Dissertation

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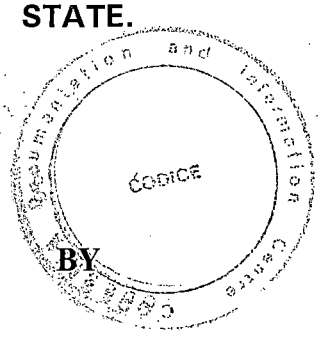
Comparative Study on Mothers'Knowledge, Attitude and Utilization of Soyabeans and cowpeas as Food for Young Children in Orire Local Government Area of Oyo

JULY 1999

COMPARATIVE STUDY ON MOTHERS' KNOWLEDGE, ATTITUDE AND UTILIZATION OF SOYABEANS AND COWPEAS AS FOOD FOR YOUNG CHILDREN IN ORIRE LOCAL GOVERNMENT AREA OF OYO STATE.



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CERTIFICATION

I certify that this study was carried out by Miss Egunjobi, F. O. In the department of Human Nutrition, Faculty of Basic Medical Sciences, University of Ibadan.

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DEDICATION

To all people working towards better nutrition for children; especially in the developing world.

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ABSTRACT

This study assesses the present existing level of mothers' knowledge, attitude and utilization of soyabeans as compared with the traditional cowpeas. It also identifies the inherent problems associated with the utilization of these foods. The data indicate that mothers were well informed about the value and importance of using both foods in the feeding of their young children. A comparison of attitudes shows that the mothers had significantly better attitudes towards the use of cowpeas than soyabeans. Utilization of cowpeas was also significantly higher than that of soyabeans. Knowledge and attitudes associating diarrhoea, overweight and low status with consumption of these foods were found to exist among women.

Flatulence was the major problem linked with cowpea consumption. For soyabeans, constraints associated with processing requirements, keeping properties of cooked products and increasing cost of raw soyabeans were highlighted. The role of soyabean food vendors was identified as an incentive for utilization.

Future nutrition communication programmes involving these foods should be participatory in approach and should aim at improving maternal knowledge and attitudes towards the use of both foods, provision of appropriate village level technology for soyabeans processing, as well as encouraging of vendor activities.

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CHAPTER ONE
INTRODUCTION

1.1 Background Situation:

Attention has long been drawn to the global problem of child malnutrition. Malnutrition, especially protein energy malnutrition (PEM) ranks second among the causes of death among Nigerian children (Nnakwe, 1995). Data indicate that among under-fives in Nigeria (1980 -1994), 36%, 9% and 9% and 43% suffered from moderate and severe under weight, wasting and stunting respectively (UNICEF, 1996).

A child's first five years is regarded as critically important because the foundation for life-long effect is laid at this stage of life. Serious dietary deficiency will spell doom in his health, growth and mental development (Poskitt, 1988). Infants and young children are more vulnerable to nutritional deficiencies than are adults because of the demand of the baby for nutrients at this stage, which is comparatively higher than any other period of life.

Cultural and socio-economic factors which are determinants in the aetiology of PEM include poverty, maternal ignorance, negative attitudes towards nutritious foods, a decline in breast feeding and inadequate nutrition. Thus, if a lasting improvement in the nutritional status of children is ever to be realised, mothers must be targeted for poverty alleviation as well as effective nutrition education. Mobilization of indigenous resources (Aree et al, 1995) and an understanding of mother's beliefs, actions and recognised needs associated with malnutrition are important requirements in the design and conduct of such nutrition education programmes. Since indigenous protein - rich foods of animal origin are expensive, low-cost protein substitutes from

plant sources must be provided. Such foods must not only be nutritious and cheap, but also safe and acceptable to local tastes. Cowpeas have largely fulfilled this role. This versatile indigenous West African legume has been popular for long, and according to Adams (1984), Nigeria is the greatest consumer of cowpeas in the world. They are a valuable and most prominent source of plant protein in Nigeria (Okeke et al, 1995). The beans are prepared and eaten in various forms.

Soyabeans, a relatively new crop in the country, are less popular but have been generating increased interest in the past one decade. Soyabeans are commonly referred to as the Golden beans from China, existing as far back as 2000 years ago in the latter part of the Shing dynasty in imperial China (FAO, 1989). Though it is essentially a sub-tropical crop, it has potential for protein and calorie production throughout the tropics but may not be readily accepted for local food use in some tropical communities because of its special processing requirements. Soyabeans are a source of good and low-cost nutrition (Ogunsumi, 1986), and have been found to be valuable in the management of malnutrition, as borne out of experience at Kersey Children Home, Ogbomoso, Oyo State (IITA, 1986).

1.2 Statement Of The Problem:

Several programmes - governmental, non-governmental and private have been initiated to educate and encourage mothers to try, adopt and sustain the use of nutritious foods for feeding their children. In recent times, many of these programmes have focused largely on popularizing the use of soyabeans, which has been recommended for its superiority over all other plant foods as a source of protein, and for its relatively low cost. However, one of the constraints to the adoption of soyabeans has been the lack of utilization at

village and household levels (IITA, 1989). Although advocates of soyabeans utilization have claimed that the incorporation of soyabeans into indigenous diets does not adversely change their traditional tastes, the Nigerian experience has confirmed that it is truly difficult to introduce new foods into a community, as familiar foods are deeply cherished, and changes in their precise characteristics resisted.

In the far East, soyabeans are mainly processed by fermentation methods, which are unfamiliar and unacceptable in the Nigerian context. Hence, constraints associated with flavour acceptability, prolonged cooking requirements and lack of village level technology for processing it into acceptable food products have been encountered. Thus, although soyabeans is an important protein food in the far East, it has not really become established in Nigeria as a major food resource. Lack of utilization can also be attributed to soybeans' cooking characteristics. It contains much less starch than cowpeas, and as such, does not readily swell or soften easily and must be boiled for hours. For this reason, soyabeans, unlike cowpeas, is not acceptable for direct consumption, and can only be effectively utilized when processed into wet paste or dry flour, which can then be incorporated into traditional diets. This is expensive in terms of cooking fuel, time and energy of housewives.

Despite all these setbacks, soyabeans is undoubtedly one of the most important sources of protein and energy available to man, and its value for satisfying human dietary needs is highly appreciated. Yet, while seeking to popularise it at the village and household levels, it will be dangerous to neglect continued promotion of the use of the indigenous cowpeas. There is the tendency to gradually, unconsciously undermine the value of using cowpeas to feed young

children. A more beneficial approach will be to promote both soyabeans and cowpeas side by side, through effective nutrition communication programmes based on mothers' recognised needs, beliefs and circumstances. The extent to which this is done determines the extent to which mothers' have adequate knowledge, positive attitudes and actually use cowpeas and soyabeans as food for their young children. The first step towards this however, is to answer some basic questions such as:

"What is the present existing level of mothers' knowledge about cowpeas and soyabeans as food for young children?
What is their attitude towards the use of these foods?
To what extent are the foods actually being utilized?

Given this picture, this study seeks to comparatively assess mothers' knowledge, attitudes and present level of utilization of soyabeans and cowpeas. It also seeks to understand the underlying influencing socio-economic and cultural factors. This investigation will not only reveal the prevailing situation, it will also serve as baseline information which can aid in improving the design and implementation of future nutrition communication programmes involving these foods. Such information can only arise from a broad understanding of local attributes and needs.

1.3 Objectives Of The Study:

The main aim of the study is to assess the socio-economic and cultural characteristics associated with the adoption and nutritional use of soyabeans vis a vis the traditional cowpeas in Orire Local Government Area of Oyo State, Nigeria. The specific objectives include:

(i) Comparing mothers' level of knowledge concerning the use of soyabeans and cowpeas as food for their children (0-5 years)

ii) Assessing and comparing mothers' attitude towards the use of each of these foods

(iii) Determining the extent to which soyabeans are actually being used as compared with cowpeas

(iv) Identifying the socio-economic and cultural factors influencing maternal knowledge, attitudes and utilization of each of these foods

(v) On the basis of items i-iv, suggest how best to promote the use of these foods for feeding young children in the study area and other characteristically homogenous areas.

1.4 Hypotheses Of The Study:

The hypotheses of the study are stated in null form (H_o). They are:

1. There is no significant difference between mothers' knowledge of cowpeas and their knowledge of soyabeans as food for young children.

2. There is no significant difference between mothers' attitude to cowpeas and soyabeans as food for young children.

3. There is no significant difference between mothers' utilization of cowpeas and soyabeans for feeding young children.

1.5 Significance Of The Study:

This study will identify knowledge gaps concerning inadequate knowledge and negative attitudes with respect to the use of soyabeans in comparison with cowpeas in feeding young children. The present level and forms of utilization of each of these foods, as well as the associated inherent problems would also be identified. On the basis of the information gained appropriate nutrition education intervention approaches will then be identified.

1.6 Limitation Of The Study:

The researcher acknowledges the limitation inherent in the use of interview

schedule in terms of objectivity, truthfulness and sincerity.

Many of the respondents (approximately 39%) did not have any formal schooling, therefore, their "guesstimates" had to be relied upon in supplying information, for example, their age and income. Some could not just recall certain information at all. Where this occurred, they were categorised as "No response" in the tables.

CHAPTER TWO
LITERATURE REVIEW

2.1 The Impact of Child Malnutrition

The problem of malnutrition in infants and young children is a global one. During the 1980s however, nutritional statues of infants improved in every region of the world except in sub-saharan Africa where the improvement was only marginal (UNICEF, 1996). In Nigeria, the problem of Protein energy malnutrition (PEM), which became increasingly serious during the 1980s (NASENI, 1993), has been ranked second among the causes of death among Nigerian Children (Nnakwe, 1995). A review of various reports on the growth of Nigeria Children showed that 36% are stunted, 9% underweight and 36% wasted. Mortality figures were high, with values as high as 91/1000 for infant mortality, 110/1000 for 1-4 years mortality rates and 191/1000 for 0-5 mortality rates.

The impact of malnutrition on mortality rates have been well documented. Studies by Schroeder and Brown (1995) showed that young children (6-60 months) has 2.2 times the risk of dying than their better nourished counterparts during the follow - up period of 6-24 months after they had been identified as having mild-to-moderate malnutrition. Severely malnourished children has 6.8 times the risk of dying during the follow up period than better nourished children. In another study, Pelletier et al (1995) used an epidemiological method to estimate the percentage of child deaths (6-59 months old) which could be attributed to the potentiating effects of malnutrition in infectious diseases. The results from 53 developing countries with nationally representative data on child weight - for - age indicate that 56% of child deaths were attributable to mid-to-moderate as opposed to severe

malnutrition, showing that malnutrition has a far more powerful impact on child mortality than is generally appreciated. This may imply that strategies involving only the screening and treatment of the seventy malnourished will do little to address this impact. In the same vein, Huffman and steel (1995) have suggested that the central focus of child survival interventions should be improvements in feeding, in addition to the control of infectious diseases. Their suggestion was based on evidence that when major emphasis is placed on the treatment of diarrhoea and the promotion of immunizations, deaths may be prevented, but the surviving children often suffer frequent illness and malnutrition. Supportive evidence from an older study by Barba et al (1982) demonstrated via a supplementary programme aimed at infants and toddlers in the rural Philippines, that good growth can be maintained by the provision of an adequate diet without reducing sources of infection.

It is in realisation of this that research efforts worldwide have been geared towards improving nutritional status through various ways such as mobilization of indigenous resources, diversification of diet, nutrition education and encouraging breast feeding. One major emphasis in Nigeria is the need for low-cost protein substitutes from plant sources, since protein foods of animal origin are priced beyond the reach of the common man. As such, the importance of legumes has been re-emphasised, in particular cowpea, which features prominently in the diet of Nigerians.

2.2 Cowpeas in the Nigerian Diet.

Cowpea (*Vigna Unguiculata*) is the primary source of good quality protein and calorie intake particularly for many poor people in Nigeria. It has been estimated that it is an integral part of the diets of about 120 million people in

Africa (IITA, 1995) It is thought to be a crop of Africa origin, and it is most widely domesticated in West Africa, whose production accounts for about 70% of the total world production. Cowpeas features prominently in the recipes of several food products relished by both the rich and the poor. A study at Nsukka, Nigeria showed that cowpeas was eaten by 88% of the respondents at least twice a week, which shows clearly that it is a popular food in the region (King et al, 1984). Cowpea is starch-rich, and therefore absorbs water relatively easily, the starch granules swell, and on heating, gelatinize to create a soft, tender product.

Cowpeas contain 20-25% of protein, which nutritionally complements protein from cereal grains. A complementary effect was observed, for example, when animals were fed diets in which the protein was derived from maize and common beans in various proportion from 100:0 to 0:100. When each component provided close to 50% of the protein in the diet, a high quality was obtained, higher than the individual qualities of the components alone (FAO, 1992). Cowpeas is also of importance in infant and child feeding. Folayan (1991) reported that beans (cowpeas) and bean products were the most common weaning food introduced first to children in some rural areas in Nigeria. However, flatulence from cowpeas is a commonly encountered problem which though not considered a health problem, it is socially unacceptable to many people. Flatulence is ascribed to the microbial degradation in the intestines of the undigested oligosaacchande fraction of the beans.

2.3 The History of Soyabeans in Nigeria

Soyabeans (*Glycine max*) was originally domesticated in China, but is now culturated throughout East and South Asia and also extensively in North

America. The crop is essentially a sub-tropical one, but variety adapted to the tropical have been developed. Soyabeans provide an economical source of nutrients, being a cheap source of protein of excellent quality. It is also rich in oil, containing about 20% unsaturated oil. In combination with cereal grains, soyabeans can supplement deficiencies of lysine, while the cereals also make up for soyabeans' slight deficiencies in methionine (complementary role).

Soyabeans has encountered problems relating to its cookability and processing requirements. This had been documented as far back as three decades ago by Aykroyd and Doughty (1964), that "the introduction of soyabeans as a legume, for human consumption into India, Africa, South Africa, South America and other parts of the world has proved difficult, because it tends to be unpalatable and indigestible unless very special methods of preparation are followed". In East and South Asia, it is processed by elaborate traditional practices. In North America, it is grown as a source of oil for human consumption and industrial uses, defated meal is converted to various protein rich baby mixtures and weaning foods as well as feed products. It is used in the manufacture of edible lard, margarine, milk, paints, adhesives and varnishes. Soyabean protein concentrate, isolate and textured protein have been used in improving the quality of existing standard commercial food products.

In Nigeria, the cultivation of Soyabeans had been reported as far back as 1908, in the middle belt. However, active research focused on it quite recently. In the colonial times, export production largely served industries overseas. In 1984, soyabeans was virtually unknown, being neither grown nor used in Oyo State, where the campus headquarters of the International Institute of Tropical Agricultural (IITA) is situated. A soyabean utilization and

processing project was initiated by IITA, in collaboration with the Institute of Agricultural Research and training (IART), also in Ibadan Oyo State, the National Cereals Research Institute, Badeggi, National Agricultural Extensive Research and Liaison services, Zaria and the University of Nigeria, Nsukka. This IDRC - funded project was aimed at developing and introducing improved soyabean utilization technology for use in households and small scale processing enterprises in rural Nigeria. As a result of the project, IITA and IART have introduced soyabeans into four Local Government Areas of Oyo State. IITA (1990) reported that about 1/3 of all farmers in those areas were growing soyabeans, and over half of the growers cooked and ate soyabeans. According to this report, a monitoring survey carried out in 1989 measured the impact of soyabean production and utilization in Oyo State, revealing that the project training sessions had reached an aggregate audience exceeding 11,000 people. Furthermore, the government and private groups have promoted the use of soyabeans for its nutritive value as a protein source, since other sources such as meat, milk and eggs are beyond the reach of most people. IITA (1991) reported that soyabeans has been adopted by the Federal government of Nigeria in a quest for ways of alleviating problems arising from PEM among the vulnerable groups. Another development was the woman in Agriculture (WIA) unit of the Agricultural Development Programme (ADP), which is World Bank-assisted WIA was established to promote extensive activities on the production and utilization of crops among rural Nigeria women farmers in particular. Soyabeans is one of such crops.

On the contrary, however, these efforts to adopt soyabeans has been viewed as an approach which is not appropriate for the Nigerian situation. According to Cole (1990) Nigeria had not exhausted the prospects of producing proteins from the traditional agricultural sources to warrant any call on "substitutes for

protein source". As such, "proposing to adopt soyabeans in preference to our traditional cowpea typifies our unfortunate approach to developments in which the solutions to our problems stare at us, yet we search for them elsewhere". He added that relying mostly on the local sources is by far easier, cheaper and more promising in reward than the search for protein substitutes, and that above all, the development of soyabeans in Nigeria will involve heavy investment in foreign exchange which Nigeria cannot afford, given the state of economy.

2.4 Barriers to the Adoption of a new crop into the diet.

One of the constraints to the adoption of soyabeans is Nigeria has been lack of utilization at village and household levels. Constraints associated with flavour acceptability, prolonged cooking requirements and lack of village-level technology for processing soyabeans into acceptable food products have been encountered. In the Far East, soyabeans are mainly processed by fermentation methods, which are unfamiliar and unacceptable in the Nigerian context. Thus, although soyabeans is an important protein food in the Far East, it has not really become established in Nigeria as a major food resource. In other soyabean-producing areas of the world, the crop is basically an industrial crop, which has historically been used for oil extraction with protein meal fed to animals (Mebrahtu and Hahn, 1987). National programmes in some other African countries such as Ghana, Zimbabwe, Cote D'ivoire and Zambia have shown increasing interest in the protein fortification of typical dishes using soyabeans (Fereidon, 1987; Mebrahtu and Hahn, 1987).

Changing people's customs is a delicate responsibility. Indeed, according to Aykroyd and Doughty (1964), new crops are most easily introduced into the agriculture and diet of a country when they resemble familiar crops. They

were of the opinion that one of the reasons why the groundnut (*Arachis hypoyea*) rapidly became a major African crop was that it resembled the Bambara nut (*Voandzeia subterranea*). Even as at that time (1964), they reasoned that if the most important legume was, say, the cowpea *Vigna unguiculata* ---- as in Northern Nigeria ------- any new Legume which was introduced would have a flying start if it was not too different from cowpeas in cultural characteristics, appearance and taste, and could be prepared for household consumption in the same way. Changes in food patterns which are strongly embedded in the culture of all societies require considerable effort and are often unsuccessful (Waggle et al, 1981). Therefore, the success of incorporating soya proteins in traditional foods, in the view of Waggle et al, is based on reformulating traditional products in such a way that the traditional quality of the product is maintained. This means identical colour, flavour, texture, odour, overall eating quality and nutritional and chemical composition. Unfortunately, these facts are not always realised when attempts are made to introduce an unfamiliar legume or indeed, any crop to a people.

People generally resist change. Nevertheless, one must find out what makes them resist a change, or else one will be wasting time trying to introduce new things to them. One must be able to ask a few question: Are the changes well explained to user's understanding in relation to their problem solving? Are we actually doing them a favour or not? Do we know their real needs, are we introducing appropriate technology? In view of this, it is imperative that the people should be carried along from the very start, when new foods are to be introduced to them. The campaign for better use of soyabeans for human consumption in Nigeria intends to give the population the opportunity to consume a very nutritious food at a much lower price. In order to produce sustainable results, there must be active collaboration with the people, who

will then help to identify and analyse the problem (which is theirs anyway), select implementing actions, monitor progress, evaluate impact, identify lessons from experience and choose further initiatives. This approach makes use of several kinds of techniques. One of the numerous techniques of this participating approach, the focus group discussion has been made use of in this study as a research tool to throw more light on mothers' knowledge, attitudes and utilization of soyabeans and cowpeas as food for their young children.

2.5 Conceptual Framework of the Study : Needs Identification

This study seeks to assess the socio-economic and cultural characteristics associated with the adoption and nutritional use of soyabeans vis a vis the traditional cowpeas in a rural Local government Area in Oyo State, Nigeria. In other words, the study is an attempt to understand mothers' beliefs and actions, and to identify their needs associated with the use of soyabeans as compared with the indigenous cowpeas.

Need is a gap revealed when comparing the present situation or condition with some desirable standard or acceptable norm. Need identification therefore, is a very important concept while planning and implementing programmes to promote the utilization of these foods as a means of achieving good Nutritional Status of children on a sustained basis. Such efforts are successful only to the extent to which they satisfy important needs. In classifying needs, Frutchery (1966) referred to two major kinds which people may have; those which they are aware of and those which they are not aware of. These are called felt and unfelt needs. When these needs are recognised, people realise that there is a gap between where they are and where they should be.

With this background, in this study, poor utilization is linked or associated with deficiencies in the present knowledge, attitude and skills that are pre-requisites for desired level of utilization of soyabeans, in comparison with cowpeas.

CHAPTER THREE

METHODOLOGY

3.1 The Study Area

Oyo State is located south west of Nigeria, between latitude 7° and 9° north of the equator, and bounded by longitude 2° and 4° east of the Greenwich Meridian. The study focuses on one of the twenty five Local Government Areas (25 LGAs) of the state, Orire Local Government Area (Fig. 1). This predominantly rural Local Government Area is composed of six hundred and thirty two (632) communities, with projected 1996 population put at 103,375, with 22,743 being women of reproductive age (NPHCDA/FMOH, 1994). It has a total land area of 2,040 square kilometers.

3.2 Sample and Sample Selection

Orire Local Government Area was purposively selected based on accessibility and the presence of extensive extension activities on soyabeans utilization.

A multistage stratified random sampling design was used: Fifteen communities, representing a little above 2% of the 632 listed communities was randomly selected for the study. Every fifth house (i.e. 20%) in each of the selected communities was marked, and mothers having at least one child below the age of five were chosen for the study in each of these houses. When any of the fifth houses had no mother in this category, then the next house within the range having such a mother was automatically chosen for interview.

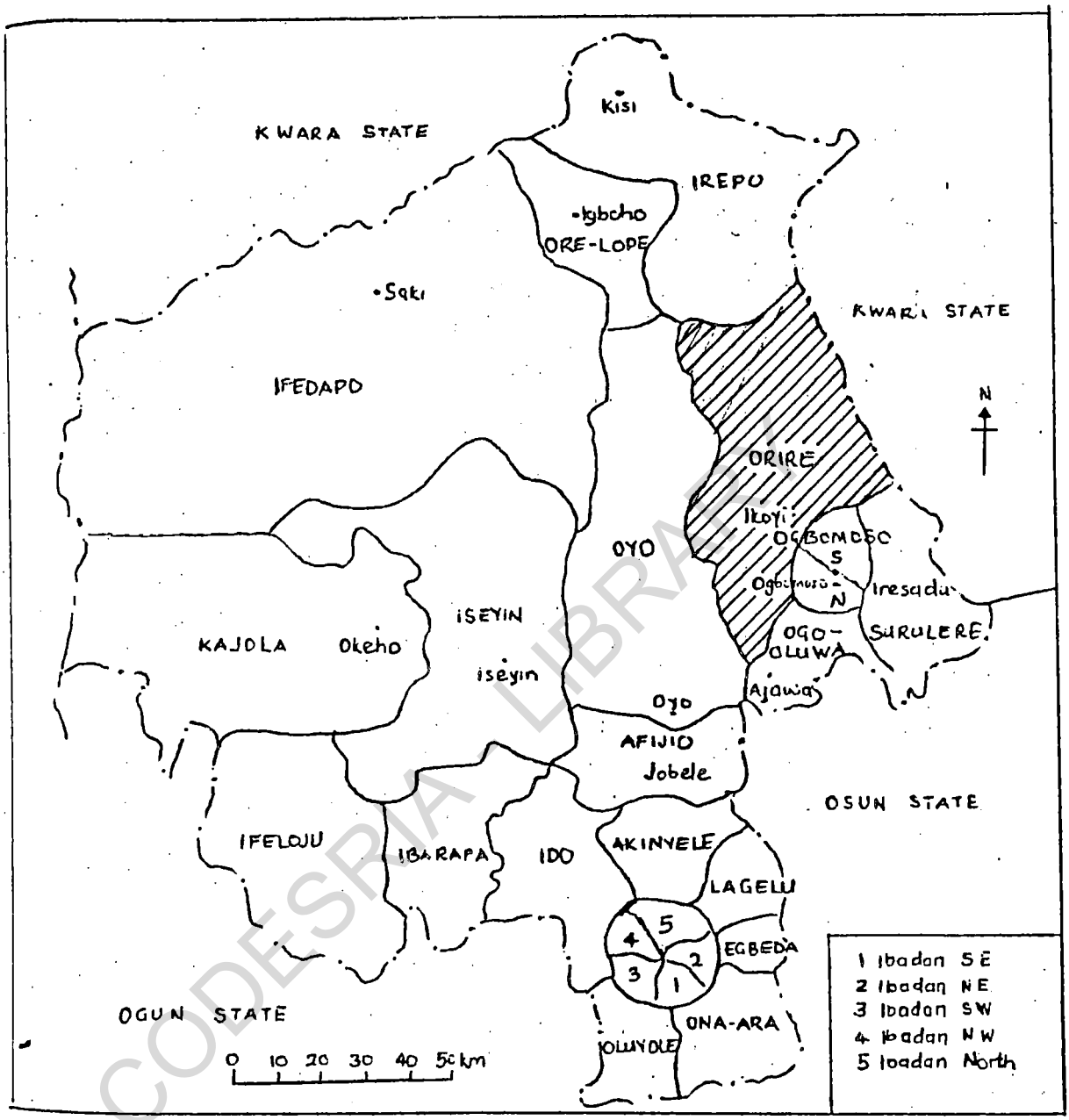


Fig 1. Map of Oyo State

The sample size was calculated at a confidence level of 95% as follows:

$$N = \frac{Z_{\alpha}^{2} Pq}{d^2}$$

where α = confidence level (95%)

z_{α} = 1.96

d = desired precision (0.05)

p = proportion = sample/population

$$= \frac{22,743}{103,375}$$

$$= 0.2$$

and q = 1 - p = 1-0.2 = 0.8

$$N = \frac{(1.96)^2 \times 0.2 \times 0.8}{(0.05)^2}$$

Sample size = 245.9 ≅ 246

3.3 Research Instruments

Data was collected using structured interview schedule. This was complemented by qualitative information from focus group discussions held in two communities in the Local Government Area.

A forty two item interview schedule was designed to collect information from the mothers. The interview began with questions about the personal socio-economic data of each of the mothers: mothers' age, educational level,

occupation and monthly income, child's age, sex and birth order. Those whose occupation involved farming were asked to indicate whether they produced soyabeans and/or cowpeas.

The second section of the interview schedule addressed variables such as maternal knowledge, attitudes and utilization of soyabeans and cowpeas. Knowledge measuring indices were developed, and based on responses i.e. 'True', 'False' and 'Don't know', the respondents were scored. The same applied to attitude, respondents we scored according to 'Agree', 'Disagree and 'Don't know' answers. While still measuring knowledge and attitude, a correct answer scored 2 points, a wrong answer 1 point, and a don't know answer 0 point. Weighted mean scores for each item as well as for overall knowledge and attitude were calculated and converted to percentages. Scores below 70% were considered to low and above 70% high, i.e. cut off point is 70%.

Utilization was measured by scoring respondents based on:

A.
(i) whether they were non-users (0 point)
(ii) ex-users (1 point)
(iii) regular uses (2 points)

B. The number of ways that they had prepared (or purchased) these foods:
(i) One way (1 point)
(ii) Two ways (2 points)
(iii) Three ways (3 points)
(iv) Four ways (4 points)
(v) Five ways or more (5 points)

C. **The frequency of use.**

(i) Everyday use (4 points)
(ii) Twice a week (3 points)
(iii) Once a week (2 points)
(iv) About twice a month (1 point)

The addition of the maximum scores attainable for each item gave rise to the maximum overall scores attainable:

Maximum Scores Attainable	Soyabeans	Cowpeas
Knowledge	10	8
Attitudes	12	12
Utilization	11	11

The interview schedule was pre-tested on a sample of ten mothers selected from Akobo, a suburb area of Ibadan. They had characteristics similar to those of the women used for the study. Following the pre-testing, adjustments were made by modifying the items that were ambiguous, and removing unnecessary ones.

3.4 Data Collection

The interviews were conducted during the month of December 1996 and January, 1997, by the researcher and trained interviewers who happened to be the ADP extension agents in the various chosen communities in the LGA.

Focus group discussion was used as a complementary technique since it is participatory, and helped to throw light on the gray areas of the quantitative information collected through the interview schedule. The interviews and the focus group discussions were held in Yoruba, the predominant language in the

area.

3.5 Data Analysis

Data was analysed using both descriptive and inferential statistics which include numerical counts, cross-tabulation, frequency distribution, means and standard deviation. Hypotheses were tested using a two-tail tests (difference of mean scores) to show any significant differences between data on knowledge, attitudes and utilization of soyabean and that of cowpeas. Correlations were also used to show any significant relationship between knowledge and utilization, or between knowledge and attitudes, or between attitudes and utilization of both foods. Multiple regression analysis was carried out to describe any significant relationships between mothers' socio-economic data and their knowledge, attitudes and utilization.

CHAPTER FOUR

RESULTS AND DISCUSSION

Results

4.1 Selected personal and socio-economic data.

4.1.1 Distribution of mothers by sampled communities.

Table 4.1 shows the number of mothers interviewed in each of the fifteen sampled communities. A total of two hundred and thirty nine mothers were interviewed.

TABLE 4.1

Distribution of Mothers by sampled communities

Community	Frequency	Percentage
Ikoyi-Ile	35	14.6
Esin-ele	16	6.7
Iluju	20	8.4
Olokoto	18	7.5
Tewure	21	8.8
Aiyetoro	13	5.4
Elega	17	7.1
Dada	8	3.3
Adafila	19	7.9
Igbo eleru	11	4.6
Alaropo	19	7.9
Ipekun	19	7.9
Fapote	9	3.8
Ahorodada	6	2.5
Odo-oba	8	3.3
Total	239	100.0

4.1.2. **Age of Child**

Data in table 4.2 show that 25.5% of the respondent's children were under 1 year of age, 48.1% were between 1 and 3, while 25.9% were between ages 3 and 5. Majority (73.6%) were 3 years and below.

TABLE 4.2

Distribution of respondents according to the age of child

Age (years)	Frequency	Percentage
Under 1	61	25.5
1 - 3	115	48.1
3 - 5	62	25.9
No response	1	0.42
Total	239	100.00

Mean = 2.14 years
Standard deviation = 1.27

4.1.3 **Age of Mother**

21.76% of the respondents were below 25 years of age, while 47.7% were between 25 and 34 years and 28.85% between 35 and 44 years. The remaining 5.86% were above 45 years of age the table (table 4.3) also shows that majority of the respondents were less than 35 years of age (69.46%).

TABLE 4.3
Distribution of Mothers by Age

Age (years)	Frequency	Percentage
Below 25	52	21.8
25 - 34	114	47.7
35- 44	57	23.9
above 45	14	5.9
No response	2	0.08
Total	239	100.00

Mean = 31.11 years
Standard deviation = 7.95.

4.1.4 Sex of Child

There were more males (56.1%) than females (43.9%) among the children of the respondents (Table 4.4).

TABLE 4.4
Distribution of Respondents by Sex of Child

Sex	Frequency	Percentage
Male	134	56.1
Female	105	43.9
Total	239	100.00

4.1.5 Birth order of child

Table 4.5 shows that 27.2% of the respondents children were their first born. 25.1%, 25.1%, 13.4% and 5.9% were 2nd, 3rd, 4th and 5th born and after respectively. Eight of the mothers (3.3%) refused to answer because of their traditional belief that it is forbidden to count one's offsprings.

4.1.6 Mothers' educational level

More than a third of the mothers (39.3%) had no formal education (Table 4.6). 26.8%, 14.6% and 19.2% had primary, secondary and tertiary education respectively.

Table 4.5
Distribution of respondents by birth order of child

Birth Order	Frequency	Percentage
1st born	65	27.2
2nd born	60	25.1
3rd born	60	25.1
4th born	32	13.4
5th born and after	14	5.9
No response	8	3.3
Total	239	100.00

TABLE 4.6
Distribution of respondents by educational level

Educational Level	Frequency	Percentage
No formal schooling	94	39.3
Primary school	64	26.8
Secondary school	35	14.8
Tertiary school	46	19.2
Total	239	

4.1.7 **Mothers' Occupation**

Table 4.7 shows that most of the respondents were farmers (42.7%) 34.3% were traders, while 6.3% were both farmers and traders. 11.7% were teachers while 8 of the respondents were involved in other occupations - 5 were civil servants working at the local government headquarters secretariat, 1 was a nurse, 1 was a student and 1 was unemployed.

Table 4.7
Distribution of respondents by occupation

Occupation	Frequency	Percentage
Farming	102	42.7
Trading	82	34.3
Farming & Trading	15	6.3
Teaching	28	11.7
Others	8	3.3
No response	4	1.7
Total	239	100.0

4.1.8 Women Farmers Producing Soyabeans and Cowpeas

Among the farmers, 66.7% produced soyabeans, while 77.8% produced cowpeas.

TABLE 4.8
Distribution of women farmers according to Soyabean and Cowpea Production

Production	Frequency	Percentage
Cowpeas	91	77.8
Soyabeans	78	66.7
Total	**117	**144.50

** Some farmers grew both cowpeas and soyabeans.

4.1.9 Mothers' Monthly Income

From Table 4.9, 23.8% said that their monthly income was less than N500. Another 23.8% indicated that they earned between ₦1,000 and ₦1,500 monthly. Almost a third of the respondents (31.3%) earned between ₦500 and ₦1,000. Those who earned above N1,500 constituted 15.5%. 13 mothers (5.4%) refused to declare their earnings.

Table 4.9
Distribution of mothers according to monthly income

Income (₦)	Frequency	Percentage
Less than 500	57	23.8
500 - 1,000	75	31.3
1,000 - 1,500	57	23.8
1, 500 and above	37	15.5
No response	13	5.4
Total	239	100.0

Mean = 913.71
Standard Derivation = 513.99

4.2 Mothers' knowledge, attitude and utilization of soyabeans and cowpeas.

4.2.1 Mothers' Awareness

All but one of the respondents were aware of the use of soyabeans as food for young children under the age of five of these, more than half (50.6%) said that they first heard of this within the past five years, 30.5% more than

five years ago, 18% within the past one year and only 0.8% (two respondents) just within the past one month from the time of interview (Table 4.10). Table 4.11 shows that most of the mothers (36.8%) first learnt about soyabeans from extension agents, for 28% of the respondents, the maternity clinic served as their first source of information. Friendly conversation with some of the respondents revealed that two organisations had been instrumental to soyabeans popularisation in the LGA. The Women in Agriculture (WIA) unit of the Agriculture development Programme (ADP), a World Bank assisted programme, and the activities of a health- related NGO, World Vision International, contributed immensely to this cause. The WIA programme reached out mainly to women farmers through extension agents, while world Vision International collaborated with the Primary Health Care System in the LGA. 24% Indicated that their own first source of information was their friends and relatives, while 2.9% first heard of it at school. While the church women organisation served as a source of information to three of the respondents, mother cited the television as her first source of information. Nine others mentioned Kersey children home, Ogbomoso, where their malnourished children had been rehabilitated, as their first informant. This centre, located at the boundary between Orire LGA and Ogbomoso South LGA, whose activities had earlier been reported by IITA (1986) uses soyabeans as a nutrition intervention model in a rural area to treat malnutrition in young children. The only respondent who first heard it on television said she did when she travelled to a nearby urban centre outside the LGA.

Table 4.12 contains information on respondents' distribution according to their awareness of the available sources of both soyabeans and cowpeas in their communities. 99.6% responded that they knew soyabeans was available

in their community and could be obtained from the market, as indicated by 60.7%, the farm (43.1%) and other sources such as gifts (from other people), the farmers' shopping centre and the OYSADEP farm service centres.

For cowpeas, all of the respondents (100%) were aware of its use as food for children below age five. All were also aware of its available sources such as the market (75.7%, the farm (50%) and other sources, specifically gifts from other people (1.6%).

TABLE 4.10

How long ago respondents first heard of the use of soyabeans for feeding young children

Time	Frequency	Percentage
Within the past 1 month	2	0.84
Within the past 1 year	43	18.0
Within the past 5 years	121	50.62
Over five years ago	73	30.54
Total	238	100.0

Table 4.11

Respondents' First Source of information

Source	Frequency	Percentage
Friends/relatives	58	24.27
School	7	2.92
Maternity Clinic	72	30.12
Extension agents	88	36.82
Religious organisation	3	1.26
Others	10	4.18
Total	238	100.0

4.2.2 Mothers' knowledge of true or false format items.

Mothers' responses to selected true or false format items were scored, and the weighted mean calculated as presented in table 4.13. The overall level of knowledge concerning the use of both soyabeans and cowpeas (as shown by the weighted means) was high, exceeding the 70% cut-of point:

Overall mean (soyabeans) = 81.8%

Overall mean (cowpeas) = 82.2%

For each of the knowledge items, respondents scored highest (96.6%) in the item which states that soyabeans helps young children to grow well. The lowest mean score was from the item which says that soyabeans causes overweight in children (55.3%). "Soyabeans causes diarrhoea in young children" also scored relatively low (70.5%). In the case of cowpeas, the highest mean score was obtained for "Beans helps young children to grow

well", with 99%.

"Beans causes overweight in young children scored the least, with only 63%.

"Beans causes diarrhoea in children" scored relatively low (73%).

Table 4.12
Sources of Soyabeans and Cowpeas in the LGA

Source	Frequency	%	Frequency	%
Market	145	60.7	18.1	75.7
Farm	103	43.1	119	50.0
Others	11	4.6	4	1.6
Total	259	108.4*	304	127.3*

* Multiple answers exceed 100%

Table 4.13
Respondents' mean scores (M.S.) in selected true or false items

Item	SOYABEANS			COWPEAS		
	M.S	%	Remark	M.S	%	Remark
(a) Causes diarrhoea in young children	1.41	70.5	High	1.46	73	High
(b) Not safe for young children to eat	1.85	92.4	High	1.87	93	High
(c) Is useful in preventing and curing malnutrition	1.88	94.5	High	-	-	-
(d) Helps children to grow well	1.93	96.6	High	1.98	99	High
(e) Causes overweight in children	1.11	55.3	Low	1.26	63	Low

Overall mean (Soyabeans) = 8.18 (SD = 1.04) = 81.8%

Overall mean (Cowpeas) = 6.57 (SB = 0.89) = 82.2%

Among the fifteen communities studied, Iluju scored the highest overall mean for soyabeans with 93%, while Ahorodada scored lowest, with 60%. On the other hand, Ayetoro scored the highest for cowpea knowledge, with 97.1%, while Ahorodada again scored lowest, with 60.4%.

4.2.3 Attitudes

Table 4.14 shows mean scores obtained from the responses to attitude - measuring items. Results suggest that correct attitudes towards the use of both foods have been developed. Most mothers were able to confirm that children from all classes of the society could be fed with soyabeans or cowpeas (score for soyabeans = 90%, for cowpeas = 99.5%). However, the attitude item which stated that "it is not prestigious to feed my child with soyabeans

(cowpeas)" scored the lowest, with 71.1% for soyabeans and 69.5% for cowpeas.

Overall, the mean score for all the attitude items as a whole was 91.3% for cowpeas and 84.8% for soyabeans. The community with the highest overall mean (soyabeans) was Elega, with 94.5%, and lowest for Odo-oba, 65.6%. Ipekun scored highest (96.9%) for cowpeas, while Odo-oba again scored lowest (74%).

Table 4.14
Respondents' mean scores on attitudes towards the use of soyabeans and cowpeas

	SOYABEANS			COWPEAS		
Item	M.S	%	Remark	M.S	%	Remark
(a) Not prestigious to feed my child with	1.42	71.1	Positive	1.39	69.5	Incorrect
(b) Its consumption meant for						
i) Only the children of rich parents	1.82	91.0	Positive	1.97	98.5	Correct
ii) Only the children of poor parents	1.81	90.7	Positive	1.89	94.5	Correct
iii) Children in rural areas only	1.80	90.0	Positive	1.88	94.0	Correct
iv) Children suffering from malnutrition	1.65	82.5	Positive	1.83	91.8	Correct
v) All children	1.80	90.0	Positive	1.99	99.5	Correct

Overall mean (Soyabeans) = 10.17 (SD = 0.99) = 84.8%
Overall mean (Cowpeas) = 10.95 (SD = 0.70) = 91.3%

4.2.4 Utilization

Mothers' utilization of soyabeans and cowpeas is presented here in sections from A to I.

A. In this study, mothers were classified as:

* Non-users - those who had never introduced either soyabeans or cowpeas, as the case may be, to their children.

* Ex-users - those who had stopped using either of the foods after introducing it to their children.

* Regular users - those who were still feeding their children with either of the foods at the time of interview.

Based on this, 77% of the respondents were found to be regular soyabean users, 17.2% were ex-users, while the non-users constituted 5.9%. On the other hand, 95.8% were regular cowpea users, 3.3% were ex-users and 0.8%, non-users. Fig. 3 illustrates these results as presented in Table 4.15.

Among the non- and ex-users, various reasons were adduced for non-use or discontinuance of soyabean or cowpea utilization. These reasons, ranked in order of importance as shown on Table 4.16 include non-awareness, inability to prepare the food, ability to afford better alternatives, dislike of smell of the food, child's refusal to eat the food, laborious and time-consuming processing methods, perishable nature of the food and flatulence associated with consumption. Other complaints were that the child was too young to be given such foods, or that the food made the child ill (diarrhoea and/or vomiting) or that the mother could not get it to buy as needed.

Fig. 2: Utilization of Soyabeans and Cowpeas

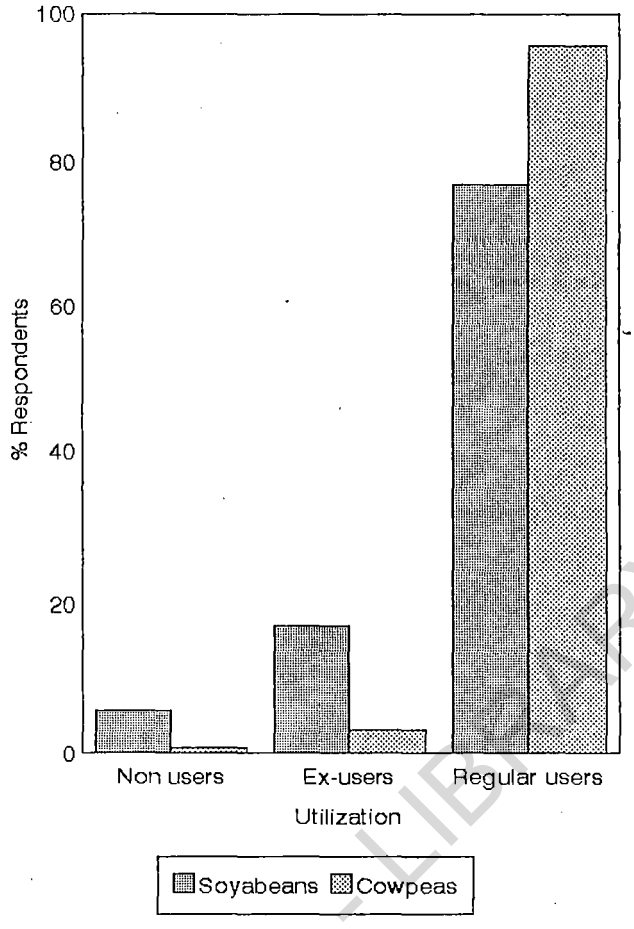


Fig. 3 Age at which foods were introduced to children by the Respondents

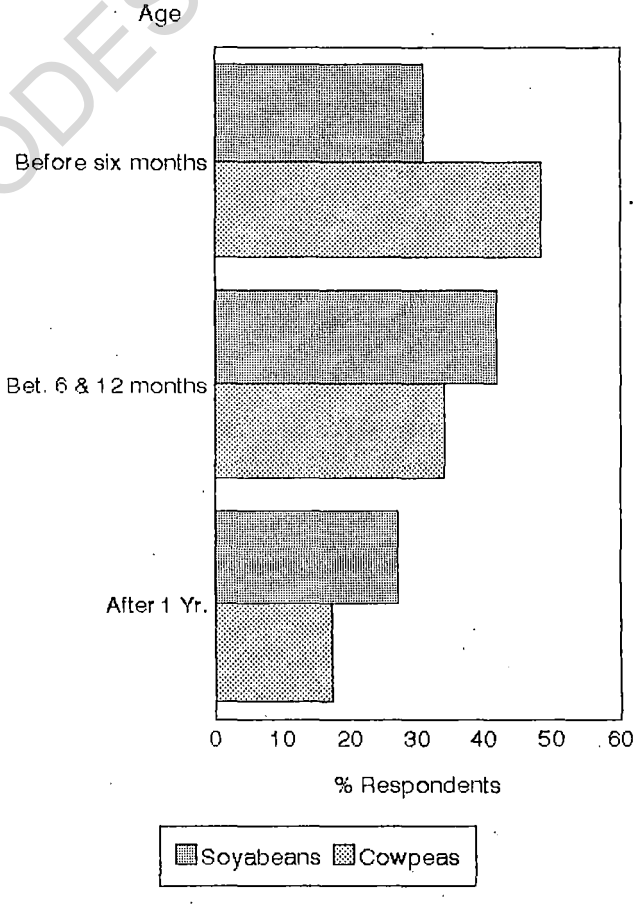


Table 4.15
Distribution of respondents according to utilization

	SOYABEANS		COWPEAS	
Utilization	Frequency	%	Frequency	%
Non-users	14	5.9	2	0.8
Ex-users	41	17.1	8	3.3
Regular users	184	77.0	229	95.8
Total	239	100.0	239	99.9

Table 4.16
Reasons for non-use or discontinuance of use

Reasons		Number of Mothers	
		Soyabean	Cowpea
a)	Non-awareness of use	1	-
b)	Child too young for consumption	1	1
c)	Caused flatulence in child	1	7
d)	Mother could not get to buy as needed	1	-
e)	Mother could not prepare food	1	-
f)	Food gets spoilt easily	2	-
g)	Time required for processing too long	2	-
h)	Mother can afford better alternative	3	-
i)	Child refused to eat it	7	3
j)	Mother dislikes smell of food	12	-
k)	Processing methods are laborious	13	-
l)	Made child ill (Diarrhoea and/or vomiting)	19	6

B. Table 4.17 and Fig. 4 show the distribution of mothers according to the age at which they introduced soyabean or cowpea foods to their children. 31.1% introduced soyabeans before the age of six months, 41.8% did so between the age of six and twelve months, while 27.1% waited till after their children's first birthday.

For cowpeas, 48.5% introduced before six months, 34.2% between six and twelve months, and 17.3% after one year.

Table 4.17 - Fig. 4
Age at which soyabeans and cowpeas were introduced to children.

	SOYABEANS		COWPEAS	
Age	Frequency	%	Frequency	%
Before 6 months	70	31.1	115	48.5
between 6 & 12 months	94	41.8	81	34.2
After 1 year	61	27.1	41	17.3
Total	255*	100.0	237*	100.0

* Number of ex-users plus regular users

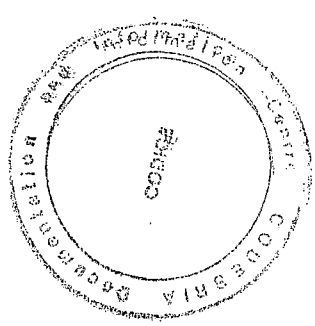


Table 4.18
Soyabean and Cowpea foods first introduced to children

SOYABEANS			COWPEAS		
Food	Frequency	%	Food	Frequency	%
Soya Milk	171	76	Mashed Beans	135	57.0
Soya Ogi	42	18.7	Moinmoin	60	23.3
Soya Wara	9	4.0	Akara	25	10.5
Others	3	1.3	Others	17	7.2
Total	225	100.0		237	100.0

C. The various forms in which these foods were first introduced to children is shown on Table 4.18. It appears that Soya milk is the mothers' favourite form of introducing soyabeans to their children, as indicated by 76% of the regular and ex-soyabean users.

Soya milk is a highly digestible cow milk analogue, which is very useful as a complementary food to breast milk. Another 18.7% of the respondents introduced soyabeans in the form of Soya ogi, while 4% did so in the form of Soya wara. Soya ogi refers to fermented maize dough to which soyabean paste or flour has been added, and which is cooked and served as porridge. Soya wara is an analogue of wara, the locally fermented cheese - like product made from cow's milk. Soya wara, popularly known as Beske in the study areas is made by curdling soya milk, which is then cut, fried in oil and eaten as a snack or cooked in stew as a meat substitute.

Cowpeas was also introduced to the children in a variety of ways. 57% first gave cowpeas to their children as cooked mashed beans, with or without red palm oil, 23.3% as moinmoin (steamed been pudding to which pepper, oil, and condiments have been added) and 10.5% as Akara (fried bean cakes). These foods were either purchased from soyabean or cowpea food vendors or were prepared by the mothers at home.

D. Table 4.19 and fig.5 show that 76.9% of the respondents had prepared or purchased soyabeans in three different ways or less, 12% in four different ways and 9.8% in five or more different ways. These include Soya moinmoin, Soya Akara, Soya gbegiri soup (all these are varieties of traditional cowpea dishes) Soya egusi soup, Soya yoghurt, Soya kulikuli, Soya iru and Soya cake. Roasted soyabean flour is also added to rice, yam pottage, fried egg, eba, amala and pounded yam, thus serving as a tasty supplement.

Table 4.19
Number of ways of preparing or purchasing soyabeans and cowpeas

	SOYABEANS		COWPEAS	
No. of Ways	Frequency	%	Frequency	%
1	29	16.0	16	7.0
2	52	28.0	27	11.7
3	61	32.9	106	46.3
4	22	12.0	54	23.6
$\geq$ 5	18	9.8	26	11.4
No response	2	1.3	-	-
Total	184	100.0	229	100.0

Table 4.20
Frequency of use of Soyabeans and Cowpeas

	SOYABEANS		COWPEAS	
Use	Frequency	%	Frequency	%
Everyday	67	36.0	135	59.1
Twice a week	64	35.1	74	32.1
Once a week	36	19.6	15	6.7
About twice a month	17	9.3	5	2.1
Total	184	100.0	229	100.0

Fig. 4: Number of ways of preparing or purchasing soyabeans and cowpeas

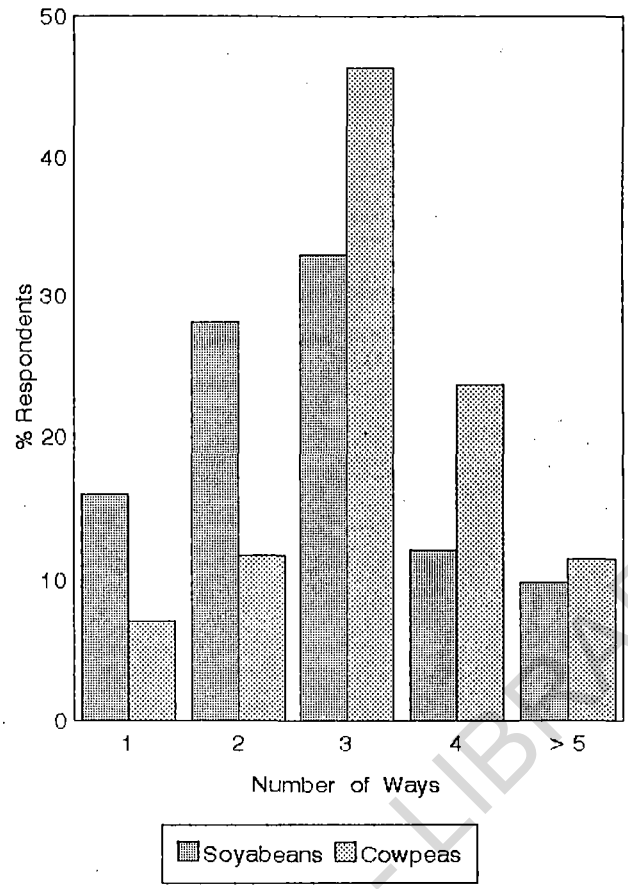
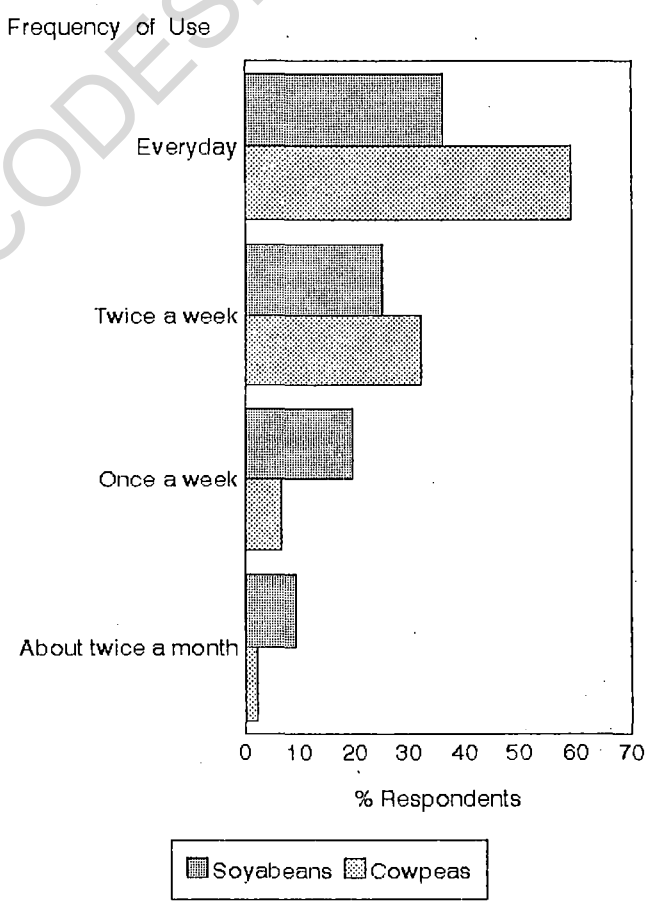


Fig. 5: Frequency of use of soyabeans and cowpeas as food for children



65.1% prepared or purchased Cowpeas in three different ways or less, 23.6% in four different ways and 11.4% in five or more different ways. Forms of utilization include Ekuru (steamed bean pudding without oil), Alapa (bean pudding with melon) and in combination with other types of food - beans and rice, beans and yam or cocoyam, beans and boiled or fried plantain, beans and gari and beans and eko (cold maize pap)

E. Table 4.20 and fig.6 show how frequently the regular users gave their children soyabean or cowpea foods. This is also illustrated in Fig. 6. 71..1% gave their children soybean foods at least twice a week. Specifically, 36% did so everyday, 35.1% twice a week, 19.6% did so a week while 9.3% did so only about twice in a month. 91.2% gave their children cowpea foods at least twice a week. Specifically, 59.1% did so everyday, while 32.1%, 6.7% and 2.1% did so twice a week, once a week and about twice a month respectively.

F. Factors that mothers considered important for selecting these foods for their children are presented in Table 4.21. The first three factors in order of importance were the same for both soyabeans and cowpeas, though to varying extents.

The most important factor as chosen by 84% of the respondents, for selecting soyabeans, and by 91.7%, for cowpeas is that they help children to grow well. The second factor is that the food are affordable (Soyabeans, 56%, cowpeas 44.5%). The third factor has to do with the organoleptic properties of the foods. 32.9% indicated that they found soyabeans delicious, while 41% said the same for cowpeas. The relative importance of the remaining factors was viewed differently for soyabeans and cowpeas. For soyabeans, the fourth factor in order of importance was that soyabeans was used at one time or the

other to cure their children of malnutrition, as indicated by more than one quarter of the mothers (26.2%). While this presents a hopeful vision of the present as well as of the future potentials of soyabeans for curing malnutrition, it also suggests a rather dismal though not conclusive picture of the situation of the prevalence of child malnutrition in the study area. The next factor was chosen by 16.9%, who used soyabeans because their children demanded for it. The last factor, which was chosen by only 9.8%, considers the ease of preparation as important for selecting soyabeans for use. This only buttresses the fact that processing of soyabeans is laborious and time consuming.

On the contrary, the fourth factor considered important for selecting cowpeas relates to ease of preparation, as indicated by 34.9% of the mothers. The fifth reason was that the children demanded for it, as indicated by 32.3% of the respondents while the sixth reason was that it was used to cure malnutrition (19.7%). The least important factor was friends and/or relatives use of cowpeas (10%).

Table 4.21

Factors considered important in mothers' selection of soyabeans and cowpeas as food for children.

	SOYABEANS			COWPEAS		
Use	Freq.	%	Rank	Freq.	%	Rank
a) It helps children to grow well	155	84.0	1st	210	91.7	1st
b) It is affordable	103	56.0	2nd	102	44.5	2nd
c) I find it delicious	61	32.9	3rd	94	41.0	3rd
d) I used it to cure my child of malnutrition	48	26.2	4th	45	19.7	6th
e) My child demanded for it	31	16.9	5th	74	32.3	5th
f) My relatives and/friends use it	20	11.1	6th	23	10.0	7th
g) I find it easy to prepare	18	9.8	7th	80	34.9	4th
Total	436	236.9*		673	293.9*	

* Multiple responses exceed 100%

G. None of the respondents indicated awareness of existing taboos against the use of soyabeans as food for young children. One belief that was linked to soyabeans, according to one respondent was that it could cause sterility in males. Five respondents from Ikoyi-Ile mentioned a particular taboo associated with cowpeas in one of the families in that community. The taboo forbids members of that family to eat cowpeas (cooked or processed in any form) to which salt has been added. Thus such persons could only eat cowpeas prepared by themselves. The taboo has its roots in the family idol worship practices.

H. Each respondent was scored as described earlier in chapter 3. The overall mean utilization score for soyabeans was 63.1%, while that of cowpeas was 75.4%. the soyabean mean score falls below 70% cut-off point, implying low level of utilization despite the high level knowledge and positive attitudes of mothers towards its use. Ikoyi-Ile and Ayetoro jointly scored the highest among the communities (76.4%), while Ahorodada scored least, with 47.3% i.e. for soyabean utilization. Cowpea utilization was highest at Ikoyi-Ile (90%), while Odo-oba scored lowest, with 62.7%

I. In the month of July, 1996, it was reported that some people in Lagos and Ibadan died as a result of eating poisonous beans. The bean, which was reportedly preserved for planting, and which was therefore unfit for human consumption found its way "accidentally" to the open market. As a result, the public was thrown into panic, because of the role of beans (cowpeas) as a major staple. The respondents were asked, based on what happened, whether they were aware, and if so, how it has affected their use of beans in feeding their children.

Only five of the respondents were not aware of this "killer beans" scare. The remaining (97.9%) who were aware reacted to the scare in different ways. 78.5% stopped using bean for a while, while 19.4% continued to use it in feeding their children as usual. 2.1% stopped using it completely i.e. up till the time of the interview, which was about six months after the scare had died down.

Complementary information from focus group discussions revealed that those who stopped using bean for a while resumed its use when the government announced on Radio that it was safe to start buying beans from the market.

Those who continued to feed their children as usual did so because they ate beans produced on their own farms. One woman continued as usual because in her own opinion, the poisonous beans did not reach the rural areas, it was limited to the big cities like Ibadan and Lagos.

4.3 Focus Group Discussions

Three focus group discussion sessions were held: two at Ikoyi-Ile, the LGA headquarters and one at Oolo, located south of the LGA. Two of the groups were homogenous (these are reported together) while the third group i.e. the other group at Ikoyi-Ile was heterogenous, comprising both males and females. One of the local auxiliary nurses from the PHC maternity clinic helped in selecting the six members of the first Ikoyi-Ile group, while the Oolo group, which was eight in number was selected randomly from the company of women who had gathered at the Oolo PHC maternity clinic on one of the national immunization days. In each of these two groups, most of the participants were known to one another, as is common in the rural communities, and this facilitated interaction between the participants as the discussion progressed. Each session lasted between twenty-five and thirty minutes.

Both groups were unanimous in their view concerning the value and usefulness of feeding one's child with soyabeans and cowpeas. The value of soyabeans had especially been demonstrated to the women by the maternity clinic staff who had been encouraging its use both as a complementary food for infants, and in curing malnutrition in children. However, different opinions existed within the groups as regards the level of prestige associated with feeding one's child with soyabeans. For instance, some of the women saw soyabeans as a "prescription" for malnourished children, and therefore thought using

soyabeans somehow belittled them. To buttress their point they remarked that some of them were forced to adopt soyabeans because it was the cheapest way to rehabilitate their ailing malnourished children.

Another woman saw soyabeans as being mainly for the rural poor, and as such using it offered no feelings of prestige to them. In her own words:

"the government introduced this seed to us because we cannot afford milk for our children, tell me, do they drink it (Soya milk) themselves?"

Another woman in the Oolo group stated that as a matter of fact, she wouldn't use soyabeans if she were rich enough to buy milk and other "ready made" foods for her son. On the other hand, some of the women in the Ikoyi-Ile group said they couldn't see how feeding their children with soyabeans affected their social status.

For cowpeas, both groups were of the strong opinion that it was perfectly normal for them to feed their children with it because their ancestors did so too. Moreover, they both agreed that eating cowpeas had nothing to do with their prestige, but these days, as one woman put it, it has become prestigious to be able to afford beans (cowpeas) if one did not grow it on one's own farm, since beans is now so expensive.

Another issue that produced divergent opinions was that of associating diarrhoea in their children with the consumption of both soyabeans and cowpeas. However, those who believed consumption led to diarrhoea were quick to say that for cowpeas, this occurred when the food was too hot, or too cold, or too peppery, or too much for the child, particularly for children under one year. Soyabeans, especially soyamilk caused diarrhoea if not hygienically or properly processed. This shows that these mothers were aware of the importance of cleanliness and hygenic practices during soyabean processing.

Furthermore, it also emerged from the discussion sessions that some of the women still believed soyabeans made children overweight, causing "heaviness" and therefore making it

difficult for such children to start walking when they were old enough to do so.

Concerning utilization of these foods, three recurrent issues were raised in both groups. First, soyabeans, though not as costly as cowpeas, was getting too expensive for the mothers. Like one mother said:

"when soyabeans was first brought to his village, it was very cheap, but now it is so expensive that the soyamilk we buy from the vendors is getting smaller in quantity day after day"

Secondly, both groups expressed their concern about the energy and time which goes into the processing of soyabeans into acceptable food products. As a result of this, the role of vendors (who usually sell Soya milk and Soya wara, popularly known as Beske) was appreciated by both groups. Buying from vendors gave mothers who couldn't process soyabeans the opportunity to feed their children with soyabean food products whenever they wanted to. Someone in the Ikoyi-Ile group said: ***"if it were not for vendors, I wouldn't use soyabeans to feed my child".*** In support of this comment, another woman chimed in; ***"processing soyabeans is almost impossible for two classes of mothers: the busy and the lazy***!" As the discussion progressed, it emerged that soyabean products (except dry flour) did not keep for long, despite the time and labour involved in its preparation and this discouraged many mothers from processing soyabeans at home. Mothers were however, knowledgeable about the various processing techniques such as blanching, boiling, grinding, roasting and soaking, producing soyabeans wet paste or dry flour. For soyamilk processing, the Ikoyi-Ile group stated that using the dry method was best, though the Oolo group could not agree within themselves on this point. One other point that was raised concerning soyabeans was that when soaked overnight, it smelt bad.

All these reasons explain the low level of utilization of soyabeans despite the high level of knowledge and positive attitudes of mothers in the LGA. Moreover, a young mother of four argued that even though cowpeas was more expensive than soyabeans in the market, it really was cheaper on the long run because the cooking or processing requires much less time, energy and fuel and its products also keep longer than soyabean products. Cowpea processing was believed to be less cumbersome, though cowpea products were notorious for causing flatulence, and were not as varied as soyabean products.

One reason perhaps why mothers still prefer cowpeas in spite of the flatulence associated with its consumption is because flatulence is not considered a health problem, though it is socially unacceptable. Flatulence is associated generally with the consumption of legumes, and refers to the rectal elimination of odourous gases, mainly ascribed to the fermentation in the intestines of undigested carbohydrates (oligosaccharides). That cowpeas causes more flatulence than soyabeans can be explained by the fact that cowpeas contain more carbohydrates than soyabeans.

The members of the second Ikoyi-Ile group were purposively selected to include mothers who were soyabean and/or cowpea farmers and mothers who were soyabeans and/or cowpea food vendors. The aim was to seek further information concerning the production, processing and sales of the foods, based on the findings from the first two focus group discussions. The group ended up being heterogenous, as three male soyabean farmers who happened to be around the venue of the discussion got interested and actually joined the discussion without being invited. The facilitator was aware of the fact that villagers usually exhibit communal behaviour, and as such it would be difficult to turn down the men without offending them. Fortunately, the men were

well known to the female participants and as such, the discussion continued naturally without any inhibitions to the way the women expressed themselves before the men joined. In all, there were six women and three men, the session lasted for about forty minutes.

The discussion revealed that the increasing cost of soyabeans had pushed many vendors out of business, and it was becoming increasingly difficult for those remaining to break even. A vendor's day starts very early (5am) so that she could fetch water and collect or buy fire wood for the processing activities. Grinding of either the soyabeans or the cowpeas was done by electrically driven mills, such that occasionally, processing was interrupted due to power failure. It was generally agreed that cowpeas were easier to process, and required less time and firewood, though soyabean vendors said they would bear whatever extra difficulties they encountered in processing if at the end of the day, the venture proved financially worthwhile. When asked to make suggestions for improvement, the women stressed the need for soyabeans processing cooperatives when they could pool their resources and efforts together. The cowpea vendors were, however, content to remain as individual processors.

Talking about the price of soyabeans, it is the activities of the numerous middlemen between the farmers and the market women that was responsible for the increasing cost. The farmers, in agreement, remarked that though it was they (the farmers) who suffered the hardships involved in producing soyabeans, the middlemen made higher profits than they did. At the time soyabeans was first introduced to the farmers, they were able to produce enough to meet the demand, but today, the demand has exceeded their production capacity. Some of their highlighted problems include lack of

herbicides, pest attacks, scarcity of labour and crop loss due to scatter mechanism when harvesting of mature pods is delayed. These factors have largely served as disincentives to soyabeans production. Thus, demand remains greater then supply, and coupled with the undesirable practice of hoarding, the price of soyabeans keeps on increasing.

The discussion session ended with a proverbial comment from the woman selling Beske (Soya wara); to which the other participants smiled and nodded in agreement: ***"Ayangbe aja dun, sugbon ko to gbe nko?"*** this proverb queries the wisdom in desiring to eat well roasted dog meat when despite its excellent taste, getting it roasted was so difficult and time consuming. Dog meat, it is said, contains more fat than most other types of meat and so trying to roast it 'dry' is a very demanding task.

4.4 Testing of Hypotheses

4.4.1 Hypothesis One

There is no significant difference between mothers' knowledge of cowpeas and soyabeans as food for young children:

Testing for differences between mean knowledge scores for both cowpeas and soyabeans at 5% level of significance:

$H_o = U_c - U_s = 0$

$\bar{X}$ Cowpeas = 82.2, sDc=0.89, n_c = 239

$\bar{X}$ Soyabeans = 81.8, sDs = 1.04, n_s = 239

$$rx_c - x_s = \sqrt{\frac{SO^2C}{n_c} \times \frac{Sd^2s}{n_s}} = \sqrt{\frac{(0.89)^2}{239}} + \sqrt{\frac{(1.04)^2}{239}}$$

$= \quad 0.0033+0.0045 \quad = \quad 0.0078 \quad = 0.09$

$$= \sqrt{\frac{(X_c - X_s) - (U_c - U_s)}{rx_c - x_s}} \quad = \sqrt{\frac{0.04-0}{0.09}} = 0.44$$

Since the calculated z falls within the acceptance region for H_0 i.e. ± 1.96 under the standard normal curve, we accept H_0 that there is no significant difference between mothers' knowledge of cowpeas and soyabeans at 5% level of significance

4.4.2 Hypothesis Two

There is no significant difference between mothers' attitude towards the use of cowpeas and soyabeans as food for young children:

Testing for difference between mean attitude scores for both cowpeas and soyabeans at 5% level of significance; where $H_o = U_c - U_s = 0$

$X_c = 10.95, \quad Sdc = 0.70, \quad Nc = 239$

$X_s = 10.17, \quad Sds = 0.99, \quad Ns = 239$

$$rx_c - x_s = \frac{SD_C}{n_c} \times \frac{SD_S}{n_s} = \frac{(0.70)^2}{239} \times \frac{(0.99)^2}{239}$$

$= \quad 0.002 + 0.004 \quad = \quad 0.006 \quad = 0.24$

$= \quad 0.24$

$$Z = \sqrt{\frac{x_c - x_s - (U_c - U_s)}{rx_c - x_s}} \quad = \sqrt{\frac{0.78-0}{0.24}} = 3.25$$

The calculated Z falls outside the acceptance region for H_o i.e ± 1.96 under the standard normal. Curve, therefore we reject H_o. This means that mothers had significantly better attitudes towards the use of cowpeas as food for young children than towards the use of soyabeans.

4.4.3 Hypothesis Three

There is no significance between mother's utilization of cowpeas and soyabeans as food for young children:

Testing for differences between mean utilization scores for both cowpeas and soyabeans at 5% level of significance.

$H_o = U_c - U_s = 0$

$X_c = 8.29$ $\quad s.D_c = 0.97,$ $\quad n_c = 239$

$X_s = 6.94$ $\quad s.D_s = 1.15,$ $\quad n_s = 239$

$$r\,x_c\text{-}x_s = \frac{Sd_c}{n_c} \times \frac{SD^2_s}{n_s} = \frac{0.97^2}{239} \times \frac{1.15^2}{239}$$

$$= 0.0039 \times 0.0055 = 0.097$$

$$Z = \sqrt{\frac{X_c\text{-}X_s\text{-}(U_c\text{-}U_s)}{rx_c - x_s}} = \sqrt{\frac{1.35\text{-}0}{0.097}} \qquad Z = 13.92$$

Calculated Z exceeds acceptance region for H_o, hence we reject H_o. This means that mothers' utilization of cowpeas was significantly higher than utilization of soyabeans.

4.5 Correlations and Multiple Regression analysis.

A. Data in table 4.22 and 4.23 are correlations to show if there is any significant relationship between knowledge and utilization, or between knowledge and attitudes, or between attitudes and utilization of soyabeans and cowpeas. There appears to be a negative but insignificant correlation between knowledge and utilization of soyabeans. The table also shows a positive but insignificant correlation between knowledge and attitude of soyabeans. Also, a negative and non-significant correlation exists between attitudes and utilization of soyabeans.

On the other hand, it appears that a positive but non-significant relationship exists between knowledge and utilization of cowpeas, while a positive and significant relationship exists between knowledge and attitude of cowpeas. There is also a significantly positive correlation between attitudes and utilization of cowpeas.

B. Multiple regression analysis was carried out to show the effect (if any) of each factor in the relationship between mothers' knowledge, attitude and utilization of soyabeans and cowpeas and all the selected independent variables in the study. These variables are Age of child, Age of mother, Birth order of child, Mother's education, mother's occupation, farmers producing soyabeans and/or cowpeas and mother's monthly income.

Jointly, all the independent variables were significant in explaining only 3.1% of the variation in knowledge of soyabeans. However, only the mother's occupation and birth order of child were found to significantly affect this knowledge. Mother's occupation had a significantly positive effect, while

child's birth order had a negative but significant effect on knowledge of soyabeans.

Furthermore, all the independent variables collectively did not seem to be significant in explaining variation in attitude toward soyabeans, as they accounted for only 0.07% of this variation. The only single variable which appeared to have any individual significant effect was mother's income. (Table 4.24 and 4.25). In the case of soyabeans utilization, none of the explanatory variables, either jointly or as a whole had any significant contribution.

Multiple regression for cowpea knowledge shows that the independent variables had no significant influence on knowledge. However, the constant term was found to be significant. This same result was obtained for attitudes and utilization of cowpeas i.e. overall non-significance of independent variables, but with the constant term showing significance.

Table 4.22. Relationship between knowledge, attitude and utilization of soyabeans.

-- Correlation Coefficients --

	Knowledge	**Attitude**	**Utilization**
Knowledge	1.000 P = .	0.0560 P= .388 NS	- .0109 P= .867 NS
Attitude	0.0560 P=.388	1.000 P= .	- 0.0036 P= .956 NS
Utilization	- .0109 P= .867	- 0.0036 P= .956	1.000 P= .

n = 239
NS = Not Significant at 5% level.

Table 4.23
Relationship between knowledge, attitude and utilization of Cowpeas

-- Correlation Coefficients --

	Knowledge	**Attitude**	**Utilization**
Knowledge	1.000 P = .	.2810 P= .000 NS	- .0932 P= .151 NS
Attitude	.2810 P=.000	1.000 P= .	- 1713 P= .008 S
Utilization	.0932 P= .151	.1713 P= .008	1.000 P= .

n = 239
NS = Not significant, S = Significant at 5% level

Table 4.24

Multiple regression analysis showing relationship between mothers' knowledge of soyabeans and their personal and socio-economic characteristics.

Characteristics	T - Value	Sig. T.
Age of child	-1.088	.2777
Age of mother	1.405	.1615
Birth order of child	-2.602 S	.0099
Mother's education	-1.710	.0887
Mother's occupation	2.167 S	.0313
Farmers producing soyabeans	-.892	.3734
Farmers producing cowpeas	1.164	.2456
Monthly income	-.377	.7062
(Constant)	16.339	.0000

Adjusted R square = 0.3118

S means the value was significant at 5% level of significance.

Table 4.25

Relationship between mothers' attitudes to soyabeans and their personal and socio-economic characteristics.

Characteristics	T - Value	Sig. T.
Age of child	-.597	.5512
Age of mother	1.455	.1469
Birth order of child	-1.200	.2315
Mother's education	-1.879	.0615
Mother's occupation	.428	.6692
Farmers producing soyabeans	-.412	.6804
Farmers producing cowpeas	.248	.8043
Monthly income	1.964 S	.0507
(Constant)	.172	.8638

Adjusted R square = 0.00073

S means the value was significant at 5% level of significance.

Discussion

4.6 Discussion of Findings

The predominant occupation among the respondents is farming, and this may account for the fact that most of them indicated that they first heard of soyabeans from extension agents. All but one of the respondents had first

heard of the use of soyabeans from interpersonal sources of information, which is well expected in such a predominantly rural LGA such as Orire. Interpersonal interaction most likely helped to spread the information in the face of lack of electricity and modern mass communication facilities. The lower percentage of women farmers who produced soyabeans might be because it is a relatively new crop, and so many of them are not yet familiar with its cultivation. These findings are consistent with that of Ajayi (1995) which revealed that in Oyo State, 46.78% of women produced cowpeas, while only 22.22% produced soyabeans. The mean income of the respondents was ₦913.71 per month, showing that most of the mothers were low-income earners; about one quarter of them earned below ₦500.00. More than a third of the respondents had no formal schooling.

The overall mean knowledge score for soyabeans was higher, though not significantly, than cowpea overall mean scores. The knowledge scores demonstrate widespread maternal knowledge of the benefits and safety of feeding young children with both soyabeans and cowpeas. Though cowpea knowledge is indigenous, the closeness of the knowledge scores for both foods shows that soyabean popularisation messages have been well understood. Meanwhile, the erroneous belief that links diarrhoea and overweight in young children with the consumption of these foods still exists among the women, as unearthed by the results. The value of soyabeans in the prevention and cure of malnutrition was widely known, most likely as a result of the nearby rehabilitation center mentioned earlier in this chapter.

In terms of attitude, the results reflect a general misconception having to do with the associated low prestige in the use of both cowpeas and soyabeans as food for young children. However, a comparison of attitude mean scores

shows that mothers' attitude towards cowpea use was significantly better than their attitudes towards soyabeans, as also displayed in the Focus Group Discussion report. Furthermore, it appears that more mothers were confident to introduce cowpeas to their children quite earlier than for soyabeans. Fig. 4 shows that more mothers introduced cowpeas to their children before the age of six months than soyabeans. The resigned attitude and lack of confidence may be because soyabeans is yet to enjoy the kind of reputation which the indigenous cowpea has acquired over decades of popular use.

The several ways of preparing or purchasing soyabeans by the respondents demonstrates its versatility and the possibilities of incorporating it into a wide variety of local foods. The challenge this presents to researchers is to enhance the acceptability of these products by ensuring that traditional tastes are still preserved despite the incorporation of soyabeans. An interesting pattern emerged from the ranking of those factors considered important in selecting either of the foods. Respondents showed a proper ordering of reasons for food choice viz nutrition, affordability and palatability in that order. For the remaining food choice factors, ease of preparation was considered more important in the selection of cowpeas than in the selection of soyabeans. A logical explanation could be that these women grew up using cowpeas, and therefore they did not find it difficult to prepare, being used to all the processing involved. Nevertheless, the objective truth is that cowpeas is easier to prepare than soyabeans, owing to its higher starch content. On the contrary, soyabeans contains much less starch, and as such, does not readily swell or soften easily and must be boiled for hours.

Again, the relative newness of the food in the area could be responsible for mothers' non-awareness of taboos associated with soyabeans consumption.

Food taboos are usually linked to some long standing cultural belief or behaviour, and this explains why cowpeas had an associated taboo. Fortunately, the taboo does not discriminate against women and children as is common with many other food taboos. Hence it may not be expected that there would be any major cultural barriers, in terms of food taboos, while promoting the use of both foods. Locational advantage may explain the high level of utilization of both foods at Ikoyi-Ile. Ikoyi-Ile, being the LGA headquarters is more exposed to enlightening programmes or information than other communities, and are closer to Primary Health Care administration as well as to the Agricultural Development Programme (ADP) staff and systems. Attention thus needs to be paid to communities located far into the hinterland, and incentives must be provided for the health and agricultural extension agents in such areas. As a whole, cowpea utilization was significantly higher than soyabean utilization.

Correlation analysis revealed that knowledge of soyabeans was positively correlated with attitudes towards soyabeans, and negatively correlated with utilization. However, these correlations were insignificant at 5% level of significance. This could mean that the more mothers know about soyabeans, the better their attitudes towards its use, which follows normal behavioural patterns especially, if the knowledge possessed is positive and correct. On the other hand, it appears that high level of knowledge has less to do with utilization. While these associations are in themselves interesting, they form the basis for more fundamental questions of why these women behaved as they did. Their behaviour reveals the shotcomings of soyabean utilization in terms of processing requirements which are laborious and time, fuel and energy consuming. Getting to know about soyabeans on a more practical level could be enough disincentive for its use, as elucidated by focus group

discussions. Maternal attitudes were negatively correlated with utilization, which is a clear deviation from the normal, since it is expected that better attitudes should bring in increase and not a drop in soyabean utilization. This may just have explained the people's mixed-up feelings concerning soyabeans as was also displayed in the focus group reports.

Perhaps soyabeans is still at the trial stage, whereby people actually practice the new idea without having a permanent sense of acceptance that leads to continuos use. If the latter explanation were true, it would be important that at this stage, a two-way flow of information from the initiators of the new idea to the people be established. This kind of feed back mechanism would prove very useful in appropriating the innovation to meet the real needs of these people. In all, as stated before, all these correlations between 'mothers' knowledge, attitude and utilization of soyabeans were not significant at 5% level. From this perspective, this weak association could well imply that mothers' utilization is not predicated on their knowledge or attitudes towards soyabeans, but that utilization is yet a behaviour which is erratic, having no settled predictive behavioural patterns.

Results from correlations of cowpea knowledge, attitudes and utilization showed different patterns. Knowledge was positively and significantly correlated with attitude, but insignificantly correlated with utilization. It thus seems that high level of knowledge may imply better attitudes, but not necessarily better utilization. It is more likely that utilization is a function of attitudes, because there exists a positive and significant relationship between attitude and utilization which means better attitudes lead to high utilization of cowpeas. These results may not be surprising, given the fact that cowpeas is an indigenous crop, and its use has been intricately woven into the fabric of

the culture and life of the people.

Multiple regression shows that the birth order of children as well as mothers' occupation were the only socio-economic characteristics which can significantly contribute to knowledge of soyabeans. One possible explanation is that mothers involved in occupations which are more exposed to sources of information of soyabeans get to know more and correct information (since they are hearing from the "horse's mouth") than those who just happen to hear it from friends and relatives around. There is the possibility of not hearing distorted, or incorrect or incomplete information. Still on soyabean knowledge, the position of the child among other siblings was also found to contribute significantly. The lower the children's birth order the higher the level of knowledge of their mothers. This result may be true because mothers whose children are their first or second born are more likely to be younger than those whose children are their third, fourth or fifth born. These younger ones might be more keen on learning new innovations and may therefore have better knowledge than the older ones, whose enthusiasm for learning, perhaps, may be low. It is possible that the olderones assumed this attitude of a-known-devil-is-better-than-the-an-unknown-angel, and thus may not have availed themselves of opportunities to learn. For attitudes towards soyabeans, only mother's income appeared to contribute, albeit, insignificantly. It would be recollected that during focus group discussion it also transpired that one of the reasons why some mothers accepted soyabeans for use was because they could not afford better and more convenient alternatives. One is more likely to buy only what he can afford, as determined by ones income, and moreover more than a third of the respondents earned less than ₦500.00 a month. In the case of soyabeans utilization however, none of the socio-economic characteristics seemed to have any significant contribution.

For cowpeas, multiple regression shows that mothers' knowledge, attitudes and utilization cannot be significantly attributed to any of the socio-economic variables. Again, the constant terms in all of the generated regression equations were significant at 5% level of significant, meaning that mothers' knowledge, attitude and utilization of cowpeas was independent of their socio-economic characteristics. These results presently suggest that it is indigenous knowledge, and not necessarily nutrition, affordability and palatability as indicated by data from interview schedule that is more of a predictor of mothers' knowledge, attitude and utilization of cowpeas.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

This study has unveiled important considerations that need to be taken while seeking to promote the use of soyabeans and cowpeas as food for children in Orire LGA and other characteristically homogenous areas. First and foremost, women need more and better information on the nutritive value and importance of both foods and the need for them to incorporate them in the diet of their children. Efforts to correct wrong attitudes and incorrect knowledge must be made. For instance, as shown by this study, mothers should be corrected of their erroneous belief that consumption of these foods leads to diarrhoea in some children, or that it causes overweight in others. It should be emphasised that hygienic practices and cleanliness are important during preparation because of the highly perishable nature of both cowpeas and soyabeans food products. Moreover, as many of the mothers did not consider it prestigious feeding their children with these foods, inspite of their knowledge about the nutritive value, it is important to address this area while promoting use of these foods. Promotion programmes should make use of interpersonal channels, which findings from this study have shown to be appropriate for rural areas.

The maternity clinic, agricultural extension agents, the school, religious organisations, workers organisations, women groups, cooperatives, indigenous health workers and non-governmental organisations should all be involved. Radio jingles and messages could also help correct attitudes, especially those having to do with low prestige associated with the consumption of these foods. As earlier mentioned, attention should be paid to the hinterland communities which are very far from the center of innovation.

Problems associated with utilization and consumption of these foods must be addressed. For cowpeas, this has to do mainly with flatulence encountered after eating cowpea dishes. This rectal elimination of odorous gases from swollen bellies could be uncomfortable for infants, apart from the fact that it is socially unacceptable. More research needs to be focused on how to reduce flatulence while preparing cowpeas for food under rural conditions. One reason, perhaps why mothers still use cowpeas inspite of this problem is that it is not a serious health problem, as flatulence subsides after a few hours, when all the accumulated gas must have been eliminated.

Problems encountered for soyabeans have to do with its processing requirements: lots of water, energy, fuel and time. Vendors, as a result, have been found to be an incentive for mothers' utilization of soyabeans foods. However, these vendors still face these same problems, and, coupled with the increasing cost of soyabeans in the market, many of them have been thrown out of business. Going by their own suggestions vendor cooperatives could be established, and with the assistance of the government or private organisations, village level processing equipment could be developed to ease the demands of processing. Such appropriate technology is appropriate only if it can be used by women and is adpated to suit local conditions. By pooling their resources and energy together, not only processing, but also marketing of the products would be enhanced.

Soyabeans, however, must be available and affordable to make these suggestions effective. Research is required in the areas of less-costly production, more efficient market systems (to tackle the highlighted problem of numerous middlemen), and reduction of losses due to the delay in harvesting of the crop which results from lack of labour and necessary

equipment. Research should also be geared towards plant breeding to produce more tolerant pest-resistant and more nutritious, better digestable and palatable varieties. It must also be borne in mind that no matter how much extension agents try to encourage and provide their services to the farmers, production can only be sustained if farmers find a market for soyabeans. This market can be provided if soyabean is a cash crop produced to serve the industries. Soyabeans is basically an industrial crop. The success of soyabean development depends therefore, on the purchase of raw soyabeans for industrial exploitation.

In the United States, soyabeans is used mainly in the soy-based industries. In tropical countries where it is extensively cultivated as in Brazil, it is regarded mainly as a cash crop, since there is no appropriate indigenous technology for converting soyabeans into an acceptable food form, and it is not acceptable for direct consumption without such processing. (As is also true for the Nigerian situation). Incidentally, it has been demonstrated here in the country that small scale farmers will accept soyabeans as a commercial crop if there are bold extension efforts promoting its cultivation with a guaranteed market that will pay a remunerative price for the crop (Oyekan et al, 1986).

Still, while being careful not to throw away the baby with the bath water, household soyabean utilization should still be promoted, but efforts should be geared towards sustainable acceptance and adoption of the food. Achieving this can be summarised in three approaches: First, mothers must be educated about the usefulness of feeding their children with soyabean foods and wrong attitudes must be corrected. Secondly the development of appropriate technology which will cut down considerably on labour time and fuel, while at the same time maintaining acceptable flavour, textural and organoleptic

properties of soya foods. Such "better life" technology for soyabean processing should be such that can make a real difference in the lives of rural mothers in terms of nutrition, cost, energy, fuel and time. As an alternative, the government may provide processed soyabean flour as a subsidized food targeted to the rural mothers, using maternity clinics and agric extension agents as marketing outlets. This, in addition to the activities of soyabean food vendors will encourage better utilization of soyabean foods, provided they are acceptable to the local tastes. Distribution outlets for such subsidized soyabean flour should be expanded to reach the unreached poorest populations, with efforts to ensure adequate handling, distribution, preservation and storage systems. Last but not the least, community participation is crucial for the success of soyabean popularisation programmes. The community should be involved from the very beginning, as this is more likely to yield better results. A two-way flow of information between the people and the programme personnel is important, and the information from the community people should be used as input to address their own problems, and to improve the design of such programmes. The role of women cannot be over-emphasized, being the main actors in feeding and caring for the young children.

Finally, the campaign for a better use of soyabeans as food for young children should not, on a cautionary note, intend to displace cowpeas, which is already a popularly consumed food, but to compensate for the shortage and cost of cowpeas and other more expensive protein sources, allowing the children to consume a very nutritious food at a much lower price.

Suggestions for further research:

The following are suggestions for further study:

1. Ways of incorporating soyabeans into local diets without compromising traditional tastes.

2. Impact assessment in areas where soyabeans has been popularised.

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INTERVIEW GUIDE

Socio Economic Background of Respondent

1. Name of Community.....
2. Age of child
   (a) Under 1 year old
   (b) 1 - 3 years old
   (c) 3 - 5 years old
3. Age of mother
   (a) 0 - 25 years
   (b) 25 - 34 years
   (c) 35 - 44 years
   (d) 45 years and above
4. Sex of child
   (a) Male (b) Female
5. Birth order of child
   (a) 1st born
   (b) 2nd born
   (c) 3rd born
   (d) 4th born
   (e) 5th born and after
6. Mother's educational level
   (a) No formal schooling
   (b) Primary school
   (c) Secondary school
   (d) Tertiary school

7. Mother's Occupation

(a) Farming

(b) Trading

(c) Teaching

(d) Others (Specify) .....

8. If you are a farmer, do you produce soyabeans?

(a) Yes (b) No

9. If you are a farmer, do you produce beans?

(a) Yes (b) No

10. Income per month

(a) less than ₦500.00

(b) ₦500 - ₦1,000.00

(c) ₦1,000 - ₦1,500.00

(d) greater than ₦1,500.00

KNOWLEDGE

11. Are you aware that soyabeans is used as food for young children (under 5 years old)?

(a) Yes (b) No

12. If yes, when did you first hear of it?

(a) within the past one month

(b) within the past one year

(c) within the past five years

(d) over five years ago

13. How did you first get to know of it?

(a) friends/relatives

(b) school

(c) maternity clinic

(d) extension agents

(e) religious organisation (specify) .....

(f) others (specify) .....

14. Is soyabean available in your community?

(a) Yes (b) No

15. If yes, from what source(s)

(a) Market

(b) Farm

(c) Others (Specify) .....

16. Please respond objectively to the following statements:

	TRUE	FALSE	DON'T KNOW

	TRUE	FALSE	DON'T KNOW
(a) Soyabeans causes diarrhoea in young children			
(b) Soyabeans is not safe for young children to eat.			
(c) Soyabeans is useful in preventing and curing malnutrition in children			
(d) Soyabeans help children to grow well			
(e) Soyabeans causes over weight in children			

ATTITUDES

17. Please express your sincere opinion about the statement below:

	AGREE	DISAGREE	UNDECIDED
(a) It is not prestigious to feed my child with soyabeans			
(b) The consumption of soyabeans is meant for			
(i) Only the children of rich parents			
(ii) Only the children of poor parents			
(iii) Children in the rural areas only			
(iv) Children suffering from malnutrition only			
(v) All children			

UTILIZATION

18. For this question, please tick the appropriate sentence as it applies to you

(a) I have never introduced soyabeans to my child before
(b) I have fed my child with soyabeans before, but I don't use it any longer
(c) I have not stopped feeding my child with soyabean foods since I introduced it to him/her

19. What are your reasons for your Non-use OR discontinuance as the case may be? (Multiple answers possible)

(a) I am not aware of the use of soyabeans as food for young children
(b) My child refused to eat it
(c) It made my child ill (diarrhoea and/or vomiting)
(d) It caused flatulence in my child (passing out foul gas)
(e) It is a taboo to feed my child with soyabean foods.
(f) I don't like its taste
(g) I don't like its smell
(h) I can not afford it
(i) I can afford better alternatives
(j) I could not get soyabeans to buy as needed
(k) I don't know how to prepare it
(l) Time required for processing/cooking soyabeans is too long.
(m) Processing methods are laborious
(n) Soyabean foods get spoilt easily
(o) Others (specify) .....

20. At what age did you introduce soyabeans to your child?

(a) Before 6 months

(b) After 6 months

(c) After 1 year

21. Which type of soyabean food did you first give to your child?.....

22. In what different ways have you prepared soyabeans as food for your child?

.....

.....

.....

.....

☐ Total number of ways =

23. How frequently do you feed your child with soyabean foods?

(a) Every day

(b) Twice a week

(c) Once a week

(d) About twice a month

24. What are the factors that you considered important in your selection of

soyabean as food for your child? (Multiple answers possible)

(a) It is affordable

(b) It helps children to grow well

(c) I find it delicious

(d) I find it easy to prepare

(e) My child demanded for it

(f) I used it to cure my child of malnutrition

(g) My friends and/or relatives use it

(h) Other reasons (specify)

.....

25. Do you know of any taboos against the use of soyabeans as food for young children? Yes / No

26. If yes, please list them

.....

.....

.....

COWPEAS (BEANS)

KNOWLEDGE

27. Are you aware that beans is used as food for young children (under 5 years)?

(a) Yes (b) No

28. Is beans available in your community?

(a) Yes (b) No

29. If yes, from what source(s)

(a) Market

(b) Farm

(c) O t h e r s (s p e c i f y)

.....

30. Please respond objectively to the following statements:

	TRUE	FALSE	DON'T KNOW
(a) Beans helps children to grow well			
(b) Beans is poisonous, so it is dangerous for young children to eat			
(c) Beans causes diarrhoea in young children			
(d) Beans causes over-weight in young children			

ATTITUDES

31. Please express your opinion about the following statements.

	AGREE	DISAGREE	UNDECIDED
(a) It is not prestigious to feed my child with beans			
(b) The consumption of beans is meant for:			
(I) Only the children of rich parents			
(ii) Only the children of poor parents			
(iii) Children in the rural areas only			
(iv) Malnourished children only			
(v) All children			

UTILIZATION

32. For this question, please tick the appropriate sentence as it applies to you.

(a) I have never introduce beans to my child before

(b) I have fed with beans before, but I don't use it any longer

(c) I have not stopped feeding my child with bean foods since I introduced it to him/her

33. What are your reasons for your Non-use OR discontinuance, as the case may be?

(a) I am not aware of the use of beans as food for young children

(b) My child refused to eat it

(c) It made my child ill (diarrhoea and/or vomiting)

(d) It caused flatulence in my child (passing out foul gas)

(e) It is a taboo to feed my child with bean foods.

(f) I don't like its taste

(g) I don't like its smell

(h) I can not afford it

(i) I can afford better alternatives

(j) I could not get beans to buy as needed

(k) I don't know how to prepare it

(l) Time required for processing/cooking beans is too long.

(m) Processing methods are laborious

(n) Beans foods get spoilt easily

(o) Others (specify) .....

34. At what age did you introduce beans to your child?

(a) Before 6 months

(b) After 6 months

(c) After 1 year

35. Which type of bean food did you first give to your child?.....

36. In what different ways have you prepared beans as food for your child?

.....

.....

Total number of ways =

37. How frequently do you feed your child with bean foods?

(a) Every day

(b) About twice a week

(c) Once a week

(d) About twice a month

38. What are the factors that you considered important in your selection of beans as food for your child?

(a) It is affordable

(b) It helps children to grow well

(c) I find it delicious

(d) I find it easy to prepare

(e) My child demanded for it

(f) I used it to cure my child of malnutrition

(g) My friends and/or relatives use it

(h) Other reasons (specify)

.....

39. Do you know of any taboos against the use of soyabeans as food for

young children?

(a) Yes (b) No

40. If yes, please list them.....

.....

.....

41. Did you hear of the recent "killer beans" scare?

(a) Yes (b) No

42. If yes, how has this affected your use of beans in feeding your child?

(a) I stopped using it to feed my child for a while

(b) I stopped using it to feed my child completely

(c) I continued using it to feed my child as usual

(d) Others (specify)

.....

* Thank you for your co-operation*