

PN-ABT176
91222

Women and Infant Nutrition Field Support Project (WINS)

**Nigerian Weaning Food Project
Summary**

SUBMITTED BY:

**Stanley N. Gershoff, Ph.D.
Dean, Principal Investigator
Tufts University**

**Amy Sampson, Ph.D.
Research Assistant Professor, Project Coordinator
Tufts University**

**Marian Zeitlin
Professor, Senior Advisor
Tufts University**

**Education Development Center, Inc.
1250 24th Street, N.W., Suite 300
Washington, DC 20037**

September 9, 1993

This assignment was supported by the Women and Infant Nutrition Field Support Project (WINS) under U.S.A.I.D. Contract Nos. DAN-5117-C-00-0015-00 and DAN-5117-Q-00-0016-00.

Nigeria has the largest population in Africa, estimated to be 88.5 million. More than half of the population of West Africa, and between one-fifth and one-sixth of the entire population of Africa live in Nigeria. Nigeria's overall rates of wasting and stunting are among the worst reported to date in Africa. The prevalence of wasting is highest among weaning age children aged 12 to 23 months of age. Forty percent of all children 3-36 months old are reported to be stunted.

Over-reliance on low-protein traditional weaning foods has been implicated in the undernutrition of Nigerian weaning age children. Though there has been some promotion of nutrient dense weaning food recipes to be used in the home, work and time constraints as well as ingredient costs have made home production of nutritious weaning food recipes a non viable option for many families. In both rural and urban Nigeria, it has become customary for women to purchase traditional or commercial weaning foods rather than attempt to prepare them at home. For the lowest segment of the population, that often means purchasing nutritionally inferior traditional weaning foods which are substantially less expensive than the commercial products available in the markets. These traditional low cost, low-protein weaning foods are not providing adequate amounts of key nutrients for children to achieve optimal growth.

The WINS Nigerian weaning food project was conceived in response to the need for a highly nutritious, readily accessible, low-cost weaning food which could be produced by a Nigerian private sector company and sold through traditional market channels. Prior to the WINS Nigerian weaning food project, private sector production and large scale commercial distribution of such a weaning food had never been launched in Nigeria. The Tufts/WINS involvement in the Nigerian weaning food project began with Dr. Zeitlin's August-September 1991 visit to Nigeria. In August of 1991, Dr. Zeitlin headed a team of research assistants who collected market information on baby foods and low-cost biscuit products and snacks. A comparative cost-nutrient analysis of these foods and traditional weaning foods was conducted. With this market information, the WINS team determined which commercially available foods might be suited for conversion into a highly nutritious low-cost weaning food.

Nigerian companies identified during the market surveys whose products had high visibility and consumer acceptance, and were sold at a relatively low-cost, were visited by Dr. Olatunji and Mrs. Kupoluyi of the Federal Institute of Industrial Research Oshodi (FIIRO). The FIIRO team compiled a report which contained detailed profiles of each company visited, including the management's interest in the WINS project, and the company's ability to produce a weaning food which would meet the goals of the project.

In October-November of 1991, A WINS/SUSTAIN team (composed of Drs. Sampson and Zeitlin from Tufts, and Mr. Maxwell and Mr. Sununu from SUSTAIN) travelled to Nigeria in order to determine the overall viability of the proposed project (both political and logistic), and make final selections regarding what type of weaning food would be produced and by whom. The WINS/SUSTAIN team met with representatives from various Nigerian public institutions

involved in child health and nutrition, (including the Ministry of Health, The National Commission on Food and Nutrition (NCFN), FIIRO, and the UNILAG Consult) and discussed with them the details of the proposed project. Using information contained in the FIIRO report, the WINS/SUSTAIN team selectively visited Nigerian companies whose profiles best fit the needs of the project. The WINS/SUSTAIN team was accompanied on most of the visits by members of the Nigerian nutrition community. During this in-country visit, Dr. Sampson along with a team of Nigerian researchers conducted market interviews with sales vendors and distributors, traditional weaning food (ogi) makers, and consumers who had weaning age children. This market information helped to identify cultural attitudes towards weaning, and identify what types of foods would be accepted as a weaning food. In addition, the availability, marketing strategy and current pricing structure of commercial and traditional weaning foods was recorded. A planned trip to Kano to visit potential manufacturers was canceled due to unforeseen problems at the airport. Given the potential for future difficulties with transit to Kano, the WINS/SUSTAIN team decided while in Nigeria that the weaning food project would be located in and around Lagos.

Upon the WINS/SUSTAIN team's return to the U.S. and following a review of the information collected in Nigeria, a potential weaning food manufacturer (Temitope) and weaning food product (crushed biscuit) were chosen for the project. The cost per 100 calories of Temitope biscuits was the lowest of all products examined and most closely approximated the cost of the traditional weaning foods. The company's interest in and ability to produce the proposed weaning food was carefully examined. The selection of Temitope and a crushed weaning food product was made with the understanding that a final in-country feasibility assessment would need to be conducted.

In January 1993, A WINS team consisting of Drs. Gershoff and Sampson and Ms. Ellen Coates from Tufts University School of Nutrition returned to Nigeria to work collaboratively with the UNILAG faculty members involved in the project (Drs. Soyombo and Aina). The WINS/UNILAG team conducted a final feasibility analysis of the weaning food venture and planned out a nutritional impact study to take place in Lagos. The composition of the product and the packaging were reviewed, and future project staffing and material needs were addressed. Also during this January visit, plans were outlined for a market impact study to be conducted in an area in the East, geographically isolated from the nutritional impact study. The nutritional impact study was designed to assess the nutritional impact that regular consumption of the new weaning food could have on the growth of weaning age children. The experimental study was designed to determine over a 7 month period whether significantly greater growth rates occurred among children regularly consuming the product compared to similar children not receiving the product.

After experimenting with a variety of recipes, and conducting informal consumer testing, Temitope developed "Joyvita", a crushed biscuit weaning food which only requires the addition of boiled water. Joyvita is highly nutritious, and will be available in single serving, multi-pack, and multiple serving canisters. The product which is made for consumption by children six months and older contains a combination of flours, fat, sugar, salt, flavors, yeast, vitamin

premix, and beta-carotene (for color). The single serving sachet contains 40 grams of product. Per 100 grams, the product contains approximately 458 calories; 61.1% from carbohydrate, 11.1% from protein, and 27.6% from fat. The vitamin pre-mix contained in Joyvita is currently produced by Roche and provides all of the vitamins in excess of the 1976 FOA/WHO recommendations. Iron and calcium have also been added to the product in order to make Joyvita comparable in nutrient density to other highly nutritious weaning food products currently sold in the market. The cost per serving of Joyvita is significantly less than that any other comparable product on the market in Nigeria. Unlike other products, Joyvita is available in a single serving packets to serve the needs of the consumer who does not have enough money at one time to purchase a multi-serving can.

In April, 1993, a WINS team consisting of Dr. Sampson and Ms. Ellen Coates returned to Nigeria in order to officially put in place the weaning food project. Project start-up tasks included: hiring all in-country project team members; procuring all necessary material goods needed for the project; implementing the nutritional impact study; finalizing plans for the marketing impact study; helping Temitope management with the final packaging designs for the weaning food; helping create the nutrition/educational materials; calculating the nutritional labeling information; and, consulting with regards to product marketing and advertising. Whereas Dr. Sampson's visit was short term (4/12-6/2), Ms. Coates was scheduled to remain in Nigeria to oversee the nutritional impact study until its completion. In April-June, the nutritional impact study was initiated. Data collectors and community workers were hired and trained, data collection instruments were designed and pretested, and staff training took place. Potential study communities in greater Lagos were identified visits were made to each community's local and traditional governments and health facilities in order to get tentative project approval from appropriate local officials. In those communities deemed appropriate for study, enumeration of weaning age children took place. Following the enumeration and assessment of potential research communities, data collectors returned to those communities selected as research sites where they carried out subject selection. Subject selection included collecting child and household demographic information and length and weight data on all potential study subjects. During the April-June visit, packaging designs were completed, advertising and health related messages were constructed, and plans for market introduction and assessment were drawn out. Additional consumer trials took place in June.

Following the national elections in Nigeria in June, 1993, there was considerable civil unrest and violence which has dramatically impacted life in Lagos and in many other parts of Nigeria. At the end of June, following increased civil unrest, the USAID mission in Lagos requested that Ellen Coates leave Nigeria. At the time of Ellen's departure, the project was expected to continue under the supervision of Bumni Dosimi of the Lagos USAID mission and Mrs. Kupoluyi of FIIRO. It had been arranged that as data collection continued, the USAID mission would forward all information to Ellen who would analyze them. However, the political situation did not improve following Ellen's departure, and the continuing political instability, violence, and general civil unrest in Lagos has made continuation of the nutritional impact study in Lagos impossible. As a result of the current political situation, many study families left Lagos to return to their home villages. In addition, the two month plus time lapse has resulted

in many sample children now being too old for inclusion in the feeding trials. Other obstacles now present in Lagos include the fluctuating costs and availability of fuel, rioting, and the constant immobilizing traffic.

As of August 15, 1993 the WINS Nigeria weaning food project has been suspended. Via telephone calls and faxes to Nigeria, the status of the project has been discussed with Mrs. Kupolaja, Dr. Mrs. Akin Aina, Dr. Soyombo, Tim Ogunyanwo, and the USAID office in Lagos. In turn, data collectors, community workers, and other project employees in Nigeria will be notified verbally by Dr. Soyombo, and formally by fax. (Letters cannot be sent since U.S. air carriers are currently not flying into Lagos).

Temitope is awaiting final FDA approval in order to market the new weaning food product (Joyvita). Temitope will not begin product marketing until they are informed of the future status of the WINS project. In the event that the political situation stabilizes in Nigeria, the nutritional impact and market studies could be put back in place. Temitope will keep in contact with Tufts as to the progress of the FDA process and as to their future marketing plans.

When U.S. assistance and air flight is reinstated, and travel to Nigeria is again possible and practical, the Tufts team (Ms. Ellen Coates and Drs. Gershoff, Sampson, and Zeitlin) proposes that Dr. Sampson and Ms. Coates return to Nigeria for a period of up to six weeks in order to implement a new nutritional impact study in Sagamu (a town outside of Lagos), and to continue implementation of the market assessment in the East. Sagamu, located in the Ogun State, is approximately 1.5 hours from Lagos. Transportation, housing, personnel, and office rental costs as well as access to the study population would be greatly improved in Sagamu. Given the close proximity to the Temitope factory (via the Benin Expressway), food distribution and overall project management of both studies would be simplified. The political unrest in many Nigerian cities following the recent elections did not noticeably affected life in Sagamu. All Nigerian project team members express their approval of the proposed future WINS weaning food project plans.