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**CONSUMERS' PREFERENCE
FOR
MINISETT YELLOW YAM**

APRIL 1996

IICA OFFICE IN JAMAICA

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by

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ABSTRACT

This research investigates the consumer's willingness to purchase minisett yellow yams.

The yams produced with the application of the minisett technology are smaller than those produced by the traditional methods which raises the question of consumers' acceptability. It analyses the consumer's attitude towards appearance, shape, size, price and quality of yellow yams on the market. The study was conducted in the Kingston Metropolitan Area (KMA). A total of 100 consumers were interviewed at the four (4) major local markets - Coronation, Papine, Constant Spring and Three Miles; a random selection of supermarkets drawn from the telephone directory and the major roadside stands located beside these supermarkets. Descriptive statistics were used to summarize the responses by frequencies and percentages. Factor analyses were used to analyze the attitudinal responses.

The results indicate strong preferential desires for the minisett yellow yam. Consumers indicated a preference for straight unblemished yams within the 2-6 lbs weight range. Many consumers also indicated that they did not buy hollow yams recently even though they were often found in the market. Thus, there is a market preference for minisett yellow yams which addresses the consumer's demand and the concerns of small farmers to produce yams by the application of minisett technology. One can suggest that the demand-driven possibilities for the adoption of minisett technology for the production of yellow yams seems promising and encouraging.

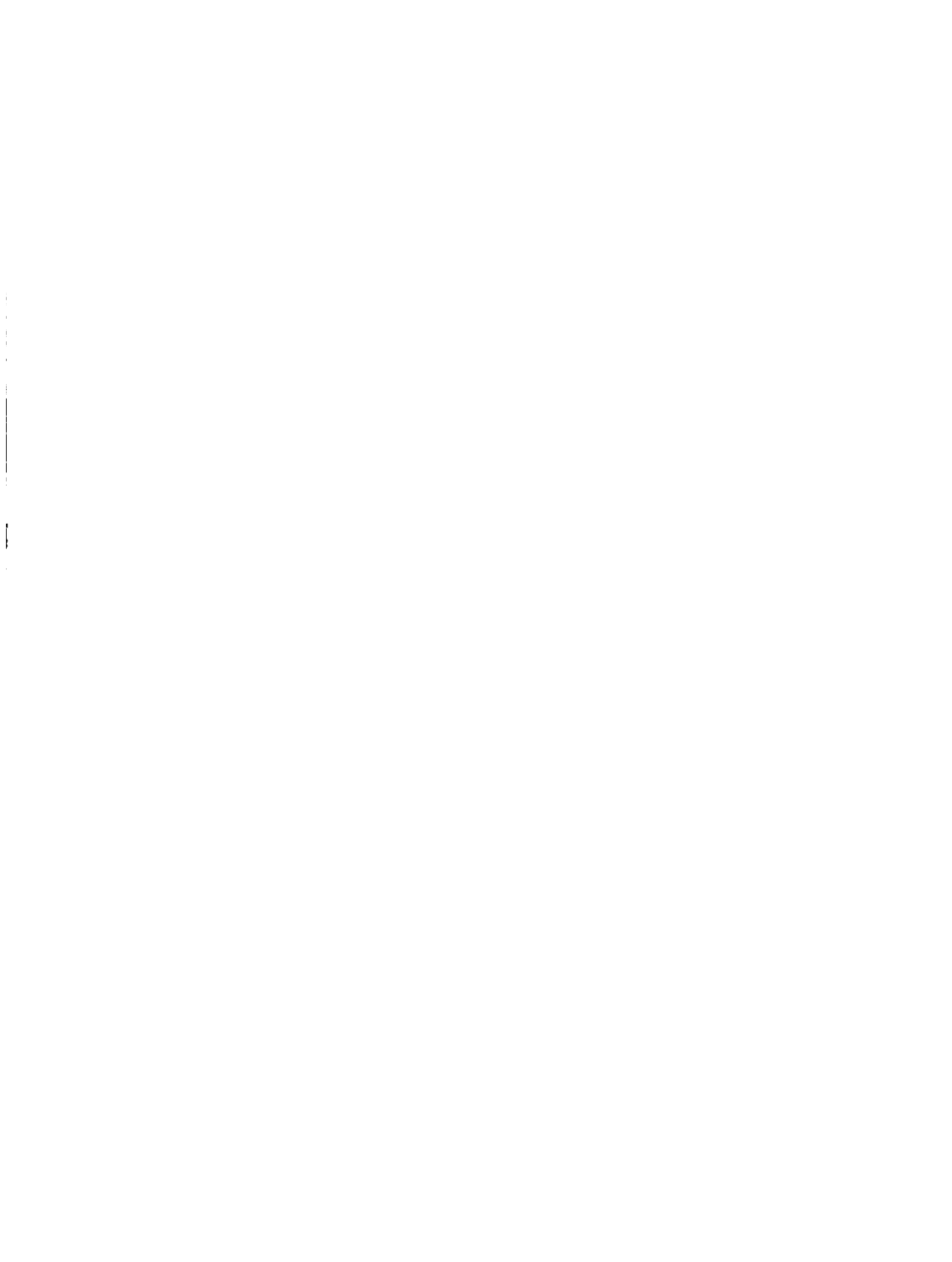
Based on the above, it is reasonable to assume that the preferential desires, for the minisett yellow yam from the local market, can be extrapolated to the Jamaica fresh produce market abroad, so long as the social identities of both consumer groups are similar.

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INTRODUCTION

Tubers in general have traditionally been predominant in the daily diet of Jamaican families, and yams are considered the most widely consumed tubers. Of the yams produced locally, the yellow variety (*Dioscorea cayenensis*) is preferred, accounting for more than half (in most instances) of the domestic crop production of tubers over the years. (Strachan, 1995)

As is the case of other food crops purchased, the consumers' rationale for buying yellow yams varies from person to person. For instance, some are accustomed to purchasing yellow yams from a specific parish, for example Trelawny, claiming special qualities such as that the yams are drier when cooked. Other consumers prefer those from St. Andrew where the yam is said to be less starchy, while some are attracted to yellow yams with tiny outgrowths of the skin called "hair". These are said to be of very fine texture when cooked. Another belief among consumers is that the colour of soil residue on yellow yams is an indicator of quality. Those yams grown in red soils are preferred to those grown in dark soils. Some consumers are often found "knocking" the yams with the back of the hand to determine their compactness, as a "light" sound suggests to them that the yams are hollow. Others look for skin tone of the yellow yams, as a uniform tone from top to bottom suggests that the yam is fully mature. In short, there are many variables that determine the consumer's rationale for purchasing yams.

The above mentioned are some of the criteria regarded by many consumers as assisting them to determine a good quality yellow yam. Other consumers rely on the opinion of relatives and sometimes friends in making their decision. For many consumers price plays an important role. While some make purchases regardless of price, others will not buy if the price is not within a "price range" considered to be reasonable.

The variation displayed in consumer buying behaviour proves to be crucial to producers and marketers, if they are to understand how consumers make their buying decisions. Until recently, general marketing strategies incorporated the opinions of wholesalers and retailers, with very little or no emphasis on getting first-hand information from the "end users". Consumer satisfaction was seen primarily as a measure of cultural heritage and financial standing. As society changes, people's buying behaviour changes and so it is important that marketers consider some of the additional concerns (social, personal, psychological) that influence consumer buying decisions.

Objective

The objective of this study is to evaluate the attitudes of consumers towards the purchase of minisett yellow yams, with the expectation that similarly it reflects an identical consumer preference by Jamaicans living abroad.

The process of inferring the values of the variables of this study to the Jamaican community abroad, is being done due to the lack of information on the measurement of consumers' attitudes towards purchasing minisett yellow yams on the export market, limited financial resources to undertake a study abroad, and the assumption that consumer behaviour could be deduced within similar time and space frames.

The results provide information on consumers' attitudes towards purchasing yellow yams that are produced with the "minisett" technology. Thus marketing strategies can be envisioned, to enhance Jamaica's position on the export market for yellow yams through a widespread application of the referred technological package.

Justification

It seems that Jamaican yellow yams are preferred in the export market, and so over the years, this country has complacently supplied the United States of America, Canada and Europe's market for yellow yams. The statistical data indicates a steady increase in the volumes of yams (predominantly yellow yam) produced and shipped from Jamaica over the past three years (see Table 1). However, recent reports revealed increased competition in the export market for yams (The Agriculturist, Jan.-Feb. 1995). In order for Jamaica to formulate and implement strategies to compete effectively, competitive intelligence in the fresh food market is of foremost importance. One very important strategy could be aimed at surpassing the technological practices of yam production employed by its competitors.

A case could be made for the use of the minisett technology for the production of yams. This will allow greater efficiency in maximizing production which in the long run will continue to ensure reliable volumes and good quality yellow yams on the export market. As a result, the need to appraise consumers' perception with regard to the purchasing of minisett yellow yams is important.

METHODOLOGY

Study Design

This study was conducted in Kingston, Jamaica. The primary data, collected through interviewing consumers included questions based on consumer attitudes, and their perception towards purchasing of yellow yams. Also questions designed to furnish general information with respect to "minisett" yams. Solicitation of data was generated using the systematic random sampling technique.

The Sample

The study included the four major metropolitan local markets in the KMA - Coronation, Papine, Constant Spring and Three Miles; a random selection of supermarkets from the telephone directory and the major roadside stands located beside these supermarkets.

A total of 100 consumers were interviewed; 57% of the local markets, 30% from the supermarkets and 13% from the roadside stands. The percentage of consumers interviewed from each outlet was based on the assumption that the majority of consumers purchase yellow yams from the local market, therefore the sample from the local markets was larger than that from the supermarkets and roadside stands.

Analytical Model of the Study

The analytical process in this study employed the use of descriptive statistics and factor analysis as the theoretical statistical model. Descriptive Statistics consist of the tools and issues involved in describing a collection of statistical observations and was used to summarize the various responses to the questions by means of frequencies and cumulative frequencies. Factor Analysis on the other hand, takes into consideration all methods of data analysis using matrix factors, including principal component analysis and common factor analysis.

The objective of factor analysis is to represent a variable Z_j in terms of several underlying factors. The basic factor analysis model used in this study is specified as follows:

$$Z_j = a_{j1}F_1 + a_{j2}F_2 + \dots + a_{jm}F_m = d_j u_j \quad (j = 1, 2, \dots, n)$$

where each of the n observed variables is described linearly in terms of m common factors and a unique factor. The common factors account for the correlations among the variables, while each unique factor accounts for the remaining variance of that variable. The coefficients of the factors are frequently referred to as "loadings".

The model may be further written explicitly for the value of variable j for individual i as follows:

$$Z_{ji} = \sum_{p=1}^m a_{jp} F_{pi} + d_j u_{ji} \quad (i = 1, 2, \dots, n; j = 1, 2, \dots, n)$$

In this expression F_{pi} is the value of a common factor P for an individual i , and each of the m terms $a_{jp} F_{pi}$ represents composite, while $d_j u_{ji}$ is the "residual error" in the theoretical representation of the observed measurement Z_{ji} .

The commonality of a variable Z_j is given by the sum of squares of the common-factor coefficients, i.e.:

$$h_j^2 = a_{j1}^2 + a_{j2}^2 + \dots + a_{jm}^2 \quad (j=1, 2, \dots, n)$$

The factor analysis model may be expanded as follows:

$$Z = a_{11}F_1 + a_{j1}^2 + a_{j2}^2 + \dots + a_{jm}^2 \quad (j = 1, 2, \dots, 1n)$$

$$Z = a_{21}F_1 + a_{22}F_2 + \dots + a_{2m}F_m \dots d_2u_2$$

$$Z = a_{n1}F_1 + a_{n2}F_2 + \dots + a_{nm}F_m \dots + d_nu_n$$

This set of equations is called the factor pattern.

Explanation of Model

The basic factor analysis model used in this study is described as the Analysis of Variance (ANOVA). ANOVA seeks to test the following:

- (i) Overall significance of the regression;
- (ii) Significance of the improvement of fit obtained by the introduction of additional explanatory variables in the model;
- (iii) Equality of coefficients obtained from different samples;
- (iv) Extra sample performance of the regression and the stability of the coefficients; and
- (v) Restriction imposed on the coefficients of the function, in other words to examine the correlation between and among the explanatory variables ($F_1, \dots, F_2, \dots, F_m$) to determine how they influence the model (if all other variables are removed from the model). In so doing, the model was worked so that ANOVA was used to carefully identify the extent of, and the impact on the coefficients of the variable used. Hence, the explanation of loadings can be explained using (iii) and (v), above.

The model $Z_j = a_{j1}F_1 + a_jF_2 + \dots + a_{jm} F_m = d_j u_j$ ($j = 1, 2, n$) is explaining $Z_j =$ Total of sum of squares of the model $a_{j1}F_1 + a_jF_2 =$ total sum of squares variation among and between the explanatory variables $d_j u_j =$ the residual error (or the unexplained error) which is equivalent to the correction factor $a_j =$ the coefficient of correlation of the explanatory variables of the model.

On examination of the individual observations, Z_{ji} is a subset of the composite model Z_j , with its components $a_{jp}F_i$ - a subset of a_jf_j and a_{ji} , being the coefficient of and among the m explanatory variables $F_1 \dots F_m$.

In building the model, from the individual observations upwards using; m common factors, the correlation among the explanatory variables, the summation of the regression lines of systems of equations expressed in a matrix form along with the residual error $d_j u_j$, seek to explain the impact of each individual variable on the model as well as the level of correlation it has on the other explanatory variables ($F_1 \dots F_m$) and how it relates to the variation (the spread of the data among the points on regression line) which is due to the unexplained (residual error) - Hence, the model $Z_j = a_{j1}F_1 + a_j F_2 \dots a_{jm} F_m = d_j u_j$ ($j = 1, 2, n$) is suitable.

RESULTS OF STUDY

Social Aspects of Consumers

The questions developed for generating information on the social aspects of the consumer were few but explicit. As is displayed in Table 2, 77% of the respondents were female, while 23% were males. The most frequent responses (31%) were from consumers over age 56. Respondents in the 36-43 age group accounted for 26% followed by the 26-35 group. The least frequent responses were from the 16-21 age group (Table 3). From Table 4, it can be observed that respondents are well educated. Only 36% had less than secondary education. Twenty-eight percent (28%) were secondary school graduates, 31% had tertiary education and a relatively small percentage (5%) had vocational training.

General Information

This section presents data from the survey which includes responses to points of purchase, favourite choice of yam, appearance, price, size, storage and preparation.

Seventy-nine percent (79%) of the respondents were positive that they knew how to select a good yam. Twenty-one percent (21%) admitted that they did not, but sought advice from sellers as to the best selections (Table 5). When questioned as to their favourite yam an overwhelming 85% of the respondents chose yellow yam from a list of the different types available; while 9% choose white yam and the remaining 6% percent was distributed among the other types cited (Table 6). Fifty-seven percent (57%) of the respondents made purchases at the local (KMA) market. Supermarkets accounted for 30% of the sales and 13% made purchases at the roadside markets (Table 7). It is apparent that the local markets are the predominant market outlets for yams.

Consumers who purchased yellow yams were asked to compare its attractiveness to that of Sweet and Negro Yams. Approximately 75% indicated that yellow yam was not unattractive. However, 25% felt that yellow yams were less attractive because of the "toes" compared to those yams that are straight (Table 8). On the question of size, 32% of the responses indicated a preference for yellow yams weighing 3 lbs. Interestingly, responses were almost equal for those who preferred yams weighing between 2lbs and 5lbs. Fifteen percent (15%) liked 4lbs yams and while 8% would rather buy yams weighing 6 lbs, only 4% chose over 6 lbs (Table 9). This reflects a consumer ranked

preference for yams within the 2-5 lbs range. When buying cut yams 54% preferred the middle claiming that it was drier. Others expressed the view that the quality of the yam can be easily seen from both cut ends. Twenty-five percent (25%) preferred the top, 16% preferred the bottom and 5% had no preference (Table 10). Table 11, displays results of the prices paid for a pound of yam on the days of the interview. Prices ranged from \$10-\$25/lb, 41% paid between \$16 - \$20. However, purchases made for yams within the \$21-\$25/lb range were almost equal, accounting for 38%. Twenty-one percent (21%) paid \$10-\$15 which was the lowest price range within the period in which the interviews were conducted.

Findings on the assessment of the willingness to pay a premium on the existing prices as presented in Table 12, indicate that prices are tolerable when increased between \$2-\$7/lb (67%). Twenty-four percent (24%) were against paying any more. Six percent (6%) indicated they would buy regardless of the price.

There was no statistically significant difference between responses with regard to the storage of "whole" yams and "cut" yams. Sixty-five percent (65%) indicated storing "cut" yams in the refrigerator (Table 13). Boiling was the most frequently used method of preparing yams (90%) with 8% roasting and a small 2% baking (Table 14).

Attitudinal Responses

This section of the survey was designed to solicit respondents' attitude to the various questions dealing with the general appearance, size, shape and quality of yellow yams. The responses were measured on a "yes", "no", "don't know", scale. Table 15 presents a detailed representation of all responses.

The statements ... "prefer straight yams" ..., ... "find it hard to peel yams with toes" ... "cut toes for easy peeling" ..., (Q19-21), Table 15, reveal strongly, "yes" ratings from the respondents accounting for 95.3% and 86.0% respectively. Seventy percent (70%) of the respondents agreed that cracked and bruised yams were on the market. Consistent with this, 79% of the respondents indicated that they did not buy yams with blemishes. Interestingly, even though 54% of the respondents preferred to buy yams without soil residues, 42% agreed that they do.

Ratings attributed to the texture of thick yams compared to skinny ones revealed interesting results. There were equal responses in agreements with the statement and of those who did not know (36%), 28% said no. Seventy-four percent (74%) of the respondents agreed that there was a variation in the taste of yellow yams. Rating attributed to the size of yams for roasting revealed surprising results. Even though only 8% of the respondents prepared yams by roasting an overwhelming 88% agreed that smaller yams are better for roasting than larger ones. By the same reasoning on size, consumers indicated a 71% disagreement with the statement, "maturity can be determined by size", implying that the maturity of a yam cannot be decided by the smallness or largeness of the yam. While 57 percent agreed that they did not buy hollow yams recently 42% indicated that hollow yams are common on the market.

Factor Analysis of Attitudinal Variables

The results of the theoretical statistical factor analysis technique are presented in this section. This analysis was used to measure the attitudinal variables (questions 16-27) of the survey. Factor analysis employs a set of product-moment correlations. In the initial stages, it is instructive to begin with a correlation matrix. A correlation matrix shows inter-correlations among the attitudinal variables (Parks et al., 1978) Table 16 shows a correlation matrix of the twelve attitudinal questions from the survey. Upon inspection it was observed that there is substantial correlation between a few variables. For instance, there is a substantial correlation between variable 18 and variable 21 ($r=0.74$). From this observation it can be concluded that consumers are concerned with the general appearance of yellow yams with respect to cracks, bruises, and toes. A number of factors can be extracted from the matrix by inspection. However, as the size of the matrix increases and the number of inter-correlations becomes larger, it becomes increasingly more cumbersome to extract factor patterns.

In general a number of factors can be extracted from the matrix by inspection but factor analysis uses mathematical techniques which allow for a more appropriate method of inspection. The procedure has two basic steps. Step one is the extraction of the "unrotated" factors sometimes called factor loading. A factor loading is basically the same thing as a correlation. It expresses the relationship between a variable and a factor. Only those factor loadings with absolute values of 0.4 and above are included. Factors with values of 0.4 or above essentially define the content of the factor (Harman 1972). In Table 17, the factor loadings are presented for the unrotated matrix.

The second step in factor analysis is the rotation of the factor loadings. The purpose of factor rotation is to improve on the interpretation of the factors. The number of factors to be used in a rotation is determined by the Eigenvalue (Table 19). Eigenvalues less than 1.0 are not usually interpreted since they account for no more than the variance of a variable. The loadings show how closely the variables used in the analysis are related to the underlying factors, therefore one can determine the meaning of a factor in terms of its meaning with respect to a particular variable. The rotated factors were extracted by the equamax method (Table 18). On comparing the loadings of the rotated and unrotated matrices, the following observations were made. In Table 17, the pattern of clustering of variables is heavy on factor 1.0. In Table 18, the clusters are more dispersed, and spread over all five (5) factors, thereby facilitating better interpretation.

The estimated commonality of the first five (5) variables is calculated and presented in Table 19. A commonality represents the sum of the squares of the loads for each variable, within the range of values from 0-1. The higher the value, the higher the contribution to the total variation. In column four of Table 19, the Eigenvalues of the factors are presented. This measures the portion of total variation attributable to the common factor, which is the sum of the squares of factor loadings. As stated above, they are useful in deciding on the number of factors to be used in a rotation as factors with values less than 1.0, account for no more than the variance of a single variable. In this case all variables beyond 20 and factor 5 had Eigenvalues of less than 1.0.

Discussion of Key Factors

The five key factors extracted from the analysis are summarized below:

- Factor 1** Two variables were found significant in this factor. The basic concern was that maturity of yams cannot be determined by size. In addition hollow yams were common on the market.
- Factor 2** Only one variable was found to be significant in this factor. It implies that consumers encounter variation in the taste of yellow yams.

CONSUMERS' PREFERENCES FOR MINISSETT YELLOW YAM

- Factor 3** The two variables found significant in this factor suggest that consumers prefer straight yams and that smaller yams are better for roasting.
- Factor 4** The variable extracted as significant in forming this factor related to the attitude that yams are often cracked and bruised.
- Factor 5** The two variables found to be significant in forming this factor related to the difficulty in peeling yams with toes and that they are often cut off to make peeling easier.

GENERAL DISCUSSION

On careful observation of the survey results, there is a reasonable basis for concluding that consumers have a definite preference for the minisett yellow yam. Results show that the majority (79%) of the consumers indicated the capability to select a good yam. With yellow yam being the favourite, the majority (75%) indicated that yellow yams were considered attractive compared to negro and sweet yams, even though the remaining 25% felt it was less attractive.

The preferred size of whole yam fell within the range weight of minisett yams. Most consumers indicated a preference for three-pound yams with very few (4%) expressing a choice for yams over 6 lbs. An overwhelming percentage felt that smaller yams were better for roasting, while a majority indicated that maturity of a yam could not be determined by its size. While there was no significant difference between the storage ability of "cut" yams and "whole" yams, consumers responded in the affirmative to the preference for straight yams and the difficulty encountered when peeling yams with "toes", stating strongly that they were often cut off to facilitate easier peeling. Prices did not seem to have any significance on yam sales over the period of the survey. However, most consumers opposed paying a price premium above \$7.00 per pound for yellow yams.

In addition, extracted factors highlighted consumers' indication of variation in taste of yellow yams. Factor analysis also indicated consumers' preference for straight yams, consumers' concern for cracked, bruised yams, and the incidence of hollow yams on the market. This implies further preference for the minisett yam since yams produced by "The Minisett Technology" are straight. Traditionally grown yellow yams tend to have "toes" which contributes to the rubbing and eventual bruising during transport. The fact that yams produced by minisett techniques are smaller in size, compared to the traditionally grown, suggest that incidence of hollowing, which is common in large yams on the market, can be reduced or alleviated.

The previous analysis seems to highlight the consumer's preference for minisett yellow yam thus, the consumer's acceptability of the minisett yellow yam seems promising to enhance its market which might lead to a shift from traditional production of yellow yam to the use of "The Minisett Technology". (*Chin-Sue, 1994*)

Extrapolation

It is evident that regardless of the country where Jamaicans live, their eating habits, however modified to meet different cultural practices, are greatly embedded in their culture. This is evident in the number of Jamaican food stores found in the different immigrant communities in which they reside. Based on this appraisal, it is assumed that the results of certain variables of this local consumer preference survey for minisett yellow yams can be extrapolated to the Jamaican consumer market abroad.

Based on the responses relating to the social variables of this local survey, it can be assumed that people with the same social identity who have migrated are also consumers of yellow yam abroad.

It can be logically inferred that responses relating to other variables drawn from this survey are applicable and reflect similar consumers' preference of markets abroad. Local consumers express their preference for yellow yams without blemishes, cracks and bruises. They strongly express desires for "straight" yams, (i.e. those without "toes") and yams within the 2-6 lbs range. They also strongly supported the view that maturity cannot be determined by size. These are all desires, from the consumers of the local minisett yellow yam market, that are inferential to the said market abroad.

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APPENDICES

Table 1.

Volumes of Yellow Yam (kilos) Produced and Exported 1991-1993

YAM	VOLUMES		PERCENTAGE INCREASE
	1991	1993	1991 - 1993
PRODUCED ^{1/}	168,481	200,913	19.2
EXPORT	9,130	11,325	24.0

Edited source: Strachan, M., 1995. The Agricultural Sector Performance: 1989 - 1993. IICA, Kingston, Jamaica

Note: 1/ of which 54.9% is yellow yam in 1991 and 55.2% in 1993

Table 2

Sex of Consumers

SEX	PERCENTAGE
Female	77
Male	23
TOTAL	100

Table 3

Age of Consumers

AGE (Years)	PERCENTAGE
16-21	11
26-35	19
36-43	26
46-55	13
56 >	31
TOTAL	100

Table 4

Educational Level of Consumers

EDUCATION	PERCENTAGE
Primary	36
Secondary	28
Tertiary	31
Vocational	5
TOTAL	100

Table 5

Selection of Good Yam

SELECTION	PERCENTAGE
Yes	79
No	21
TOTAL	100

Table 6

Choice of Favorite Yam

CHOICE	PERCENTAGE
Yellow	85
White	9
Sweet	2
Negro	3
Others	1
TOTAL	100

Table 7

Place of Purchase

PLACE	PERCENTAGE
Supermarket	30
Local Market	57
Roadside Market	13
TOTAL	100

Table 8

Attractiveness of Yellow Yam

ATTRACTIVE	PERCENTAGE
Yes	75
No	25
TOTAL	100

Table 9

Preferred Whole Yam Size

SIZE (LBS)	PERCENTAGE
2	21
3	32
4	15
5	20
6	8
6 >	4
TOTAL	100

Table 10

Preference for Cut Yams

YAM	PERCENTAGE
Top	25
Middle	54
Bottom	16
No Preference	5
TOTAL	100

Table 11

Price Per Pound of Yellow Yam

PRICE RANGE (\$/lb.)	PERCENTAGE
10-15	21
16-20	41
21-25	38
25 >	----
TOTAL	100

Table 12

Willingness to Pay Price Premium

PREMIUM RANGE (\$/lb.)	PERCENTAGE
2-4	42
5-7	25
8-10	3
No More	24
Don't Care	6
TOTAL	100

Table 13

Storage of Yam

STORAGE PLACE	PERCENTAGE	
	"Whole Yams"	"Cut Yams"
Refrigerator	61	65
Kitchen Basket	39	35
Other	----	----
TOTAL	100	100

Table 14

Method of Preparation

METHOD	PERCENTAGE
Boil	90
Roast	8
Bake	2
TOTAL	100

Table 15

Percentage Rankings for Attitudinal Questions

	QUESTION	YES	NO	DONT KNOW
Q16	Most consumers prefer yam with soil	41.9	54.7	3.4
Q17	I buy yams with dark blemishes	14.0	79.1	6.9
Q18	Yams are usually cracked and bruised	69.8	20.9	9.3
Q19	I prefer straight yams to those with "toes"	95.3	2.3	2.4
Q20	Yams with "toes" are harder to peel	95.3	4.7	-----
Q21	Most consumers cut "toes" for easier peeling	86.0	10.5	3.5
Q22	Thick yams are drier than skinny ones when cooked	36.0	28.0	36.0
Q23	Smaller yams are better for roasting than larger ones	88.4	5.8	5.8
Q24	I find variation in taste among yellow yams	74.4	22.1	3.5
Q25	Maturity determined by size	17.4	71.0	11.6
Q26	I purchase hollow yams recently	38.4	57.0	4.6
Q27	Hollow yams are common on the market	42.0	32.6	25.4

TABLE 17

Unrotated Factor Pattern: Principal Component

VARIABLE NOTATION	FACTOR							
Q16 Prefer yarn with some soil			0.4764			0.5946		
Q17 Buy yarn with blends				0.6312				
Q18 Yarns often cracked & Bruised		0.6658						
Q19 Prefer straight yarns		0.51107			0.5052			
Q20 Harder to peel yarn with "loose"		0.7130						
Q21 Cut loses to make peeling easier		0.6949						
Q22 Thick yarns drier than skinny		0.6346						
Q23 Smaller yarns better for roasting			0.4233			0.5101		0.5258
Q24 Variation in shade of yellow yarn			0.4498			0.4456		0.5013
Q25 Maturity by size			0.5036					
Q26 Purchased hollow yarns recently				0.5388				
Q27 Hollow yarns common					0.4302			
								0.4113

TABLE 18

Rotated Factor Pattern: Equamax

VARIABLE NOTATION	FACTOR					
	1	2	3	4	5	6
Q16 Prefer yam with some soil						
Q17 Buy yams with blemishes						
Q18 Yams often cracked & bruised				0.7656		
Q19 Prefer straight yams			0.7112			0.9259
Q20 Harder to peel yam with "toes"						0.7182
Q21 Cut toes to make peeling easier						
Q22 Thick yams drier than skinny						
Q23 Smaller yams better for roasting			0.5721			
Q24 Variation in taste of yellow yam		0.9817				
Q25 Maturity by size	0.8184					
Q26 Purchased hollow yams recently						
Q27 Hollow yams common	0.6871					

Table 19

*Final Estimate of Communalities for the First Five Variables
and Eigenvalues: Unrotated Matrix*

VARIABLE	FACTOR	ESTIMATED COMMONALITY	EIGENVALUE	PERCENT OF VARIATION	CUMULATED PERCENTAGE
RQ16	1	0.5217	1.9391	7.2	2.7
RQ17	2	0.4266	1.8225	5.4	32.7
RQ18	3	0.6323	1.4414	5.4	40.1
RQ19	4	0.4994	1.2538	4.6	46.7
RQ20	5	0.5585	1.0891	3.1	49.8

CONSUMER PREFERENCE FOR YELLOW YAM

1. Sex 2. Age 3. Level of Formal Education
- M = 1
F = 2
- 16-25 = 1
26-35 = 2
36-45 = 3
46-55 = 4
56 > = 5
- Primary = 1
Secondary = 2
Tertiary = 3
Vocational = 4

4. Do you think you know how to select a good yam? Yes = 1 ,
No = 2

5. Where do you shop for Yams? Supermarket = 1, Local Market = 2,
Roadside Market = 3

6. Which type(s) do you like?
Sweet = 1; Yellow = 2; White = 4; Negro = 8; Other (specify) = 16; no preference = 32

IF YELLOW YAM CONTINUE, IF NOT DISCONTINUE

7. Do you find the appearance of Yellow Yam unattractive compared to Negro and Sweet Yams.
Yes = 1; No = 2
If yes, Explain

8. Was the price advertised? Yes = 1; No = 2

9. How much do you pay for a pound of yam today?
\$10-15 = 1; \$16-20=2; \$21-25 = 3; \$25 > = 4

10. How much more would you be willing to pay per pound if required?
\$2-4 = 1; \$5-7 =2; \$8-10 = 3; No more = 4; Don't care = 5

11. What is the preferred whole yam size lbs.

2lbs = 1; 3lbs = 2; 4lbs = 3; 5lbs = 4; 6lbs = 5; 6lbs > = 6

12. If buying cut yams, which do you prefer?

- (a) TOP WHY?
(b) MIDDLE WHY?
(c) BOTTOM WHY?

Top = 1; Middle = 2; Bottom = 3

Drier = 1; Less starchy = 2; Taste better = 3; Easier to see quality = 4; Don't Care = 5

13. Where do you store yams with more than one cut surface? []

Refrigerator = 1; Kitchen Basket = 2; Other = 3

14. Where do you store yams with one cut surface? []

Refrigerator = 1; Kitchen Basket = 2; Other = 3

15. How do you prepare your yams most of the times? []

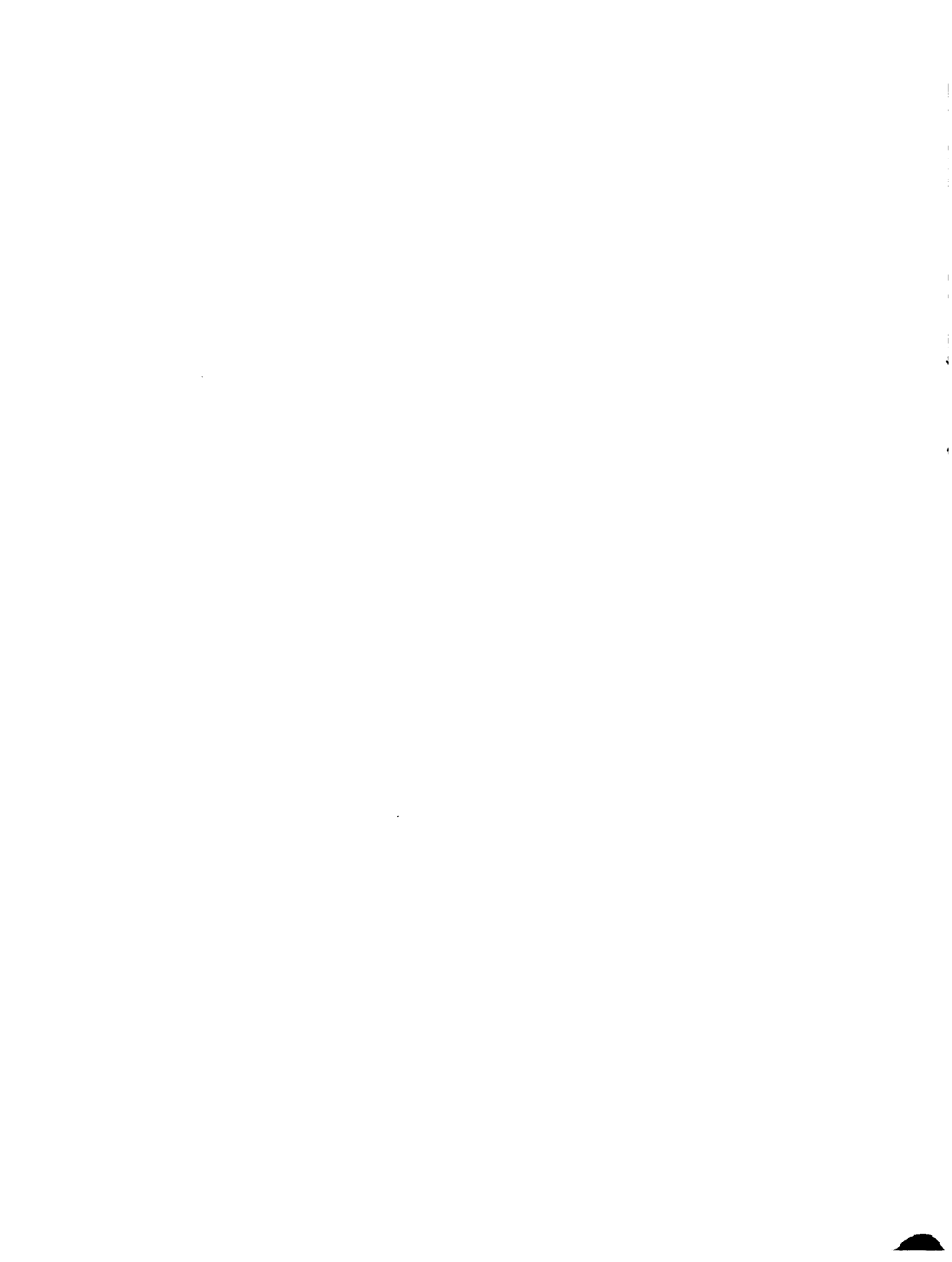
Boil = 1; Roast = 2; Bake = 3

INDICATE WITH A TICK YOUR OPINION AND ATTITUDE TOWARDS THE FOLLOWING

- | | YES | NO | DON'T CARE |
|---|-----|-----|------------|
| 16. Most consumers prefer yams with some soil. | [] | [] | [] |
| 17. I buy yams that have dark blemishes ("burn yam"). | [] | [] | [] |
| 18. Cracks and bruises are often found on yams. | [] | [] | [] |
| 19. I prefer straight yams to those with "toes". | [] | [] | [] |
| 20. Is it harder to peel yams with "toes" compared to those "without toes". | [] | [] | [] |
| 21. Most consumers cut off "toes" to make peeling easier. | [] | [] | [] |

22. Thick yams are drier than skinny yams when cooked. [] [] []
23. Smaller yams are better for roasting than larger ones. [] [] []
24. I find variation in taste among yellow yams. [] [] []
25. One determines the maturity of yams by the size. [] [] []
26. I purchased hollow yams recently. [] [] []
27. Hollow yams are common on the market. [] [] []

Yes = 1; No = 2; Don't know = 3



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