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## **Preface**

This report summarizes the findings of the 2001–2003 Nigeria Food Consumption and Nutrition Survey (NFCNS) conducted by the International Institute of Tropical Agriculture (IITA), Ibadan in collaboration with the National Planning Commission (NPC), the Federal Ministry of Health, national institutes, and universities. Technical assistance was provided by the United States Department of Agriculture–Agricultural Research Services, Beltsville Human Nutrition Research Center–The Community Nutrition Research Group (CNRG). Funding was provided by the Mission of the US Agency for International Development, Abuja, and the US Agency for International Development, Bureau for Africa, Office of Sustainable Agricultural Development under the terms of grants no. 59-3148-0-013 and LAG-G-00-93-00042-00, the United Nation's Children Fund (UNICEF), and Helen Keller International (HKI).

The field data was collected between August and October 2001. The laboratory analysis for biochemical indices were completed in 2002, data analysis and report writing was completed in September 2003.

Additional information on the Nigeria survey may be obtained from the Federal Ministry of Health, Nutrition Division, Federal Secretariat, Shehu Shagari Way, Maitama, Abuja; the National Planning Commission, Agriculture and Industry Department, National Committee on Food and Nutrition, Wuse Zone 1 Annex, Plot 409, Nouakchott St., Abuja; and the International Institute of Tropical Agriculture, PMB 5320, Oyo Road, Ibadan, Oyo State, Nigeria (Telephone 02 241 2626; Fax 02 241 2221; email: [iita@cgiar.org](mailto:iita@cgiar.org)).

## **Acknowledgments**

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The survey was supported by the United States Agency for International Development grant no. 59-3148-0-013 and LAG-G-00-93-00042-00; and the United States Department of Agriculture grant no. 58-4001-0-F161. We are most grateful to Ms C. Jackson and Ms L. Adams for their unflinching support. Similarly, the contribution provided by United Nations Children's Fund and the support of Dr K. Varnomelingen and Prof. F. Onyezili. We are also grateful to Helen Keller International for their support.

Between October 2000 and September 2003, several individuals participated and spent time in planning and designing the survey, executing field operations, processing and analyzing the data, and producing this report. We would like to mention Dr Ellen Harris, Assistant Director, Beltsville Human Nutrition Research Center, for her technical input and guidance. We would also like to thank Dr S.O. Omojokun, Federal Ministry of Health, for facilitating the acquisition of the ethical clearance for the survey and Dr S. Benade,

Director, Medical Research Council of South Africa, for his strategic contribution. The hard work and dedication of the entire survey team (zonal coordinators, state supervisors, interviewers, medical laboratory technologists, monitoring team, and resource persons) are highly appreciated.

**Hartmann**

**Director General**

**International Institute of Tropical Agriculture**

**February 2004**

# **Executive Summary**

The Food Consumption and Nutrition Survey 2001–2003 (FCNS) was a national project looking at the nutritional status of women and children in rural and urban populations across Nigeria through data collection on the nature and extent of food security, food and nutrient intakes, and anthropometric and biochemical parameters.

## **Survey design and tools**

To account for the relationships between (a) agroecological zones (AEZ) and type of farming systems; (b) crops grown and foods consumed; and (c) type of food consumed and micronutrient deficiencies, a two level (AEZ and principal food crops) stratified, multistage procedure was used. The three agroecological zones surveyed included the humid forest, the dry savanna, and the moist savanna, and the sectors surveyed were rural, medium, and urban. Twelve states were randomly selected across Nigeria and a total of 6480 households were surveyed, including a sub-sample of 1080 pregnant women.

The main data collection instrument had several sections: questionnaire identification, demographic and socioeconomic characteristics of households, food security, 24-hour dietary recall, health and care, anthropometry, and biochemical measurements. Interview teams also conducted focus group discussions and collected food and salt samples. Data collection took place between August and October 2001. The survey was implemented by the International Institute of Tropical Agriculture and funded by USAID and UNICEF, with participation from the Government of Nigeria, Nigerian national universities and other institutions.

## **Results**

### **Household demographic and socioeconomic information**

The vast majority (94%) of sampled household heads were male and most of the households consisted of three or more persons. Slightly over half of household members were under 14, with a quarter of the members being children under 5. Nationally, 48.7% of respondents had no form of education, suggesting a literacy rate of slightly over 50% among household heads.

Over 40% of household heads were farmers, with more than twice as many households involved in farming in the dry and moist savanna zones than the humid forest zone. Access to government supplied electricity, pipe-borne water, and refuse disposal was minimal, and more likely to be available in urban areas.

### **Food security**

The most available staple foods were rice, cassava, maize, and yam, all of which are major sources of energy. Maize was the staple most often consumed, with 20% of the population eating it at least once a week. Other staples with a high frequency of consumption were cassava, rice, cowpea grain, groundnut, and yam. Rice was the most affordable, followed by cassava, maize, and yam, in that order. The most affordable and most available sources of plant protein were cowpea, groundnut, and soybean. The most available and affordable nonstaple foods were meat products, nonleafy vegetables, leafy vegetables, and fats and oils. In spite of being both available and affordable, however, meat products, green leafy vegetables, and bakery products were the least consumed foods across the zones.

The principal food crops (PFC) in the dry savanna consisted mainly of legumes, including maize, millet, and sorghum, while the PFC in the moist savanna included those in the dry savanna plus yam and cassava. In the humid forest, the PFC consisted mainly of cassava, yam, maize, and plantain as well as vegetable oils. High availability and affordability of foods was associated with residents in the medium and urban areas, and in the humid forest; households in the rural sector and the moist savanna were relatively more food insecure. The overall pattern of food security shows a general decline from the humid forest zone in the south through the moist savanna to the dry savanna in the far north.

Comparisons across primary occupations of household heads show that families headed by farmers, primarily in rural areas, were the most severely affected by food insecurity. Strategies used to mitigate food insecurity included purchasing food on credit, borrowing money, and borrowing foodstuffs, with up to 11% of respondents reporting that they depended on friends and relatives for help.

### Nutritional status of children under 5 and women

The results showed a steep increase in the incidence of wasting between 6 and 12 months, which corresponds with an end to exclusive breastfeeding and the introduction of complementary foods for some children. Across the zones, 42% of children surveyed were stunted and 25% were underweight, with the largest proportions in the dry savanna. The onset of the three forms of malnutrition (stunting, wasting, and underweight) appear to occur most often between 6 and 24 months of age.

Nationally, 11.6% of women were suffering from chronic under-nutrition, and an even higher percentage of women were found to be overweight (19.9%), a condition which has equally serious implications for the health of women and their newborns.

### **Micronutrient status of children under 5, mothers, and pregnant women**

- At the national level, 29.5% of children under 5 were vitamin A deficient, with 4.7% suffering from severe vitamin A deficiency. Overall, 13% of mothers and 19.2% of pregnant women were at risk of vitamin A deficiency.
- At the national level, 22.3% of children under 5 suffered from vitamin E deficiency, with the highest proportions in the humid forest and the medium sector. Overall, 13% of mothers and 12% of pregnant women were vitamin E deficient.
- At the national level, approximately 36.3% of children under 5 suffered some level of iron deficiency. Deficiency was highest in the dry savanna followed by the moist savanna and humid forest, and higher in urban areas than others. While the majority of women of childbearing age had normal iron status, 43.8% of pregnant women in urban areas were iron deficient, compared to slightly more than 30% in both medium and rural areas.
- Approximately one out of every five children under 5 was zinc deficient. The highest prevalence was in the rural sector at about 26%. About 28% of mothers and 43.7% of pregnant women throughout the country were zinc deficient.

- At the national level, 13% of children under 5 had some level of iodine deficiency. The level of deficiency in the moist savanna was more than double that of the humid forest and dry savanna. Nationally, 13% of mothers and 10.5% of pregnant women were iodine deficient. In contrast, 16.6% of children under 5 had more than adequate intake of iodine and 29.8% had possible excess. Similar figures were found for mothers and pregnant women.

## Child health

Malaria was the most prevalent illness for those surveyed having affected 71.3% of children at least once, and affecting 32.4% between two and four times a year. Diarrhea was most prevalent in the rural sector and the dry savanna. The most popular treatment method was oral rehydration solution (ORT), followed by homemade sugar-salt solution.

Only 21% of children were fully immunized (having received the complete set of childhood immunization against all vaccine-preventable diseases); 43% had "some" immunization while 36% had no immunization at all. The proportion of children who were fully immunized increased with the level of the mother's education. Approximately 15% of mothers could be considered to have practiced exclusive breast feeding (EBF) for 6 months; but the majority of mothers introduced other foods within the first month.

## Care for women

In response to the question "how does your community view women's education, either, encourage, discourage, or consider it

a taboo?" 94.6% of respondents in the humid forest, 68.3% in the moist savanna, and 49.3% in the dry savanna all claimed to encourage women's education. The workload for women seemed to be heavier in the dry savanna and humid forest than in the moist savanna. In response to the question asked of women, "are you allowed to engage in income-generating activities?" the data across zones were variable, revealing more income-generating activity by women in forest zones and urban sectors.

## **Recommendations**

In November 2002, Nigeria launched a National Policy on Food and Nutrition as a means of confirming government's commitment to nutrition and health. The following recommendations stem from key findings of the FCNS that have significant implications for policy development:

- The urban sector was observed to have more favorable indicators across almost all variables measured. It may be that strengthening the currently existing government Rural Development Program will improve conditions for farmers and other rural residents to a similar level of well-being enjoyed by urban counterparts, thereby encouraging young people to remain in those rural settings to revive the potentially rich agricultural sector in Nigeria.
- Agricultural production, food processing, and diversification of cropping systems and reduction of postharvest losses are of critical importance for food security. Similarly, an easily produced and inexpensive source of animal protein will afford greater access to a higher quality diet for low income citizens.

- Existing micronutrient deficiency control programs need to be supported and micronutrient supplementation, food fortification, and dietary diversification vigorously promoted. Increased research and public education is needed to address the issue of iodine nutrition, including monitoring of iodine levels. Alongside strengthened existing nutrition education programs, a nation-wide community level training program should be implemented to educate health workers on the symptoms of, and treatment for malnutrition.
- Significant improvement in the area of child health, particularly in rural areas, can be made with increased support for the government's ongoing malaria project, increased promotion of ORT to control diarrhea, and strengthening of existing child survival programs, including childhood immunization. Additionally, increased attention by both government and donor agencies to the nutrition of both under-fives and their mothers will significantly improve health outcomes for both groups.
- An institutional framework should be established to ensure regular (every five years) food consumption and nutrition surveys.
- The Millennium Development Goals should remain a high priority for all stakeholders, with the objective of attaining the targets by 2015. In this regard, there is a need to establish a Food and Nutrition Commission to address the issues of hunger and malnutrition.

## **About IITA**

The International Institute of Tropical Agriculture (IITA) was founded in 1967 as an international agricultural research institute with a mandate for improving food production in the humid tropics and to develop sustainable production systems. It became the first African link in the worldwide network of agricultural research centers known as the Consultative Group on International Agricultural Research (CGIAR), formed in 1971.

IITA's mission is to enhance the food security, income, and well-being of resource-poor people primarily in the humid and subhumid zones of sub-Saharan Africa, by conducting research and related activities to increase agricultural production, improve food systems, and sustainably manage natural resources, in partnership with national and international stakeholders. To this end, IITA conducts research, germplasm conservation, training, and information exchange activities in partnership with regional bodies and national programs including universities, NGOs, and the private sector. The research agenda addresses crop improvement, plant health, and resource and crop management within a food systems framework and is targeted at the identified needs of three major agroecological zones: the savannas, the humid forests, and the midaltitudes. Research focuses on smallholder cropping and postharvest systems and on the following food crops: cassava, cowpea, maize, plantain and banana, soybean, and yam.