Original research Article

An analysis of cashew nut production in India With special reference to Kerala

ABSTRACT

Aims: In Kerala cashew is grown mostly in areas unsuited for the cultivation of crops such as rubber and coconut. Cashew trees tend to be grown on marginal and less fertile land and may continue to produce for many years without the intensive inputs and labour that other crops require. Considering the promising future of the cashew market, the study aimed to analyse the trend and pattern of cashew production in Kerala.

Methodology: For the purpose of the study, secondary data were collected for the period of 2000 – 2020 (20 years) from different authenticated sources like The Cashew Export Promotion Council of India (CEPCI), Ministry of Commerce, Directorate of Cashew and Cocoa Development Board (DCCD), Ministry of Economics and Statistics, Ministry of Agriculture and Farmers Welfare.

Results: The study highlighted that the demand for cashew nuts is always increasing in India and also at the world level. Compared to previous years at present in most of the districts especially in Kerala, the production of cashew is reducing continuously.

Conclusion: The easiest way to overcome the situation is to bring more area under cashew by encouraging farmers to adopt cashew cultivation in their lands and also in homesteads, barren lands under the procession of government and public sector undertaking, and if they are replanted with high-yielding varieties, the production could be enhanced. If it happens in the future, definitely Kerala will occupy the top place in the production of cashew in India.

Key words: Area, Compound annual growth rate, Production, Productivity, and Trend.

INTRODUCTION

The cultivation of cashews is mostly limited to peninsular India. It's one of the most valued processed nuts on the market, bringing in money for underdeveloped countries. India is the world's largest producer, processor, exporter, and consumer of it, earning a significant amount of foreign money in the process (Ashalatha, 2000). Cashew is only grown in Kerala, Andhra Pradesh, Karnataka, Goa, Maharashtra, Tamil Nadu, Orissa, and West Bengal in India. Kerala, which was once the world's leading cashew-nut producer in the 1960s and 1970s, has seen a fall in output, cultivation area, and even yield per hectare during the previous two decades. The majority of Kerala's districts grow cashews, although just a few prioritise cashew farming for economic purposes (Chandrasekaran, G. and Jeyakumar,2014). However, as the area under cultivation of rubber increased, a vast area under cashew cultivation in the northern districts was switched to rubber plantations, and Kerala is now ranked fifth (Sisili, 2018). In this situation the study is aimed to analyse the trend in area, production and productivity of cashew in Kerala for understanding its growth rate of cashew in Kerala and also recommend suggestions for the improvement if it is needed.

MATERIALS AND METHODS

For the study, secondary data were collected for the period of 2000 – 2020 (20 years) from different authenticated sources like The Cashew Export Promotion Council of India (CEPCI), Ministry of Commerce, Directorate of Cashew and Cocoa Development Board (DCCD), Ministry of Economics and Statistics, Ministry of Agriculture and Farmers Welfare. Annual Growth Rate, Compound Annual Growth Rate, Standard Deviation, Coefficient of Variation, Co-efficient of Determinants (R^2), Cuddy Della Valle Instability Index (CDVI) was used for analysing the data.

RESULTS AND DISCUSSIONS

Trends in area, production, the productivity of cashew in Kerala

In Kerala, the area under cultivation and output has nearly halved in the previous 20 years, while productivity has continuously fallen. The following table shows the area, production, and productivity in Kerala:

Table 1 Growth analysis of area, production, productivity of cashew in Kerala 2000- 2020

Years	Area (In'000 Hectare)	Annual growth rate of area (in Percentage)	Production (In'000 MT)	Annual growth rate of production (in Percentage)	Productivity (In MT/Hectare)	Annual growth rate of productivity (in Percentage)
2000-2001	120		76		0.6	
2001-2002	120	0	87	14.47	0.7	16.67
2002-2003	120	0	94	8.05	0.8	14.29
2003-2004	101	-15.833	95	1.06	0.9	12.50
2004-2005	102	0.990	64	-32.63	0.6	-33.33
2005-2006	80	-21.569	67	4.69	0.8	33.33
2006-2007	80	0.000	72	7.46	0.9	12.50
2007-2008	84	5.000	78	8.33	0.9	0.00
2008-2009	70	-16.667	75	-3.85	1.1	22.22
2009-2010	72	2.857	66	-12.00	0.9	-18.18
2010-2011	78	8.333	71	7.58	0.9	0.00
2011-2012	82.9	6.282	74	4.23	0.9	0.00

2012-2013	84.88	2.388	76.96	4.00	0.9	0.00
2013-2014	84.9	0.024	80.1	4.08	0.9	0.00
2014-2015	84.5	-0.471	80	-0.12	0.9	0.00
2015-2016	87	2.959	72	-10.00	0.8	-11.11
2016-2017	90.87	4.448	83.98	16.64	0.92	15.00
2017-2018	92.81	2.135	88.18	5.00	0.95	3.26
2018-2019	96.65	4.137	82.89	-6.00	0.85	-10.53
2019-2020	90.65	-6.208	87.03	4.99	0.96	12.94

Source: Ministry of Agriculture and Farmers Welfare, Govt. of India.

Table 1 show that the acreage, output, and productivity of cashews in Kerala have been declining as farmers have migrated to more valuable crops such as rubber and other plantations. The table reveals that the area under cultivation was 120 thousand hectares in 2000-2001, but that it has decreased to 70 thousand hectares in 2008-09, implying that roughly half of the cashew farming area has transferred to other uses. According to a farmer who has moved to cashew, if cashew were granted the status of a plantation crop, farmers would have switched to cashews due to the unprofitable pricing of late natural rubber. In 2008, the amount of land used for cashew production was quite low, and Kerala still has large tracts of cashew orchards that haven't been replanted. Unlike in Maharashtra, where cashew was pushed with state government help, there are no incentives for this crop in Kerala like there are for other plantation crops. This becomes a dissuading factor for farmers to cultivate cashew (Mahantesh, and Manjunatha, 2018). The fall in cultivation area is mostly due to land scarcity, current land ceiling rules, and the continuous rejection of cashews plantation status. From the beginning of the research till now, the area under agriculture in Kerala has been declining. Between 2010 (8 percent) and 2020 (-6.20 percent), the area saw high percent growth, with a fall of less than 14 percent. After 2009, the amount of land under cultivation decreased dramatically. This is mostly due to challenges experienced by farmers, such as a lack of innovations to meet rising demands and an inability to update the cashew sector's systematic and

scientific development plans. Many farmers have switched their crops to other crops, and some places have become uncultivable as a result of the fall in area under cultivation. Pests and illnesses such as the tea mosquito, the cashew stem and root borer, insufficient storage of dried nuts, and climate change have resulted in low quality and immature crops, and continuing losses have resulted in moving cashew production to other countries. (Sisili, 2018).

The production was 76 thousand MT in 2000-01 and 64 thousand MT in 2004-05, a reduction of twelve percent in just five years. Due to a scarcity of high-yielding variety seeds and tree senility, output has severely decreased. After 2015, however, the manufacturing is in the process of rejuvenation. The fact that roughly 70 percent of the trees in the state are over 50 years old and local kinds begin producing at the end of the season, are the main reasons for the unpredictability of cashew output. Climate change is having a detrimental impact on cashew nut output. Climate change is having a detrimental impact on cashew nut output. Excessive rainfall combined with high relative humidity during blooming may cause flower and fruit loss, as well as a high prevalence of fungal infections. Bug and stem borer infestations in cashews resulted in lower yields, and the multiplication procedures, as well as the seedlings employed for plantation expansion, were done in an unprofessional way. Seedlings of poor grade derived from poor quality raw nuts. Tea mosquito insect infection results in a yield loss of roughly 50 percent, whereas stem and root borer infestation results in a production loss of 8 to 10 percent (Chandrasekaran, G. and Jeyakumar,2014).Cashew trees have died, fruits have fallen early, cashew regions have been converted to rubber plantations, production costs have increased, and labour expenses have increased. In comparison to past years, production costs have grown, and it can be deduced that cashew output has increased in recent years, as a result of which farmers have begun to employ contemporary technology and adopt current techniques and practices in order to minimise production costs. As a result, the cultivation of cashews is given the attention it deserves at a lower cost. In recent years, several attempts by cashew export promotion organisations to improve the production of high-quality cashews have resulted in a small rise in output.

From the beginning of the research period till now, production has fluctuated. In 2000, the lowest productivity was reported, while the highest output was achieved in 2008. Farmers shifted their cashew production to more lucrative crops like rubber and other plantations, which resulted in lower yield. In 2005-06, the percentage growth in productivity was the highest, whereas in 2004-05, it was the lowest. Because the cashew seedlings were planted on wastelands as well as less fertile places, the productivity was harmed. The percentage growth in productivity was 0 for several years since productivity stayed constant throughout those years (Veeranjaneya and Krishna, 2018). The government's efforts to boost production in previous years, as well as the planting of high-quality seedlings and hybrid variety seeds, have resulted in higher output in 2020. The absence of scientific planting methods, government organisations' lack of assistance, and the unavailability of excellent quality seeds are the main factors for the decrease in output. Following 2018, steps were taken to increase production by commercialising

cashew as a plantation crop, finding new markets, strengthening non-traditional markets, and adding value to the product through processing and branding improvements.

Table 2 Growth in area, production, and productivity of cashew in Kerala 2000 to 2020

	Area	Production	Productivity
Average Annual growth rate (AAGR)	-1.12	1.367	3.661
Compound Annual Growth Rate (CAGR)	-1.465	-91.278	-99.979
Standard Deviation (SD)	14.938	8.844	0.118
Mean (Average)	91.108	78.507	0.859
Co-efficient of Variation (CV)	16.396	11.266	13.758
R^2	0.007	0.209	0.293
Adjusted R^2	0.007	0.165	0.253
Cuddy Valle Instability Index (CDVI)	16.338	10.28	11.89

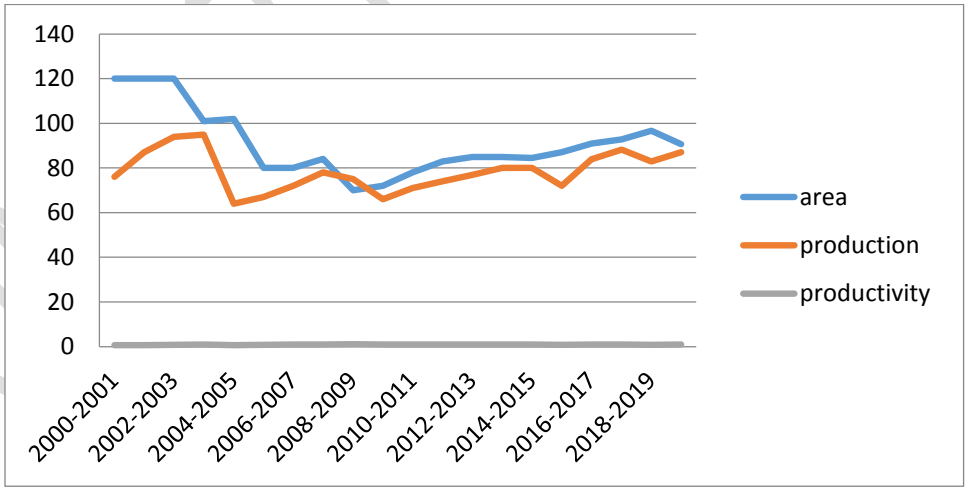
Source: (figures are the researcher's calculation based on the data collected from Ministry of Agriculture and Farmers Welfare, Govt. of India).

The growth performance of cashew in terms of area, production, and productivity was analysed by computing the Compound Annual Growth Rate (CAGR), and Average Annual Growth Rate (AAGR). CAGR is the mean annual growth over a specific time, and it represents one of the most accurate ways to determine the rise or fall in value over time. AAGR determines long–term trends. From table 1, it can be concluded that the compound annual growth rate of the area of cashew cultivation shows a negative growth of 1.12 percent, which indicates no growth in the area from 2003 – 2004 to 2019-2020. The CAGR of the production of cashew is -91.27 percent, and productivity is -99.97 percent whereas, the AAGR of production is 1.367 percent and productivity is 3.661 percent. It is observed that the average area during the study period is 91.108, but only the first ten years having an area of cashew is above the average. The average production and productivity of cashew are 78.50 MT and 0.85 MT/ha, respectively. From 2000-2001 to 2009-2010, cashew production is below the average production. Likewise, productivity until 2010-2011 is below the average value. The decline of cashew cultivation in the state includes the pronounced seasonality of the cashew production cycle, high sensitivity of yield to weather conditions, unattractive prices, land ceilings for cashew plantations (which existed until recently), senility of the trees, and the non-agricultural orientation of landowners were found as the major reasons for the decline of cashew cultivation in the state.

Standard Deviation measures how annual value varies from the expected value. The standard deviation of area and production is higher than cashew productivity; thus indicating the higher variability in cashew area and production. The SD of area and production is 14.9 and 8.8 respectively, whereas, the SD of productivity is 0.118. The productivity shows a lesser variability when compared to area and production. The higher value of SD indicates low precision and high variability.

The instability in the area, production, and productivity of cashew in Kerala during the period 2000-2001 to 2019-2020 is calculated using the coefficient of variation and Cuddy Della Valle Index. The coefficient of variation for the area is 16.396, while the production and productivity value showed higher instability with a value of 11.266 and 13.758 coefficient of variation. The average area during the study period is 91.108 (in'000 hectares), and the average value of production and productivity is 78.507 MT and 0.859 (MT/ Hectare) respectively. The Cuddy Valle Index of area, production, and productivity during the study period is 16.338, 10.28, and 11.89 percent, which indicates the instability is higher in the area. The standard deviation and instability are high in the area when compared to production and productivity.

Fig.1 Trend in area, production, the productivity of cashew in Kerala (2000-2020)



In fig. 1, the y axis represents the area, production, and productivity of cashew in Kerala and the x- axis represents the year (2000-2020). It is clear from the figure that the area showed a decrease during the

study period. However, in the case of production, overall production is increasing trend. Overall productivity shows a slight variation, but last year's productivity shows an increasing trend.

CONCLUSION

The demand for cashew nuts continues to rise in India and throughout the world. Cashew output is steadily declining in most districts, particularly in Kerala, as compared to prior years. The simplest method to alleviate the issue is to encourage farmers to grow cashew on their fields, as well as in homesteads, barren areas under the control of government and public sector undertakings, and to replant them with high-yielding types. If this occurs in the future, Kerala will undoubtedly take the lead in cashew production in India.

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