Growth and Performance of Cashew Nut Production in India- An Analysis

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A B S T R A C T

Cashew nut attracts the people of all categories and all over the world. Probable reasons for that it's pleasant taste and nutritive values. The farmers perspective cashew nut was cash crop even though dry areas. The present study aims to access the growth and performance of cashew nut production in India from 1965-66 to 2014-15. For this study statistics tools like descriptive statistics and percentage analysis use for interpret data. The results indicate that increasing trend in production of cashew nut in India.

Introduction

The cashew nut has been introduced into India in 16th century in order to prevent soil erosion only. Later the kernels from cashew nut become a major source of income for most of the people in coastal tropical regions of India. India has always been a major player in the production of cashew.

It is the largest producer, processor, consumer and exporter of cashew in the world. India led the production of cashews in 2015-16 with a crop of 172,719 metric tons (kernel basis), which represented the 23.00 percent of global production. In India cashew is being grown in an area of 10.27 lakh hectares with a total production of 7.25 lakh MT of raw nuts and unit area productivity of 706 kg/ha. According to the estimates by the Directorate of Cashew nut & Cocoa Development, the

production of raw cashew nuts in India during 2015-2016 was 6,82,000 M T and area of 1035 hectare as against the estimate production of 7,44,000 M T during 2014-2015.

The main objective of the paper is highlight the growth and performance of the cashew nut production in India and compared with the large and small sample data during 1965-66 to 2015-16 (large size) and 1990-91 to 2015-16 (small size). The secondary data were collected from the Directorate of Cashew and Cocoa Development (www.indiastat.com).

Materials and Methods

The leading cashew nut production state was selected for the study, based on 1965-66 to

2015-16 yearly data. The purposively to select first six leading states in cashew nut production namely Maharashtra, Kerala, Andhra Pradesh, Orissa, Karnataka and Tamil Nadu for the study.

Descriptive Statistics

The branch of statistics is devoted to the summarization and description of data (population or sample) is called descriptive statistics. Descriptive statistics are used to present quantitative descriptions in a manageable form. In an agricultural research, we have lots of measures. It is help us to simply large amount of data in a sensible way. Each descriptive statistics reduces lots of data into a simple summary.

To study the nature of each sequence these have been exposed to get various statistics. Descriptive statistics are used to define the elementary structures of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. Descriptive statistics are typically distinguished from inferential statistics. With descriptive statistics we are simply describing what is or what the data shows. Statistical tools used to define the above series are minimum, maximum, average, standard error, skewness and kurtosis.

Percentage analysis

Percentage Analysis is applied to create a contingency table from the frequency distribution and represent the collected data for better understanding. Percentage analysis is the method to represent raw streams of data as a percentage (a part in 100 - percent) for better understanding of collected data. If specify one variable as causing or influencing a second variable, the first variable is called the independent variable and the latter is called the dependent variable. It should percentage in the direction of independent variable.

Results and Discussion

Descriptive statistics for large samples

Descriptive statistics stated in table 1. The descriptive statistics demonstrates the mean, median, standard deviation, maximum and minimum values along with other statistical properties. The production of cashew product shows volatile pattern. There was standard deviation value of non-zero. The coefficient of variation was used statistic for comparing the degree of variation from one data series to another, even if the means are severely different from each other. It was calculate as the ratio of standard deviation to mean. The coefficient of variation was 57.70 %. B2 (kurtosis) value (-1.244) of production indicates there platykurtic in nature. Positive values of skewness expose that starting from the initial years of the period under study a continuous effort was there to increase the yield of cashew nut. Table 1 shows that the descriptive statistics for 51 years cashew nut production in India (i.e. large samples).

Descriptive statistics for small samples

The descriptive statistics demonstrates the mean, median, standard deviation, maximum and minimum values along with other statistical properties. The production of cashew product shows volatile pattern. There was standard deviation value of non-zero. The coefficient of variation is a useful statistic for comparing the degree of variation from one data series to another, even if the means are severely different from each other. It was calculate the ratio of standard deviation to mean. The coefficient of variation is 26.84%. B2 (kurtosis) value (-1.107) of production

indicates there platykurtic in nature. Positive values of skewness expose that starting from the initial years of the period under study a continuous effort was there to increase the yield of cashew nut. Table 2 shows that the descriptive statistics for 51 years cashew nut production in India (i.e. small samples).

Table.1 Descriptive statistics for cashew nut production in India for large samples (1965 to 2016)

S. No.	Descriptive statistics	
1.	Mean	367.5607843
2.	Standard Error	29.70248238
3.	Median	321.6
4.	Standard Deviation	212.1181521
5.	Sample Variance	44994.11043
6.	Coefficient of variation (%)	57.70
7.	Kurtosis	-1.244007266
8.	Skewness	0.424808435
9.	Range	649.4
10.	Minimum	103.8
11.	Maximum	753.2
12.	Sum	18745.6
13.	Count	51
14.	Confidence Level (95.0%)	59.65919163

Table.2 Descriptive statistics for cashew nut production in India for small samples (1990 to 2016)

S.No.	Descriptive statistics	
1.	Mean	533.448
2.	Standard Error	28.63411958
3.	Median	533.6
4.	Standard Deviation	143.1705979
5.	Sample Variance	20497.8201
6.	Coefficient of variation (%)	26.84
7.	Kurtosis	-1.106674347
8.	Skewness	0.032418559
9.	Range	458.6
10.	Minimum	294.6
11.	Maximum	753.2
12.	Sum	13336.2
13.	Count	25
14.	Confidence Level (95.0%)	59.09791821

Table.3 Cashew nut production in the major producing states in
India during 1995 to 2015 (In Million Tonnes)

Year	Maharastra	Kerala	Andhra Pradesh	Orissa	Karnataka	Tamil Nadu	Total production
1965-66	2.7	73.0	7.0	1.5	6.0	10.3	103.8
1966-67	2.1	81.6	7.2	1.4	4.6	110	213.2
1967-68	2.3	82.6	7.9	1.4	6.8	10.8	118.5
1968-69	2.4	82.7	8.5	1.4	7.0	11.8	120.4
1969-70	3.5	83.0	9.0	1.2	7.5	12.6	123.3
1970-71	3.5	85.4	9.0	1.3	8.5	12.5	127.2
1971-72	3.8	85.9	9.2	1.3	9.7	12.3	131.0
1972-73	3.7	86.8	10.1	1.5	10.5	9.6	129.8
1973-74	3.6	89.8	12.0	2.0	11.3	9.0	135.5
1974-75	4.2	95.9	12.8	2.5	12.3	8.7	144.3
1975-76	4.2	107.2	12.6	3.9	15.2	10.5	161.5
1976-77	4.3	107.5	12.5	3.9	15.2	10.2	162.5
1977-78	4.8	108.2	13.4	4.0	15.7	10.2	165.3
1978-79	7.2	110.5	14.0	4.3	16.0	10.0	171.8
1979-80	6.0	116.0	16.0	5.0	16.0	11.0	180.3
1980-81	8.0	117.0	16.5	6.0	16.5	11.0	185.3
1981-82	10.0	118.0	20.0	8.0	18	10.5	195.8
1982-83	10.0	120.9	20.0	8.5	19.1	11.3	201.4
1983-84	12.4	123.7	2.2	10.0	19.1	11.3	190.9
1984-85	14.1	126.6	24.4	11.9	20.0	11.6	221.3
1985-86	15.8	128.9	26.8	16.9	20.9	11.8	234.5
1986-87	19.1	130.9	29.1	18.6	22.0	11.9	245.6
1987-88	21.4	134.0	31.9	22.3	22.9	12.0	260.3
1988-89	24.4	136.9	34.3	26.8	23.7	12.4	274.3
1989-90	271.1	139.0	36.6	28.6	24.7	12.4	529.6
1990-91	29.52	142.1	37.8	29.1	25.8	12.47	294.6
1991-92	31.96	155.5	71.2	60.1	74.4	12.71	533.6
1992-93	43.75	151.6	44.9	39.1	31.3	19.19	349.2
1993-94	46.86	140.2	46.6	43.4	31.5	19.2	348.4
1994-95	37.6	119.2	58.7	37.2	26.4	22.0	321.6
1995-96	69.0	140.0	71.7	43.0	37.6	30.9	417.8
1996-97	80.0	134.0	60.0	40.0	52.0	30.0	430.0
1997-98	60.0	100.0	50.0	45.0	35.0	30.0	360.0
1998-99	85.0	130.0	80.0	50.0	40.0	35.0	460.0
1999-00	125.0	100.0	100.0	40.0	60.0	45.0	520.0
2000-01	98.0	76.0	75.0	59.0	42.0	59.0	450.0
2001-02	103.0	87.0	88.0	59.0	40.0	46.0	472.0
2002-03	115.0	94.0	98.0	55.0	44.0	50.0	506.0
2003-04	120.0	95.0	95.0	71.0	46.0	51.0	535.0
2004-05	174.0	64.0	88.0	74.0	43.0	53.0	544.0

Year							
2005-06	183.0	67.0	92.0	78.0	45.0	56.0	573.0
2006-07	197.0	72.0	99.0	84.0	52.0	60.0	620.0
2007-08	210.0	78.0	107.0	90.0	56.0	65.0	665.0
2008-09	225.0	75.0	112.0	95.0	60.0	68.0	695.0
2009-10	198.0	76.0	99.0	84.0	53.0	60.0	613.0
2010-11	208.0	71.0	107.0	91.0	57.0	65.0	653.0
2011-12	216.0	74.0	113.6	96.0	66.0	60.0	725.2
2012-13	77.0	0	0	224.6	0	12.1	751.7
2013-14	236.2	80.1	100.4	85.7	80.6	67.4	753.2
2014-15	235.0	80.0	100.0	85.5	80.5	67.0	744.9
Total	3668.49	5073.7	2397.9	1952.9	1548.3	1471.67	18063.6
Percent	**20.308742**	**28.088**	**13.2747625**	**10.811245**	**8.5713811**	**8.1471578**	
Rank	II	I	III	IV	V	VI	

Table.4 Cashew nut production in the major producing states in
India during 1990 to 2015 (In Million Tonnes)

Year	Maharashtra	Kerala	Andhra Pradesh	Orissa	Karnataka	Tamil Nadu	Total production
1990-91	29.52	142.1	37.8	29.1	25.8	12.47	294.6
1991-92	31.96	155.5	71.2	60.1	74.4	12.71	533.6
1992-93	43.75	151.6	44.9	39.1	31.3	19.19	349.2
1993-94	46.86	140.2	46.6	43.4	31.5	19.2	348.4
1994-95	37.6	119.2	58.7	37.2	26.4	22.0	321.6
1995-96	69.0	140.0	71.7	43.0	37.6	30.9	417.8
1996-97	80.0	134.0	60.0	40.0	52.0	30.0	430.0
1997-98	60.0	100.0	50.0	45.0	35.0	30.0	360.0
1998-99	85.0	130.0	80.0	50.0	40.0	35.0	460.0
1999-00	125.0	100.0	100	40.0	60.0	45.0	520.0
2000-01	98.0	76.0	75.0	59.0	42.0	59.0	450.0
2001-02	103.0	87.0	88.0	59.0	40.0	46.0	472.0
2002-03	115.0	94.0	98.0	55.0	44.0	50.0	506.0
2003-04	120.0	95.0	95.0	71.0	46.0	51.0	535.0
2004-05	174.0	64.0	88.0	74.0	43.0	53.0	544.0
2005-06	183.0	67.0	92.0	78.0	45.0	56.0	573.0
2006-07	197.0	72.0	99.0	84.0	52.0	60.0	620.0
2007-08	210.0	78.0	107	90.0	56.0	65.0	665.0
2008-09	225.0	75.0	112	95.0	60.0	68.0	695.0
2009-10	198.0	76.0	99.0	84.0	53.0	60.0	613.0
2010-11	208.0	71.0	107	91.0	57.0	65.0	653.0
2011-12	216.0	74.0	113.6	96.0	66.0	60.0	725.2
2012-13	77.0	0	0	224.6	0	12.1	751.7
2013-14	236.2	80.1	100.4	85.7	80.6	67.4	753.2
2014-15	235	80.0	100.0	85.5	80.5	67.0	744.9
Total	3203.89	2401.7	1994.9	1758.7	1179.1	1095.97	13336.2
Percent	**24.02401**	**18.0089**	**14.95853392**	**13.1874**	**8.8413491**	**8.2180081**	
Rank	I	II	III	IV	V	VI	

Comparing with large and small samples with descriptive statistics

When compared with the large samples and small samples, it would be moderate different from the standard error, confidence level, kurtosis and skewness. Whether highly different from mean, standard deviation, sample variance and coefficient of variance. In the coefficient of variance (CV) was unit-free measure. The CV value would be small if the variation was small. In small sample has the less variation. From this study the consistency of two samples, the small sample with less coefficient of variation (CV), it represents to be small sample is more consistent when compared with large sample.

Percentage analysis

The large samples (i.e. 1965-66 to 2014-15 years) were showed in table 3 and Kerala state was the leading cashew nut producer state in India. They produce 28.09 per cent of total production from India. Maharashtra was the second largest producer state of cashew nut in India. They produce 20.31 per cent of total production followed by Andhra Pradesh, Orissa, Karnataka and Tamil Nadu are occupied third, fourth, fifth and sixth largest producer state of cashew nut in India. They produce 13.27%, 10.81%, 8.57% and 8.15 per cent, respectively of total production. Poor qualities of cashews are grown in some states, which is due to the natural calamities, drought, pest and diseases.

The small samples (i.e. 1990-91 to 2014-15 years) as showed in table 4, Maharashtra was the leading state of cashew nut producer in India. They produce 24.02 per cent of total production from India. Kerala was the second largest producer state of cashew nut in India. They produce 18.01 per cent of total production followed by Andhra Pradesh, Orissa, Karnataka and Tamil Nadu are

occupied third, fourth, fifth and sixth largest producer state of cashew nut in India. They produce 14.96%, 13.19%, 8.84% and 8.15 per cent, respectively of total production. Poor qualities of cashews are grown in some states, which is due to the wrong harvesting techniques.

The results conclude that the cashew nut production in India was increased during selected period from 1965-66 to 2014-15. In small sample have less variation and more consistent (i.e. less CV value) when compared with large sample. In large samples, Kerala state has the largest cashew nut production during 1965-66 onwards. But the small samples, Maharashtra state has been largest cashew nut production around 1990-91 years. In that year, Kerala has been poor qualities of cashews. So only the cashew production would be decreased. But other states (i.e. Andhra Pradesh, Orissa, Karnataka and Tamil Nadu) are does not change the position of the cashew nut production for large and small samples.

Moreover, from these results lightning call for policy makers and development departments to implement suitable programmes to reverse the scenario so as to build confidence and to improve status of cashew growers by making farming as a profitable occupation. Departments need to make supporting price, insurance to cashew and subsidies has to be given to cashew growers in order to sustain their livelihood security. These supportive measures taken by the government through respected and line department people will help the farmers to get maximum profit from cashew nut cultivation.

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