

Ameliorative Strategies to Seasonal Scarcity of Fruits and Vegetables in Aba Urban Area of Abia State, Nigeria: Implication for Extension

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Abstract: This study investigated the ameliorative strategies to seasonal scarcity of fruits and vegetables in Aba urban Area of Abia State, Nigeria: Implication for extension. Four fruit and vegetable relief markets in the study area were randomly selected. Fifty respondents in each market were purposively sampled for data collection using structured questionnaire. Analysis of data was carried out using descriptive statistical tools. The results showed that while the seasonal availability of *Gnetum bulchozianum* (ukazi) (92%), *Vernonia amygdalina* (bitter leaf) (83%), telferia (78%), *Allium cepa* (onion) (64%), *Cocos nucifera* (coconut) (68%), *Kola acuminata* (kolanut) (92%), *Garcinia kola* (bitter cola) (94%), among others are all year round; *Talinum triangulare* (water leaf) (90%), cent leaf (84%), *Cucurbita pepo* (pumpkin) (60%), *Hibiscus esculenta* (okra) (92%), garden egg (88%), among others are wet season and Oha (94%), *Chrysophyllum albidum* (Udara) (84%), Cashew (65%), among others are 'dry season'. The ameliorative strategies include: involvement of more farmers in fruits and vegetable crop farming ($\bar{x} = 3.91$), careful post harvest handling of fruits and vegetables ($\bar{x} = 3.84$), adequate and improved processing methods (canned, dried, pickled, fermented and jams/juice) ($\bar{x} = 3.61$), among others. It was recommended among others that public enlightenment should be stepped up through effective extension services on the consumption of fruits and vegetables in their processed forms and on safe post harvest handling procedures.

Key words: Ameliorative strategies, seasonal scarcity, fruits, vegetables

INTRODUCTION

Emphasis on food security in Nigeria is geared towards all season availability of various agricultural products at affordable prices, especially to the poorer (vulnerable) segment of the society. Fruits and vegetables represent essential part of these agricultural products. Their production remains entrenched in Nigerian agriculture and forms an important condiment in the national diet consumed by all Nigerians in almost every meal. Fruits and vegetables usually refer to fresh edible parts of crop plants, harvested and consumed in their fresh conditions or boiled. They include leaves, nuts, barks, seeds and seed-bearing structures or ripe ovary of flowering plants that are eaten cooked or fresh, in pulps as supplementary food in form of fruit jelly and juicy drinks or as main dishes (Fuayefika, 2005).

Fruits and vegetables are grown either as annual (field) crops such as okra, tomato, pepper, onion, garden egg, pineapples, water melon, melon, cucumber, carrot, telferia, etc or as orchard/plantation tree crops (citrus species, banana, plantain, guava, cashew, etc)

(Epenhuijsen, 1974; Kordylas, 1990). Others occur as conventional forest fruits and vegetables (*Persea americana*, *Carica papaya*, *Manguiifer indica*, *Chrysophyllum albidum*, *Cola acuminata*, *Garcina kola*, *Treulia africana*, *Irvingia var gabonensis*, *Dannettia tripetala*), *Pterocarpus soyauxii*, *Gnetum bulchozianum* etc), (IITA, 1972; Fuayefika, 2005).

The nutritional value of the above fruits and vegetables in human diets is enormous for healthy living among children and adults. They are major sources of vitamins, mineral, cheap protein, carbohydrates and fats (Tindall, 1968; Greensill, 1968; Kononkov and Vernulapalli, 1988). They are essential traditional sources of fresh fruits, seeds, nuts, spices, condiments, edible oil and beverages, most of which are also of high economic and medicinal value. Kordylas (1990) noted that fruits and vegetables provide most of the indigestible fibre and roughages in the diet, which assists in the evacuation of wastes from the bowels and prevent constipation. Most of the forest fruits and vegetables also play important cultural roles, especially as items of hospitality (Okafor and Okolo, 1974).

In view of the above values, fruits and vegetables have assumed greater recognition in many Nigerian staple foods, especially among people in Aba and its environs. Consequently, their productions have been encouraged in both urban and rural agriculture. But despite the favourable environmental factors for their production in most parts of Nigeria, fluctuations in supply and availability in many Nigerian markets have been a cause for concern. Igbozurike (1988) agreed that a cancerous food supply crisis exists in the country in diverse and often too subtle forms. This has continued to threaten the food security of the average Nigerian household due largely to scarcity and high cost of these products at certain seasons of the year. Therefore, for extension to be relevant in food security drive and thus the Millennium Development Goals effort, calls for serious action to ensure all season availability of fruits and vegetables and other food products in all markets at affordable prices.

The general objective of the study is to determine the ameliorative strategies to seasonal scarcity of fruits and vegetables in Aba North and South Local Government Areas of Abia State, Nigeria. In specific terms, the study is designed to:

- Determine the seasonal availability of fruits in Aba North and South Local Government Areas of Abia State.
- Ascertain the seasonal availability of vegetables in Aba North and South Local Government Areas of Abia State.
- Identify the ameliorative strategies to seasonal scarcity of fruits and vegetables in Aba North and South Local Government Areas of Abia State.

MATERIALS AND METHODS

The study was conducted in Aba North and Aba South Local Government Areas of Abia State, Nigeria. The population of the study included all fruit and vegetable traders in all the relief markets in the study area. Four out of seven fruit and vegetable markets located in the study area were randomly selected. Data were obtained from 200 sample size composed of 50 respondents purposively sampled from each of the 4 fruit and vegetable markets selected for the study. The instrument for data collection was a structured questionnaire validated by the researchers. Seasonality of fruits and vegetables were determined with a percentage occurrence of 50 and above. The responses to the ameliorative strategies to seasonal scarcity of fruits and vegetables were designed on a 4-point likert-type

summated rating scale of agreement (strongly agree, agree, disagree and strongly disagree). The values of the scale (4, 3, 2 and 1) were summed up to obtain 10. The average of the sum gave 2.50, which became the cut-off mean. Decision for acceptance of any item as being high was based on attaining a cut-off mean score of 2.50 and above, below which is low. Data analysis was carried out using descriptive statistical tools (frequency, percentage and mean).

RESULTS AND DISCUSSION

The seasonal availability of 34 indigenous fruits covered in the study is presented in Table 1. The result revealed that 20 fruit species with percentage occurrence ranging between about 56-96% are available all year round. They include palm fruits (96%), bitter cola (94%), kolanut (92%), pepper (83%), melon (78%), tomato (78%), bread fruit (77%), banana/plantain (76%), ogbono (72%), coconut (68%), pineapple (66%), ukpo (66%), ugba (65%), ofor (64%), onion (64%), *Tetrapheura tetraptera* (62%), achi (61%), pawpaw (58%), avocado pear (56%). The all year round availability of the above fruits as indicated in the result is given credence perhaps because these fruits occur in the market in both their fresh and processed forms as well as dried seeds. Furthermore, 9 fruits with percentages ranging between 54 and 94 are wet season fruits. They include mango (94%), okra (92%), garden egg (88%), native pear (88%), cucumber (75%), ugiri (73%), guava (62%), water melon (60%) and ukpa (54%).

The fruiting period of the crop-plants bearing these fruits synchronizes with the tropical wet season in Nigeria. Because of their succulent, juicy nature, they lack storagibility and usually consumed in their fresh conditions. This therefore limits their availability to the fruiting/wet season. Also 5 others covered in the study with percentages ranging between 63 and 84 are dry season fruits. They include star apple (84%), carrot (84%), pepper fruit (74%), cashew nuts (64%) and Icheku (63%). Just like their wet season counterparts, these fruits mature for harvest during dry season and because of their high perishability, their availability is limited to the harvest season (dry season). Even those that could be processed and packaged for year round supply (cashew nut, pepper fruit) their production appear not to have been fully harnessed by farmers in Nigeria to ensure all season availability.

The seasonal availability of 14 indigenous vegetables surveyed in the study are presented in Table 2. The result indicated that 4 vegetable species with percentage occurrence ranging between about 64 and 92 are available in the market all year round. They include ukazi (92%),

Table 1: Seasonal availability of indigenous fruits as indicated by the respondents

S/N	Species	Common/local name	Occurrence (%)	Seasonality
1	<i>Elaeis, guineensis</i>	Palm fruits	96	All year round
2	<i>Garcinia, kola</i>	Bitter cola (<i>Aki-ili</i>)	94	All year round
3	<i>Kola acuminata</i>	Kola	92	All year round
4	<i>Capersicum</i> sp.	Pepper	83	All year round
5	<i>Cucumis, melo</i>	Melon	78	All year round
6	<i>Lycopersicum esculentum</i>	Tomato	78	All year round
7	<i>Treculia, africana</i>	Bread fruit (<i>ukwa</i>)	77	All year round
8	<i>Musa</i> sp.	Banana (plantain)	76	All year round
9	<i>Irvingia, var. excelsa</i>	<i>Ogbono</i>	72	All year round
10	<i>Cocos, nucifera</i>	Coconut	68	All year round
11	<i>Ananas, comosus</i>	Pineapples	66	All year round
12	-	<i>Ukpo</i>	66	All year round
13	<i>Pentaclethra, macrophylla</i>	<i>Ugba</i>	65	All year round
14	-	<i>Ofor</i>	64	All year round
15	<i>Allium, cepa</i>	Onion	64	All year round
16	<i>Citrus</i> sp.	Oranges	62	All year round
17	<i>Tetraphewra, tetraptera</i>	<i>Uhiokirihio</i>	62	All year round
18	<i>Brachystegia, eurycoma</i>	<i>Achi</i>	61	All year round
19	<i>Carica, papaya</i>	Pawpaw	58	All year round
20	<i>Persea, americana</i>	Avocado pear	56	All year round
21	<i>Mangifera, indica</i>	Mango	94	Wet Season
22	<i>Hibiscus, esculenta</i>	Okra	92	Wet Season
23	-	Garden egg	88	Wet Season
24	<i>Dacryodes, edulis</i>	Native pear (<i>ube</i>)	88	Wet Season
25	<i>Cucumis, sativus</i>	Cucumber	75	Wet Season
26	<i>Irvingia, gabonensis</i>	<i>Ugiri</i>	73	Wet Season
27	<i>Psidium, guajava</i>	Guava	62	Wet Season
28	-	Water melon	60	Wet Season
29	<i>Tetracarpidium conophorum</i>	<i>Ukpa</i> (walnut)	54	Wet Season
30	<i>Chrysophyllum, albidum</i>	<i>Udara</i> (star apple)	84	Dry Season
31	<i>Daucus, carota</i>	Carrot	84	Dry Season
32	<i>Dannettia tripetala</i>	Pepper fruit (<i>mmimi</i>)	74	Dry Season
33	-	Cashew nut	65	Dry Season
34	<i>Dialium, guinense</i>	<i>Icheku</i>	63	Dry Season

Table 2: Seasonal availability of indigenous vegetable as indicated by the respondents

S/N	Species	Common/local name	Occurrence (%)	Seasonality
1	<i>Gnetum bulchozianum</i>	<i>Ukazi</i>	92	All year round
2	<i>Vernonia amygdalina</i>	Bitter-leave	83	All year round
3	<i>Telferia, occidentalis</i>	<i>Ugu</i>	78	All year round
4	-	<i>Atama</i>	64	All year round
5	<i>Talinum triangulare</i>	Water-leaf	90	Wet season
6	<i>Gongronema, latifolium</i>	<i>Utazi</i>	86	Wet season
7	-	Cent leave (<i>nchuanwu</i>)	84	Wet season
8	<i>Peper guineensis</i>	<i>Uziza</i>	72	Wet season
9	-	<i>Anara</i>	68	Wet season
10	<i>Amaranthus,</i>	Edible green	62	Wet season
11	<i>Cucurbita, pepo</i>	Pumpkin	60	Wet season
12	-	Curry leaf	60	Wet season
13	<i>Pterocarpus soyauxii</i>	<i>Uha</i>	83	Dry season
14	<i>Pterocarpus santalinoides</i>	<i>Uwurukpa</i>	74	Dry season

bitter leave (83%), telferia (78%) and atama (64%). The consumption of these vegetables appears popular among people of the south-eastern region of Nigeria. However, their year round availability is as a result of their natural potency to maintain vegetative growth year round despite their occurrence in the wild with little domestication. Also, 8 other vegetable species with percentages ranging between about 60 and 90 are wet season vegetables.

They include water-leaf (90%), utazi (86%), cent-leaf (84%), uziza (72%), anara (68%), edible green (62%), pumpkin (60%) and curry-leaf (60%). The common feature

enhancing the availability of these vegetable species is the natural vegetative regrowth during the wet season. Furthermore, result showed that 2 vegetable tree species namely *P. soyauxii* and *P. santalinoides* with percentages of about 83 and 74, respectively are dry season vegetables. These are deciduous trees species usually planted around compounds in rural communities. The vegetative regrowth that offers fresh, soft and cherished leaves occur in the dry season, thus limiting their availability and consumption within the dry periods of the year. Generally majority of the above fruit and vegetable

Table 3: Ameliorative strategies to seasonal scarcity of fruits and vegetables

S/No	Ameliorative strategies	Mean score
1.	Involvement of more farmers in fruit farming	3.91
2.	Careful post harvest handling	3.84
3.	Adequate and improved storage facilities for surplus harvest	3.75
4.	Adoption of appropriate and sound processing	3.61
5.	Efficient and effective marketing information network.	3.14
6.	Adopting wild species in to cultivation by farmers	2.91
7.	Adequate and efficient transport system and facilities	2.76
8.	Adequate and improved packaging methods	2.68
9.	Increased investment and maximum use of farm inputs	2.57
10.	Year round production	2.48
11.	Provision and utilization of Fadama agricultural systems	2.16

species are either wild or encouraged weeds yet to be brought under cultivation in the farming systems by the farmers. In line with this view, IITA (1972) warned that unless many of these wild and semi-wild fruits and vegetables are brought under cultivation and improved many useful species that are well adapted to the climatic conditions may be lost.

The results on the ameliorative strategies to seasonal scarcity of fruits and vegetables are presented in Table 3. Entries in Table 3 show that item 1 (involvement of more farmers in fruits and vegetable crop farming attracted a high mean score of 3.91; careful post harvest handling = 3.84; adequate and improved storage facilities for surplus harvests = 3.75; adoption of appropriate and sound processing methods (canned, dried, pickled, fermented and jam/juices) = 3.61; efficient and effective marketing information network = 3.14; adopting wild species into cultivation by farmers = 2.76; adequate and efficient transport system and facilities = 2.71; adequate and improved packaging methods = 2.68; increased investment and maximum use of farm inputs = 2.57. The results are corroborated by (Tindall, 1968; Epenhuijsen, 1974; Kordylas, 1990).

CONCLUSION

Fruits and vegetable products are essential food items sought after in diets in various part of Nigeria. The supply and availability of majority of fruit and vegetable products are controlled by seasonal variations. The strategies revealed in the study such as involvement of more farmers in fruit farming, careful post harvest handling, adequate and improved storage facilities for surplus harvest, among others, will stem the scarcity of fruits and vegetables and ensure food security in the country.

RECOMMENDATIONS

Based on the findings, the following recommendations are made:

- Government, agricultural co-operatives, marketing associations and other interest groups should urgently embark on the provision of adequate modern storage facilities and equipment in all fruit and vegetable markets.
- Improved commercial processing and packaging of fruits and vegetables as canned, dried, pickled, fermented, frozen, jams and juices should be encouraged in Nigeria
- Public enlightenment should be stepped up through effective extension services on the consumption of fruits and vegetables in their processed forms.
- Awareness should be generated also on safe post-harvest handling procedures of fruits and vegetables
- Appropriate and timely information on marketing opportunities should be provided to the farmers through extension services.
- Rural infrastructural development drive by government should be sustainable.

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