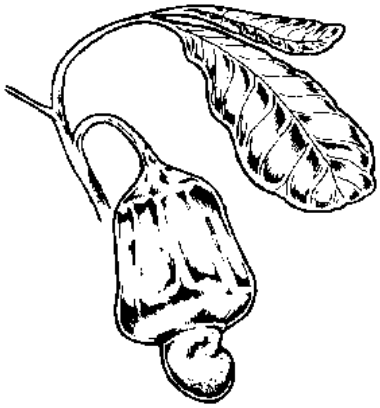
PRACTICAL ACTION
Technology challenging poverty

CASHEW FRUIT

A DATE-LIKE SNACKFOOD MADE FROM CASHEW FRUIT

Cashew, in addition to the well known nut, also bears a false fruit or cashew apple which is usually discarded because of its hitter taste. In the 1980s a project in Honduras developed a product based on the cashew apple which now has a flourishing market in North America.



In 1979 a small non profit NGO, *Pueblo a Pueblo*, was set up in Honduras by Dr Daniel Salcedo and his wife. Initially, the organization was mainly concerned with assisting handicraft producers, and Daniel Salcedo developed a strong marketing strategy which resulted in the opening of a sales and distribution office in Houston, Texas. This was unusual at a time when many agencies stopped short of providing concrete marketing assistance.

In the early 1980s, *Pueblo a Pueblo* set out to respond to requests for help by very poor farmers around Chuloteca in the arid south of Honduras, to process and market their cashew nuts apparently some years earlier, government schemes had promoted the cultivation of cashew by means of loans, and after some five years, the trees began to yield and loans became due for repayment. Unfortunately, no processing or purchasing system had been established to coincide with the first harvests and it was reported that some farmers resorted to selling trees for firewood to meet their debts.

At that time I was working for the Institute of Nutrition for Central America and Panama (INCAP), and visited the project and provided technical advice which eventually allowed *Pueblo a Pueblo* to train farmers in cashew nut processing and set up a production unit.

Cashew, in addition to the well known nut, also bears a false fruit or cashew apple which is usually discarded when the nuts are processed because of its bitter and unpleasant taste. It was suggested to Pueblo a Pueblo that the fruit might form the basis of a by-product which could provide additional income and create work, particularly for the women in the community. Ideas discussed included jams, wines, vinegars and semi-crystallised, dried fruit. At about the same time, by good luck, Dr Rodney Cooke of the Tropical Products Institute was investigating cashew fruit utilisation in Costa Rica, where there was a tradition of drying the fruit with sugar. The astringent, bitter flavour cat the final product however, made it unacceptable to many people.

In 1982, Dr Cooke found a way of countering the bitterness by adding caustic soda and sugar before drying the fruit and this information was transmitted to Pueblo a Pueblo. Trials were carried out which proved encouraging.

Cashew fruit caramel

The process is simple and involves immersing the fruit in I% sodium hydroxide (caustic soda) for three minutes, before thoroughly rinsing it in clean water. This treatment affects the waxy surface layer which produces the fruit's bitter taste. (Recent communications with the producers in Honduras have revealed that the caustic soda treatment has been discontinued and the final product is still popular with the consumers.)

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The fruit is then pressed between two boards to a thickness of approximately 1.5 cm. This removes much of the moisture as a juice and also makes small holes in the skin which allows quicker penetration of the sugar syrup used in later stages of the process. The squashed fruit is then simmered in a strong hot sugar syrup (75lb sugar per 1000 pieces of fruit with enough water to cover) for two hours. (The syrup can only be used a limited number of times and is financially a key raw material. Any alterative use of the syrups, for example in the production of wine, vinegar or sweets, could markedly improve the overall profitability of the enterprise.) Finally, the fruit is removed from the syrup with tongs, placed on mesh trays and dried in small Brace-type solar driers (8ft x 4ft). After two to three days drying, the fruit is removed with tongs to avoid handling, and packaged in heat sealed cellophane bags of average net weight 4oz.

Solar driers

Solar drying improves on open-air drying by protecting the products from rain, insects, other animals and dust which may contain faecal material. Faster drying reduces the likelihood of mould growth, and higher drying temperatures mean that more complete drying is possible which may allow much longer storage times.

The more valuable the crop to be dried, the higher the financial risks involved if the producer has to accept spoilage rates from open-air drying, and the more often the solar drier would be used.

Product drying

Initially, the solar driers were not well liked by the women at Pueblo a Pueblo; the polythene darkened with the sunlight and was easily damaged. Intermediate Technology assisted by providing a sample of an ultra violet sunlight resistant film (ICI Melinex) which proved most acceptable, being strong and long lasting. The NGO purchased 100m of this film which lasted six years. A solar roof inclination of 9° was used, later increased to 15° to improve efficiency.
In 1986, 40 women were involved in the production of cashew fruit caramel. Each team of 10 women could produce 800 dry fruits per day. The women were earning 4 Lempira (US$ = 2L) per day, which was more than the average man's earnings of 3L. The market in the USA was paying $2 per pound and was buying 5,000 lb each year.

By 1990, the size of the group had increased to between 60 and 70, and 40 solar driers were in use. Sales to the USA had reached 9,000 lb per year and *Pueblo a Pueblo* expect to increase the size of the project for the 1991 season to meet growing demand. A total of five more women's groups with 50 members is planned.

It is clear that this is an example of a viable, sustainable income-generating project. It is also one of the very few examples of the successful commercial application of small solar driers.

Further reading

- Cashew Nut Processing D C Russell, FAO Agricultural Services Bulletin No 6, FAO, Rome 1969
- The Processing of a Date-like Caramel from Cashew Apple A J Ortiz, R D Cooke, R A Quires. Tropical Science 1982, 24(1)
- The Biochemistry of Fruits and Their Products Mazliak P (1970) Vol 1. A D Hulme (ed) pp 209-238 London and New York

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