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TREND ANALYSIS OF CASHEWNUT AREA AND PRODUCTION IN INDIA

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Abstract

Cashew plays a vibrant position among the traditional crops like coffee, pepper, cardamom etc. From these traditional crops cashew stands as a royal crop and it is referred to as goldmine of waste land. Cashew is also considered as wonder nut, as it is one of the most valuable processed nuts traded on the global commodity markets. The trend analysis of cashewnut area and production in India is taken for the present study. This study reveals that India's cashewnut production is comparatively significant on the basis of the R^2 and co-efficient values. Hence, there has been a steady increase in the production of cashew nut in India. India can reclaim the first place in cashew nut trade soon, provided the Indian government pays more attention to cashew nut cultivation, marketing activities, export promotional activities and minimum support price to farmers.

Key Words: Cashew nut, Area and Production.

Introduction

Cashew plays a vibrant position among the traditional crops like coffee, pepper, cardamom etc. From these traditional crops cashew stands as a royal crop and it is referred to as goldmine of waste land. Cashew is also considered as wonder nut, as it is one of the most valuable processed nuts traded on the global commodity markets. Even then the value, importance and popularity of cashew tree and cashew kernel, cashew nut shell liquid are now known throughout the world. Cashew industry is considered as an important agro based industry in the sense that it uses primary product like cashew for processing. The Cashew nut processing industries are playing an imperative role in the Indian food processing industry.

Cashew is considered as the poor man's crop and rich man's food. The uninterrupted use of cashew would facilitate to sustain a good health and it pours for accomplish a balanced diet. Cash in cashew seems to reveal that cashews are commercially very valuable processed nuts in the world. The trend analysis of cashewnut area and production in India is taken for the present study.

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Review of Literature

Jemal Tola (2019) explore Cashew is among the major edible nuts with increasing demand in the global market. The tree is native to Brazil and first introduced to India and Africa in the 16th century by Portuguese traders with the intention of afforestation and soil conservation, and gradually expanded throughout the world. Today, it has been widely grown mainly for its nuts to be used as food, medicine, and source of income in most tropical regions with the largest coverage found in Brazil, India, Vietnam, Indonesia, and several countries in West and East Africa. The increasing demand for raw cashew nut from processors has made the crop to be the major source of foreign exchange in most developing countries. However, despite the huge potential to produce Cashew in Ethiopia, only little is known about its current production, potential benefits, and opportunities in Ethiopia, mainly due to lack of knowledge and awareness. Hence, this paper provides an overview of cashew uses, available opportunities for its production in Ethiopia and the way forward.

Statement of Problem

Cashew Processing Industry is a traditional agro-based industry in India. Cashew is one of the most important Commercial Crops of India that helps to earn considerable amount of foreign exchange through export of its kernels. It reveals that the export of processed kernels both in India and Kerala shows an increasing trend and there by foreign exchange also increases. Presently, India's share in cashew export averaged 60 per cent in the total world export. Therefore the study undertaken the trend analysis of area, production of cashewnut in India.

Objectives of the Study

1. To study the area, and production of cashew nut in India.
2. To know about the trend of cashew nut production in India.
3. To suggest policy measures.

Methodology

The present study is an attempt to evaluate the cashewnut production in in India. The period of the study is from 1997-98 to 2019-20. The India is the Unit of the study. Secondary data were made available from the CEPCI and various journals, books and websites. An attempt has been made to draw references by employing some of common research methods. Further the data collected are analysed and interpreted with the help of percentage, Average Annual Growth Rate, Compound Growth Rate and various trend model and forecasting.

Analysis of Data

Cashew nut Area and Production in India

Table 1 shows that in cashew nut cultivation area, production and productivity in India. , In all the years from 1997-98 to 2019-20 cashew nut production is increase year after year.

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Table: 1 - Cashew nut Area, Production and Productivity

Year	Area (in '000 Ha(	Production (in '000 MT)	Yield (Kg / hectare)
1997 - 98	689	375	0.544
1998 - 99	680	378	0.556
1999 - 00	724	410	0.566
2000 - 01	724	425	0.587
2001-02	740	460	0.622
2002-03	740	460	0.622
2003-04	780	535	0.686
2004-05	820	544	0.663
2005-06	843	579	0.687
2006-07	854	620	0.726
2007-08	868	665	0.766
2008-09	893	695	0.778
2009-10	923	613	0.664
2010-11	953.2	674.60	0.708
2011-12	978.9	725.30	0.741
2012-13	991.6	753.40	0.760
2013-14	1010.847	753.162	0.745
2014-15	1029.085	741.775	0.721
2015-16	1035.56	670.92	0.648
2016-17	978.31	744.69	0.761
2017-18	1062.04	817.00	0.769
2018-19	1068.34	824.10	0.771
2019-20	1075.87	836.48	0.777
AAGR	**1.994**	**3.741**	**1.756**
CGR	**0.224**	**1.204**	**0.218**

Source: CEPCI

Area under Cashewnut Cultivation in India

The area under cashew nut cultivation in India increased from 1997-98 to 2019-20. The tables 1 explain the area under cashew nut cultivation in India.

The India's area of cashew nut cultivation has ranged from689hectares in 1997-98 to 1075.87 hectares in 2019-20. The growth rate observed over the last 23 years of area of cardamom cultivation in India shows continued increases. The average annual growth rate is 1.994 per cent. The average annual growth rate of India is 0.204 per cent.

In this study linear, logarithmic, quadratic and exponential trend models, are attempted to forecast the cashew nut area in India. The results are shown in the table 2 and the trend curves of cashew nut cultivation area in India are diagrammatically presented in Figure 1.

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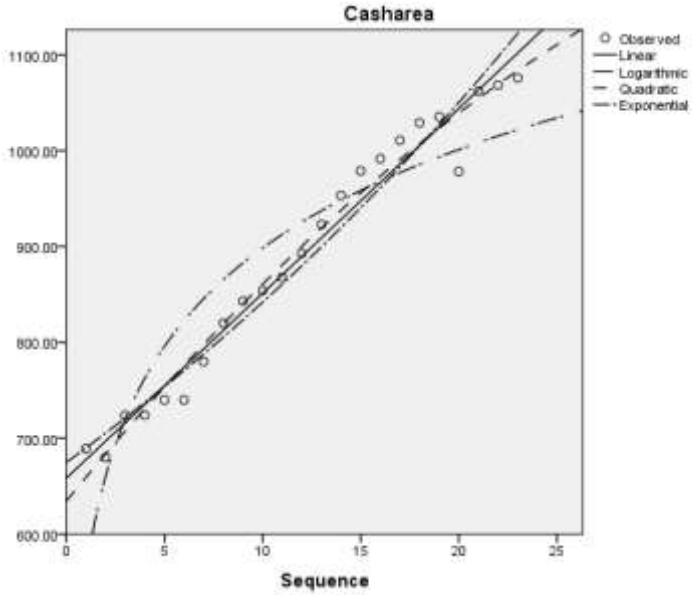
Table: 2 - Area of Cashewbut in India: Estimated Trend Models

Dependent	Mth	Rsq	df.	F	Sigf	b0	b1	b2
CASHAREA	LIN	.971	21	702.720	.000	658.167	19.290	
CASHAREA	LOG	.852	21	121.079	.000	556.885	148.303	
CASHAREA	QUA	.976	20	409.919	.000	634.301	25.017	-.239
CASHAREA	EXP	.964	21	555.109	.000	658.167	.022	

CASHAREA: Cash nut Cultivation Area in India.

In the estimation of various trend models, the results show that all the models explain more than 85 per cent of the variations in area of cashew nut in India. All the four models are found significant in terms of their respective values of 'R^{2}' and 'F' statistic. The regression co-efficients of the all models are found significant at 5% level. The quadratic trend curves fit well and the R^2 value is 0.976. Hence, among the four models, quadratic model is found to be the best fit with the high R^2 value of 0.976.

Figure: 1 - Area of Cashewbut in India: Estimated Trend Models



The following table 3 explains the compound growth rate and coefficient of variation of cashew nut production area in India.

Table: 3 - Trend and Growth Rate of Area under Cashewbut Cultivation in India

Country	Log Linear		R^2	Co-efficient of variation in %	Compound Growth Rate in % P.A
	Constant	Reg. Co-efficient			
India	12.547 (0.1457)	0.03154 (0.0143)	0.724	3.87	0.187

Source: Computed from above table 4.1.

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Table 3 reveals that the regression model is responsible for 72 per cent, in India. The regression co-efficient of India was 0.0055 significant at one per cent level. In India the compound growth rate is negative 0157

Production of Cashewnut in India

India's production of cashew nut is observed to have increased from 375 thousand tonnes to 836.48 thousand tonnes during 1997-98 and 2019-20 respectively. The year 2019-20 is the remarkable year when India's cashew nut production reached 836.48 thousand tonnes. The annual average growth rate is worked out to be 1.204 per cent. The AAGR of area cultivation of cardamom is -0.086 per cent and the yield is 3.741.

In this study linear, logarithmic, quadratic and exponential trend models, are attempted to forecast the cashew nut production in India. The results are shown in the table4.11 and the trend curves of cashew nut production in India are diagrammatically presented in Figure 4.4.

In the estimation of various trend models, the results show that the quadratic model explains more than 95 per cent of the variations in production of cashew nut ut in India. All the four models are found significant in terms of their respective values of '$R^{2'}$ and 'F' statistic. The regression co-efficients of the four models are found significant at 5% level. The trend curves fit well and the R^2 value is 0.930, 0.873, 0.620 and 0.906 respectively. Hence, among the four models, quadratic model is found to be the best fit with the high R^2 value of 0.950.

Table: 4 - Production of Cashewbut in India: Estimated Trend Models

Dependent	Mth	Rsq	df.	F	Sigf	b0	b1	b2
CASHPRO	LIN	.930	21	280.429	.000	368.603	21.096	
CASHPRO	SHG	.873	21	144.643	.000	245.409	167.731	
CASHPRO	QUA	.950	21	189.756	.000	316.835	33.520	-.518
CASHPRO	EXP	.906	21	202.984	.000	390.918	.036	

PRCARIN: Production of Cardamom21 in India.

As per the linear, logarithmic, quadratic and exponential trend models estimated that the cardamom production in India is found to be 1027.707 thousand tonnes, 1022.803 thousand tonnes, 1032.624 thousand tonnes and 1029.268 thousand tonnes for the year 2027-28 respectively. Hence, there has been a steady increase in the production of cashew nut in India.

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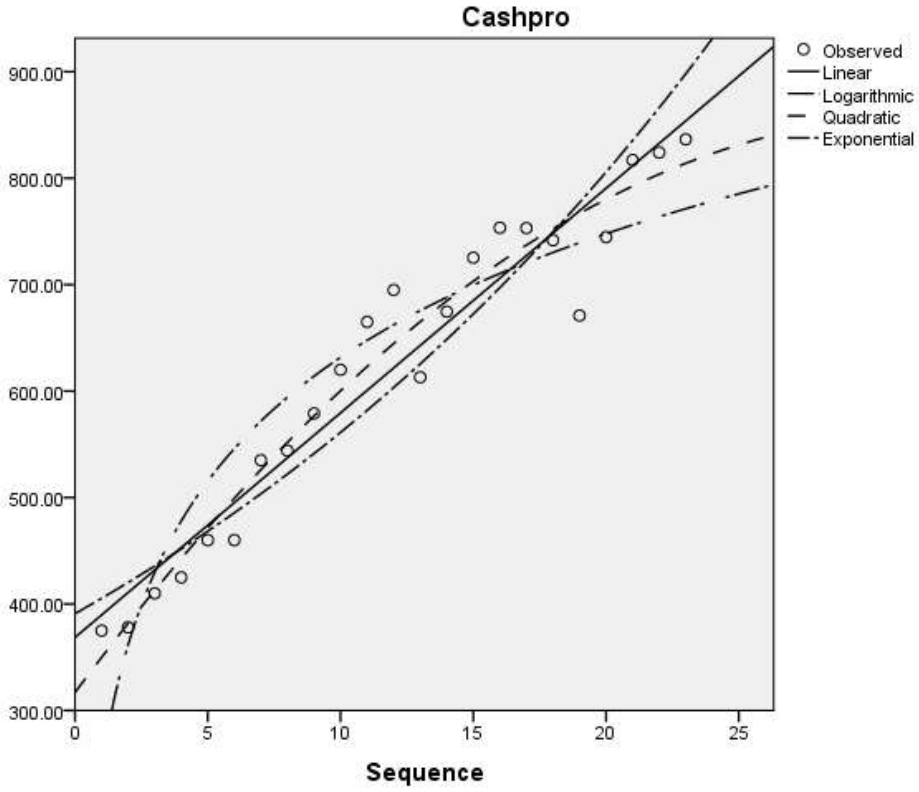
Figure: 2 - Production of Cashewnut in India: Estimated Trend Models



The compound growth rate and coefficient of variation of cashew nut production in India are presented in Table 5.

Table: 5 – Regression and Growth Rate of Cashewnut Production in India

Country	Log Linear		R^2	F	Co-efficient of variation in %	Compound Growth Rate in % P.A
	Constant	Reg. Co-efficient				
India	13.258 (1.471)	2.318* (0.324)	0.810	48.945	29.410	3.278

Source: Computed data from Table1.

Figures in Parent thesis are standard errors.

* Significant at one per cent level.

It is found from Table 5 that the regression model is responsible for 81 per cent (R^2) variation in India. The regression co-efficient of India 2.318 significant at one per cent level. The compound growth rate is high in India that is 3.278 per cent per year. India's cashew nut production is comparatively significant on the basis of the R^2 and co-efficient values.

Hence, there has been a steady increase in the production of cashew nut in India. India can reclaim the first place in cashew nut trade soon, provided the Indian government pays more attention to cashew nut cultivation, marketing activities, export promotional activities and minimum support price to farmers.

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Conclusion

Cashew is a tropical evergreen tree known for its seed worldwide. It flowers once a year between the month of November and January. The sweet flavored nuttiest features of cashew nut like seeds are obtained from the bottom of the false fruit of this tree, which is termed as cashew apples. This study reveals that India's cashewnut production is comparatively significant on the basis of the R^2 and co-efficient values. Hence, there has been a steady increase in the production of cashew nut in India. India can reclaim the first place in cashew nut trade soon, provided the Indian government pays more attention to cashew nut cultivation, marketing activities, export promotional activities and minimum support price to farmers.

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