A STUDY ON ECONOMICS OF CASHEW NUT AGRICULTURE, PROCEDURE AND MARKETING IN CUDDALORE DISTRICT, TAMILNADU

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ABSTRACT

Cashew is a hardy crop and can be grown in almost all types of soil from sandy to laterite including wastelands of low fertility. 'It's very nature and adaptability to diverse soil and climatic conditions have been to an end responsible for a misconception that the crop does not need much attention' (Rao, 1957). Most of the plantations developed in the country from the early part of this century till late 1980s were of seedling origin. The primary consideration was to cover area rather than increase the productivity of the crop, resulting in non-productive plantations. As cashew is a hardy plant, often it has been thought to be highly suitable for afforestation, soil conservation and wasteland development. Unfortunately, the plantations raised with this objective, did not receive any management or inputs, thereby resulting in low productivity.

Cashew nut is cultivated in most of the cashew producing countries, individually by small holders. In India, more than 70 percent of cashew area is under small and marginal holdings and hence, plays an important role in the development of small
and marginal farmers. The average cashew holdings in the sample districts of Kerala were 0.7 ha. In Koraput district, Orissa, cashew cultivation was limited to marginal lands. 26 percent of the sample farmers in Cuddalore district of Tamil Nadu were small and marginal.

INTRODUCTION

1 ECONOMICS OF CASHEW NUT CULTIVATION

The economics of cultivating seedlings, grafts, organically cultivated plants and replantation of old plantations in the sample States has been discussed below. Economic bearing of nuts commences after third year of planting and stabilized yield starts from the tenth year. Inter crop is planted during the first three years of planting. By introducing an inter crop during the first three years, farmers realize returns thereby meeting expenditure for raising cashew plantations to a certain extent. Blackgram, Groundnut and Tapioca were the most familiar intercrops found in Cuddalore district of Tamil Nadu. Short duration crops like vegetables, tapioca, pumpkin, chillies, etc. were cultivated as inter crops in Kerala. But these inter crops were cultivated by the farmers for their own consumption. In Orissa, the sample farmers were not cultivating any crop as inter crop.

CASE STUDY 1: INTERCROPPING IN CUDDALORE DISTRICT (TAMIL NADU)

Blackgram was the most preferred intercrop cultivated by the sample farmers in Tamil Nadu. The cost of black gram cultivation as inter crop in cashew plantations included seeds, labour, weeding, pesticide spray and harvesting. The net income worked out to Rs. 8750/ha during the 1st year and reduced to Rs. 6625/ha during 2nd year and Rs. 4288/ha during the 3rd year due to the reduction in yield. There was reduction in yield from 1st to 2nd year and further reduction in 3rd year because the space available for intercrop was reduced due to the growth of cashew trees.

CASE STUDY 2: ECONOMICS OF SEEDLINGS WITH IRRIGATION IN CUDDALORE DISTRICT (TAMIL NADU)

The economics of seedlings under irrigated conditions was also worked out for sample farms in Cuddalore and the results revealed that cost of establishment and maintenance cost was Rs. 40715 and Rs. 14025 per ha respectively. The stabilised yield was 1200 kg and the net income derived was Rs. 26475 per ha. Thus, irrigation has a positive impact on the yield of cashew.

2 TRADITIONAL (SEEDLING) AND GRAFT VARIETIES OF CASHEW – A COMPARISON

Comparison of cashew grafts with seedlings has been made and the results revealed that:

- The cost of raising cashew plantations with grafted varieties was cost intensive. The cost of establishment in grafts was more than double than that of crop raised through seedlings. This may be attributed to the cost incurred on planting of grafts and intensive cultivation practices like higher dose of manures and fertilizers and intensive pest
management. The cost of cultivation per ha was also more in grafts due to the same reasons.

- The stabilised yield was more in grafts than seedlings. There was an increase in yield by 140 percent in Orissa whereas; the increase was 100 per cent in Tamil Nadu.

- Variations in the price realised was observed in Orissa. There was a difference of Rs. 5 per kg between seedlings (Rs. 30/kg) and grafts (Rs. 35/kg). Such variations were not observed among the sample farms in Tamil Nadu. State Potential Actual Gap Kerala 2703 1000 1703 Orissa 2100 1080 1020 Tamil Nadu 1752 1600 152

- Variations in yield and prices have led to variations in the net income realised. There was an increase in net income by 183 percent in Orissa whereas the increase was 130 percent in Tamil Nadu.

3 SCOPE FOR ORGANIC CASHEW IN INDIA

In major cashew growing areas of the country, natural farming is followed. It is estimated that not more than 20 percent of cashew holdings in India use chemical fertilizers/pesticides (Sivaraman, K. & Hubballi, N., 2002). This facilitates adoption of organic farming practices over a period of time without additional efforts. Thus, there is a vast potential of bringing these areas under organic farming practices to exploit the available marketing avenues.

CASE STUDY 3: ORGANIC CASHEW CULTIVATION IN CUDDALORE (TAMIL NADU)

The Department of Horticulture in Tamil Nadu is promoting the use of organic inputs like bio fertilizers, neem cake, vermi compost, etc. The sample farmers were found to use the organic inputs initially but later used the chemical fertilizers; hence they were considered as partially organic farms. Since the sample organic cashew farms were 2-3 years old, the economics was worked out by assuming the same yield as that of grafts. Cost of establishment per ha for the partially organic plantation worked out at Rs.83450, maintenance cost @ Rs. 15100 and the net income was Rs. 38900.

CASE STUDY 4: REPLANTATION OF CASHEW IN CUDDALORE (TAMIL NADU)

Removal of senile plantations is required for improving productivity. With an average of 50 old trees in one hectare, replantation programme was carried out with the removal of 10 trees in a year and planting new grafts. Hence, the entire area of 1 ha was covered with new trees in 5 years.

The removal of old plantations and replacing with graft plantations included establishment costs on removal of old trees (37.12% of the total costs), grafts, pit making, stacking, maintenance of existing old trees, etc. during the five years. The crop started yielding marginally from third year onwards and the yield stabilized from 10th year. Although the cost of establishment was high at Rs. 1.93 lakh, the net income realized was Rs. 36900 per ha due to the stabilized yield of 1600 kg.
4 CASHEW PROCESSING: METHODS

Cashew nut processing involves roasting/boiling, moisture conditioning, shelling, drying, peeling, grading and packing. It is done by any of the four methods- sun drying, drum roasting, oil bath roasting and steaming. Under roasting method the nuts are burnt which makes the shell brittle so that it can be broken to extract the kernel. Open Pan Roasting, Drum Roasting and Hot Oil Bath Roasting are the popular methods of roasting. Steaming is an improved method adopted in cashew processing. The nuts are steamed so as to make the shells soft and then cut open to get the kernels. The sample units in Kerala practiced drum roasting and steam boiling was practiced in Orissa and Tamil Nadu. Steam boiling method has the advantage of recovering CNSL. However, the storage or shelf life of kernels extracted under roasting method is longer than the kernels extracted under boiling method but chances of breaking the kernels while extracting is very high thus it requires more skillful hands for removing the kernels from the roasted nuts. Again, roasting of kernels emit obnoxious smoke and thus invite objections from the residential areas in the vicinity.

5 CASHEW GRADES

Grading is done based on "counts" or number of kernels per lb. Based on the shape, size and colour of the kernel, cashew kernels are graded into white or scorched wholes, pieces, splits, butts, etc. The Government of India Act prescribes 33 different grades of cashew kernels of which only 26 grades are commercially available and exported. W-320 are the most popular among cashew kernels and also the most available, worldwide. Butts, splits and pieces are priced low and are used for cooking, preparation of sweets and savory snacks. Packing was usually done by vita pack method (exhausting the air inside the packing tin, pumping in carbon dioxide and sealing).

6 PROCUREMENT OF RAW NUTS

Procurement of raw nuts is an important operation for the cashew processing units. The sample cashew processing units in Kerala procured locally available raw nuts and imported nuts from countries like Tanzania. 60 percent of the sample cashew processing units in Orissa was importing raw nuts from African countries like Guatemala, Zambia, Ivory Coast, etc. Cashew nuts were also procured from neighbouring states of Andhra Pradesh and Chattisgarh apart from procuring the same from the local areas. The average price of raw cashew nuts for the sample units was Rs.35 per kg. The sample processors without boilers including the sample SHGs in Tamil Nadu were procuring raw nuts only from the domestic market (Perambalur, Pondicherry, Nellore and Panruti) whereas; the sample processors with boilers were procuring imported raw nuts through Tuticorin port besides procuring raw nuts from the above mentioned places. The average cost of procuring raw nuts in the domestic market and imported nuts by the sample processing units in Tamil Nadu.

The average cost per bag of domestic and imported raw nuts were Rs. 3012 and Rs. 2510.81 respectively. The difference in the cost was mainly due to the difference in the purchase price of the raw nuts. The size and quality of the local variety was considered to be relatively better by the processing units as they were larger and whiter. Ninety percent of the purchase cost
was towards payments for domestic raw nuts and the same was 95 percent for imported nuts. Remaining cost incurred was towards brokerage, purchase tax, transport cost, and loading/unloading.

7 ECONOMICS OF CASHEW PROCESSING

The economics of cashew processing per bag of raw nuts (80 Kg). The sample processors obtained a total of 23 kg of processed kernels, 55 kg of shells and 2 kg husk from a bag of raw nuts of 80 kg. The shells were sold to the CNSL units @ Rs. 2 per kg (Orissa) and Rs. 2.72 per kg (Tamil Nadu). Similarly, the husk was sold to the traders @ Rs. 8 per kg in Tamil Nadu and the same was used to mix in tea leaves. The sample units in Orissa and Kerala were not making regular sale of the husk.

The Financial Rate of Return (FRR) worked out to 35 percent for the sample units in Kerala and the same was (> 50%) in Orissa and Tamil Nadu. This variation was due to the difference in the costs and processing capacity, which was an average of 2400 MT in Kerala, 818 MT (Orissa) and 160 MT (Tamil Nadu). 50 percent of the sample processing units in Tamil Nadu had boilers and drier and 50 percent had only drier and were getting the raw nuts boiled at other units having boilers @ Rs. 25 per bag. The sample processors without boilers were procuring only domestic raw nuts. Average processing cost per bag of raw nuts comprising the hired boiling was Rs. 348.18; net income was Rs. 181 per bag and the FRR worked out to 35 percent. This variation with the processors having boilers was due to the difference in the number of bags of raw nuts processed per month, which were 200 and 100 bags per month for the sample processors with and without boilers respectively.

CASE STUDY: MICRO ENTERPRISES IN CASHEW PROCESSING IN CUDDALORE

Two processing units managed by Self Help Groups (SHGs), who may be considered as micro entrepreneurs was analysed in Cuddalore district of Tamil Nadu. 'Desire to start their own enterprise' was the main reason for investment by the SHG members. One of the processing units was managed by four SHGs as a combined venture whereas the other processing unit was managed by a single SHG. All the SHGs were women groups with 20 members in each group and all the members worked together to make a successful enterprise. The sample SHGs, managing the processing units were credit linked to a branch of Regional Rural Bank in the area. The amount borrowed per group was Rs. 2.29 lakh with a subsidy of Rs. 114500 @ 12 percent rate of interest under Swarnajayanti Gram Swarojgar Yojana which had to be repaid in 60 monthly installments. Repayment of SHG loans was found to be regular.

The loan amount was used for purchasing machineries and raw nuts for processing. One unit had purchased a cashew drier and a second hand boiler whereas the other unit had purchased only a cashew drier and was getting raw nuts boiled from nearby units @ Rs. 25 per bag. The sample SHGs preferred only domestic raw nuts due to their small scale operations and consequent inability to access international markets.
Marketing of the graded kernels was arranged through tie up with the local export houses and traders. The whole graded kernels were sold to the local export houses and the other kernels like splits and butts were sold to the traders locally.

The monthly net income worked out to Rs. 18107 and Rs. 30950 for the SHG units without and with boilers respectively. This variation was due to the difference in the number of bags of raw nuts processed per month. The profit was shared among the members of the SHGs over and above the wages paid to the members for the processing operations. Thus, the resource poor women could get access to financial services in terms of savings and institutional credit through SHGs. Convergence of efforts of stakeholders like financial institutions, State Government Departments (premises for establishing these units) and credit cum savings groups (SHGs) led to creation of livelihood opportunities for the rural poor women. Potential for similar micro enterprises needs to be tapped by women SHGs in the cashew growing areas.

8 EMPLOYMENT GENERATION IN CASHEW PROCESSING

The processing of cashew in India is a highly labour intensive activity. Employment generation in cashew processing units was 11 person days in Orissa and 7 person days in Tamil Nadu and Kerala for processing 1 bag of raw nuts of 80 kg and was mainly (90%) for women. This was because women were considered to be hard workers and more reliable. Moreover, the work in the processing units involved lesser physical labour, in comparison to agricultural labour. Since the share of women in this sector is large, the growth of this sector will contribute towards women's employment.

9 RISKS IN CASHEW PROCESSING AND MITIGATION STRATEGIES ADOPTED

Cashew processing involved a number of risks at various stages of operations and the processing units including those owned by SHGs took necessary steps to mitigate most of them. Primary risk was related to the consistent procurement of raw nuts and stock piling of sufficient raw nuts to operate the units on a regular basis. The raw cashew nuts were purchased at the time of harvest from the local market, procured from nearby districts/ states and were also imported.

Two major considerations in the decortications of cashew nuts involve avoidance of contamination of kernels by the toxic CNSL and minimization of kernel's breakage. Second risk pertained to difficulties in shelling cashew nuts, which was due to the irregular shape of the nut, the tough leathery outer shell, and the CNSL within the shell that must not be allowed to contaminate the kernel or burn the hands of the worker/s during its removal from the shell. The processing units including the SHGs fine-tuned the process by employing skilled workers in order to achieve quality kernels.

Cashew kernels were expected to have moisture content of not more than five percent. This risk was avoided by employing a permanent labour to operate the electric borma efficiently and storing in clean and dry place with sufficient protection and packed with utmost care in tins to preserve their quality.
Quality including safety, reliability and acceptability of the product to the consumer has emerged, ahead of price, as the most vital criterion. The sample processors made efforts to match the standards set by the local export houses.

The prices of cashew nuts were subjected to market fluctuations that affect the small processors. The sample SHG units in Tamil Nadu managed this price risk and procured sufficient raw nuts by using a part of the loan amount and their savings as working capital.

10 VALUE ADDED NUTS

Value addition in cashew can be done through preparing sweetened and flavoured cashew from cashew kernel baby bits. Cashew kernel baby bits could be coated with combination of different colours (apple green, chocolate brown, kesari, lemon yellow, orange red and raspberry red) and flavours (vanilla, cardamom, ginger and clove) (Source: Cashew Vision 2025, NRCC, Puttur).

The value added cashew products in Cuddalore included salted and roasted kernels with chilly or pepper flavours. The average cost incurred per kg for the kernels was Rs. 220 and was being sold at Rs. 300.

The export of value added cashew kernels from India is insignificant. This is mainly due to the reason that the importers and packers in the major markets like United States do not want the Indian suppliers to send value added products, which they consider, would adversely affect their packing industry. However, there is a scope for increasing the export of value added cashew kernels in the non-traditional markets like West Asian countries.

11 BY-PRODUCTS OF CASHEW

There are two main by-products of cashew: cashew nut shell liquid and cashew apple. Details of these by-products are discussed below.

CASHEW NUT SHELL LIQUID (CNSL)

Cashew Nut Shell Liquid (CNSL) is an important economic product of the plant, which is extracted from the shells of the raw nut and has various industrial uses like preparation of type writer rolls, drying enamels, water-proof coating for cement and brick flooring, manufacture of paints, varnishes and plastics. CNSL is a by-product of cashew industry, which is obtained from the shells. It is one of the few natural resins that is highly heat resistant and is used in the paint, automobile and foundry industry. Some of the advantages of CNSL based polymers are that it has improved flexibility, termite and insect resistance and anti microbial property.

EXTRACTION PROCESS

The sample units in Orissa and Tamil Nadu were following the expeller method for the extraction of oil from the shells. The extracted oil was filtered with the help of a filter press and then weighed and packed in barrels. Recovery of oil as percentage of 1 bag of shells (55 kg) was 19.38 percent in Orissa and 21.8 percent (Tamil Nadu) and the remaining were shell cakes.
Expeller method being used was considered to be better than other methods like hot oil bath, kiln method, etc.

12 MARKETING OF CASHEW

Marketing in respect of cashew involved several players and channels. Marketing begins from the sale of raw cashew nuts by farmers and reaches the level of exporters/retailers for selling of processed and graded kernels to the ultimate consumers. The sample cashew growers sold a major portion of the produce to local traders, who in turn supplied the nuts to large traders and processing units located in Kollam (Kerala), Cuddalore (Tamil Nadu), Mangalore (Karnataka), etc. There are several entities in the marketing channels that get good share in the total spread between the producer and consumer. This Section analyses in detail the marketing aspects of raw nuts and kernels in the study area.

MARKETING OF RAW CASHEW NUTS

Marketing of raw cashew nuts in India has not yet been organized in a systematic manner except in Goa where co-operative marketing societies have a major stake in raw nuts trade. These co-operatives, where the producers were the major stakeholders acted as intermediary between the producers and the processors. The society had collection centres located in the production areas and procured cashew nuts from the growers. The sales price was fixed at Rs. 1.50 per kg above the procurement price and the processors had to lift the produce and bear the transportation cost from the society/collection centres. There was another co-operative set up, which directly procured raw nuts from producers and also had a processing unit on lease. Through this mode, the supply chain was further shortened and was beneficial both to producers and processors (Technical Digest, NABARD, 2007).

There was no regulated market for raw cashew nuts in Kerala and Orissa. Due to the absence of regulated markets, the farmers were forced to sell the raw nuts at prices determined by the local traders, who took a margin ranging from Re. 1 (Kerala & Tamil Nadu) to Rs. 2 (Kerala) per kg of raw nuts.

Even with the existence of regulated market for cashew in Panruti (Cuddalore district), raw nuts were sold by the farmers to the processors as well as commission agents, who visited the villages and collected the raw nuts from the farmers. Payment of cess and taxes in regulated markets deterred the producers from resorting to regulated markets

MARKETING CHANNELS FOR CASHEW

The prominent marketing channel prevalent in the sample districts is depicted below:

CASE STUDY: PRICE SPREAD IN CASHEW SUPPLY CHAIN IN THE DOMESTIC MARKET IN CUDDALORE (TAMIL NADU)

A case study of marketing dynamics of cashew in Cuddalore district revealed that ninety percent of the processed kernels were sold through the export-marketing channel. In the export market, some of the other channels were similar to the above except that some of the exporters also
owned processing units and the processing units/exporters were also directly procuring raw nuts from the farmers.

Marketing of graded kernels by small cashew processors in Tamil Nadu were arranged through tie up with local export houses and traders; thus reducing their marketing risks. In the domestic market, the price spread has been worked out for the prevalent marketing. Despite the length of channel, the share of producer was 53.54 per cent in consumer Rupee and the price spread was Rs. 2342.75 per bag (80 kg) of raw nuts in Tamil Nadu. In the other marketing channel (Farmers--> Processing units--> Wholesalers--> Retailers--> Consumers), which was not widely prevalent, the share of the commission agents was only reduced. The commission agents charged Rs. 25 per bag (80 kg) of raw nuts as commission from the processors and acted as a link between the farmers and processors. Wholesalers purchased desired graded kernels from the processors and packed in different sizes of 1 kg, 500gm, 250gm, etc. and also in tins. Another category of wholesalers purchased the ungraded kernels (mixed grades) from the processors and graded and packed the kernels. Some wholesalers gave their own brand names to the pack.

The share of processors and wholesalers in the consumer rupee was 8.04 percent and 15.52 percent, respectively. No value addition was reported by the sample retailers but their share in consumer Rupee was 6.47 percent.

Traders/wholesalers controlled cashew markets for both raw cashew as well as kernels. The cashew growers did not have any control over the market due to the absence of coordination and integration among themselves. As there were a number of intermediaries operating in the field between the primary producer and the processing unit, the different costs and margins in the total spread between the producer and the processing unit are quite significant and the producers' share in the price paid by the processing units is generally low.

CASE STUDY: NET MARGIN FOR SAMPLE EXPORTERS IN CUDDALORE (TAMIL NADU)

The price spread for the marketing channels of export market has not been worked out as the intermediaries involved and prices paid by the consumers in the destination countries were not known. Instead, the net margin for the sample exporters was worked out. Among the different grades of cashew kernels, only W240 and W320 were being exported. The total cost (costs on transport to Tuticorin port, labour, certificates from Cashew Export Promotion Council of India, pouch packing, shipping agents, etc) per kg for grades W240 and W320 was Rs. 210 and Rs. 180 respectively and the net margin for the same worked out to Rs. 31 and Rs. 20 per kg.

CONCLUSION

Cashew futures are exchange traded contractual obligations to make or accept delivery of a specified quantity and quality of cashew during a specified time in the future at a price agreed upon at the time the commitment is made. At present, futures are available in cashew at National Commodity and Derivatives Exchange Limited (NCDEX) and MCX. MCX was the first commodity exchange in the world to start futures trading in cashew. NCDEX has launched a
cashew futures contract in Kollam, Kerala since March 2005. The price quote is on net basis and net weight of each carton is 22.68 kg. Trading is done for white wholes, with a count of 300-320 nuts per 454 gm. It is stipulated that the kernels should be free from infestation, insect damage, mould rancidity, adhering testa and extraneous matter. The delivery centres are located at Kollam, with an additional delivery centre at Mangalore.

Although, the commodity futures help the exporters in hedging against price fluctuations as they can sell the commodity at a price decided months before the actual transaction, thus ironing out any fluctuation in prices that happen subsequently; the sample processors/ exporters were not trading on the future exchange.

REFERENCES


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