EVALUATION OF CONSUMERS' PERCEPTION ON SOME QUALITY ATTRIBUTES OF EGG PRODUCTS

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ABSTRACT

Perception of consumers on some quality attributes of egg products (fresh egg, powdered whole egg, powdered albumen, powdered yolk) was determined in this study. This was done using a survey of simple random sampling. The price has the highest value showing that it is an important quality in egg consumption with the frequency of 72(60%). It was concluded that, consumers' perception on convenience of packaging, aroma, colour and ease of preparation are very important quality attributes, while price, food safety, texture and taste are important quality attributes for egg products. Consumers showed more preference on fresh egg than on powdered egg, while most of the consumers never used powdered egg. For colour, fresh is ranked first with 103(85.8%) and reconstituted 17(14.2%). Fresh is ranked second with 21(17.5%) and reconstituted is ranked second with 29(24.4%) and 70(58.3%) never use. It is recommended that, fresh egg could be processed into powder as separate albumen, yolk or whole with value addition, like better packaging, colour, taste. Again, more awareness on processing, marketability and utilization of powdered egg should be done through extension services to producers and consumers.

Keywords: Perception, quality attributes, egg products, awareness.

INTRODUCTION

Egg is an animal product produced mainly by poultry as one of the major sources of protein. The high content of highly bioavailable protein in eggs is of great benefit to human nutrition (Fisinin *et al.,*2008). The quality of protein in eggs is used as the standard for measuring the quality of other food proteins. Eggs are used in polymer, paint, ink and paper making (Audic *et al*.,2005). Egg products, means all, or a portion of, the contents found inside eggs separated from the shell, with or without added ingredients, intended for human consumption. Eggs are processed into different products depending on locality. An egg product may contain food ingredients and food additives intended to give them certain characteristics and or to preserve their quality.Examples of egg products include hard-cooked chopped eggs, precooked scrambled eggs or omelettes, quiches, precooked egg patties, scrambled egg mixes, and crepes, whole egg without shell (melange), liquid egg product, egg yolk, egg albumen, frozen egg product, dried egg product, concentrated (condensed) egg product, blended egg product, conventional(natural) egg product, modified egg product, fermented egg product, thermo-stabilized egg product, pasteurised egg product, acidified egg product, heat-treated egg albumen, salted or sugared product and commodity lot (Aduku and Olukosi, 2000; Froning, 2008)

MATERIALS AND METHODS

Location of the study

The study (powdered egg processing) Experiment II was conducted at the Food Technology and Home Economics Department of National Agricultural Extension and Research Liaison Services, Ahmadu Bello University, Zaria. The survey (experiment I) was conducted within ABU Staff Quarters of Samaru and Kongo Campuses.

Consumer survey

The survey was done using a simple random sampling and 120 households were selected using a card system technique. The respondents were household heads or none household heads. The households were divided in a manner of cluster sampling into low density with 20, medium density with 40 and high density with 60 respondents respectively. And this was done using a proportionate sample size. A house to house one on one contact with all the respondents was done. In all 120 respondents were choosing for this study. Samples of powdered egg products were taken to the consumers for interviewing them.

RESULTS AND DISCUSSION

Table 1 presents the consumers' perceptions on the quality attributes of egg products. The quality attributes of egg products (price, colour, taste, texture, aroma, food safety, convenience of packaging and ease of preparation) were evaluated in order of importance (very important, important, somewhat important and not important). The price has the highest value showing that it is an important quality in egg consumption with the frequency of 72(60%), followed by very important with the value of 32(26.7%). Both somewhat important and not important have the lower values of 8 (6.7%) each. Price is therefore a good quality indicator towards consumer demand for a product. Convenience of packaging as a quality for egg products has its highest value as very important with the value 72(60%), followed by important with 36(30%). Those that responded not important have 8(6.7%) and for somewhat important with 4(3.3%). Food safety is another quality attribute to egg products. The respondents rated food safety to be important with the highest value of 51(60.8%) as an important indicator for consumers' attitude to egg products demand, followed by very important with 53(44.2%). Very few respondents considered food safety to be not important with the value of 5(4.2%) and fewer considered food safety to be somewhat important with 1(0.8%). Colour as a quality attribute was responded to be very important by most of the respondents 54(45%) followed by stating the colour to be important by 51(42.5%). Few respondents perceived colour to be none important quality attribute to egg products with 8(6.8%) and fewer as somewhat important with 7(5.8%). Texture is perceived to be important with the highest value 79(65.8%), followed by very important with 28(23.3%). Somewhat important for texture is considered to have 9(7.5%) and not important has the least value. Aroma is considered to be very important as quality attribute to egg products with the highest value of 59(49.2%), followed by important with 50(41.7%), not important with 6(5.0%) and least as somewhat important with 5(4.2%). Taste is considered to be important with 64(53.3%), followed by being very important with 43(35.8%), not important with 8(6.7%) and least as somewhat important with 5(4.2%). Ease of preparation is considered to be very important with the highest value of 71(59.2%), followed by being important with 64(53.3%). 5(4.2%) respondents perceived ease of preparation not important and 2(1.7%) considered it somewhat important. It is reported by Goddard *et al*. (2007) that, egg quality attributes such as colour, taste, packaging and price are important factors to consumers' demand and purchasing powder.

Table 1: Consumers' Perception on the Quality Attributes of Egg Products

Parameter	NOT IMP	SOME WT IMP	IMPT	VERY IMPT
Price	8(6.7%)	8(6.7%)	72(60%)	32(26.7%)
C P	8(6.7%)	4(3.3%)	36(30%)	72(60%)
F S	5(4.2%)	1(0.8%)	61(50.8%)	53(44.2%)
Colour	8(6.78%)	7(5.8%)	51(42.5%)	54(45%)
Texture	4(3.3%)	9(7.5%)	79(65.8%)	28(23.3%)
Aroma	6(5.0%)	5(4.2%)	50(41.7%)	59(49.2%)
Taste	8(6.7%)	7(5.8%)	51(42.5%)	43(35.8%)
E P	5(4.2%)	2(1.7%)	42(35.0%)	71(59.2)

IMP, IMPT = important**, WT=**what**, CP=** convenience of packaging
FS= Food safety**, EP=**Ease of preparation

Table 2 presents the attitudes of consumers towards powdered egg by ranking between fresh and powdered (reconstituted) egg to be first or second preferred for (taste, aroma, colour and texture) and never use. For colour, fresh is ranked first with 103(85.8%) and reconstituted 17(14.2%). Fresh is ranked second with 21(17.5%) and reconstituted is ranked second with 29(24.4%) and 70(58.3%) never use. For texture, fresh is ranked first with 106(88.3%) and reconstituted 14(11.7%). Fresh is ranked second with 13(10.8%) and reconstituted is ranked second with 21(17.5%) and 86(71.7%) never use. For aroma, fresh is ranked first with 116(96.7%) and reconstituted 1(0.8%). Fresh is ranked second with 4(3.3%) and reconstituted is ranked second with 17(14.2%) and 101(84.2%) never use. For taste, fresh is ranked first with 119(99.2%) and reconstituted 1(0.8%). Fresh is ranked second with 1(0.8%) and reconstituted is ranked second with 11(9.2%) then 108(90.2%) never use. Mnyandu 2014 reported that, consumers expressed their willingness and acceptability to reconstituted powdered egg. Even though the powdered reconstituted egg was accepted but the fresh egg was more acceptable and this may be due to unfamiliarity of the utilization of powdered egg by the consumers.

Table 2: Attitudes of the Consumers towards Powdered Egg by Ranking

Parameter		First	Second	Never use
Colour	F	103(85.8%)	17(14.2%)	
	R	21(17.5%)	29(24.4%)	70(58.3%)
Texture	F	106(88.3)	14(11.7%)	
	R	13(10.8%)	21(17.5%)	86(71.7%)
Aroma	F	116(96.7%)	4(3.3%)	
	R	2(1.7%)	11(14.2%)	101(84.2%)
Taste	F	119(99.2%)	1(0.8%)	
	R	1(0.8%)	11(9.2%)	108(90.2%)

F= Fresh egg, **R=** Reconstituted egg

Consumers' Awareness and Attitude on powdered Egg

Table 3 presents consumers awareness and attitudes on powdered egg and their willingness to buy powdered egg. There was little knowledge on powdered egg as only 7(5.8%) respondents were aware of powdered egg while 113(94.2%) were not aware of powdered egg. For information on powdered egg, 18(15.1%) have been informed and 102(84.9%) have not been informed of powdered egg. This indicates that there is little awareness on powdered egg by consumers. When buying egg, 39(32.5%) respondents cared whether the product is of fresh or powdered, while 81(67.5%) did not care whether the product is of fresh or powdered. For marketability of powdered egg, 94(78%) are willing to buy powdered egg, while 26(21.7%) are not willing to buy powdered egg. For food safety and consumers' satisfaction, only 40(33.3%) are still willing to buy powdered egg if it is not certified by a quality and safety regulating agency, while 80(66.7%) are not willing to buy unless if the powdered egg is certified. This indicates that powdered egg has marketing potential especially if it is standardised. In a study conducted by Mnyandu 2014, it revealed that, consumers are willing to be utilising powdered egg with time so as to become more familiar with it.It was reported that None of the respondents in rural Mkhambathini were familiar or had knowledge of egg powder. However, focus group discussions revealed that respondents were willing to learn more about egg powder in relation to producing it at a household level (Khoza 2014).

Table 3: Consumers' Awareness on Powdered Egg

Parameter	Yes	No
Knowledge on Powdered Egg	7(5.8%)	113(94.2%)
I PE	18(15.1%)	102(84.9%)
C F/P	39(32.5%)	81(67.5%)
WB PE	94(78.3)	26(21.7%)
WB PE ENC	40(33.3%)	80(66.7%)

I PE= Information on powdered egg, **C F/P=** care if product is fresh or powdered, **WB PE**= willing to buy powdered egg, **WB PE ENC**= willing to buy powdered egg even if not certified

CONCLUSION AND RECOMMENDATION

It is concluded that, consumers' perception on convenience of packaging, aroma, colour and ease of preparation are very important quality attributes, while price, food safety, texture and taste are important quality attributes for egg products. Consumers showed more preference on fresh egg than on powdered egg, while most of the consumers never used powdered egg. It is recommended from the study that, fresh egg should be processed into powder as separate albumen, yolk or whole in order to solve egg glut problem, giving attention to value addition, like better packaging, colour, taste and price and utilisation.

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