 to 2007-08 years the sugarcane production shows a decrease, but Uttar Pradesh increased its share in total sugarcane production in 2013-14 (38.66%). 18.73 percent respectively in the year 2013-14. Overall, the sugarcane production during 2013-14 is comparatively less than the previous years.

Table 3 State wise Production of sugarcane in India During 2004-05 to 2013-14

(000 Tonnes)

States	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Andhra Pradesh	15739 (6.64)	17656 (6.28)	21692 (6.10)	20296 (5.83)	15380 (5.39)	11708 (4.00)	14964 (4.37)	16686 (4.62)	15567 (4.56)	15168 (4.35)
Bihar	4112 (1.73)	4338 (1.54)	5956 (1.68)	3855 (1.11)	4960 (1.74)	5033 (1.72)	12764 (3.73)	11289 (3.13)	12741 (3.74)	13157 (3.78)
Gujarat	14570 (6.15)	14580 (5.18)	15630 (4.40)	15190 (4.36)	15510 (5.44)	12400 (4.24)	13760 (4.02)	12750 (3.53)	12690 (3.72)	12630 (3.63)
Haryana	8060 (3.40)	8180 (2.91)	9580 (2.69)	8860 (2.54)	5130 (1.80)	5335 (1.82)	6042 (1.76)	6959 (1.93)	7437 (2.18)	7446 (2.14)
Karnataka	14276 (6.02)	18267 (6.50)	28670 (8.06)	26240 (7.54)	23328 (8.18)	30443 (10.41)	39657 (11.58)	38808 (10.75)	35732 (10.47)	35910 (10.31)
Maharashtra	20475 (8.64)	38853 (13.82)	78568 (22.10)	88437 (25.40)	60648 (21.28)	64159 (21.95)	81896 (23.92)	86733 (24.02)	69648 (20.65)	75384 (21.64)
Tamil Nadu & Pondicherry	23396 (9.87)	35107 (12.49)	41124 (11.57)	38071 (10.93)	32804 (11.51)	29746 (10.18)	34252 (10.00)	38576 (10.68)	33919 (9.57)	32249 (9.26)
Uttar Pradesh	118716 (50.07)	125470 (44.62)	133949 (37.68)	124665 (35.80)	109048 (38.26)	117140 (40.07)	120545 (35.21)	128819 (35.68)	132428 (38.81)	134689 (38.66)
Uttaranchal	6441 (2.72)	6134 (2.18)	6100 (1.72)	7680 (2.21)	5590 (1.96)	5842 (2.00)	6498 (1.90)	6311 (1.75)	6785 (2.00)	6832 (1.96)
Punjab	5170 (2.18)	4860 (1.73)	6020 (1.69)	6690 (1.92)	4670 (1.64)	3700 (1.26)	4170 (1.22)	5653 (1.57)	5919 (1.73)	6372 (1.83)
Odisha	860 (0.36)	1073 (0.38)	1274 (0.36)	1096 (0.32)	646 (0.23)	497 (0.17)	903 (0.27)	885 (0.24)	952 (0.28)	937 (0.27)
Others	5273 (2.22)	6664 (2.37)	6957 (1.95)	7102 (2.04)	7315 (2.57)	6306 (2.16)	6904 (2.02)	7568 (2.10)	7382 (2.16)	7560 (2.17)
Total	237088 (100)	281172 (100)	355520 (100)	348188 (100)	285029 (100)	292302 (100)	342382 (100)	361037 (100)	341200 (100)	348400 (100)

Source: Indian Sugar, Indian Sugar Mills Association, New Delhi, April 2014.

Note: Figures in parenthesis indicates percentage to the total

1.5.4. SUGARCANE PRODUCTION IN INDIA

Sugarcane and sugar beet are main sources of sugar in the world. Sugarcane contributes 60 percent of the total sugar produced in the world. Asia is the largest producer sugar followed by Europe. Most of the sugar in Asia comes from sugarcane whereas in Europe from sugar beet. Sugar factories, being located in rural areas, support huge economic activities including generation of rural employment. Sugarcane is a renewable, natural agricultural resource because it provides besides sugar, bio-fuel, fertilizer and myriad of by products/co-products with ecological sustainability.

The Sugarcane production in India does not show stability because of the price of cane fixed by the Government, bank loans for cultivation of sugarcane, subsidies on loans etc., apart from natural calamities. During the study period i.e. between 2004-05 and 2013-14, there is rise in sugarcane production in some years and in some other, there is a fall in production. These fluctuations are found in sugarcane production in India because of the above said reasons. The table 4 analyses the sugarcane production in India during 2004-05 to 2013-14.

The table 4 analyses the quantity of sugarcane production and percentage of

increase/decrease in India during 2004-05 to 2013-14. In the year 2004-05, the production of sugarcane in India was 237088 thousand tonnes, which in the next year (2005-06) increased to 281172 thousand tonnes. In the next year (2006-07) the sugarcane production further increased to 355520 thousand tonnes but later, in 2006-07 and 2007-08 there was a drastic fall in sugarcane production which led to 348188 and 285029 thousand tonnes respectively. Again, in the next three years i.e. 2008-09, 2009-10 and 2010-11 the production of sugarcane increased tremendously to 292302, 342382 and 361037 thousand tonnes respectively. But after that, in the next year 2012-13 the sugarcane production decreased to 341200 thousand tonnes but again in the year 2013-14 there is an increase to 348400 thousand tonnes in India.

The analysis indicates that sugarcane production in India during the study period shows is not stable. According to the above analysis, the sugarcane production in India during the year 2004-05 shows the lowest and in 2011-12 the highest during the study period. The growth rate of sugarcane production shows during 2007-08, 2008-09, and 2012-13 years indicates negative, and during 2005-06, 2006-07, 2009-10, 2010-11, 2011-12 and 2013-14 indicate a positive trend. This infers that during last year of the study period the production of sugarcane had a increasing rate.

Table 4 Sugarcane production in India during 2004-2005 to 2013-14

(000Tonnes)

Year	Production	Total production % increase/decrease over previous year
2004-05	237088	-
2005-06	281172	(+) 18.60
2006-07	355520	(+)26.4
2007-08	348188	(-) 2.06
2008-09	285029	(-) 22.1
2009-10	292302	(+) 2.55
2010-11	342382	(+) 17.13
2011-12	361037	(+) 5.45
2012-13	341200	(-) 5.49
2013-14	348400	(+)2.11

Sources: Directorate of Economic and Statistics, Department of Agriculture, New Delhi '14.

Findings & Conclusion

From the above study it is found that only a few states are having major share in acreage of sugarcane during the study period (2004-05 to 2013-14). Throughout the period Uttar Pradesh sugarcane acreage share has dominated all other states and stood first in India. The states to follow are Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh etc. In states like Kerala, West Bengal, Assam, Rajasthan etc., sugarcane acreage share during the period is very low and hence which is negligible. The area under sugarcane in India shows

fluctuations due to policy decisions of the Government, like price of cane fixed, bank loans, subsidies on loans etc., and natural calamities. In some years, there has been a rise in sugarcane cropped area and in some other years, there has been a fall in sugarcane cropped area. These fluctuations are found in sugarcane crop because of the above said reasons. A few States have a major share in production of sugarcane during the study period (2004-05 to 2013-14). Throughout the period Uttar Pradesh's sugarcane production share in the country has dominated all other States. Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh are in the second, third, fourth and fifth positions in sugarcane production in the country. The states like Kerala, West Bengal, Assam, Rajasthan etc., sugarcane production share found during the period is very little and therefore negligible.

Reference

1. *Tariff Commission Report, Cost Structure of Sugar Industry & Price for sugar, Govt. of India, 1969.*
2. *Report of the Committee to Study the Problems Relating to Inadequate Supply of Sugarcane to Sugar Factories in Maharashtra, 1975, Government of Maharashtra, Bombay.*
3. *Report of the Study Team to Look in to the Problems Relating to Inadequate Supply of Sugarcane to Sugar Factories in Maharashtra, 1975, p. 39, Government of India, New Delhi.*
4. Singh, I.J. and Rai, K.N. "Production and Marketing of Sugarcane in Haryana State" – *Research Bulletin No. 8, January 1982. P.56.*
5. Tiwari, R. and Singh, D.K., "Intercropping with sugarcane helps in the reduction of per quintal cost of production of sugarcane – a case study", *Indian Sugars, Vol. XXXI, No. 11, p. 813, 1982.*
6. Jagdish Lal, "Sugar and sugar production, trends and policies", *Indian journal of Agricultural Economics, vol.47, No.3, 1992, pp.365-366.*
7. Harish Damodaran & Harvi Singh, "Sugar Industry in Uttar Pradesh: Rise, Decline and Revival", *Economic and Political Weekly, September 29, 2007, pp.3952-3957.*
8. Ray, S. (2012). *Reviewing performance of Indian sugar industry: an economic analysis. Food Science and Quality Management, 3, 35-53.*
9. Chellaswamy, P., & Revathi, S. V. (2013). *A Study on growth and productivity of Indian Sugar Companies. IOSR Journal of Business and Management, 9(5), 1-10.*
10. Rajan, C. R., & Chandrasekaran, N. *Drivers of financial performance of sugar industry in India.*
11. Patil, D. S., & Mohanthy, J. N. (2017). *Analysis of Financial Statements in the Sugar Industry.*
12. <http://nyenglish.com/yield-per-acre>
13. <https://business.mapsofindia.com/sugar-industry/>
14. <https://www.sciencedirect.com/science/article/pii/S0959378016300619>