



AN ECONOMIC ANALYSIS OF CASHEW NUT PRODUCTION IN ARIYALUR DISTRICT, TAMILNADU

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Abstract:

Cashew being a livelihood providing crop is widely being cultivated in India. Tamil Nadu contributes significantly to the national level production of Cashew, analysed and reported in this study from its humble beginning as a crop intended to check soil erosion, cashew has emerged as a major foreign exchange earner next only to tea and coffee. Cashew nut is one of the important nuts grown in the world and ranked first. Among various nuts such as hazelnuts, almonds, etc., cashew nut enjoys an unenviable position and it is an unavoidable snack in all important social functions especially in the western countries. India is the largest area holder of this crop and stands 2nd in production next to Vietnam. Cashew nut is being cultivated in Tamil Nadu in 142 thousand hectares with annual cashew production of 70000 tonnes during 2016-17. In Tamil Nadu, the Ariyalur district has highly diverse agro-climatic conditions and most backward peoples, which grant the potential for a remarkable agricultural production of a great diversity of crops. The traditional food crops such as paddy, groundnuts and sorghum were predominant and met the livelihood and food security of the family. Later these crops have been replaced by a single cash crop namely Cashew nut.

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Introduction

Cashew nut (*Anacardium occidentale*) a tree native of Eastern Brazil is considered as poor man's crop and rich man's food. India is the largest producer, processor, exporter and second largest consumer of cashew kernels. Tamil Nadu is one of the largest producer of cashew nut in India. The total cultivated area under cashew nut is 92,138 hectares (Year 2011). Ariyalur district has the highest area under cashew nut followed by Cuddalore and Villupuram accounting to the 30,349 hectares, 30,146 hectares and 5,103 hectares respectively (Year 2011). The cashew industries face a shortage of raw cashew, since the domestic production is insufficient to feed the huge number of cashews processing units in India. The production and

processing of cashew nuts are complex and facing various problems. In the marketing stage also the farmers may face many problems relating to price fluctuation Cashew was first introduced into India by Portuguese missionaries during the 16th century in Goa and Malabar Coast, which later served as the main centres of dispersal to other parts of the country (De Costa, 1978) The cashew industry in India is largely an export-oriented industry which employs great number of women to process the nuts. It was only from the 2000 to 2010 that the commercial value of cashew kernel for export and foreign exchange earnings was realized. However, the Indian processing industry has long been dependent on imported cashew nuts. The degree of



import dependency has been increasing over time, especially since the mid-1980s.

Tamilnadu state is broadly classified into two natural divisions i.e., (a) the coastal plains and (b) the hilly western areas. It is further classified as Coromandal plains consisting of Kancheepuram, Tiruvallur, Cuddalore, Villupuram, Thiruvannamalai and Vellore and alluvial plains of Cauvery Delta expanding to Thanjavur, Nagapattinam Thiruvarur and part of Trichy and dry southern plains in Madurai, Ramanathapuram, Sivagangai, and Kanyakumari Districts. The Western Ghats averaging 3000I to 8000I of height run along the western part with the hill groups of Nilgiris and Anamalais on either side of it. Palani hills, Varashanad and Andipatti ranges are the major off-shoots of Ghats. The other prominent hills comprise of Javadhu, Shervarayan, Kalrayans and PachaiMalais. These ranges continue south of river Cauvery. A Plateau is found between these hills and the Western Ghats with an average elevation of 1000 feet raising west-ward. The highest peak Doddabettah in the Nilgris is 8650I above mean sea level.

Regional Research Station (RRS), Virudhachalam

The Research Station, Vridhachalam was established in 1963 as Cashew Research Station under Tamil Nadu Agricultural University. After the start of All India Coordinated Research Programmes, RRS Vridhachalam became one of the All India Coordinated Research Centres for Cashew during 1971. This was later (1982) upgraded as Regional Research Station (RRS) under NARP for north eastern zone of Tamil Nadu. It is the lead centre for North Eastern Zone of Tamilnadu which lies in 11°.30I N latitude and 79°.26I E longitude at 46.7m above mean sea level. Cultivable area of old and new farm is 23.16 and 40.47 ha respectively. Groundnut,

sesame and cashew are the mandatory crops of this station.

Crop Protection

Integrated Pest Management a) Management of Cashew Stem and Root Borer (CSRB) In the Integrated Pest Management strategy, both prophylactic as well as curative control measures are recommended. Prophylactic Control Measures Prophylactic measures such as phytosanitation, training of grafts, avoidance of planting reservoir host plants and chemical treatments are recommended. The base of the tree trunk to the height of three feet should be treated with coal tar + kerosene in the proportion of 1:2 to protect the cashew trees from the pest attack. Treating the base of the tree with neem oil 5% coupled with Chlorpyriphos (0.2%) per tree basin is recommended to prevent the pest infestation. The planting of other host plants such as moringa and silk cotton plants should not be undertaken in the vicinity of cashew plantations. Otherwise, these trees would act as source of shelter for multiplication of the pest. Curative Control Measures After appearance of the initial pest infestation, the curative measures are recommended to minimize the pest menace. Different curative measures are summarized as follows: (i) Mechanical removal of grub's Periodical removal and destruction of different development stages of pest such as eggs, grubs, pupae and adults residing on or inside the tree minimize the fresh infestation in the orchards. The grubs should be removed from the infested trees by means of a chisel. Care should be taken not to remove the healthy bark during grub removal. The plants having more than 50 per cent bark damage should be uprooted to prevent spread of pest from infested to healthy trees. (ii) Chemical control • Immediately after removal of grubs, the portion of infested trees should be sprayed or swabbed with Chlorpyriphos 0.2% or neem oil 5% to prevent the re-infestation of the pest. • Injection of Profenophos 2%



through bored holes/tunnels (or) root feeding of Profenophos @ 20 ml + equal volume of water (20 ml) is effective controlling the pest and preventing re-infestation. • Soil application of granular insecticide: phorate 10G @ 100g per tree around the tree basin followed by copious irrigation to the trees is recommended for controlling the pest. Soil application of entomopathogenic fungus The green muscardine fungus, *Metarhiziumanisopliae* causes 16-30 per cent and 100 per cent mortality of the grubs in the field and laboratory tests respectively. Hence, soil application of the spawn @ 250 g + 5 kg of Farm Yard Manure (FYM)/ tree enhances natural control of the pest by inducing establishment of the pathogen under field conditions. Management of Tea Mosquito Bug (TMB) A scheduled spraying comprising three rounds of insecticidal spray viz., first spray with Profenophos at flushing season (November-December), second spray with Chlorpyrifos or L-cyhalothrin at flowering season (December-January) and third spray with Acephate 0.1% at fruiting stage (JanuaryFebruary) is recommended for the control of Tea mosquito bug. Its cost benefit ratio is 1:9.1 Since, neem trees serves as breeding site for development and spread of the pest (TMB), the neem trees inside the cashew orchards and vicinity of the cashew orchards should be simultaneously sprayed with insecticides to prevent the migration of the pest and consequent spread of new infestation.

Cashew Processing Units in Tamil Nadu

The cashew processing industry in Tamil Nadu was started in 1960 by the cashew factory owners from Quilon, Kerala. They established many cashew factories in the State after 1970, with the objective of earning huge profit from cashew processing as the wage was very low in Tamil Nadu compared to Kerala. The cashew processing industry in the state is monopolized by private sector. In

fact, the government of Tamil Nadu has comparatively less interference in cashew industry. Moreover, there are no cashew factories under the government sector or in the co-operative sector in Tamil Nadu. At the same time, there is no strict factory licensing system under implementation in the state. It is interesting to point out that nearly 90 per cent of the cashew industries of the state are concentrated in Kanyakumari district. Recently several cashew industries are coming up in Panruti area of Cuddalore district because of availability of quality nuts and labour for processing. Several medium and big industries exporting cashew are in Cuddalore district

Traditional Knowledge

Cashew Nursery: Soaking of cashewnuts in cowdung solution is followed by people traditionally to improve the germinability of the stored nut

Seedling Production: Seeds are collected from high yielding trees of the farmers own farms and sown for producing seedlings for planting

Pest Control: Swabbing waste engine oil mixed with neem oil to the tree trunks is traditionally followed by farmers of Tamilnadu to prevent cashew stem and root borer laying eggs in the roots.

Panchakavya: Traditional spraying / soil application of Panchakavya, a natural bio stimulating mixture prepared from 5



products of cow origin for deterring pest and to get quality bold nuts. Nut setting also improved in panchakavya sprayed fields.

Traditional use:

Cashew nut shell-oil: mild purgative, used in folk medicine for treatment of hookworm, cracks on soles of feet, warts, corns, leprous sores.

Modern use:

Cashew nut: used in mental derangement, sexual debility, nervous prostration following seminal emission, morning sickness in pregnancy, palpitation of heart, rheumatic percarditis, loss of memory as a sequel to small pox; Kernel: good for weak patients suffering from incessant and chronic vomiting; Kernel-oil: antidote for irritant poisons; Liquor made from fruit: diuretic.

Homoeopathy:

for boils, warts, wounds and different types of cracks in legs; used sometimes in case of leprosy

Objectives

This study was undertaken with the following objectives.

- To Economically Analyse the Cashew Cultivation in the Study Area.

Materials and Methods

The present study was conducted in Ariyalur district of Tamil Nadu purposively.

With regard to selection of block, Andimadam was selected since, production and marketing wise, it occupied the first position in Ariyalur district. The primary data required for the study was collected through personal interview method with the help of a comprehensive pre-tested interview schedule. The interview schedule for the farmers covered aspects such as general characteristics, production quantity, price, method of sale, transporting, labour management and constraints, etc. The interview schedule for the entrepreneurs covered aspects such as general characteristics, details of processing, activities like procurement, transporting, labour management, value addition, marketing and constraints, etc. The interview schedule for local traders, wholesalers and retailers covered the details on unloading, transportation, marketing cost, marketing margin, value addition and problems encountered at various levels. Secondary data for the study like, general information related to the district were collected from the District Statistical Office of Ariyalur district, Government publications and other published materials. The data collected were tabulated, processed and subjected to statistical analysis to draw meaningful inference. Since the study was limited to a particular area, the utility of findings area also limited general applications.

Ensuring Food Security through Cashew Crop

Cashew is known as cash crop for farmers. As per the fact cashew cultivation increases income generation of farmers as it has less cost of cultivation than the traditional crops and also the market value of cashew is high in current scenario. Apart from this, the processed cashew nut has high demand in market and has high export value which certainly increases farmers' income. Cashew is a perennial crop which generates various employment opportunities for rural people throughout the year at various stages. Cashew cultivation includes various practices such as



pruning, weeding, creation of water harvesting structure, harvesting, processing etc., in the recent technology package. These operations required maximum of labour force which leads to employment generation among the rural people. Previous data from a 2010 household survey (Anon, 2010) also reveals that cashew accounts for 26% of the income (net of remittances) in female-headed households and for 35% in male-headed households. As such, cashew is the most important source of monetary income, in addition to being the core of both economic performance and poverty reduction. As it is a perennial cash crop, it acts as source of income and employment generating point for both land holders and labours. Due to the better income from cashew farmers could ensure their food needs.

Harvesting and Yield

Cashew plants start bearing after three years of planting a reach full bearing during tenth year and continue giving remunerative yields for another 20 years. The cashew nuts are harvested during February – May. Normally, harvesting consists of picking of nuts that have dropped to the ground after maturing. However, if the apples are also used for making jam, juice, syrup, Fenni, etc., the fruit has to be harvested before it falls naturally. The cashew apples are removed and the nuts are dried in sun for 2-3 days to bring the moisture level from 25 per cent to 9 per cent. The maturity of the cashew nut is tested by floatation method. The mature nuts sink in water while the immature/ unfilled one's float. The nuts are collected at weekly intervals from the farm during the harvesting season. During that period the land should be clean in order to facilitate collection of cashew. Plantations of unknown origin or seedling progenies with conventional

methods of cultivation yield less than one kg of raw nuts per tree. However, there is a chance to increase the yield up to 4 to 5 kg per tree with the adoption of improved production techniques, over a period of 4 to 5 years. In new plantations, with the use of elite planting material coupled with a package of improved agronomic practices, a yield of 8-10 kg per tree could be achieved.

Decade-wise Growth in Area, Production and Yield of Cashew in India In India,

Cashew cultivation is largely found in Kerala, Karnataka, Goa and Maharashtra along the west coast and Tamil Nadu, Andhra Pradesh, Orissa and West Bengal along the east coast. The decade-wise growth in the area, production and productivity are presented in Table 1. It is seen from the table that the compound annual growth rate (CAGR) for area was found to be highest during 1990-91 to 1999-00 (3.65% per year). This might be due to economic liberalization which affected indirectly the cultivation of cashew, followed by 2.55 per cent per annum during 2000-01 to 2009-10, 1.74 per cent per year during 1980-81 to 1989-90 and 1.53 per cent per annum during 2010-11 to 2017-18. The growth in production was found to be highest during pre-economic liberalization period i.e., during 1980-81 to 1989-90 (8.80% per year) followed by 4.55 per cent per year during 2000-01 to 2009-10, 3.14 per cent per annum during 1990-91 to 1999-00 and 1.89 per cent during 2010-11 to 2017-18. While the average annual growth in yield of cashew was found to be highest during 1980-81 to 1989-90 (6.93 % per year) followed by 1.95 per cent per year during 200-01 to 2009-10, 0.45 per cent during 2010-11 to 2017-18 and there was a negative growth during 1990-91 to 1999-00. We can see a decreasing growth rate in yield over decades.

Table.1
Decade-wise growth in area, production and yield of cashew in India

CAGR (%)	Area	Production	Yield
1980-81 to 1989-90	1.74	8.8	6.93
1990-91 to 1999-00	3.65	3.14	-0.49
2000-01 to 2009-10	2.55	4.55	1.95
2010-11 to 2017-18	1.53	1.89	0.45

Source: www.indiastat.com

Table.2
Area, production and yield of major cashew growing states of Tamil Nadu, 2017-18

State	Area (000 ha)	Production (000MT)	Production Percentage (%)	Yield (Kg/ha)
Maharashtra	191.45	269.44	32.98	1378
Andhra Pradesh	186.78	116.92	14.31	600
Odisha	193.99	98.59	12.07	513
Karnataka	129.07	89.45	10.95	672
Kerala	92.81	88.18	10.79	962
Tamil Nadu	142.28	71.03	8.69	478
Goa	58.25	34.26	4.19	561
West Bengal	11.36	12.96	1.59	1140
Chhattisgarh	13.70	9.83	1.20	681
Gujarat	7.25	6.50	0.80	900
Jharkhand	14.83	6.13	0.75	393
Meghalaya	8.58	6.12	0.75	686
Tripura	4.25	3.45	0.42	812
Pondichery	5.00	2.16	0.26	432
Assam	1.05	1.13	0.14	1028
Nagaland	0.50	0.54	0.07	1080
Manipur	0.90	0.32	0.04	360

Source: The Directorate of Cashewnut & Cocoa Development (DCCD), 2018

Conclusion

The various stages of cashew processing and the details of services were discussed the constructed cashew that various components like farmer, processor, wholesaler, retailer, local trader, exporter and road side shop retailers, etc., affecting overall industry performance and make it more competitive. This study suggested that, flexible finance and investment in developing new processing technologies with the consideration of small scale processing sector is essential at this juncture. It is also

suggested that the scope of scope of overseas market can be extended to the small scale processors by giving proper training and infrastructural facilities. Adopting contract farming business model in overall development of this sector may be useful in mitigating price and production of cashew growers and processors that too erroticrainfed situation which will be ultimately beneficial to both the stake holders.



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