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**AN ECONOMIC ANALYSIS OF AREA, PRODUCTION AND PRODUCTIVITY OF COCONUT CULTIVATION  
IN INDIA**

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**ABSTRACT**

The commercialization of crop leads the Indian farmers towards more plantation oriented cultivation. Coconut being a plantation crop has made significant contribution to the export sector of India. About 10 million people in the country are dependent on coconut cultivation, processing and the trade. The growing need for the income out of the coconut cultivation leads the farmers to explore varieties of associated products that can be produced out of coconut. Thus the main objective of the study is to understand the trend in area, production, productivity of coconut cultivation in India. Growth index for each variable is calculated for the analysis.

**INTRODUCTION**

Coconut, the *Tree of Heaven* is a plantation crop which is a major sustenance crop of Indian farmers'. According to FAO statistics, the contribution of India to the total share of world coconut output is 23.3% and it is the third largest producer of coconut. Indonesia (35.8%) and Philippines (30.0%) stands first and second positions in terms of production of coconut. The growing need of coconut and related products resulted in the production of value added products and it is found that there is potential scope for process called product diversification. By now India has not made much progress in the product diversification, it is in its initial stage when compared to other coconut producing countries. Kerala, Karnataka, Tamil Nadu, Andhra Pradesh are the major coconut producing states in India. It is seen that there is a decline in the area, production, productivity of coconut cultivation in India and it is a major concern as if it is checked and solved, through the process of product diversification India can conquer the coconut markets in the world.

**LITERATURE REVIEW**

Mathew (1986), in article Coconut Economy of Kerala made an attempt to analyze the coconut production in Kerala. The area, production, yield and farm size through different plan periods are put under study. Mathematical applications are used to identify the size of holding of coconut farming and based on that the farmers are classified as tiny, small, medium and large farmers. He concluded by mentioning the action programmed plan and made a statement that if processing units are controlled by cultivators itself, price control and artificial scarcity can be avoided by eliminating the intermediaries. Jana (2015) in his article importance of coconut farming in Indian agriculture gave a brief explanation over distribution, uses and problems of coconut cultivation in India. He pointed out that the coconut industry in India is centered on copra making, extraction of coconut oil and coir manufacturing and he states that the efforts of coconut development board in India to improve the potentiality for the product diversification is commendable. He also stated that whatever disturbances in the agricultural sector will affect the lives of people in India as most of them were engaged in agricultural activities.

**OBJECTIVES**

The main objective of the study is to analyze the trend of area, production and productivity of Coconut Cultivation in India from the period 1970-2014.

**AREA OF COCONUT CULTIVATION IN INDIA**

The area under coconut cultivation is put under study. Being a plantation crop Coconut cultivation needs wide area. By analyzing the trend of area under coconut cultivation it shows a declining trend. From 1975 the area under production starts declining but by the year 1979 it gained momentum as there was an upward trend it continued till 1996. By the year 1997 the area under cultivation again decreased and by the introduction of Coconut Development Board in 2009 boosted the Coconut cultivation and it is implicated in the increase in the cultivated area. But by now 2014 again the trend is going down. The irregularity in the trend of area under production of coconut affects the production and productivity.

GROWTH INDEX OF COCONUT CULTIVATION IN INDIA					
YEAR	AREA	GI of AREA *	YEAR	AREA	GI of AREA *
1970	1045.5	0.01180683	1993	1635.1	0.06334135
1971	1088.4	0.041033	1994	1713.8	0.04813161
1972	1099.2	0.00992282	1995	1830.9	0.06832769
1973	1102	0.00254731	1996	1890.8	0.03271615
1974	1116.3	0.01297641	1997	1861	-0.0157605
1975	1069.9	-0.0415659	1998	1754.5	-0.0572273
1976	1074.5	0.00429947	1999	1768.1	0.0077515
1977	1056.5	-0.016752	2000	1823.91	0.03156496
1978	1055	-0.0014198	2001	1932.3	0.05942727
1979	1075.8	0.01971564	2002	1921.8	-0.0054339
1980	1083.3	0.00697156	2003	1933.7	0.00619211
1981	1090.8	0.00692329	2004	1935	0.00067229
1982	1149.2	0.05353869	2005	1946.8	0.00609819
1983	1149.2	0	2006	1936.8	-0.0051366
1984	1165.6	0.0142708	2007	1903.19	-0.0173534
1985	1225.6	0.05147564	2008	1894.57	-0.0045292
1986	1231.2	0.00456919	2009	1895.2	0.00033253
1987	1346	0.09324237	2010	1895.9	0.00036935
1988	1425.5	0.05906389	2011	2070.7	0.09219896
1989	1472.2	0.03276044	2012	2136.67	0.03185879
1990	1513.9	0.02832496	2013	2140.5	0.00179251
1991	1528.9	0.00990818	2014	1975.81	-0.07694
1992	1537.7	0.00575577			

\*Source: Coconut Development Board \*Growth Index is calculated with the equation  $\frac{Y_t - Y_{t-1}}{Y_{t-1}}$

**PRODUCTION OF COCONUT CULTIVATION IN INDIA**

The following table shows the trend and growth index of production of coconut cultivation. The declining trend in the area under production has influenced the production of the coconut cultivation. There was a sharp decline in the production and most of the years there is negative growth rate. Due to the increase in expense of maintaining the coconut cultivation resulted in decline in production. There was a revival in the growth index due to the promotional activities of Coconut Development Board , which implicated in the positive growth index for the years 2009-2011. But later the productivity starts declining.

GROWTH INDEX OF COCONUT PRODUCTION IN INDIA					
YEAR	PRODUCTION	GI of PRODUCTION*	YEAR	PRODUCTION	GI of PRODUCTION*
1970	6075	0.036919453	1993	11974.7	0.065279471
1971	6123.7	0.008016461	1994	13299.6	0.110641603
1972	5997.2	-0.020657446	1995	12952.3	-0.026113567
1973	5850.6	-0.024444741	1996	13061	0.008392332
1974	6029.6	0.030595153	1997	12717.3	-0.026314984
1975	5829.4	-0.033202866	1998	12535.9	-0.014264034
1976	5765.3	-0.010995986	1999	12129	-0.032458778
1977	5412.6	-0.061176348	2000	12678.4	0.045296397
1978	5729.7	0.058585523	2001	12962.9	0.02243974
1979	5662	-0.011815627	2002	12535	-0.033009589
1980	5942	0.04945249	2003	12178.2	-0.0284643
1981	5939.9	-0.000353416	2004	12832.9	0.053759997
1982	6356.1	0.07006852	2005	14811.1	0.15415066
1983	5807.9	-0.086247856	2006	15840.4	0.069495176
1984	6912.8	0.190240879	2007	14743.56	-0.069243201
1985	6770.8	-0.020541604	2008	15729.75	0.066889544
1986	9376.8	0.384888049	2009	16918.4	0.075566999
1987	7269.9	-0.224692859	2010	16942.92	0.00144931
1988	8541.4	0.174899242	2011	23351.22	0.378228782
1989	9358.8	0.095698597	2012	22680.03	-0.028743252
1990	9700.2	0.036479036	2013	21665.19	-0.044745973
1991	10079.6	0.039112596	2014	20439.6	-0.056569548
1992	11240.9	0.115212905			

\*Source: Coconut Development Board \*Growth Index is calculated with the equation  $\frac{Y_t - Y_{t-1}}{Y_{t-1}}$

#### PRODUCTIVITY OF COCONUT CULTIVATION IN INDIA

The productivity of coconut cultivation depends on area under production as well as production of coconut cultivation. As the area under coconut cultivation decreases the productivity also decreases. By analyzing the trend in the productivity of Coconut Cultivation in India it is seen that that in some years there is favourable positive results but by the end of 2012 and 2013 it shows a negative growth. There is irregularity in the productivity. It is also due to the lack of active support programmes to the coconut cultivators.

GROWTH INDEX OF COCONUT CULTIVATION IN INDIA					
YEAR	PRODUCTIVITY	GI of PRODUCTIVITY *	YEAR	PRODUCTIVITY	GI of PRODUCTIVITY*
1970	5811	0.02486772	1993	7324	0.00191518
1971	5626	-0.03183617	1994	7760	0.05953031
1972	5456	-0.03021685	1995	7074	-0.08840206
1973	5309	-0.02694282	1996	6908	-0.02346621
1974	5401	0.01732906	1997	6834	-0.01071222
1975	5449	0.00888724	1998	7145	0.04550776
1976	5366	-0.01523215	1999	6860	-0.03988803

1977	5123	-0.04528513	2000	6951	0.01326531
1978	5131	0.00156159	2001	6709	-0.03481513
1979	5263	0.02572598	2002	6523	-0.02772395
1980	5485	0.04218127	2003	6298	-0.03449333
1981	5445	-0.00729262	2004	6632	0.05303271
1982	5531	0.01579431	2005	7608	0.14716526
1983	4983	-0.09907792	2006	8179	0.07505258
1984	5842	0.17238611	2007	7747	-0.05281819
1985	5524	-0.05443341	2008	8303	0.07176972
1986	5179	-0.06245474	2009	8927	0.07515356
1987	5401	0.04286542	2010	8937	0.0011202
1988	5992	0.10942418	2011	11277	0.26183283
1989	6357	0.06091455	2012	10615	-0.05870356
1990	6407	0.00786535	2013	10122	-0.04644371
1991	6593	0.02903075	2014	10345	0.02203122
1992	7310	0.10875171			

\*Source: Coconut Development Board \*Growth Index is calculated with the equation  $\frac{Y_t - Y_{t-1}}{Y_{t-1}}$

### CONCLUSION

From the analysis it is found that even area, production as well as productivity of coconut cultivation is showing a declining trend. In order to check the situation the government should intervene and necessary policies should be formulated. Comparing to other coconut producing economies, India is still lagging behind in the proper product diversification process of coconut. And thus the cultivators are not receiving a sustained income out of it. India being the third largest producer of coconut, there is ample scope for discovering more diversification method so that they can reap the entire benefit out of this plantation crop.

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