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Value addition of Cashew Nut in Meghalaya: A case study of B.R. Industries

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ABSTRACT

Cashew crop (*Anacardium occidentale L*) is a native of Brazil. Throughout India, this was first introduced by the Portuguese in the sixteenth century to combat soil erosion and, later on, it acquired business value for the cashew kernel, which is actually the main item of the cashew tree. In the year 1960-61, the Assam Department of Soil Conservation introduced cashew at Meghalaya to Garo Hills. It is primarily grown in the western Garo Hills and the southern Garo Hills district of Meghalaya. The survey was conducted in B.R. Industries located at Phulbari, West Garo Hills, Meghalaya, which is the first cashew processing sector in North East part of India. The primary and secondary data is used to collect the data. The principal purpose of the study was 1) to study the value addition of cashew nut and 2) to study the disposal pattern of cashew by B.R. Industries. Based on study conducted it was observed that the industry has a total production of 1200 kg of finished cashew products per month with a gross return of ₹,19,400 per month and a net return of ₹,26,168 per month with annual net return of ₹5,14,016. The industry supplies Assam with 60 per cent of the cashew commodity and Meghalaya itself consumes 40 per cent.

1. Introduction

Cashew tree (*Anacardium occidentale L.*) is commonly known as 'gold mine' of wasteland. This crop is a native of Brazil and it was first brought to India by Portuguese traveller for the purpose of controlling soil erosion in the sixteenth century and is mostly grown in wasteland area but it has slowly gained commercial importance. Cashew is a tropical evergreen tree which comprise of cashew apple and cashew kernel. This crop has the capability to give source of livelihood for the growers of cashew, empower rural women within the processing industry, create job opportunities and generate foreign exchange. In cashew factory, ninety-five percent of labours are women those who belongs to the lower class of society, and from the economically and socially backward communities. The industry has ability to play a major role in financial and social uplift of the poor people. Cashew is also referred to as "poor man's crop, rich man's food".

Three major cashew products are traded within the market - raw cashew nuts, cashew kernel, cashew nut shell liquid and the fourth cashew product - the cashew apple is especially processed and consume locally.

Cashew nut in India

Cashew is mainly cultivated in India for the purpose of sustaining the cashew processing sector, but less production of the raw cashew within the country has always been a constrain for the cashew processing industries. Cashew is mainly cultivated in the country's coastal region. It is grown in Karnataka, Kerela, Goa in the western coast and Andhra Pradesh, Tamil Nadu, West Bengal and orissa in the eastern coast. And to its limited extend it is cultivated in Chhattisgarh, North Eastern states (Assam, Meghalaya, Manipur, Tripura, and Nagaland) and Andaman and Nicobar Island. In India, a total of 9.82 lakhs ha area covers cashew plantation and a total output of 7.28 lakhs tonnes. The productivity, then, is 685kg/ha which have the capability to

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give employment to 5 lakhs people directly or indirectly. The production and productivity is highest in the state of Maharashtra with the highest average productivity of 1262 kg/ha.

Cashew in Meghalaya

Cashew trees are grown mostly under the West Garo Hills and South Garo hills districts of Meghalaya across the undulating terrain. The majority of the land accessible in the South and West Garo Hills is currently being utilized and it provides an ample scope for area expansion of this crop in the district of Meghalaya. During the financial year 2017-18, Meghalaya has recorded a total area of 8.580 ha under cashew crop, a total production of 6.120 MT and the average productivity of 686 kg/ha. The farmers in Meghalaya have an average area of 1 acre per family and 5 percent of farmers tend to practice the technique of intercropping with pineapple, black pepper, chillies and areca nut. The farmers practice weeding and inter-culture operation only occasionally and do not practice pest and disease control action nor they perform manuring and also irrigation. Steam borer and tea pest are the major pest found in cashew crop in Meghalaya.

Farmers residing at South Garo hills sell their cashew nut after sun drying for 1-2 days and after separating the cashew apple and cashew nut. However, West Garo hills farmers sell their cashew without sun drying and they sell them at the price of ₹60-80 rupees per kilogram. However, sundried cashew nut fetches rupees 10 per Kg higher than raw cashew. The varieties mostly grown by the farmers of Meghalaya are Vengurla-4 and Ullal-3 which are from the state of Goa and Karnataka.

Keeping in view of the above, the study was taken up with the following specific objectives:

- To study the value addition of cashew nut at B.R. Industries.
- To study the disposal pattern of cashew nut by B.R. Industries.

2. Methodology

Study area and data collection:

The study was conducted at the B.R. Industry located at Phulbari under the district of West Garo Hills, Meghalaya. This area was particularly selected for the study because of the large production of cashew product and as per the record of NABARD in 2013, West Garo Hills has the highest production of raw cashew in Meghalaya. Also, B.R. Industries was the focus of the study because it is the first and oldest cashew processing industry in the state. The study

was conducted based on primary and secondary data. The primary data was collected by interviewing the owner of the industry and other skilled workers of the industry while secondary data was collected from websites, journals, and company literature.

3. About the company

B.R. Industry is a proprietorship based industry which is run by Shri. Makhn Lal Agarwala and it was first established on 5th June, 1986. This industry is the first cashew processing industry in the North-Eastern region and it is located at Phulbari, West Garo Hills, Meghalaya. The main objectives of the organization are to do processing and marketing of cashew nut and to explore market innovative ideas for capturing market demand.

At B.R. Industries there are total number of 44 members in an organization of which 4 members belong to administrative staff which includes an authorized attorney, manager, accountant and supervisor and the rest 40 members are labours which includes both skilled and unskilled workers.

The main product of the industry is the processed cashew nuts which are also being graded according to the size and quality of the nuts. There are total of seven grades categorized by the industry that is 8`J, 6`J, 4`J, SP, 2 PCS, 4 PCS and GR. There are total of five different equipment's used for the processing of cashew nut by B.R. Industries. They are roasting drum, shelling machine, hot chamber, cooling fans, grading machine.

4. Results

Value addition of cashew nut

The steps which are involved in adding value to the raw cashew are as follows:

I. Procurement of raw cashew from the farmers:

Raw cashew from farmers was supplied to the industry by the middleman, who buys the raw nuts from the farmers directly and sells them to the industry at a price of between ₹90 and ₹120/kg. The cost of the raw cashew varies as per the demand of the cashew in the market. And the average procurement of raw cashew per month was around 4800 kg per month.

II. Sun drying of cashew nut:

Raw nuts purchased by the industry from the agency were dried outdoors under the sun's heat to extract the excess moisture from the nuts to make further processing of nuts easier. It took about two to three days to completely dry the nuts properly without any presence of excess moisture.

Storing of cashew:

After sun drying, dried cashews were stored in a jute or gunny bag with a capacity of 50 kg per bag in a store room or with proper ventilation. About 5 labours were involved in handling of raw nuts in the storage room and they were being paid ₹600 per week per labour. The nuts were then stored for 5-6 months in a store room before further processing can be done.

III. Roasting of cashew:

After 5-6 months of storing, the cashews were ready for the further processing. Roasting of raw nuts are perform to remove the shell from the cashew kernel. Drum roasting were mainly done in this processing company to roast cashew. The capacity of the roasting drum is 250-300 kg/hr

IV. Shelling of cashew:

At the time of shelling, the roasted nut shells were then de-shelled by removing the outer layer of the cashew by the shelling machine while cashew kernels were carefully taken out from its shell manually by the hand in order to avoid the breakage of cashew kernel.

V. Heating of cashew kernel:

After separating the shell and the cashew kernel, the separated kernel were now being kept in the hot chamber for 6 hours for heating. The heating was performed to minimize the residual humidity content in the cashew to facilitate easy removal of the outer skin.

VI. Cooling of cashew kernel:

The nuts that were already heated under heating chamber were then transferred to cooling chamber for 24 hours for cooling. The chamber has many refrigerating fans. The main aim of the cooling process was to return the temperature of the warm nuts to normal temperature after heating which will enable the easy removing of outer skin of the cashew.

VII. Peeling of cashew nut:

After the nuts were cooled by the cooling fans, they were taken to the peeling section for peeling of husk or a thin membrane that was present on the outer part of the nuts and it was mainly done by bare hand.

VIII. Grading of cashew kernel:

After peeling the nuts were then taken for grading according to their sizes and the main purpose of grading was to separate different kinds of cashew kernels into uniform grades depending on their sizes. The grading machine group the kernel of the cashew into 7 grades which are 8`J, 6`J, 4`J, SP, 2PCS, 4 PCS and GR. However, the rejected nuts are then graded manually by hands. Gross return per month from the products

IX. Packaging:

During packaging, graded nuts were packed in different pouches depending on the group they were being classified. Packaging was intended to ensure safety of the cashew kernel from place of manufacturing to the place of consumption. They used plastic packet and also tin container with a capacity of 10 kilogram per container. The plastic pouches come in different size contents that is 500 g, 250 g, 100 g and 50 g.

X. Disposal pattern of cashew:

The annual production of cashew kernel by B.R. Industries was approximately 14,400 kilogram and they supply the finish product within Meghalaya itself to the local retailer and whole seller at Phulbari, Tura, Shillong, Baghmara, Williamnagar and also to the neighboring state of Assam. The demand for the cashew was high in Assam for its unique taste and as a result sixty percent of the finished products were supplied to Assam and the rest forty percent was consumed in Meghalaya itself.

Table 1: Gross return per month

Product	Average production (kg)	Rate (₹/ 10 kg)	Return (₹)
8`J cashew kernel	60	7500	45,000
6`J cashew kernel	120	7100	85,200
4`J cashew kernel	120	6600	79,200
SP	180	6200	1,11,600
2 pcs	240	5800	1,39,200
4 pcs	240	5500	1,32,000
GR	240	5300	1,27,200
Total	1200	-	7,19,400

Table 1 revealed that the average production of cashew kernel in a month was 1200 kg and the gross return was estimated as ₹,19,400 per month approximately.

Table 2: Processing cost per month

Particular	Amount (₹)
Electricity charge	10,000
Labour cost	1,45,232
Packaging material	6,000
Total processing cost	1,61,232

Table 2 give the information about the processing cost which includes electricity charge of ₹ 0,000 per month, labour charge of ₹,45,232 per month, and a packaging material of ₹6,000 per month. Therefore, the overall processing cost required for one month was ₹,61,232.

Table 3: Net return per month

Sl. No	Particular	Amount (₹)
1.	Gross return	7,19,400
2	Total processing cost	1,61,232
3.	Cost of raw material	4,32,000
4.	Total cost(cost of raw material + total processing cost)	5,93,232
5.	Net return (gross return - total cost)	1,26,168

The table given above mention the details about the net return of the industry per month which included gross return of ₹,19,400 per month, total processing cost of ₹,61,232 per month, cost of raw material of ₹4,32,000 per month and a total cost was ₹,93,232 per month. So the net return per month was ₹,26,168 per month which annually was ₹5,14,016.

Value addition of cashew kernel

Table 4 Cost of producing 8`J cashew kernel per 1 kg

Particular	Quantity (kg)	Cost in rupees
Raw cashew (raw material)	4	360.00
Sun drying (labour charge)	4	14.85
Storing (labour charge)	4	4.95
Roasting (labour charge)	4	0.96
Shelling (labour charge)	4	28.00
Heating (labour charge)	1	2.64
Cooling (labour + electricity)	1	3.96
Peeling (labour charge)	1	33.00
Grading (labour + electricity)	1	33.00
Packaging (labour + packaging material)	1	13.00
Total cost	1	494.36

The value added per 1 kg = (Total cost- cost of raw material)
= ₹494.36 - ₹60
= ₹34.36

Thus, net return = (selling price of 8`J cashew/kg – total cost/1 kg)
= ₹750– ₹494.36
= ₹56.36

Table 4 shows the information of the overall cost of processing 1 kg of 8`J cashew finished product which included raw material cost, labour cost, electricity cost and packaging cost for 1 kg of 8`J cashew kernel. The overall amount needed to process 1 kg of cashew product was ₹494.36. The value added per one kg of cashew kernel was therefore ₹34.36 after subtracting the cost of raw from the total cost. The actual profit for 1 kg of 8`J cashew kernel was ₹56.36 after deducting the total cost spend in making 1 kg of 8`J kernel from the selling price of 8`J cashew product. 65 percent of cashew finish products were supplied directly to the wholesaler, then to retailer and finally to the consumer while 25 percent of processed nuts were supplied directly to the local retailer of Meghalaya and eventually to the consumer. The remaining 10 percent was directly

consumed by regional residents staying around the company and also the bakery industry buys directly from the cashew processing center to utilize cashew as the baking ingredients in processing bakery products like cashew cake, cookies, brownies etc.

5. Conclusion

The cashew which are grown in Garo Hills, Meghalaya are famous for its unique taste and quality and since cashew crop requires a temperate climate Garo hills has the perfect condition of climate for cultivating cashew tree. Meghalaya had overall land of 8.580 ha under cashew crop and a total production of 6.120 MT with an average productivity of 686 kg per ha in the financial year 2017-18. Cashew crop is extensively grown in West Garo Hills and South Garo Hills district of Meghalaya. Some of the major constraints included limited skills and knowledge of improved agricultural techniques resulting in slow adaptation of modern technology. According to study performed on B.R. Industries, it has been observed that the processing unit can procure 1 kg of finish cashew item from 4 kilogram of raw cashew. The industry produced approximately 14,400 kg of finish cashew product annually. The cashew kernel was categorised in 7 grades that is 8'J, 6'J, 4'J, SP, 2 PCS, 4 PCS and GR. The industry requires extensive labour to do the processing and it was found that women workers were mainly involve in processing of cashew.

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