

Prospects and Problems of Marketing Pawpaw in the urban environment of Ibadan, Nigeria

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Abstract: The study examined prospects and problems of pawpaw, *Carica papaya L.* marketing in Ibadan, Oyo state. A simple random sampling technique was used to collect data on socio economic characteristics, market channel, market margin, efficiency and constraint faced by the marketers. The data were analyzed with the aid of descriptive statistics, simple margin analysis and t-test. The result indicated that women were more involved in pawpaw marketing; most of the women had primary level of education and have been in the business for more than ten years. The marketing efficiency was 1.43 indicating that the business is profitable. There was a significant difference ($P < 0.05$) between the selling and cost prices of pawpaw with mean prices of N59/fruit and N37/fruit respectively. The most severe problem encountered by marketers was spoilage of fruits. Efforts in the development of methods of reducing spoilage caused by overripening will increase the profits made by marketers.

Key words: *Carica papaya* • Market channel • Market margin • Pawpaw spoilage • Profitable business

INTRODUCTION

Pawpaw (*Carica papaya L.*) also known as papaya is a member of the small family Caricaceae. It is an important fruit of the tropics and subtropics which deserves greater attention due to its high nutritive value and production potentiality [1]. The edible portion of the fresh fruit contain approximately per 100g of 88% water, 0.5% protein, 0.1% Fat, 10% Sugar, 0.1% acids, 0.6% ash, 0.7% fibre [2, 3]. The fruits are used in preparation of jams, marmalades and syrups. Green fruits are diuretic and mildly laxative and are used as vegetables. Papain extracted from green mature fruits has industrial uses for manufacturers of beer, meat tenderizer, drug preparations and softening of wool [4, 5]. Its nutritional and industrial utilization potential made it to gain wide acceptance and thus regarded as an important food crop in the tropics [6]. Pawpaw is believed to be a native of tropical America, the seeds were taken to Panama and Hispaniola before 1525 and cultivation spread to warm elevations throughout South America, Central America and the Caribbean [5]. Pawpaw is now familiar in nearly all of the tropical regions of the world. Pawpaw is a fruit high in fiber which lowers cholesterol level and also antioxidants which prevents the

cholesterol from oxidizing [7]. However, considering the nutritional, medicinal and industrial importance of the crop and rate of spoilage, efficient marketing is essential for the satisfaction of both producers and consumers. The marketing of agricultural produce is assuming greater importance in the Nigerian economy because excess production from farms must be disposed off in order to earn income with which the farmers can purchase necessary goods and services [8]. Fruits and vegetables must be transported to centers of consumption at appropriate time to maintain their quality which may enhance sale at higher prices due to their perishable nature [9]. Marketing plays a crucial role in the linking of products to the consumers. It constitutes a bridge between production and consumption [10]. Marketing includes transporting the products to the right place, storage to adjust supply to demand over time, sorting, cleaning and processing in various ways [11].

Considering the important role of pawpaw in human nutrition and the production figure of Nigeria which is put at 755,000 tonnes in 2004 [2], there is the need to update information on marketing of pawpaw due to some erroneous belief that consumer do not buy pawpaw and that it could be found at the backyards (Home gardens).

The specific objectives are: to identify the socio-economic characteristics of the respondents ; to identify the marketing channel of pawpaw in the study area; to determine the marketing margin and efficiency of pawpaw and to determine constraints faced by the marketers of pawpaw.

MATERIALS AND METHODS

The study was carried out in Ibadan, Oyo state capital (7°22.73N, 3°53.72E). It has an average rainfall distribution of 1250mm and 1800mm and temperature range of 27°C-40°C, with a relative humidity of 75% - 90%. The population of Ibadan was 5,591,589 in 2006 covering an area of 28,454km² [12].

The study was carried out between October 2007 and January 2008. Ibadan was selected for the study as a model for other states in Southwest Nigeria due to its population status and economic activities. There are twelve markets in which pawpaw are sold in Ibadan. Six markets were selected at random out of those known for their prominence as pawpaw markets. These include Oje, Oritamerin, Eleyele, Apata and Bodija in four local governments (Ibadan North, Ibadan Northwest, Ibadan Southeast and Ibadan Southwest) within the metropolis. Information was also collected from fruit sheds where pawpaw is sold in some streets in the metropolis. Random sampling technique was used to select the marketers from each market. A total of eighty pawpaw marketers were selected for the study. Information were collected from these respondents on marketing channel and margin, their constraints and their socio economic characteristics with the aid of well structured questionnaires. A weighing scale was used to estimate the weight of the marketers' products which are usually sold in baskets.

The collected data were analyzed using descriptive statistics and simple margin analysis. To test for significant difference between selling price and cost price of pawpaw, t-test analysis was used. Tests were judged significant at P = 0.05. The following formulae were used in the analyses.

Marketing margin = TR – TMC

TR = Total Revenue

TMC = Total Marketing Cost

ME = Market efficiency

$$ME = \frac{TR}{TMC}$$

H₀ = There is no significant difference in the cost price and selling price of pawpaw.

$$T\text{-Test} = \frac{x_1 - x_{11}}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

X₁ = Mean of the cost price

X₁₁ = Mean of the selling price

S₁² = Variance of cost price

S₂² = Variance of selling price

N = Number of observations (N = 80)

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Respondents:

Results of the analyses showed that 93.8% of respondents were females. Fifty five percent of these women had primary education. This showed that more females were involved in the marketing of pawpaw in the urban environment of Ibadan. Majority of the respondents (57.5%) were middle aged people (31-50years) and were active. Only 2.5% of respondents were single, 92.5% were married and 5% were widowed. The implication is that majority of marketers of pawpaw may have been depending on proceeds from pawpaw sales for their home up keeps and family maintenance since they were married. Majority (80%) of marketers source their capital from savings while 20% from cooperative societies (Table 1).

Marketing channel For Pawpaw:

Marketing channel is the sequence through which pawpaw move from farmers to the consumers. Wholesalers and Retailers buy directly from the farmers in baskets and dozens. Limited levels of farm gate marketing whereby consumers buy directly from the farmers also take place. The wholesalers sell in baskets to retailer and the retailer sells in units to the consumer. Although, most (81.3%) of the respondents preferred buying from farmers and the reason given being the ready availability of the products(72.5%), low Price (25%) and acceptability of the products (2.5%).Methods of purchase were mostly in baskets (91.3%), heaps (6.2%) and dozen (2.5%) (Table 2).

Table 1: Socio-economic Characteristics of Respondents in the Metropolitan Environment of Ibadan

| Variables | Percentage |
|-------------------------------------|------------|
| Gender | |
| Male | 6.2 |
| Female | 93.8 |
| Total | 100 |
| Age of respondents | |
| 18-30 | 16.3 |
| 31-50 | 57.5 |
| >51 | 26.3 |
| Marital status | |
| Single | 2.5 |
| Married | 92.5 |
| widowed | 5.0 |
| Total | 100 |
| Educational level of respondents | |
| Primary education | 55.0 |
| Secondary education | 11.2 |
| Tertiary education | 8.8 |
| Non formal education | 25.0 |
| Source of Capital | |
| Cooperative societies | 80.0 |
| Savings | 20.0 |
| Household size | |
| 1-5 | 15.0 |
| 6-10 | 50.0 |
| 11-15 | 30.0 |
| Above 15 | 5.0 |
| Years of Experience in pawpaw sales | |
| 1-5 years | 52 |
| 6-10 years | 36 |
| 11-15 years | 12 |

Table 2: Information on the market source of pawpaw sold in Ibadan Metropolis

| Variable | Percentage |
|------------------------|------------|
| Source of pawpaw | |
| Farmers | 81.3 |
| Wholesalers | 16.2 |
| Middlemen | 2.5 |
| Total | 100 |
| Reasons for preference | |
| Price | 25 |
| Availability | 72.5 |
| Acceptability | 2.5 |
| Total | 100 |
| Methods of purchase | |
| Baskets | 91.3 |
| Heaps | 6.2 |
| Dozen | 2.5 |
| Total | 100 |

Table 3: Marketing margin and efficiency of Pawpaw marketers Ibadan Metropolis

| Variable | Value (N) |
|-----------------------------------|-----------|
| Average cost price /basket | 805 |
| Average Selling price/basket | 1,303 |
| Average transport cost per basket | 71 |
| Average storage cost per basket | 32 |
| Marketing margin | 395 |
| Marketing efficiency | 1.43 |

Marketing Margin and efficiency of Pawpaw Marketers:

Table 3 shows the Average cost price, selling price, transport cost and storage cost per basket of pawpaw, marketing margin and efficiency of pawpaw. The marketing margin obtained per basket of 10kg of pawpaw in the study area was N397. The marketing efficiency was 1.43 indicating that marketing of pawpaw in the study area is efficient and profitable since the value obtained was greater than one. The survey also revealed that 2-3 baskets can be sold in a day by the retailers. A typical basket containing an average of about 15 large - sized pawpaws weighed 53.40kg, while those containing medium- sizes of about 20 fruits weighed an average of 40kg. Similarly, a basket containing about 30 small- sized pawpaw weighed an average of 30kg. Therefore, average price per kg of pawpaw was N37 in the study area. All the marketers sell other fruits such as water melon, oranges, grape fruit, pineapple and banana. Agricultural production and marketing in urban centers can provide employment, food and a better environment for those involved in the business [13].

The Average selling prices of N59 per fruit obtained during the survey was higher than the average cost price which was N37. From the result of the T- test Analysis, the selling price of pawpaw was significantly higher than the cost price ($t=4.58$; $n=80$; $P<0.05$). This implies that marketing of the crop is profitable. Similarly, it was also reported that marketing of fruits such as pineapple and plantain were also profitable in the study areas [14, 15]. Therefore, marketing of fruits generally had prospects in the area.

Marketing Constraints: The marketers were faced with the following problems: spoilage which constituted 51.3%, transportation 30%, limited supplies 15% and inadequate storage facilities 3.7%. Spoilage was ranked as the most severe problem encountered in the marketing of pawpaw (Table 4). The different types of spoilage identified in the study area (Table 5) in order of magnitude were:

Table 4: Problems encountered during the marketing of Pawpaw in Ibadan Metropolis

| Constraints | Percentage |
|--------------------|------------|
| Spoilage | 37.5 |
| Transportation | 25.0 |
| Limited supplies | 22.5 |
| Inadequate storage | 15 |
| Total | 100 |

Table 5: Different types of Spoilage in Pawpaw Marketing

| Type of spoilage | Frequency | Percentage |
|------------------|-----------|------------|
| Physiological | 48 | 60 |
| Physical | 16 | 20 |
| Pathological | 13 | 16 |
| Pests | 3 | 4 |

- Physiological damages: this is the progressive loss of consistency, over ripening and softening. Observations showed that the ripe product would spoil within 3-5 days if not marketed because pawpaw fruits tend to become soft as ripening progresses. At that stage, the fruits become unacceptable to buyers.
- Physical damages: loss of quality resulting from wrong packaging and handling.
- Pathological damages: spoilage resulting from activities of fungi and bacteria.
- Damages resulting from pests: rodents, insects such as cockroaches do attack pawpaw on shelf and in storage.

The survey revealed that an average of 6 fruits per basket containing twenty pieces of fruits got spoilt in unsold stock within 3-5 days. This led to an average economic loss of N400 per basket. There was high cost of transportation caused by high fuel prices, lack of feeder roads and high cost of vehicle maintenance. It was similarly reported in other studies that fruit marketers in Lagos and Edo State had problem of high transportation cost and inadequate storage facilities.

CONCLUSION

The study revealed that most of the marketers of pawpaw were middle aged females and that marketing of pawpaw was profitable. The major constraint faced by the marketers was fruit spoilage. Therefore, Research into methods of minimizing ripening and preventing the development of rot organisms should be undertaken. Harvesting mature unripe fruits which have the ability of spending a longer time before ripening may be an advantage.

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