

Consumer Perception and Awareness of Mango Leather Products in Oyo State, Nigeria.

Oyedele O.O¹, O.O.Ezekiel², O.Adebisi-Adelani³ and I.B.Adeoye⁴

1. Assistant Director, National Horticultural Research Institute, P.M.B 5432, Idi-Ishin, Ibadan.

2. Lecturer 1, University of Ibadan, Ibadan

3. Principal Research Officer, National Horticultural Research Institute, P.M.B 5432, Idi-Ishin, Ibadan.

Corresponding author e-mail: olutola.oyedele@gmail.com

ABSTRACT

Fruits due to their highly perishable nature record considerable post-harvest losses which are major problems in the value chain. Processing of fruits into leather will go a long way in enhancing storage stability and reduce post-harvest losses encountered in the fruit sub sector. Evaluating consumer perception and awareness of a product will determine acceptance, view and market potential of a commodity. This study therefore examined perception and awareness of consumers on mango leather products in Oyo State, Nigeria. Primary data collected from 144 respondents in 3 local government areas in the state were analyzed using descriptive statistics. Results revealed that majority (68.1%) of respondents were between the ages of 21-40 years, educated 73.6 per cent and mostly married (76.3%). Most of the respondents (57.6%) were aware of the product made from mango while 86.1 per cent of the consumers were not aware of mango leather product. Most of the respondents (81.3%) agreed that mango leather will be able to compete with other snacks. Furthermore, most of the respondents preferred leather from mango (68.8%) compared to carrot and the blend of mango/carrot leather. Eighty six percent of the respondents agreed that mango leather product will reduce bulkiness of the product and wastage. Majority of the respondents perceived mango leather products as favourable (58.3%). There is the need to create awareness of fruit leather products in the state as a viable option to minimize produce loss being encountered in fruit industry.

Key words : Fruit leather, Consumer's awareness, Perception, Market, Oyo state.

Fruits and vegetables are essential components of human diet because they are important sources of vitamins and minerals (Idah et al, 2007). Mango is among the fruit plants rich in vitamin C and it is grown throughout the humid region of southern Nigeria (Onyeani et al, 2012). It is an important fruit crop in most tropical regions of the world, popular both in the fresh and the processed form (Diedhiou et al. 2007, Ikisan, 2000). Mango is known as the 'king of fruit' throughout the world. Nigeria occupies the 8th position among the ten leading mango producing countries of the world (FAOSTAT, 2007). The main producing states in the country include Benue, Jigawa, Plateau, Yobe, Kebbi, Niger, Kaduna, Kano, Bauchi, Sokoto, Adamawa, Taraba and FCT. Nigeria has greater potentials over other world suppliers of tropical mangoes in terms of the year round favourable agricultural and climatic condition.

Several factors affect mango production with postharvest losses being among the major constraints (Theodosy et al, 2011). Postharvest losses of fresh mango fruits have been estimated at 60 % (Match Marker Associates, 2008). Mango postharvest losses in several tropical countries (Benin, Brazil, Costa Rica, Pakistan) range between 15% in the dry season and 70% in the rainy season mostly due to poor storage and anthracnose (University of California, 2009). In order to reduce the losses, mango can be processed into dry mango, mango leather, mango pickle, mango jelly or can be eaten cooked (Match Maker Associates, 2008). Fruit leathers are dehydrated fruit-based products, pectic gels obtained by dehydrating fruit purees. These products add variety to a healthy diet and possess

dietary fibre, vitamins and minerals while providing a good energy intake. They are attractive flexible sheets which retain shape, are eaten as snack or dessert and are often targeted at health food markets (Appropedia, 2011, Ruiz et al, Accessed, 2014). The processed mango pulp has enhanced shelf life with significant export potential. Food processing adds value, enhances shelf life of the perishable agro-food products and encourages crop diversification (Bhavan, 2014). Brazil and India are two countries where some research has been carried out on mango fruit leather according to its availability and abundance. Most research efforts on mango has been on production constraints (Ugese et al, 2012), and effect of diseases on mango yield (Onyeani et al, 2012), There is, however, a dearth of reliable information on consumers perception and awareness on mango leather. Thus, the objective of this study therefore is to determine socioeconomic characteristics of respondents; examine awareness and preference about fruit leather products as well as perception and potentials of mango leather products.

METHODOLOGY

Study area

The study was carried out in Oyo State which is an inland state in Southwestern Nigeria, with its capital at Ibadan. It is bounded in the North by Kwara State, in the East by Osun State, in the South by Ogun State and in the West partly by Ogun State and partly by the Republic of Benin. The climate is equatorial, notably with dry and wet seasons with relatively high humidity. The dry season lasts from November to March while the wet season starts from April and ends in October.

Average daily temperature ranges between 25 °C (77.0 °F) and 35 °C (95.0 °F), almost throughout the year. Agriculture is the main occupation of the people of Oyo State and the climate in the state favours the cultivation of crops like maize, yam, cassava, millet, rice, plantain, cocoa, palm produce, cashew etc. The state has thirty three Local Government Areas.

Sampling technique

Three local governments were purposively selected in Oyo State namely Ido, Ibadan North and Ibadan North West representing rural and urban settings. Thereafter 50 respondents were randomly selected in each of the local government to constitute a total number of 150 respondents. A total of 144 questionnaires were finally used for the analysis.

Data collection and analytical technique

Primary data were used for the analysis. Data were collected on socioeconomic characteristics of respondents, awareness and preference about leather products, perception about the product and market potentials of mango leather products. Data were analyzed using descriptive statistics.

RESULTS AND DISCUSSION

Socioeconomic characteristics of respondents

The study revealed that the majority (68.1%) of respondents interviewed were between the ages of 21-40 years implying that they are within their active years and may be open to technology uptake. Age has been reported to have a positive link with adoption of innovation. Younger farmers have been found to be more knowledgeable about new practices and may be more willing to bear the risks of adopting a new technology (Olaniyi and Rafiu, 2005, Institute of Agricultural Research (IAR), 2001). Sixteen percent had primary education while 37.5 and 36.1 per cent had secondary and tertiary education respectively, implying a high level of literacy. According to Oladeji (2012), educational level was found to have influence on farmers' perception to agricultural advertisements in newspapers. The level of educational attainment plays important role in accepting new ideas because it eradicates conservatism. Majority (73.6%) were married, signaling an indication of responsibility for their families, hence the need to seek information on relatively new ideas within the environment. The result revealed further that 66.7 per cent falls between the family size that ranges between 1 and 5; this depicts a fairly large family size in Nigeria. The implication of this finding is that if the family size is big, there will be more people available as family labour and other activities that needs to be carried on in the family.

Awareness of respondents about fruit leather

The result in Table 2 reveals that majority

Table 1
Socioeconomic characteristics of respondents
(n=144)

Variables	Frequency	Percentage
Sex		
Male	72	50.0
Female	72	50.0
Age		
<20	06	04.2
21-40	98	68.1
41-60	33	22.9
>60	07	04.9
Educational level		
non-formal	11	07.6
Primary	23	16.0
Secondary	54	37.5
Tertiary	52	36.1
Others	04	02.8
Religion		
Christianity	87	60.4
Muslim	54	37.5
Other	03	02.1
Marital status		
Single	34	23.6
Married	106	73.6
Divorced	04	02.8
Household size		
1-5	96	66.7
6-10	47	32.6
>10	01	00.7
Income		
20,000	63	43.8
21,000-40,000	39	27.1
41,000-60,000	23	16.0
61,000-80,000	09	06.3
81,000-100,000	06	04.2
>100,000	04	02.8

Source: Field Survey, 2013

(90.3%) consume mango fruit; an indication that the tree is locally adapted to Nigeria and the mango fruit is readily available for consumption. Fifty-eight per cent are aware of several products made from mango while, majority (86.1%) are not aware of mango leather product neither are they (77.1%) aware of any other leather product from any fruit. This is an indication that mango leather is not a very familiar product to the country when compared to other developed countries where majority are exposed to fruit leather in their supermarkets.. The study further revealed that the respondents will be willing to buy leather product if the price is affordable. Eighty one percent agreed that mango leather will be able to compete with other snacks if well popularised because of its natural taste of sweetness and the nutritional content which cannot be compared with those of other snacks. Hodgson (accessed 2014) affirms that fruit leather satisfies

market demand for 'natural' sweet snacks perceived by the homemaker as good and healthy. He further stressed the need for advertising new products and having a defined market niche.

product and still pointing to the fact that they will prefer leather product if made available. Seventy percent of respondents agreed that mango leather has eye appeal, while 12.5 per cent agreed that leather products are bad,

Table 2
Awareness of respondents about fruit leather

Statements	Yes	No
Consumption of mango fruit	130 (90.3)	14 (9.7)
Awareness of different food products made from mango	83 (57.6)	61 (42.4)
Willingness to consume other mango products apart from fresh fruits	128 (88.9)	16 (11.1)
Awareness of mango leather products	20 (13.9)	124 (86.1)
Awareness of any other leather products from other fruits	33 (22.9)	111 (77.1)
Awareness about the health implications of eating such products	66 (45.8)	78 (54.2)
Fair pricing will improve consumption of the products	137 (95.1)	5 (3.5)
Mango leather will be able to compete with other snacks	117 (81.3)	26 (18.1)

Source: Field Survey, 2013 Figures in parentheses indicate percentage

Preferred leather choice

The result in Tables 3 revealed that 68.8 per cent preferred mango leather most when compared to carrot and the blend of mango/carrot leather. This may probably be due to the taste, since mango is sweeter when compared to carrot.

Table 3
Preferred choice of fruit leather

Choice of fruit leather	Most preferred	Moderately preferred	Less preferred
Mango	99 (68.8)	32 (22.2)	13 (09.0)
Carrot	27 (18.8)	38 (26.4)	79 (54.9)
Mango/carrot blend	28 (19.4)	78 (54.2)	38 (26.4)

Source: Field Survey, 2013 Figures in parentheses indicate percentage

Consumers' perception about leather product

The result in Table 4 revealed that 56.3 per cent agreed that mango leather product taste better than fresh mango, 81.0 per cent disagree to poor taste of leather product. This is an indication that majority of the respondents believe in the good taste of leather

indicating that respondents accrue to the fact that leather products are okay and appealing in appearance. The result further revealed that 84.7 per cent of the respondents are undecided about whether the product is cheap or expensive. This is an indication that they are not familiar with the cost of leather product since they have not been buying it. Majority (68.0%, 91.6%) of the respondents agreed to the fact that mango leather product will be available throughout the year and it will prevent wastages of mango respectively. Eighty six percent of the respondents agreed that mango leather product will reduce bulkiness of the product which is very obvious. Also 81.3% agreed that Mango leather product can improve human health while 13.9% agreed that mango leather product is detrimental to human health. Half of the respondents were of the opinion that leather product is alien to our food culture while 13.9 per cent were undecided. Finally majority agreed that leather product will generate income for the unemployed.

Table 4
Perception statements

Statements	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Mango leather product taste better than fresh mango	12 (8.3)	43 (29.9)	8 (5.6)	37 (25.7)	44 (30.6)
Leather product has a poor taste	30 (20.8)	66 (45.8)	8 (5.6)	21 (14.6)	19 (13.2)
It appeals to the eyes	5 (3.5)	13 (9.0)	24 (16.7)	48 (33.3)	54 (37.5)
Appearance of leather products is bad	41 (28.5)	66 (45.8)	19 (13.2)	11 (7.6)	7 (4.9)
The product is cheap	2 (1.4)	2 (1.4)	122 (84.7)	12 (8.3)	6 (4.2)
The product is expensive	4 (2.8)	6 (4.2)	122 (84.7)	9 (6.3)	3 (2.1)
Mango leather product will be available throughout the year	3 (2.1)	6 (4.2)	37 (25.7)	47 (32.6)	51 (35.4)
It will prevent wastage of mango	2 (1.4)	7 (4.9)	3 (2.1)	50 (34.7)	82 (56.9)
Mango leather product will reduce bulkiness of the product	1 (0.7)	6 (4.2)	13 (9.0)	54 (37.5)	70 (48.6)
Mango leather product can improve human health	4 (2.8)	2 (1.4)	21 (14.6)	60 (41.7)	57 (39.6)
Mango leather product is detrimental to human health	59 (41.0)	42 (29.2)	23 (16.0)	11 (7.6)	9 (6.3)
It is alien to our food culture	14 (9.7)	38 (26.4)	20 (13.9)	38 (26.4)	34 (23.6)
It is meant for only the elite	54 (37.5)	56 (38.9)	14 (9.7)	10 (6.9)	10 (6.9)
It will generate income for the unemployed	2 (1.4)	2 (1.4)	3 (2.1)	52 (36.1)	85 (59.0)

Source: Field Survey, 2013 Figures in parentheses indicate percentage

Perception of respondents toward leather products

Majority (58.3%) of the respondents perceived mango leather products as favourable products while 41.7 per cent of respondents perceived it as unfavourable. This is an indication that mango leather could be a welcome development by the populace if they are well sensitized and the products are made available to the consumers at affordable price.

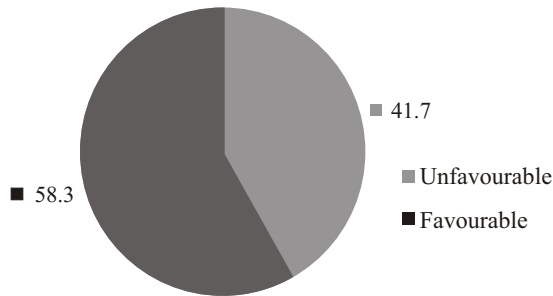


Figure 1 : Perception of respondents towards leather products

CONCLUSION

The study concluded that mango leather is foreign to the food culture of Nigeria, therefore the need for its awareness creation among the populace. Also the fact that the respondents are favorably disposed to introduction of mango leather product suggests an existing market niche, thus the need for its popularization among the respondents.

Paper received on : October 13, 2014

Accepted on : November 10, 2014

REFERENCES

1. Appropedia, 2011 Fruit leathers (Practical Action Brief) http://www.appropedia.org/Fruit_leathers_%28Practical_Action_Brief%29.
2. Diedhiou P.M, N Mbaye, Drame A and Samb P.I (2007): Alteration of post harvest disease of Mango *Mangifera indica* through production practices and climatic factors. *Afr. J. Biotechnol*, **6**: 1087-1094.
3. FAOSTAT. (2007). FAO Statistics, *Food and Agriculture Organization* of the United Nations, Rome, Italy. <http://faostat.fao.org/>.
4. Hodgson S.A (Accessed August, 2014): Market Niches for Mango Products. https://scholarspace.manoa.hawaii.edu/bitstream/handle/10125/16484/HITAGR_04-06-93_103-105.pdf?sequence=1
5. Institute for Agricultural Research (2001): Adoption of improved cowpea technologies in the savanna ecology of Nigeria. A report of survey conducted on pedune/pronaf project in Nigeria by Ahmadu Bello University, Samaru, Zaria, Nigeria, April, 2001.
6. Idah P.A, E.S.A. Ajisegiri and M.G. Yisa .(2007):. Fruits and Vegetable Handling and Transportation in Nigeria. *AU J.T.* **10(3)**: 175-183 (Jan. 2007).
7. Ikisan, (2000): Mango Crop Information. http://www.ikisan.com/crop%20specific/eng/links/ap_mangoFertilizer%20Requirement.shtml
8. Match Maker Associates, (2008):. Dried fruit and vegetables for urban and export market. *Fresh fruits and vegetables sub sector/Value Chain Analysis Tanzania. Executive summary, March, 2008* : 16 26. http://www/tzdp.org.tz/uploads/media/Vegetables_Executive_summary_FFV_studies_pdf_1_pdf.
9. Natalia A. Quintero Ruiz, Silvana M. Demarchi and Sergio A. Giner Accessed August, (2014): *Research on Dehydrated Fruit Leathers: A Review*. <http://www.icef11.org/content/papers/fpe/FPE398.pdf>.
10. Oladeji, J. O. (2011): Farmers' perception of agricultural advertisements in Nigerian newspapers in Ibadan municipality, Oyo State, Nigeria *J. of Media and Communication (2011) Studies Vol. 3(3) : 97-101, March 2011* Available online <http://www.academicjournals.org/jmcs> ISSN 2141- 2545 ©2011 Academic Journals.
11. Olaniyi, O. A. and Raufu, M. O. (2004): "Youth Participation in Rural Development: A Case Study of Youth Programmes in Lagelu Local Government Area of Oyo State", *Science Focus, Vol. 9 : 116-120*.
12. Onyeani C.A, Osunlaja S.O, Owuru O.O and Sosanya O.S .(2012):. Mango Fruit Anthracnose and the Effects on Mango Yield and Market Values in Southwestern, Nigeria. *Asian J. of Agric. Res.* **6 (4) : 171-179, 2012.**
13. Ruiz N.A.Q, Silvana M. Demarchi and Sergio A. Giner (Accessed 2014): Research on Dehydrated Fruit Leathers: A Review
14. Theodosy J. Msogoya I and Elde S. Kimaro. (2011.) Assessment and management of Post harvest losses of fresh mango under small-scale business in Morogoro, Tanzania. *J. of Animal & Plant Sciences, 2011. Vol. 11, Issue 1: 1358-1363*, Publication date: 30/8/2011, <http://www.biosciences.elewa.org/JAPS>; ISSN 2071 – 7024/1358 JAPS
15. Ugese, I, F. .D., Iyango P. O. and Sweml T. J. (2012):. Mango (*Mangifera indica* L.) Fruit Production and Production Constraints In Gboko Local Government Area of Benue State PAT June, 2012; 8 (1): 164 -174; ISSN: 0794-5213 www.patnsukjournal.net/currentissue