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LEVEL OF EGG CONSUMPTION AND QUALITY ASSESSMENT BY THE PEOPLE OF ADAMAWA STATE, NIGERIA

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ABSTRACTS

The study examined the level of egg consumption and quality assessment by the people of Adamawa State. Simple and purposeful random sampling techniques were employed to draw information from respondents in the 21 Local Government Areas of the State. A total of 420 well structured questionnaires which focused on four issues were administered to 420 respondents. The issues included Social statuses, levels of egg consumption, egg consumption preferences and constrains to egg consumption. Out of the 420 questionnaires administered, there were 390 (93%) retrievals. Data obtained were analyzed using simple descriptive statistics of frequencies, totals and percentages. It was revealed that 59% of the respondents were males while 41% were females. Adults made up 52%, youths 37% and children 12%. Of the respondents, 53% were unmarried and 47% married. There were 52% urban dwellers while 48% were of rural areas. There were 95% who consume eggs with 63% consuming chicken eggs. It was found that majority of the respondents (52%) preferred chicken eggs, 24% guinea fowl, 18% turkey and 6% duck eggs. Eggs were preferred boiled by 64% of the respondents while 36% preferred fried ones. It was also revealed that 90% ate 1-3 eggs per day with 10% more than 3. However, not much could be eaten because of unavailability as stated by48%, 47% cost and 5% dislike. The most readily available egg is that of chicken (52%), guinea fowl (27%) and turkey (15%). Out of the respondents, 92% had no cultural taboo against egg consumption. From the study, it can be concluded that people in the research area consume eggs with no cultural taboo against it. Though chicken egg is the most preferred, the only hindrances to consumption are costs and unavailability. It is therefore recommended that local back yard production should be encouraged to increase level of consumption among the poor.

KEY WORDS: Egg, Consumption, Assessment, Quality.

INTRODUCTION

There is a widening gap between estimated protein requirement and actual protein consumption in many tropical developing countries (Inyang et *al.*, 2010). It is reported that the average consumption of animal protein in Nigeria is estimated at 10g/head per day as against a minimum requirement of 35g/head per day (FAO, 2010).

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Therefore majority of Nigerians suffer from malnutrition.

Mailafia *et al.* (2010) reported that small children of ages 1-3 years are the most vulnerable to protein malnutrition. At this stage, they consume low-protein diets resulting in the cause of irreversible physical and mental retardation. He further stated that protein malnutrition and repeated infections when combined form the greatest hazard to the health of children in the less developed countries who live in abject poverty. That one egg can supply over one-third the total protein and over one-half daily Methionine-cystine requirement of a child of between1 and 3 years age.

Adene (2004) stated that per capita egg consumption has been on the decline in the past few years. In developed countries, it has been due to food quality and health related reasons such as Salmonella and Cholesterol scares while in poor developing countries of Africa and Asia, it is due mainly to poverty-related reasons.

Egg production in developing countries like Nigeria accounted for 25% of the World total in 1960, increased to 67% in 2002 out of which 6% were hatching eggs (Adebambo *et al.,* 2010). This meant that the rest of the eggs produced were table eggs used for consumption. As far back as 1998, Nigeria reared 200 million chickens and produced 5,800 million eggs out of the 598,579 million World total (Adebambo*et al.*, 2010). It is estimated that there are 2 million chickens in Adamawa State which are mostly kept as scavengers. Local chickens kept in rural areas lay about 50 eggs each per year while modern breeds lay 250-270 eggs each yearly (Aliyara and Yakubu, 2005).

Some decades back, eggs were considered sacred that could only be handled and eaten by elders. Children were not allowed to handle eggs because they are delicate. Once it falls to the ground, a chick and future generation of chickens are lost. Children were not allowed to eat eggs because it was believed; eating eggs made the children to steal. Today, levels of handling and eating of eggs by both adults and children have changed. Hardly can a parent refuse his/her child this nourishing and healthy food. Because of its taste and nourishing nature, children have become so skillful in handling and eating of eggs such that they now handle and consume eggs even more than their parents.

To be effective in egg marketing, the seller must be concerned with phases of production which influence egg quality as well as with the preferences of consumers for certain characteristics of the retail product and for the type of package in which it is offered for sale (Richard and Malden, 1990).

There is insufficient information on the level of egg consumption and quality assessment by the people in the research area. The study was therefore carried out to determine among other things, the socio-economic statuses of the respondents, their levels of egg consumption, egg consumption preferences and constrains to egg consumption in the study area.

MATERIALS AND METHODS

STUDY AREA

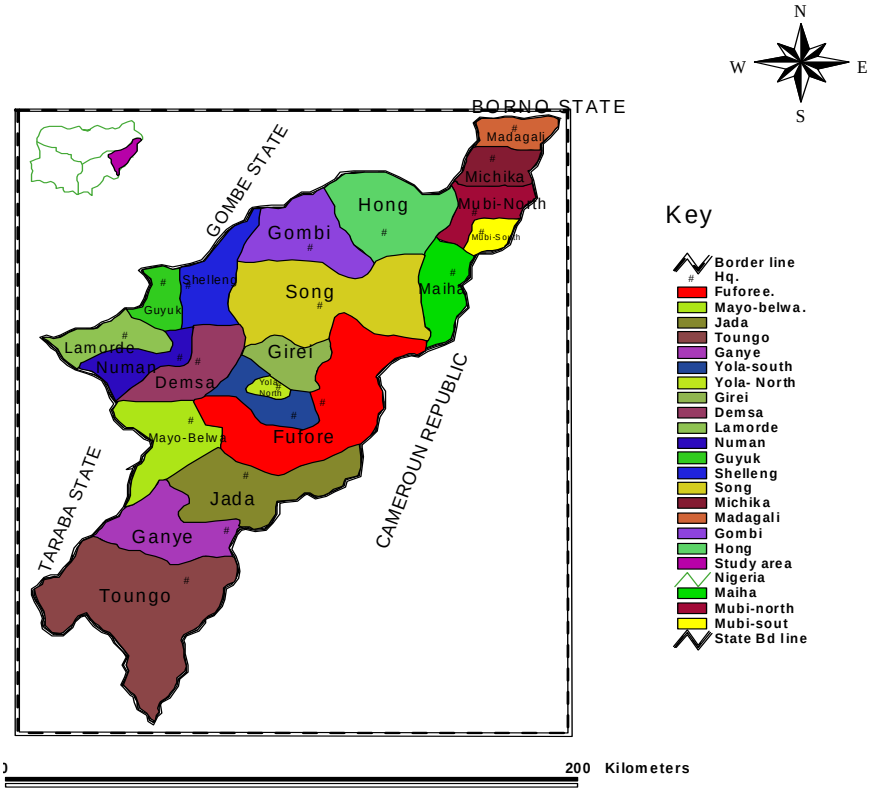
The Study covered the entire Adamawa State which is located in the North Eastern part of Nigeria. It lies between Latitude 7^0 and 11^0 North of the equator and between Longitude 11^0 and 14^0 East of the Greenwich Meridian. Sharing International boundaries with Cameroon Republic in the eastern border, it is bounded by Taraba State in the South and West, Gombe State in the North West and Borno State in the North (Adebayo and Tukur, 1999).

The State covers land area of 39,742.12 Km^2 and with an estimated population of 3,168,101 people according to 2006 National census (Adamawa State Diary, 2009). The climate is

tropical marked by rainy and dry seasons. Rainy season starts in April and ends late October. Dry season commences in late October and ends in March. Mean annual rainfall ranges from 700mm in the North West to 1,600mm in the Southern parts. Maximum temperature is 40^0C, minimum is 18^0C while the mean monthly temperature is 27.3^0 (Adebayo and Tukur, 1999).

The State has two notable vegetations namely, the sub-Sudan and Northern Guinea savanna zones. The sub-Sudan zone is marked by short grasses interspersed by short trees, commonly found in the Northern part of the State. To the South, the vegetation is thick with tall grasses and trees (Adamawa State Diary, 2002). Major livestock species are cattle, sheep and goats with poultry species reared all over the State (Tukur and Ardo, 1999). The dominant system of livestock management is nomadic herding. This system involves continuous movement with animals in search of scarce feeds and water which results in prolonging the period in which animal reaches slaughter weight.

The map of Adamawa State is as shown in Fig.1.



DATA COLLECTION PROCEDURE

The data of this research were drawn from field survey conducted in the 21 Local Government Areas of the State. Well structured and detailed questionnaires were randomly administered to respondents of various sexes, religious, educational and socio-economic backgrounds. The questions contained in the questionnaire focused on four broad issues or parameters namely, social statuses of respondents, their levels of egg consumption, egg consumption preferences and constrains to egg consumption.

In all of the Local Government areas, 420 questionnaires were randomly served to respondents. Out of these, there were 390 (93%) retrievals.

STATISTICAL ANALYSIS

Data were analyzed using frequencies, totals and percentages.

RESULTS AND DISCUSSION

The results of the study are presented in tables 1-4. Table 1 presents the social statuses of the respondents.

SOCIAL STATUSES OF RESPONDENTS

From table 1, it is reported that 59% of the respondents were males with 41% being females. Adults made up 52%, youths 37% and 12% children. Those married were 47% and unmarried 53%. Civil servants and retirees made up 36% with applicants and students 54%. Of all the respondents, 52% were urban dwellers with 48% residing in the rural areas which agree with 60% city and 40% rural dwellers reported by Christopher *et al*. (2010). It is reported by Joel and Amy (2003) that though economic status of the household is tied to access to animal source food (ASF), there is no difference in food consumption when comparing children from families of different socioeconomic backgrounds.

Per capita household income has a positive influence on egg consumption. As the household income increases, egg consumption increases thereby obliterating the household level of income, and upper asymptote for egg consumption (Olubiyo and Elufisan, 1999). That the income elasticity of demand for eggs is on the average very high and that there is a household income below which household do not buy eggs simply because they are poor.

Most of the people (52%) preferred chicken eggs, 24% guinea fowls, 18% turkey and 6% duck eggs. It was found that while 64% preferred boiled eggs, 36% choose to eat fried ones.

Olubiyo and Elufisan 1999 had earlier reported that various sources of eggs for human consumption were hens, duck, goose fowl and turkey. However, eggs from hen are the major source for human consumption even on commercial scale.

Table 1.Social statuses of Respondents

Parameter Variable Frequency Percentage
Sex Male 230 59
Female 160 41
Total 390 100
Age (Years) Less 18 48 12
18-25 57 15
26-30 81 21
31 and above 204 52
Total 390 100
Marital Status Married 185 47
Single 205 53
Total 390 100
Occupation Civil servant 92 24
Applicant 96 25
Farmer 43 10
Student 112 29
Retiree 47 12
Total 390 100
Does consume eggs? Yes 369 95
No 21 5
Total 390 100
Place of residence Town 203 52
Village 187 48
Total 390 100

LEVELS OF EGG CONSUMPTION

The levels of egg consumption by the respondents are presented in table 2. Of them all, 95% consumed eggs while 5% did not. Out of those consuming eggs, 63% consumed chicken eggs, 18% turkey, and 16% guinea fowl with only 3% duck eggs. About 85% consumed eggs for nourishment, 11% as social status, with 4% to quench their desire for meat. While majority of them (42%) ate eggs monthly, 33% weekly, 18% daily, 7% ate eggs once a year. This finding is in agreement with Jabir *et al.* (2013) who reported that compared with egg, no other single food of animal origin is eaten by so many people all over the world and none is served in such a variety of ways. Therefore, egg production is of great economic value with prospects for more.

Table 2.Level of Egg Consumption

Parameter Variable Frequency Percentage
Whether consumes eggs Yes 369 95
No 21 5
Total 390 100
If yes, Type Chicken 232 63
Duck 10 3
Guinea fowl 59 16
Turkey 68 18
Total 369 100
If yes, why eating it for nourishment 312 85
Pride of eating it 42 11
Desire for meat 9 2
No reason 6 2
Total 369 100
If not eating, why Fear of cholesterol - -
No money to buy - -
No reason 21 100
Total 21 100
How often egg consumed every day 67 18
Weekly 123 33
Monthly 154 42
Once a year 25 7
Total 369 100

PREFERENCES IN EGG CONSUMPTION

Most of the people (52%) preferred chicken eggs, 24% guinea fowls, 18% turkey and 6% duck eggs (table 3). It was found that while 64% preferred boiled eggs, 36% choose to eat fried ones.

Olubiyo and Elufisan 1999 had earlier reported that various sources of eggs for human consumption were hens, duck, goose fowl and turkey. However, eggs from hen are the major source for human consumption even on commercial scale. That major concern of many Nigerians nowadays, invariably, any human being, is the assurance of food supply at reasonable costs. The initial consideration for food in Nigeria is the cost then its quality as the people's purchasing power continues to fall.

Table 3.Preferences in Egg consumption

Parameter Variable Frequency Percentage
Egg availability Not available 52 13
Readily available 188 48
Barely available 150 39
Total 390 100
Criteria for egg choice Size/weight 162 42
Shell colour 138 35
Shell quality 37 9
No choice 53 14
Total 390 100
Egg most acceptable Hen egg 201 52
Guinea fowl egg 93 24
Duck egg 23 6
Turkey egg 73 18
Total 390 100
Egg process most loved Boiled 251 64
Fried 139 36
Total 390 100

Kearney (2010) stated that livestock products including eggs have shown variable consumption trends. That the levels of per capita egg consumption have doubled worldwide, with the increases more marked in developing countries compared with industrial countries.

CONSTRAINS TO EGG CONSUMPTION

Table 4 shows the results of the constrains to egg consumption by the people in the study area. Of all the respondents, 90% could eat 1-3 eggs daily with 10% more than three. Main source of eggs was local fowls to (37% of respondents), 37% poultry egg retailers and 26% poultry farmers.

Hindrances to egg consumption were unavailability (48%), costs (47%), and 5% dislike with only 8% who said they had cultural taboo against eating eggs in their areas. Eggs most available were chicken eggs (52%), guinea fowl (27%), turkey (15%) and duck eggs (6%). While 369 (95%) consumed eggs, 59% reared chicken, 18% reared ducks, 16% guinea fowls and 7% turkeys.

Many of the changes in food consumption patterns are reflective of nutrition transition. There are series of adverse changes in diet, physical activity and health (Kearney, 2010).

That this shift from under nutrition to a situation where abundance exists, leads to health related diseases such as overweight and obesity. Egg consumption is primarily concentrated in urban areas because households are better informed. In the study area, about 48% live in rural areas. This may mean that there is still high level of poverty and high number of uninformed on egg consumption.

Chronic malnutrition is wide spread in Nigeria. It is believed, food insecurity situation is more prevalent in the rural areas based on low income and the poor socioeconomic conditions of the Nigerian rural dwellers. Urban households are also predisposed to food insecurity on account of increasing rural-urban migration and low level of employment (Iorlamen *et al*., 2010).

Table 4.Constrains to egg consumption

Parameter Variable Frequency Percentage
How many can eat/day One 98 25
Two 166 43
Three 87 22
More 39 10
Total 390 100
Sources of eggs Local fowls 143 37
Poultry farmers 102 26
Retailers 145 37
Total 390 100
Egg consumption hindrances Cost 182 47
Dislike 21 5
Unavailability 187 48
Total 390 100
Eggs most available Chicken 202 52
Duck 25 6
Guinea fowl 105 27
Turkey 58 15
Total 390 100
Cultural taboo to consumption No 357 92
Yes 33 8
Total 390 100
Type of Birds reared Chicken 231 59
Duck 69 18
Guinea fowl 62 16
Turkey 28 7
Total 390 100

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