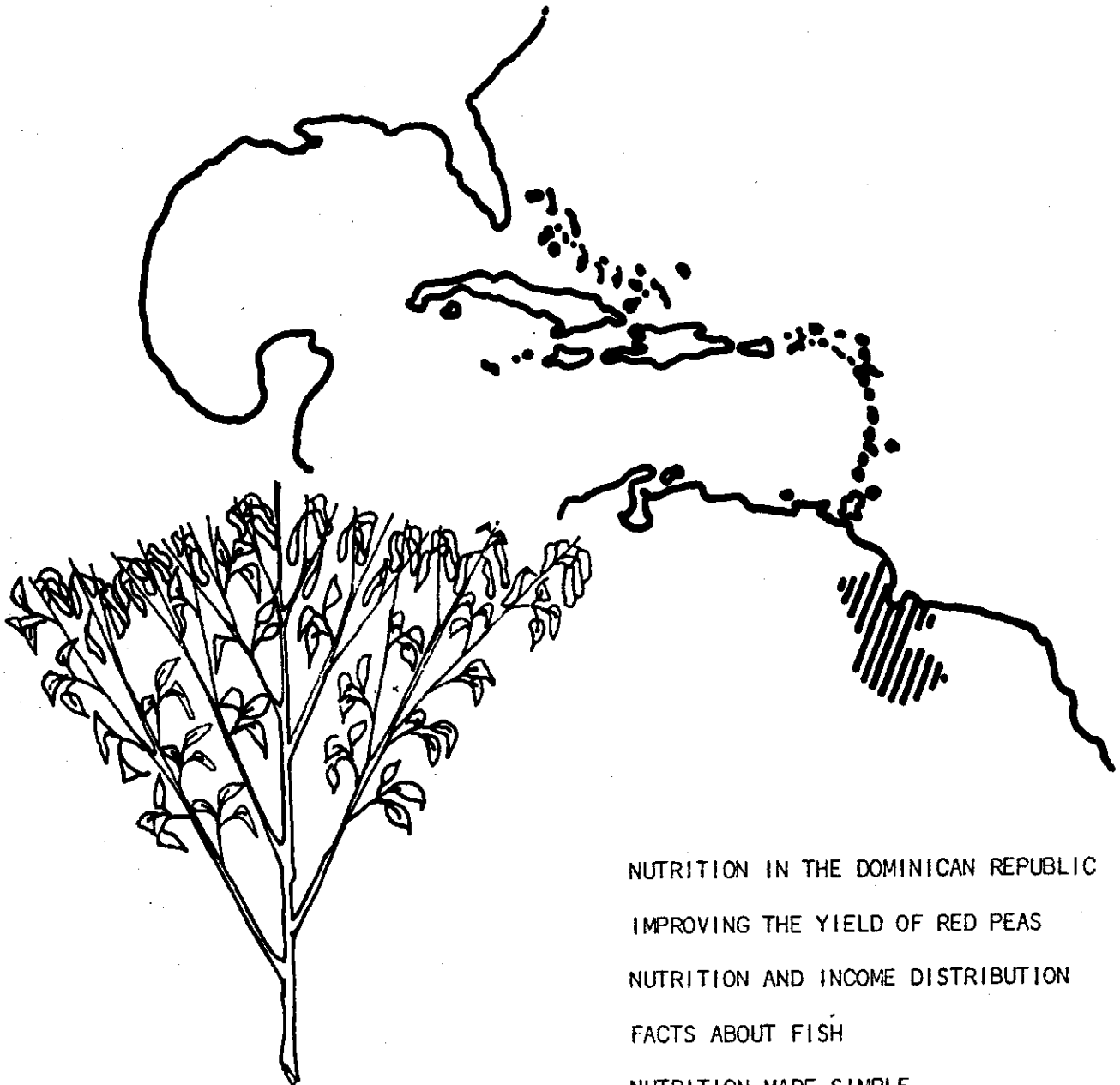


Vol. V, No. 4  
Oct.- Dec. 1972

# CAJANUS

THE QUARTERLY NEWSLETTER OF  
THE CARIBBEAN FOOD AND NUTRITION INSTITUTE



NUTRITION IN THE DOMINICAN REPUBLIC  
IMPROVING THE YIELD OF RED PEAS  
NUTRITION AND INCOME DISTRIBUTION  
FACTS ABOUT FISH  
NUTRITION MADE SIMPLE

C A J A N U S

Newsletter of

THE CARIBBEAN FOOD AND NUTRITION INSTITUTE

Trinidad Centre:  
UWI Campus  
St. Augustine  
Trinidad.

Jamaica Centre:  
P. O. Box 140  
Mona, Kingston 7  
Jamaica

The editorial office is at the Jamaica Centre of CFNI

CONTENTS	PAGE
Editorial	264
Topics and Comments	265
<i>Milk Intolerance and Nutrition Programmes</i>	
<i>Shirt Signs</i>	
<i>A Positive View of Fish Protein Concentrate</i>	
<i>The Farmer, the Cow and the Housewife</i>	
<i>New Role for Traditional Midwives in Asia</i>	
<i>Symposium on Food Legumes</i>	
Nutrition in the Dominican Republic	272
Improving the Yield of Red Peas in Jamaica - H. W. Payne	277
Nutrition and Income Distribution - M. Yudelman	286

---

*Opinions expressed in this newsletter are reproduced for the sake of interest and information. They should not necessarily be construed as representing the views of the Caribbean Food and Nutrition Institute, nor of the bodies represented on the Policy Committee of the Institute, namely PAHO/WHO, FAO, the University of the West Indies, and the governments of the Commonwealth Caribbean countries, nor of the Williams-Waterman Fund.*

	PAGE
Facts About Fish	290
Nutrition News and Opinion from the Caribbean	296
<i>Import Reliance</i>	
<i>Family Planning Study in Dominica</i>	
<i>Growing More to Feed Ourselves</i>	
<i>Newspaper Clippings</i>	
CFNI News	302
<i>People</i>	
<i>Food Service Supervisors Course in Barbados</i>	
<i>DCN Course</i>	
<i>Nutrition Education in Jamaica</i>	
<i>Nutrition Education Seminar in St. Lucia</i>	
Nutrition Made Simple	306
<i>Maternal Depletion</i>	
CANDI Newsletter	307

## EDITORIAL

With this issue of 'Cajanus' we introduce two new sections: "Topics and Comments" and "Nutrition Made Simple." "Topics and Comments" will replace the previous "General Nutrition News and Opinion." As well as comprising quotations from other sources it will contain short original pieces and abstracts. We welcome contributions from our readers.

"Nutrition Made Simple" is an entirely new section. It arises from requests by readers for more basic articles at eye level. The pieces will be simple, we hope clear, occasionally somewhat dogmatic, but accurate and, above all, relevant to the needs of our readers in the Caribbean.

At times "Nutrition Made Simple" will give a straightforward summary of existing knowledge; at times it will give a new slant to a topic, and sometimes it will provide entirely new information. If any reader would like a particular subject covered or would like to comment on one already dealt with, please drop us a line.

THE EDITOR

## TOPICS AND COMMENTS

**MILK INTOLERANCE AND NUTRITION PROGRAMMES<sup>1</sup> - A statement by the Protein Advisory Group**

*'Reports of milk intolerance in developing countries have cast doubts upon the desirability of nutrition programmes involving the supply of milk to children. In the opinion of the Protein Advisory Group of the United Nations System, milk is virtually a complete food and the evidence of intolerance does not justify doubts about its importance in nutrition programmes. The substance of the Group's statement<sup>2</sup> on this subject is given in the following article.'*

During the past few years, reports have appeared in the world's medical literature on the occurrence of low intestinal lactase ( $\beta$ -galactosidase) activity in large groups of apparently healthy non-white populations in different parts of the world. Some of the reports and many articles in the lay press have concluded that milk consumption by people in these groups may lead to untoward reactions in the form of gastrointestinal disturbances ("milk intolerance"), which may interfere with the proper utilization of milk nutrients. Doubts have been raised whether it is desirable to use milk as a source of supplementary food for children in developing countries and whether milk and milk products should be distributed throughout the world for use in nutrition programmes.

*It is the view of the Protein Advisory Group that the evidence at present available does not justify these doubts.*

The results obtained in standard lactose tolerance tests cannot be used as indicators of milk intolerance. Low lactase activity, lactose intolerance, and milk intolerance are not synonymous, although many authors have used the terms as if they were. Intolerance to lactose in the large amounts commonly used in load tests (50 g of lactose or more per m<sup>2</sup> of body surface), which correspond in an adult to the consumption at one time of 1-1.5 litres of milk, is no indication of the existence of intolerance when the milk is consumed in moderate quantities.

Preschool child feeding programmes and school lunch programmes use only about 200-250 ml of milk per child per day, often taken with other food. This quantity of milk contains only about one-quarter of the amount of lactose used in standard load tests for children. Skim milk powder, which is used in many programmes, contains more lactose than whole milk. Even so, when reconstituted

---

<sup>1</sup>From WHO Chronicle, 26 (1972), 318.

<sup>2</sup>Protein Advisory Group (1972) PAG statement on low lactase activity and milk intake, New York (PAG Statement No. 17).

It provides a lactose load considerably below that used in lactose load tests. These tests measure the presence of enzyme activity and not the capacity of the child to tolerate the quantity of milk he normally consumes.

Practical experience in the field has demonstrated that some of the children who reject the regular quantity of milk during the initial stages of a programme are able to accept it when they become accustomed to it. In areas where the population is not accustomed to drinking milk, it might be prudent to start milk feeding programmes with reduced amounts of milk and increase the quantity gradually to the regular dose.

It has been reported from one industrialized country that a large number of non-white elementary school children receiving milk as part of the school lunch consumed only half or three-quarters of the daily quota supplied. This has been attributed to low lactase activity, but the hypothesis remains to be proved, for low milk intakes have also been found in North American and European schoolchildren in whom low lactase activity was not a factor.

Further prevalence studies must be undertaken among children of various ages in non-white populations, using standardized comparable procedures, before it is possible to assess the extent and magnitude of the problem of low lactase activity, the age at which the fall in activity occurs in various populations, and the implications of the findings.

Milk is considered a virtually complete food, and in the developing areas of the world, where protein deficiency is widespread and protein-calorie malnutrition a serious childhood problem, the use of milk for child feeding programmes is strongly advocated by all nutrition experts. However, the Protein Advisory Group emphasizes that there are several areas where knowledge of this complex subject is deficient or lacking, and steps should be taken to close the gaps. Physicians in developing countries and authorities supervising milk feeding programmes should be informed of current knowledge in this field and its implications.

*It would, however, be highly inappropriate, on the basis of present evidence, to discourage programmes to increase milk consumption among children because of the fear of milk intolerance.*

## SHIRT SIGNS

Shirts in the Caribbean send out signals as precise as those emitted by display posters and songs of birds. The shirt-jac, the kareeba, the collar-and-tie and the dashiki all express a different personality, threatening to some and reassuring to others. The clenched fist appears on T-shirts but not as yet the Lipper Loop.

However, the Planned Parenthood Association of Thailand, recently launched a publicity campaign centred around a shirt which shows a family of

four standing in a red triangle and states "A large family is a poor family." The shirts have been distributed to newspaper sellers, child flower sellers and children and adults in low-income areas. A successful football team has worn the shirts, and the Association is hoping other sports teams will wear them to support the fund-raising programme. A second set of "T-shirts" will give clinic locations.

Family planning "T-shirts" were introduced by the Family Planning Organization of the Philippines in 1971. The slogan "Plan a happy family" and the blue emblem of the Organization were printed on the shirts, which were given to newspaper sellers, janitors, street cleaners and others whose work is carried on in public places.

In both countries, the shirts have been very well received by the public and have been the subject of cartoons and news stories. The brightly coloured shirts are a means of bringing the concept of family planning to many people who may not be reached by posters, radio or newspapers. Unlike press or radio advertisements, for which each appearance must be paid, the shirts require a single initial investment; the frequency of their appearance depends entirely upon the wearer and current fashion trends.

#### A POSITIVE VIEW OF FISH PROTEIN CONCENTRATE

Fish protein concentrate (FPC) is one of the alternatives available in food distribution programmes. As the name implies it is too concentrated in protein, about 75-90%, to be of value by itself; however, when provided with a good source of calories, it may well be useful.<sup>1</sup>

Much criticism of FPC comes on account of its fishy smell and taste. It is possible to remove most of the smell but this doubles or trebles the cost. It has been tried for instance in biscuits but without much success - fishy biscuits are often unacceptable. *Cajanus* recently printed an article expressing a very pessimistic view of FPC.<sup>2</sup> The deodorised, and therefore rather expensive product has been found acceptable in orphanages in Trinidad.<sup>3</sup>

Fish protein concentrate, being a dehydrated product, is not bulky. Transport and storage costs are therefore low. The simpler fishy smelling and tasting product is very cheap; it costs less for a unit quantity of protein than does skim milk.

Dr. Cato Aall has used FPC with apparent success in two parts of the world - among Bangladesh refugees in India and in relief operations in Southern Sudan.<sup>4,5</sup> In both areas fish is, in normal circumstances, an important part of the peoples' diet. Dr. Aall reasoned, therefore, that the fishy taste and smell of the cheaper FPC might well be popular. Acceptability trials proved this to be so. The FPC became part of the 'curry' eaten with rice in East Bengal and the 'relish' with the durra (sorghum), maize or cassava in Southern Sudan. It took the place of the no longer available traditional fish products.

The almost tasteless and more expensive type of FPC was not popular. In the Southern Sudan which is not a cattle raising area the fishy tasting FPC was much more acceptable than was skim milk.

This positive approach to an unusual food reminds us of the opposite - how preconceived ideas and tastes can blind us to possibilities. For example, 'fish tea' to an Englishman may seem very odd, while the concept of 'afternoon tea' as being mainly crumpets and sandwiches at 4.00 o'clock may seem in no way peculiar. One of the few foods your editor has found unacceptable is shark's liver cooked in a coconut; however, it is delicious to most people in the Gilbert Islands and is loaded with all sorts of nutrients. In Jordan mothers often prick codliver oil capsules with a pin to release "the delicious fishy taste" - "shwei't samak." Perhaps the bubble of prejudices surrounding FPC requires similar treatment.

#### References

1. Weinberg, B. "Fish protein concentrate: present status and future potential" in McKigney, J.I., and Cook, R. (eds.) *Protein foods for the Caribbean - Jamaica*: CFNI (1968) 61-68.
2. Holden, Dorothy. "Fish flour: protein supplement has yet to fulfill expectations." *Science*, 173, (1971) 410-412. [Reprinted in *Cajanus* 4, (1971) 322-330].
3. Brinkman, G.L. "Two feeding trials with fish protein concentrate" in McKigney, J.I., and Cook, R. (eds.) *Protein foods for the Caribbean - Jamaica*: CFNI (1968) 108-110.
4. Aall, C. "Future prospects of FPC in fish-eating areas in light of recent experience in India and Bangladesh." M.I.T. Conference on FPC (1972).
5. Aall, C. "FPC acceptability and possible use in the Southern Sudan" League of Red Cross Societies (1972). Mimeograph.

N.B. Copies of Dr. Aall's reports can be obtained by writing to:

Dr. Cato Aall, M.D.  
National Nutrition Council/FAO Committee  
P.O. Box 8139  
Oslo Dep.  
Oslo 1, Norway.



## THE FARMER, THE COW AND THE HOUSEWIFE

There is something very odd about modern stock farming and its results. Animals are being intensively reared on all-grain feeding instead of roughage at rates that represent a transformation of the productivity of the industry. In beef production some 15 years ago, about 90 percent of the cattle were slaughtered for meat at ages exceeding two and a half years. Now less than 30 percent are slaughtered at that age because fattening has been so speeded up. Many of the animals are on regimes resulting in gains of weight of 1.2 kg/day. In one scheme they are slaughtered at 11 months, but there are several patterns and the more usual scheme is based on slaughter at 15 months.

Yet this accelerating rate of bovine self-sacrifice appears to be in vain. There is uproar in Britain at the moment about meat prices, with housewives demonstrating and the Minister of Agriculture striving to steer them away from high priced meat so that prices will fall. In a recent lecture to the Royal Society, Dr. Kenneth Blaxter discussed the new problems that have arisen in the microbiology, physiology, and biochemistry of ruminant digestion when grains rather than roughages form the diet. The much shorter life cycle justifies new financial investment because there is a reduction in the total input of feed and the use of labour for every kilogramme of meat produced. Against this, there are such adverse consequences as parakeratosis of the rumen wall, abscess formation in the rumen, unusual amounts of fatty acids with branched chains in the body fats, zinc deficiency, and enhanced vitamin A requirements.

In sheep, intensive methods of lamb production are based on altering the breeding cycle of ewes, by controlling the length of the day. Earlier "yields" of one lamb per ewe per year for hill sheep, or 1.5 for lowland ones, have been boosted in some cases to 3.6 lambs each year (see *New Scientist*, vol. 47, p.73). As Dr. Blaxter pointed out, there are much wider implications of these advances in terms of human food production, natural resource allocation, and the ethical questions of the relation of man to his domesticated animals. These intensive methods of nutrition and husbandry are being increasingly developed and accepted by the farming community. They are, of course, entitled to rewards for their initiative; and the animals - though used as production units - are entitled to proper consideration during their ever shorter life-spans. But in the short term, the anthropocentred housewife is likely to ask simply, "when are we likely to see the benefit in cheaper meat?"

## NEW ROLE FOR TRADITIONAL MIDWIVES IN ASIA<sup>1</sup>

The value of traditional midwives in encouraging women to adopt family planning and seek the help of professional medical staff is beginning to be explored in some Asian countries. As the main providers of health advice and care in rural communities, the midwives are well-known and highly respected.

---

<sup>1</sup>From *I.P.P. News*, August 1972.

Usually trained by their parents but lacking in formal education, they assist in childbearing and postnatal care and advise on family matters such as the best time to plan a journey or a wedding.

Recent studies made in Indonesia and Malaysia indicate that the traditional midwives in these two countries are overwhelmingly in favour of family planning and do not consider it a threat to their income. In Indonesia many *dukuns*, as they are called locally, derive most of their income from farm work. A group of 50 *dukuns* surveyed in Central Java by the Indonesian Planned Parenthood Association in 1971 stated that they considered the provision of family planning advice as part of their duty and that they would prefer that incentive payments be given to the village as a whole. A study conducted by the Malaysian National Family Planning Board and the University of Michigan in 1969 and 1970 revealed that 95 percent of the 292 Malaysian village midwives interviewed were willing to participate in the Government's family planning programme by recruiting new acceptors and half of these women offered to do family planning work without pay. In the Philippines, the traditional midwives approached by the Family Planning Organization were interested to learn more about family planning, since they were frequently requested to assist women who had had illegal abortions.

On the other hand, a study made by the Family Planning Association of Pakistan in 1969, revealed that the *dais* or midwives who were dependent upon child deliveries for their income were initially reluctant to promote family planning and quickly lost interest after finding the incentive payments for bringing new acceptors to the clinics insufficient.

A similar attitude appears to exist among village midwives in India, where a study published in 1970 revealed that while 84 percent of the 50 *dais* interviewed had received requests for contraceptive advice, only 36 percent had referred their clients to family planning clinics. The study suggests that some form of compensation is needed to maintain the *dais'* interest in the family planning programme. Since the *dais* are paid more for delivering the first child than for successive children, large families do not increase their income by a large proportion.

The contrast between attitudes of the Indonesian and the Pakistani midwives can be attributed to the different cultural settings in which they work. The Indonesian *dukuns* learned traditional contraceptive methods, such as massage, medicinal herbs, abstinence and withdrawal, from their elders and therefore were not opposed to the addition of modern methods. Less than half of the Pakistani midwives felt that providing family planning information was part of their duty to their clients, and clients frequently expressed reservations regarding the safety and efficiency of modern contraceptives, particularly the IUD. The Indonesian *dukuns* were successful in motivating women to adopt family planning but failed to persuade many women to visit family planning clinics. This failure was mainly due to the reluctance of the women to be examined by a male doctor and their fear of having to pay large amounts of money.

Encouraged by the Association's study, the Government of Indonesia has initiated training courses for traditional midwives as part of its maternal

and child health programme. Since the *dukuns* are generally illiterate, training courses mainly consist of practical demonstrations and memory of important concepts. In some regions, newly-trained midwives have recruited nearly half of all new acceptors. The *dukuns* are expected to play an important role in Indonesia's national family planning programme, since they deliver approximately 80 percent of all babies and there is a serious shortage of professionally trained midwives in rural areas. The indigenous health workers will act primarily as motivators and will refer women to local family planning clinics. The Government of the Philippines has already trained village midwives to provide maternal and child health services.

In Thailand, about 16,000 village midwives have been trained by government health authorities as part of a pilot project to recruit new acceptors under an incentive scheme. The Governments of India and Pakistan are investigating better incentive schemes to encourage participation of traditional midwives in national family planning programmes.

#### SYMPOSIUM ON FOOD LEGUMES

How to improve the yield and protein content of food legumes - this was the subject of a three-day symposium at FAO in July, organized by the Protein Advisory Group, a UN body set up jointly by FAO, WHO, UNICEF and the World Bank. Several foundations and bilateral agencies also helped to co-sponsor the symposium.

Over thirty plantbreeders, nutritionists and biochemist participated. Among them was Dr. Norman Borlaug, who won the Nobel Peace Prize for his work on improving cereal yields. As he said "if we take advantage of the experience gained in cereal improvement and use the same interdisciplinary and team approach, similar results can be obtained not in 25 but in 10 years."

One of the main objectives of the research will be to try and improve the digestibility of legumes and it is also hoped that improved genetic strains may have a higher content of total protein, aminoacids, vitamins and minerals. However, the scientists recommended, that the taste, texture, colour and cooking qualities of food legumes be retained or improved, according to the tastes of the local populations.

Dry beans, chick peas, cowpeas, peanuts and soybeans are some of the better-known food legumes with a high protein content. It is these, together with pigeon peas, broad beans and common peas, upon which research efforts will be concentrated.

The report includes many highly specialized recommendations for research workers. More details can be obtained from the Protein Food Development Group within the Nutrition Division, FAO.

## NUTRITION IN THE DOMINICAN REPUBLIC\*

## THE FINDINGS

A national nutritional status survey was carried out on 5500 people representative of middle and low income groups in the Dominican Republic in 1969. The population is in quite a precarious position nutritionally. Although classical nutritional diseases such as scurvy, beriberi, and pellagra were seldom encountered, the majority of the people examined had clearly been chronically undernourished almost from birth.

*All of the several kinds of observation made show that malnutrition is a major public health problem the impact of which pervades nearly every facet of both individual and national life.*

For example, of the people whose vitamin, mineral, and protein status was assessed by chemical analyses of blood and urine, only 2 percent gave uniformly acceptable values. 51% of children under 13 years old were anaemic; 63 percent of the males and 34 percent of the females over 13 years old were anaemic.

Child growth is markedly retarded throughout life, beginning early in the first year; by the fourteenth year children are on the average 8 to 14 kilograms lighter and 10 to 15 centimeters shorter than expected. These

---

\*This description is taken from the summary of the survey report entitled "Nutritional status of middle and low income groups in the Dominican Republic" by William Henry Sebrell, Jr., Kendall W. King, Ryland E. Webb, Carlos H. Daza, Roberto Alvarez Franco, Sam C. Smith, Elmer L. Severinghaus, Francis Xavier Pi-Sunyer, Barbara A. Underwood, Marina Flores, M. Calvin Conner, Charles T. Townsend, Jose M. Pezzotti, and Buenaventura Castillo, in Archivos Latin-americanos de Nutricion, 22, July 1972 (in English).

deficits persist throughout life. Bone maturation lags more than a year behind the pace seen in Central America and the USA, and bone rarification among mature women runs about 10 years ahead of that of the reference women from the USA. These and the other measurements of physical growth, such as head, arm and chest circumferences, all indicate that most of the people subsist on a consistently sub-optimal plane of nutrition throughout their lives.

Clinical observations confirm that there is a wide variety of nutritional problems impairing the health of most of the people. Of those 13 years of age and older, only 22 percent were free of lesions associated with malnutrition. Enlarged thyroid glands suggesting iodine deficiency were encountered in 18 to 20 percent of the women of reproductive age.

*The overall picture is one of a group of people living consistently on a level of nourishment considerably better than famine conditions but distinctly below the level at which their physical vigor and general health can be optimum.*

Nutrition intakes varied over a wide range for most nutrients depending on family size, family income, and the area of the country in which the family lived. National averages of actual nutrient consumption as percent of the consumption recommended were, in part, as follows: calories, 76; protein, 81; calcium, 62; iron, 76; vitamin A, 47; riboflavin, 55; niacin, 67; vitamin C, 75; folic acid, 71; vitamin B<sub>12</sub>, 30; and sulphur amino acids, 72.

The prevalence of this malnutrition is reflected most clearly in the relatively high rates of mortality among young children. Over the period from 1956 to 1965 the infant mortality rate fluctuated between 72 and 113 deaths per 1000 and showed no particular trend. The corresponding mortality rate for children between 1 and 4 years of age fluctuated between 7.8 and 14.8

deaths per 1000. As in most less developed countries, a great deal of this mortality among pre-school children is a direct or indirect consequence of their chronic undernourishment. Furthermore, death from malnutrition per se almost only occurs among pre-school children.

*Protein and calorie deficits appear to be the most crucial nutritional problems among pre-school age children.*

A second group of people in a precarious position nutritionally is composed of women of reproductive age. The high incidences of goitre, anaemia, bone rarification, and sub-normal serum albumin levels point to iodine, iron (and perhaps folic acid and vitamin B<sub>12</sub>), calcium and protein as being major nutritional shortages. Their thiamine and vitamin C status was also poor.

As well as these two groups, the members of the working force as a whole undoubtedly function quite far below their potential because of the restricted caloric supply and concomitant deficits in the blood forming nutrients: iron, vitamin B<sub>12</sub>, and folic acid.

## THE RECOMMENDATIONS

### 1. Pre-school children

First priority was given to the pre-school children because it is among them that the mortality and morbidity is so elevated. Also, effects of under-nutrition in early life often remain evident throughout life.

To meet this challenge, it has been shown in several Latin American countries such as Guatemala and in Haiti that the young-child death rate can be dramatically reduced by education of their mothers in elementary feeding and sanitation. This is true because usually the shortage of food is not so great as to cause famine death; rather the problem is largely that the young child is fed less than he requires of the family's food supply. Women trained in

least-cost but adequate child care in Nutritional Education and Rehabilitation or Mothercraft Centres do change their feeding and hygiene practices in the home so that they can raise reasonably healthy children even with their limited food and financial resources. Much of this training involves motivating them to increase not only the total caloric intake from cereals but also to increase very greatly the feeding of dried peas and beans and, hence, protein.

*Research to identify the cereal-dry bean mixtures appropriate to the Dominican Republic for use in such practical maternal education is urgently needed.*

## 2. Women

Second priority for corrective nutrition programmes can justifiably be women of reproductive age. The desirability of increasing effectiveness in the government's family planning programmes is immediately apparent as a means of reducing the frequency of pregnancy stress (i.e. to encourage child spacing). With the present state of the national economy and of national education, families of increasing size were found in this survey to eat progressively more poorly.

As well as family planning, many of the nutritional health problems of women can be effectively ameliorated by a well-planned national programme of food fortification. The survey has identified certain widely-consumed food stuffs as potential carriers of fortification - salt, tomato paste, rice, wheat, oil, sugar, and coffee - and the report outlines one rational approach to their use. The most critical nutrients for this particular group of women appear to be iodine, iron, thiamine, vitamins C and B<sub>12</sub>, and protein.

## 3. The Total Population

Beneath these two high priority groups, women and pre-school children, there lies a generally inadequate nutritional status for the population as a

whole. Here, a 225,000 tons per year increase in cereal availability from local production and importation is the only realistic means of closing the caloric gap; and if achieved, these 225,000 tons of cereal would also remove the protein deficit. There is in addition a clearly documented need for nationwide fortification with vitamins C and B<sub>12</sub>, riboflavin, niacin, folic acid, calcium, iron, and copper. The annual cost of such a fortification program is estimated at about 20 cents per capita.

In parallel with these programmes, the necessity for major improvements in food production, processing and marketing and for launching of government programmes to foster and regulate the food industry is evident.

A final need that was repeatedly encountered during the survey was for major increases in the number of nutritionally knowledgeable professionals and sub-professionals to serve in the planning and execution of the applied nutrition efforts, both public and private.



## IMPROVING THE YIELD OF RED PEAS IN JAMAICA\* -

by

H. W. Payne, Agronomist  
Regional Field Experimental Programme, UWI

*Improved techniques and husbandry, particularly fertilizing and plant protection, would lead to a doubling of red pea yields per acre on the bauxite soils of Jamaica. Achievable production from present acreage devoted to red peas would satisfy local demands and result in a savings of foreign exchange for Jamaica.*

*A complete fertilizer mixture high in phosphate (12.24.12 at 5 cwt. per acre) placed at planting 2 inches below the depth of seed gives economically justifiable high yields. Excellent control of common insects and diseases of red peas are obtained by fortnightly spraying with a "cocktail" mixture of standard insecticides and fungicides. High yields associated with improved cultural practice result in a reduction of the unit cost of production and an increase of farm income.*

## INTRODUCTION

"Red peas" (*Phaseolus Vulgaris*) - with rice or pig's tail - is one of the most popular national dishes of Jamaica and very favourable prices are usually enjoyed from the crop. The acreage devoted to red peas cultivation is very difficult to assess accurately as a result of interplanting practices. The table overleaf shows estimated acreage, level of yield per acre and annual total production for the period 1965-1970.

Although cultivated by small farmers in almost every district of the country, total production is only a fraction of local demand. About 4000 tons of peas and beans were imported in 1969.\*\*

---

\*Originally presented as "Aspects of Red Pea (*Phaseolus Vulgaris* L.) Cultivation in Jamaica with Special Reference to Fertilizer Use on Bauxite Soils" at the 9th Annual Meeting of the Caribbean Food Crop Society, Guyana, June 1971.

\*\*Import Statistics for 1969.

	1965	1966	1967	1968	1969	1970
Total acreage	2,603	5,333	8,127	12,387	7,689	6,837
Yield per acre (St. Tons)	0.30	0.30	0.23	0.25	0.27	0.31
Estimated production (St. Tons)	781	1,600	2,112	2,561	2,128	2,180

Source: Agricultural Planning Unit, Ministry of Agriculture and Fisheries, Jamaica.

Two soil types (1) St. Ann Clay loam (Red Bauxite) and Chudleigh Clay loam (Brown Bauxite) - comprising approximately one-third of the arable acreage of Jamaica are responsible for over 70% of the territory's red pea production. Extensive field observations and experiments carried out in this prime red pea producing region indicate that adoption of improved techniques and husbandry alone would increase present yield levels of red peas from 500-700 to 1200-1600 lbs. per acre. Such an increased yield from present acreage devoted to this crop would therefore satisfy local demand and result in a saving of foreign exchange for Jamaica.

#### WHY IS THE YIELD SO LOW?

In spite of the popularity of the red pea crop among small farmers as a result of the ready cash return that can be made within a 10-12 week period, the standard of husbandry generally employed in its cultivation is deplorably low.

#### *Planting practices*

The crop is often used as a "stop gap" to defray the cost of recently cleared land. Under these circumstances the area in which it is planted does not even receive the benefit of tillage. Tillage operations are usually undertaken in support of another crop and any benefit

that the red pea receives is coincidental. Where the crop occurs in pure stands, it seldom exceeds a small patch of a couple of squares in size. More generally, red peas occur interplanted in areas devoted to a permanent crop such as citrus or areas in which another crop, Irish or sweet potatoes, yams, corn or peanuts, form the main enterprise. [Planting practices vary somewhat with conditions but usually irregularly spaced holes (2-3 ft. apart) made by means of the cutlass or hoe are planted to several seeds - at least 4]. Often competition amongst clustered seedlings and/or with the main enterprise crop is quite severe.

#### *Soil Fertility Depletion*

Under standard peasant agriculture, the red pea crop seldom receives the benefit of direct fertilizing while indirect benefits are usually restricted to those areas of the Brown Bauxite soil devoted to Irish potato which receive heavy applications of fertilizer. With this later exception, symptoms of soil fertility depletion in areas devoted to red peas are frequently manifest. Particularly common is the pale green or chlorotic condition of nitrogen deficiency. Lack of plant vigour on the Red Bauxite soil reveals its need of phosphate. Potash deficiency symptoms are usually less evident.

#### *Insect and Disease Infestation*

As a result of weedy conditions and general neglect of spraying the red pea crop is affected by a host of pest - Bean caterpillar (*Anticarsia gemmatilis*) Leaf miner (*Agromyza inaequalis*) and Red mites (*Tetranychus telarius*) being the most common. Under these conditions, the crop is also prone to several fungal, bacterial and virus diseases. Of these, Anthraenose (*colletotrichum lindemuthanium*), Powdery mildew

(*Erysiphe polygoni*), Angular leaf spot (*Isariopsis griseola*), Rust (*Uromyces phaseoli*), Bacterial blight (*Xanthomonas phaseoli*), and Mosaic are all prevalent<sup>(2)</sup>. Complete crop losses from diseases are so common that many farmers regard the red pea as a high risk crop.

#### HOW CAN THE YIELD BE IMPROVED?

Extensive field experience indicate that farmers' attitudes are primarily responsible for the low level of husbandry in this crop, few if any of the technical requirements of the crop being outside the reach of their limited financial capability. What can be done?

##### *Site Selection, Crop Rotation and Land Preparation*

Red pea is a clean cultivated crop that affords little protection against soil erosion and for this reason its cultivation should be restricted to flat or very gently sloping areas (up to 10°). Usually best results are obtained on well structured soils of light texture loams or sandy loams. Both Bauxite soils of Jamaica where this crop is extensively grown meet the critical drainage requirements of this crop excellently. Rotating areas devoted to red peas with other vegetables is wise for prevention of insect and disease build up. Ploughing and harrowing operations, through varying with previous cropping and soil conditions, should be thorough ensuring an excellent tilth. Short intervals of bare fallow (at least 2 weeks) between tillage operations not only permit weathering to a fine tilth but direct exposure to the sun's rays thus reducing nematode infestation. Particular care should also be taken to remove previous crop residues. These absolutely clean field conditions are essential for subsequent effective disease and insect control.

### *Crop Establishment and Fertilizer Placement*

Seeds treated with a mixture (1 part to 4 parts) of dieldrin (80% w.p.) and orthocide (50% captan) prior to storage should be used to ensure a high percentage "take". This measure is of importance in subsequent weed control as well as yield. Of the several varieties of red peas grown in Jamaica, a type known as "Miss Kelly" has proven the best yielder <sup>(3)</sup> compared with other common types known as "Portland Red", "Round Red", "Long Red", "Light Red" and "Cockstone". High plant densities of 90-120 thousand per acre are to be preferred as supplying is not contemplated. Uniformity in spacing, as provided by individual seeds placed 2 to 3 inches apart in rows at 18- to 24-inch intervals is essential. Even stands have an added advantage in weed control. On sloping land, rows should be oriented across the slope. Planting at a 2-inch depth has proven satisfactory under most conditions.

Fertilizing practices vary with soil and previous cropping conditions. For example, following a heavily fertilized crop such as Irish potatoes, it should be possible to reduce the amount of fertilizer applied somewhat without adversely affecting the red peas yield. On the Bauxite soils, particularly St. Ann Clay loam, phosphate fixation is extremely severe <sup>(4,5)</sup>. Experiments have established that it is most advantageous to open a shallow furrow 3 to 4 inches in depth, place the fertilizer in a band at the bottom, cover the fertilizer slightly and place the seed before completely reclosing the furrow. The seeds are thus buried at the required 2-inch depth just above the fertilizer band. With mechanisation, it is possible to carry out this fertilizer placement and planting in a single operation. Research <sup>(6)</sup> indicates that complete fertilizer mixtures high in phosphate are required on these

soils. To date optimum returns have been obtained from an application of 5 cwts. of 12.24.12 per acre carried out at the time of planting as previously described. In small plots, this fertilizer treatment has given yields of over 2000 lbs. dried red peas per acre.

### *Crop Protection*

Field observations in these areas of prime red pea production substantiate that where the red pea crop enjoys a similar standard of husbandry as is commonly given to tomatoes or Irish potatoes that problems of crop failure are eliminated.

Excellent crop protection has been provided by spraying the soil immediately after planting with a Chlordane solution (2 pints per acre) followed by fortnightly sprayings with "Cocktail" mixtures of an insecticide (Sevin or Dipterex, 2 lbs. per acre) and fungicide (Zineb or Antracol, 2 lbs. per acre) and Triton sticker, commencing during the first week after crop emergence<sup>(7)</sup>. Success of these chemical control measures should not be separated from the cultural requirements specified.

On properly prepared lands, weed free conditions are usually ensured for over a 6-week period by a surface application immediately after planting of a mixture of Dacthal, Dymid (each at 2 lbs. per acre) and Gramoxone (1 pint per acre) diluted to a rate of 30 galls.<sup>(8)</sup> per acre for good distribution. The Gramoxone takes care of germinating weed seed and very young weeds which are usually present. In actual practice the soil insect control chlordane spray can be combined with this pre-emergence operation. After 6 weeks when the foliage of seedlings are beginning to "close in", slight moulding is generally

recommended at which time opportunity is taken to remove any weeds. The crop usually covers the surface at an advanced stage of growth and effectively crowds out any further weed growth. In essence, weed free conditions combined with standard preventative measures of insect and disease control have proven adequate for successful red pea cultivation even under the most rainy conditions generally associated with the crop's failure.

#### *ECONOMIC COMPARISON OF MANAGEMENT LEVELS*

Field conditions vary substantially and so does the cost of production; however, careful assessment of actual expenditure on several observational and experimental plots of one-quarter to one-half acres in size provided the information summarised below. It is considered that the production costs of the improved method of cultivation are directly comparable to those of the traditional method in that the scales of operations were identical in size and conditions similar as all improved plots were on farmer's holdings. The farmer's time was charged at standard union rates of \$2.00 per man day. A full day's pay was allotted for any operation requiring only a fraction of a day consistent with farming practice in Jamaica.

This analysis of cost indicates that improved methods reduce the unit cost of production of red peas. It is clear that, as the going market price of red peas is 25¢ per lb. many small farmers do not realize much of a profit unless they use improved management practices. This is particularly clear if the labour costs of farmer, and his wife who is usually responsible for the sale, are given their proper value. However, the advantages of a quick return to the farmer under conditions where alternative employment is scarce should not be overlooked.

Comparison of Production Cost - One Acre of Red Peas

	IMPROVED METHOD		TRADITIONAL METHOD	
	Production Cost	Approximate % of Total Production Cost	Production Cost	Approximate % of Total Production Cost
<i>Labour Operations</i>	\$		\$	
Land clearing	25.00	13.6	25.00	21.4
Ploughing	20.00)	16.4	20.00	17.1
Harrowing	10.00)			
Furrowing	4.00)	6.6	-	8.6
Planting	8.00)	2.2	10.00	
Fertilizing	4.00	5.4	-	25.6
Weeding and moulding	10.00	6.6	30.00	
Applying weedicide	2.00)		-	1.7
Applying fungicide and insecticide	10.00)		2.00	
Reaping	4.00)		3.00	
Threshing and sifting	6.00)	6.6	5.00	7.7
Transporting	2.00)		1.00	
Sub Total	105.00	57.4	96.00	82.1
<i>Materials</i>	\$		\$	
Seeds	3.00	1.6	2.00	1.7
Fertilizer	21.00	11.5	-	
Weedicide	10.00)		-	
Insecticide and fungicide	24.00)	18.6		5.1
Sub Total	58.00	31.7	6.00	6.8
<i>Other Charges</i>	\$		\$	
Contingencies 5% of operation	5.00	2.7	5.00	4.3
Depreciation 10% of materials	6.00	3.3	1.00	0.8
Land charges \$10.00 for 1 acre per year	3.00	1.6	3.00	2.6
Interest 10% per annum for crop period	6.00	3.3	4.00	3.4
Sub Total	20.00	10.9	13.00	11.1
Grand Total	183.00	100.0	117.00	100.0
Estimated yield	1600 lbs.		600 lbs.	
Cost per lb.	11.4¢		19.5¢	

The average market price of red peas is 25¢ per lb.

The Author acknowledges with thanks the assistance of the Farm Management Unit of the Ministry of Agriculture and Fisheries, Jamaica.



## CONCLUSIONS

Economic production of red peas calls for a high degree of management. Even on small farms the adoption of improved techniques and husbandry would cause a doubling of the general level of yield and realisation of increased farm income. The immediate impact of improved cultivation of red peas would be a savings of foreign exchange for Jamaica.

## References

1. Vernon, K.C. "Soil and Land Use Survey No. 10 - Jamaica, Parish of St. Mary." Imperial College of Tropical Agriculture.
2. Pierre, R.E. "Bean Diseases In Jamaica." *Proceedings of the Caribbean Food Crops Society, Vol. 6*, 42-44, 1968.
3. Unpublished Investigation of the Ministry of Agriculture and Fisheries, Jamaica.
4. Ahmad, N., Jones, R.L., and Beavers, A. "Mineralogy and Related Properties of West Indies Soils." *Soil Sc. Proc. Amer. Jour. Vol. 30*, 719-720, 1966.
5. Weir, C.C. "Phosphate Studies of the Jamaica Bauxite Soils."
6. Unpublished Investigations of Regional Field Experimental Programme, UWI, Jamaica.
7. Guide Sheet of Quantities and Relative Rates of Agricultural Pesticides prepared by Plant Protection Division, Ministry of Agriculture and Fisheries.
8. Kasasian, L., and Seeyave, J. "Weedkillers for Caribbean Agriculture." 1967.

N.B. More detailed information on this experimnt can be obtained from the author.

## NUTRITION AND INCOME DISTRIBUTION\*

by

M. Yudelman

The spread of the new agricultural technology has increased the supply of food grains available to consumers. This increase in availability of food grains can have significant nutritional consequences, especially concerning the supply of calories. This is important as it now seems to be well established that protein will be used for energy purposes (rather than "body building") unless calorie requirements are first satisfied. Food grains are, of course, a major source of both calorie and protein supplies (albeit low quality protein) in the diets of most people in developing countries.

The distribution of income within countries is of major importance in determining the demand for food and the pattern of distribution of calorie and protein intake. Where the "poor" represent a large part of a population in a low income country but income distribution is highly skewed, then average per capita levels of calorie and protein intake can be grossly misleading when used as an indication of national levels of nutrition.

Even though the total supply of calories and protein may be deemed adequate from a nutritional point of view, the distribution of this supply may be such that a large low income minority of the population have low levels of intake - the nutritional problem is, in effect, a problem of poverty within countries. In this context it is not inconceivable that, where there is a highly skewed distribution of income (and where average per capita incomes are

---

\*Part of an article entitled "The Green Revolution; reprinted from the OECD Observer, June 1971.

low) the differences in calorie and protein intake by income groups *may* be greater than the difference in average per capita intake between developed and developing countries, e.g. the average per capita difference in calorie intake between Canada and Brazil is estimated to be in the neighbourhood of 400 calories and 30 gms. of protein. But the difference between the intake of the 12 percent who are the higher income group in the urban areas in Brazil and the 26 percent who are the lowest income groups in the urban areas is 1,780 calories per capita and 70 gms. of protein.

The Green Revolution has increased the supply of food through raising yields, and supplies can be increased even more by spreading the new technology to other regions. However, increasing the supply *in itself* will not rectify the problems of malnutrition and protein shortage. An increase in available supplies is a necessary condition for improving protein intake, but there also has to be a demand for this intake. This demand will only be effective when consumers have incomes enough to purchase adequate diets. A necessary and sufficient condition for increasing protein intake then is that there should be adequate supplies of protein and that all consumers should have incomes large enough to enable them to acquire a diet which satisfies their tastes and, at the same time, provides them with the required amount of calories and proteins.

In the judgement of this writer, poverty will not be alleviated in the near future in low income countries. There will continue to be very large numbers of persons who will be in income groups that are so low as to prevent them from purchasing adequate diets. It is also the judgement of this writer that wheat, rice and corn will continue to be the major source of calories and protein for most of the low income groups. Thus, any strategy

for reducing protein deficiency would seem to have to take into account the fact that a large proportion - possibly as many as 20 percent - of the population in low income countries will be too poor to purchase adequate diets and will continue to depend on cereals to provide them with a very high proportion of their calories and proteins.

One element of a strategy that takes these two factors into account is to increase the protein content of cereals. If this could be done, then it would help offset some of the need for higher incomes to satisfy protein requirements. The same income would purchase more protein; small-scale farmers who produce their own subsistence may consume the same quantity as before but this would contain more protein than before. The assumption is that the protein content can be increased without reducing yields or raising costs of production per unit of output. A related approach would be to increase the yields of products that already contain a relatively high proportion of protein. These are not conflicting approaches but are complementary. The execution of any such strategy, though, would call for a very substantial *increase* in resources allocated for agricultural research and research into all the factors linked to raising the protein content and productivity of a variety of products. In the view of this writer, this is one of the most promising avenues for ameliorating the problems of protein deficiency among the very large numbers in low income groups in both urban and rural areas. In brief, a new dimension has to be added to the new technology.

*Editor's comments:*

*This excerpt highlights important nutritional elements in agricultural and economic developments.*

*We take issue with one statement; that is the description in the first*

paragraph of food grains (cereals) as containing "low quality protein." The quality of protein can only be assessed in the total diet at each meal. Very few people subsist on cereal alone. Cereal protein, when taken in diets and especially when taken with legumes, as in rice and peas or roti and dahl, is very well utilized. It is the quality of each meal that concerns us. It does not take much legume to improve the quality of a cereal-based meal.

The word "demand" in the above excerpt is used in the economist's sense, not in the political sense of the French revolutionaries "demanding" bread. In real life politics and economics are inseparably united - or, if not united, shackled together.

#### CAJANAQUOTE

*"The human brain is as much an organ for seeking food as the pig's snout".*

A.J. Balfour

FACTS ABOUT FISH  
(For the Housewives Association of Trinidad and Tobago)

by

*Alison White*

FROM THE SEA TO THE TABLE

While fishermen in Cedros stop casting their nets because they cannot sell the fish fast enough, housewives in Tunapuna or Rio Claro are unable to find fish to buy. This basically is a problem of having abundant fish where there is no market and vice versa none being available where people are willing to buy it.

There are two types of fishing carried out in Trinidad and Tobago - inshore fishing, the type carried out by the fishermen who go out for a few hours in small piroques around our coasts and offshore fishing, when larger vessels, trawlers spend several days at sea before bringing the catch to shore. When he lands, the inshore fisher sells his fish for distribution within the next few hours. The fish in the trawlers are kept in ice and treated as fresh fish on arrival at shore. At present the storage facilities at sea are badly designed because the fish at the bottom of the barrel get squashed by the weight of the ice and fish which are packed subsequently.

The consumer demands fish complete with guts. This is because he knows that the guts decompose rapidly after the fish is caught. The fact that they are present guarantees 'fresh' fish. Fish with guts removed is suspect.

The transfer of 'fish-in-the-sea' to 'fish-on-the-table' is the concern of three groups of people: fishermen, handlers and consumers. Each of these groups must know about fish so as to ensure that the fish housewives buy is as fresh as possible; freshness in fish is a guide to its quality. The

housewife too should be aware of the problems and should be educated on consumer choice.

Fish is different from chicken or beef structurally and therefore has to be handled differently. As soon as the fish is dead, two processes commence. The enzymes normally found in the guts begin to digest the gut itself. This is called '*auto-digestion*'. The temperatures found in the tropics are ideal for this process. The skin of the fish differs from that of a bird or mammal in that it is a single layer of epithelial cells which in the live fish are rendered impermeable to bacteria by a layer of slime. But once dead, this disintegrates allowing invasion by bacteria followed rapidly by the process of putrefaction. The auto-digestion and putrefaction quickly alter the taste and smell of the fresh fish.

It follows therefore that the guts should be removed as quickly as possible after being caught and that it should be transported in crushed ice. Housewives should be prepared to buy fish with guts removed.

Not only is fish difficult to handle but it is seasonal. This accounts in part for the marketing difficulties, and why, when fish is abundant round our coasts, the 'cheaper' fish does not reach us, i.e. the markets can cope with an average supply of fish and distribute it fairly satisfactorily, but when it is flooded, the whole system collapses and the situation is worse than normal.

This is the present situation so far as fresh fish is concerned. But Trinidad and Tobago imports nearly as much fish as is produced locally. These imports include dried salt fish, pickled and smoked fish, canned and frozen varieties. This represents a huge import bill. For years we have been aware of the problems which beset the fishing industry and we have read in the press

of various plans, developments, etc. which will bring fish within easier reach of the housewife at a reasonable cost. But the fact remains that fish is more difficult to get and infinitely more expensive now than it was, say, five years ago.

#### WHAT THEN IS BEING DONE?

At the end of 1969 the Government in conjunction with the Inter-American Development Bank prepared a feasibility report of a fishing and fish processing operation in Trinidad and Tobago. This considered the setting up of a trawler fleet, disposal of fresh fish on local and Carifta markets and the processing of part of the catch before distribution to the consumer. The market was examined and the inadequacies of marketing recognized. It was realized that a regular supply would lead to greater consumption. To handle larger quantities of fish, a fishing terminal with proper docks and facilities for off-loading, availability of large quantities of ice as well as cold storage facilities and refrigerated transport for the distribution network would be required. Also sanitary conditions for conducting wholesale fish auctions are desirable. Of the processed fish, consumers prefer dried salted fish, so it is feasible to direct processing efforts to dried salt fish and smoked fish.

Thus, two and a half years ago this study was carried out. A report prepared by the Division of Fisheries, Ministry of Agriculture, Lands and Fisheries for 1971 indicates that production has been increasing since 1968, but this appears to have been channelled to exports with no increase of availability to the local consumer. It states that three vessels are operated by the Division - for training and research.

Future plans echo the 1969 Report recommendations: establishment of a modern trawler fleet; introduction of measures to modernise the distribution



system, landing and storing facilities; construction of a wholesale market and fishing harbour; establishment of a training school and research on local species of fish to find products to replace the foreign products now imported.

We read in the press recently (April 1972) that the trawlers are arriving and one did a trial run in Port-of-Spain docks. So many of the Government plans or ideas seem to have been postponed or hampered by lack of funds but the private sector have been encouraged to enter the fishing industry. Between 1968 and 1971 five production companies were established (mainly shrimps). It is in conjunction with the private sector, that the Government is now beginning to modernize the fishing industry and the first three trawlers of an order of ten have been put into operation. The Government have also engaged the services of CARIRI to help with their research on local fish as processed fish. CARIRI have satisfactorily salted shark. They have produced a canned product which they feel they can improve upon. They have also made fish sausage and fishburgers - obviously good ways of using up scraps of fish.

#### *WHAT MORE SHOULD BE DONE?*

It is recognized that one of the reasons the inshore fishers work far below their capacity is because they cannot market more fish. When facilities are built to accommodate the offshore fish, could not the inshore fish be channelled through these facilities also - thus making inshore as well as offshore fish more available?

Secondly, the offshore fish will not be fish we are accustomed to. Therefore, a publicity or education programme - will have to be introduced along with the introduction of these fish on to the market. Eventually, the Government hopes to set up 'fishmongers' at centres throughout Trinidad. Fresh fish will be available at all times from these centres. Perhaps information

on fish and its uses could be made available at such centres.

This outlines what is being done or what is planned for the future to alleviate the problems of getting fish from sea to table. But these things take time.

#### COULD NOT MEASURES BE TAKEN TO HELP THE SITUATION IMMEDIATELY?

Could not gutted fish be transported to the big supermarkets for sale on special days - to be sold as fresh fish? Just as they have a vegetable display they could have fish say on one or two days a week. The supermarkets have access to refrigerated transport which could be at the market when the fish is being auctioned; they have refrigerated display cabinets as do shops.

There are also fish available which for some reason we do not like. To see Tilapia hanging on the side of the dusty highway does not inspire a would-be consumer to buy it. Tilapia is a good fleshy fish which deserves more attention. Apart from the same groups who do not eat shark for religious reasons there are a lot of people who just do not eat this fish. Perhaps it is the name that puts people off. Some years ago a fish abundant in the sea round the British Isles was not eaten. It was called 'dog-fish'. When its name was changed to 'rock salmon' it became popular. Could 'shark', 'tilapia' and 'cat-fish' benefit from a change of name?

As consumers we know what we want - an *easily accessible supply of fish at a reasonable cost*. But we must be prepared to accept new fish, or fish brought to us in different ways. We must not shun fish we are unaccustomed to or new fish products without first giving them a fair trial.

## INFORMATION FROM:

Feasibility Report of the Establishment of a Fishing and Fish Processing Operation in Trinidad and Tobago, October/November, 1969.

Division of Fisheries, Ministry of Agriculture, Lands and Fisheries Administration Report, 1971.

Fishing Power - H.E. Wood and I. Titus (eds.)

Dr. D. All, (CARIRI); Dr. P. Bacon, (UWI); and Prof. J. S. Kenny, (UWI).

## CAJANAQUOTE

*"Yu a farmer - yu just jump roun', pick at every little ting."*

*Jamaican 'farmer' (main crops gungo peas and carrots) describing what she does between seasons. It is sad that to some people the term farming implies just that - a state of part subsistence, part unemployment with a very small and uncertain cash return.*

NUTRITION NEWS AND OPINION FROM THE CARIBBEAN

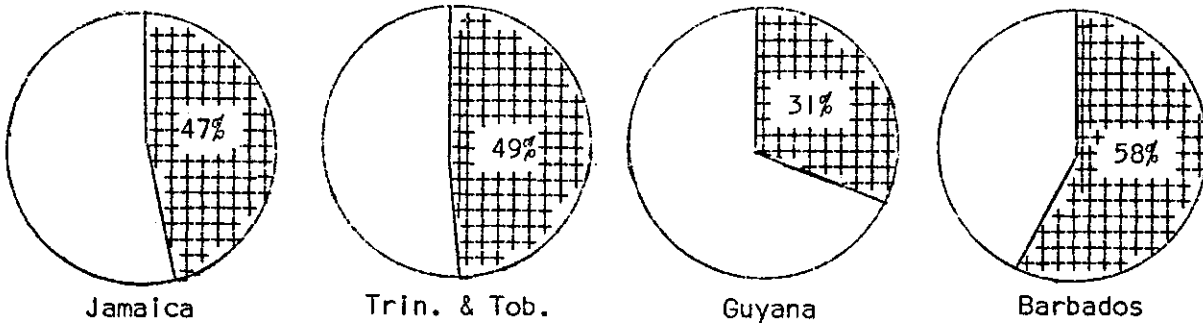
IMPORT RELIANCE

During a live broadcast of a major policy speech made in the House of Representatives on November 10th, the Honourable Michael Manley, Prime Minister of Jamaica, had this to say:

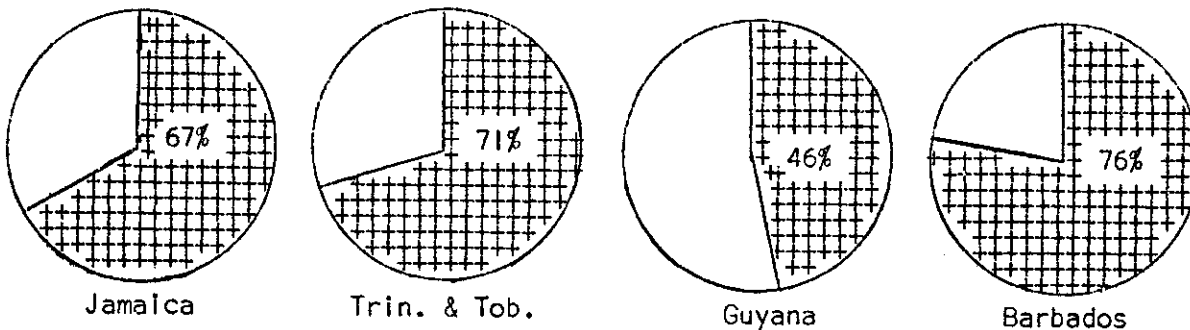
"We have failed to meet the domestic food requirements of our people and here again we are in the unique position amongst most of the countries of the world in which our staple foods are not those produced by us. In 1962 our imports of food amounted to \$30.4m. Whilst the population increased by 12% during this period, our imports of food in 1971 amounted to \$76.3m or an increase of 150% - an increase much greater than the population and price increases taken together."

The diagrams below indicate what large proportions of total calorie and protein consumption in the Caribbean come from imported foods. These figures which are obtained from food balance sheets compiled by the Governments concerned, with CFNI's cooperation, are not available for the other Commonwealth Caribbean countries. The shaded portion indicates imports, and the blank portion local production.

CALORIES



PROTEIN



We must agree with the statement made in the same speech that:

"In the longer run there will have to be an adaptation of the tastes of our society in the area of consumer goods to the productive capacity of the country."

#### **FAMILY PLANNING STUDY IN DOMINICA**

The President of the International Development Research Centre, Dr. W. David Hopper, has announced a large grant to the Ministry of Education and Health. The grant will support a Pre-operational Family Planning Study to be conducted in collaboration with the Department of Social and Preventive Medicine of the University of the West Indies. The study will determine the need and desire for family planning services in Dominica and will act as a guide to the Government in considering the implementation of a Family Planning Programme.

#### **GROWING MORE TO FEED OURSELVES**

This is an extract from a major policy speech made on November 10th by Mr. Michael Manley, Prime Minister of Jamaica.

"Within the next two years the Government intends to bring under its own control for purposes of increasing agricultural production 50,000 acres of land.

"This will be related to the goal of feeding the nation by the production of agricultural products, including livestock for which we now have a high import bill or of those crops which possess an export potential. We hope our small farmers throughout Jamaica will take advantage of all the Government aids and facilities to increase their own production and therefore increase their incomes to take advantage of the new markets which will now be available by this thrust to feed ourselves. In addition, we will be working closely with our CARIFTA partners to ensure the best coordination between our own plan and theirs in their area of agricultural production and sharing in the increased markets available."

## NEWSPAPER CLIPPINGS

*DONT LEAVE DIET TO CHANCE - says Dr. Quamina at dietitian's meeting*  
*From The Trinidad Express, June 27, 1972*

There is a change by people as regards nourishment. These changes must not be left to chance but rather we should guide our own destinies by making use of them.

This was pointed out by Dr. Elizabeth Quamina, Principal Medical Officer in her opening address at the inaugural meeting of the Caribbean Association of Nutritionists and Dietitians at the University of the West Indies, St. Augustine, yesterday.

Dr. Quamina said, "nutrition is the basis of health and we see that food has been the basis of evolutionary change. Where are we going? Can we direct these changes?"

"A change in the mores of a people related to such a self-preserving function as nourishment is being accomplished and we cannot leave these changes to chance. We must guide our own destinies and we shall be able to do so."

Dr. Quamina stressed, however, that, "this can be accomplished only if we acknowledge that we have to deal with deeply ingrained regional and familiar customs and with prejudices, prides, jealousies and, even in this day, with superstitions and fears.

"To tell individuals and communities what is wrong and the remedies are not enough. You must show man how he can best help himself along a path of progress which will promote health and well-being for all through a state of positive nutrition."

Dr. Quamina earlier took a deep look in the past "to consider that the quest for food has shaped our evolutionary history just as surely as the shortage of food in the sieges and wars of historical times has shaped the destiny of nations."

*CALL FOR TEAM APPROACH TO DIABETES IN W.I.*  
*From The Trinidad Guardian, June 30, 1972*

Caribbean dietitians and nutritionists yesterday called on governments in the region to attack immediately the 'major problems' of diabetes in the territories.

They did so at the closing session of the inaugural five-day meeting of the Caribbean Association of Nutritionists and Dietitians, at the

St. Augustine campus of the University of the West Indies.

In a resolution - copies of which will be sent to the various governments in the region - the Association said that it recognised diabetes as a major problem throughout the region, "and deserves the immediate attention of governments."

The document added that the treatment of the disease should emphasize a team approach and community aspects of treatment should be stressed.

Delegates to the meeting came from Canada, Surinam, Guyana, Grenada, St. Vincent, Barbados, Dominica, Antigua, Jamaica, Bahamas, Bermuda and Trinidad and Tobago.

**TRINIDAD HAS MOST DIABETICS IN THE WEST**  
*From Trinidad Express, June 29, 1972*

Diabetes among adults and 'protein-calorie malnutrition' among infants were two big headaches faced by English-speaking countries in the Caribbean.

While Trinidad has the highest incidence of diabetes in the Western Hemisphere, protein-calorie malnutrition (PCM) costs Caribbean governments about \$6 million; and the prevalence of PCM in the region is 77,000 cases at any one time.

This was disclosed by Dr. Robert Cook at the Caribbean Food and Nutrition Institute (CFNI), University of the West Indies, St. Augustine. Dr. Cook who is a nutrition advisor at CFNI, disclosed the facts in his talk on the "Extent and Effects of Malnutrition in the Caribbean." He was addressing the Inaugural meeting of the Caribbean Association of Nutritionists and Dietitians.

Malnutrition affects children under two years of age, adults, and pregnant women. About 25 percent of pregnant women suffer from lack of iron in their diet, Dr. Cook said. According to him, the greatest problem of malnutrition in the Caribbean however, is that of PCM with a prevalence of 7,000 severe cases and 70,000 moderate cases. The form of PCM that most children suffer from is 'marasmus' which comes about when mothers try to stretch milk over a long time.

"As a result they mix the milk thinly and the children do not get enough calories or proteins in their diet. The best way to prevent this is to breast-feed babies, until age four months," Dr. Cook advised.

Usually, malnutrition is accompanied by gastroenteritis, which results when food is prepared in an unhygienic way. The combination of PCM and gastroenteritis can be fatal.

Another speaker at yesterday's meeting, a pediatrician from the San Fernando General Hospital, said child mortality as a result of the combination was highest in south Trinidad before children reached six months old.

Dr. Cook said the situation was an example of what occurs in Trinidad and Tobago; and, he went on, it was unusual since children were normally affected between the ages of six months to two years.

#### **RETURN TO BREASTFEEDING, WOMEN TOLD**

*From The Evening News, Trinidad and Tobago, June 30, 1972*

A call for women in Trinidad and Tobago to return to breastfeeding their babies was made on television last night by Mrs. Pat Pena, dietitian attached to the Port-of-Spain General Hospital.

Mrs. Pena was one of the participants at the recently concluded inaugural meeting of the Caribbean Association of Nutritionists and Dietitians, which was held at the University of the West Indies, St. Augustine, and attended by some fifty participants.

One of the topics raised at the meeting was the high rate of protein-calorie malnutrition among children in the Caribbean area.

Mrs. Pena explained that breastfeeding was the best way to combat this. She said, "breastfeeding provides all the nutrients a child needs. When mothers take children off breastfeeding too soon and they cannot supply those children with nutrients from other foods, the children start suffering from a lack of calories and proteins which leads to protein-calorie malnutrition."

It was only on Wednesday that Dr. Robert Cook, Nutrition Advisor with the Caribbean Food and Nutrition Institute explained that protein-calorie malnutrition (PCM) is the greatest problem of malnutrition in the Caribbean, with a prevalence of 7,000 severe cases and 70,000 moderate cases.

#### **FOOD ACTION HERE IN W.I.**

*From The Evening News, Trinidad and Tobago, June 28, 1972*

The charge which the Government of Trinidad and Tobago gave the Caribbean Association of Nutritionists and Dietitians on Monday is one which governments throughout the world and their representatives at the United Nations are also urging scientists.

The Government's message, sent through the Minister of Health, Senator Francis Prevatt was, to quote the Senator:



"In spite of our continued efforts to grow more food and to speed up our import substitution programme in the field of foodstuffs, we still import an inordinately high amount of our food requirements.

"Your Association will assist us in finding, here in our region, substitutes for foodstuffs of equal or better nutritional value, and, hopefully, of a taste attractive to the Caribbean palate."

### *High Time*

It is, indeed, high time that our experts in the Caribbean get down to cracking the spreading problem of how to find more and cheaper food for our rapidly increasing population.

For instance: Right here in Trinidad and Tobago locally grown sweet potatoes and cabbages cost more than imported English potatoes and the imported cabbages.

These are but a few of the basic food items which are causing a lot of pressure on the low income groups in our community; and we fear that the same can be said for most of our neighbours in the Caribbean.

What must be done about this problem is a challenge which has been thrown out to the Caribbean nutritionists and dietitians. Their charge is to find out and to recommend local substitutes for imported food which have at least the same nutritional value.

### *Tall Order*

It is a tall order, we grant, but we have faith in the ability and national consciousness of the Caribbean experts who are now gathered here in Trinidad to discuss common problems.

We expect, too, that the Association will respond to the plea made by Dr. Frank Ramsey, paediatrician specialist at the Queen Elizabeth Hospital, Barbados, to direct their energies towards serving the region rather than forming themselves into a bargaining unit.

Regional bargaining powers may perhaps be an important and urgent need by the experts but like all other West Indians who are endowed with special skills, they have a larger responsibility to their fellowmen.

Members of the Association are aware of this we are glad to note, for high on their agenda are these matters to be discussed: Improvement to the standard of nutrition and dietetics in the region; promoting and encouraging education in nutrition and other allied fields.

We wish the experts a successful conference.

## CFNI NEWS

## PEOPLE

Dr. Jelliffe and Mrs. Jelliffe finally left the Caribbean at the end of July. We wish them well and hope they will keep in touch with their many friends in the area.

Dr. Robert Cook, after a period as acting director, has now been confirmed in the post of Director of CFNI. He has been sick and had to have a cholecystectomy (operation to remove gallstones). Dr. Cook is now back at work; we congratulate him on his appointment and also on his recovery.

After the interval following the departure of Dr. Sen Gupta and Miss Osborn, the Trinidad Centre of CFNI has been reinvigorated by the arrival of two new staff members, Mrs. E. Quiogue and Mr. J. McDowell.

Mrs. Elená Quiogue is from the Philippines. Her main duties will be concerned with food policy and planning.

Mr. James (Jim) McDowell, from Ireland, is a food scientist. Before coming to the Caribbean he was working in Uganda.

Miss Osborn is now working in Alaska - where she spent some years before she came to the Caribbean. Her address is, Miss C. Osborn, c/o General Delivery, Juneau, Alaska 99801, U.S.A.

Mr. Peter Heywood is now working at the Jamaica Centre of CFNI on a study of nutrition and working efficiency among Jamaican cane cutters. Mr. Heywood who is an Australian has a degree in agriculture, a masters degree in nutrition and is also a qualified dietitian.

One of his, or rather his wife Alison's first achievements in Jamaica was to become the proud parent of Jacqueline (7 lbs. 8 ozs.).

Mr. John Neill the CFNI statistician has left the Caribbean to complete his postgraduate studies. John, Jacqueline, Anik and John, Jr., now live in the U.S.A. The address is, Mr. John Neill, c/o Biostatistics Dept., University of California, School of Public Health, Los Angeles, California 90024, U.S.A.

### FOOD SERVICE SUPERVISORS COURSE

The first class of this course which took place in Barbados, graduated on December 15th. By all accounts the Course was successful; certainly it fills a real need. We will ask Miss Zephirin to give 'Cajanus' a short description for our next issue.

### DCN COURSE

The second course in Community Nutrition (organised by CFNI) which commenced in October 1971 followed the dates of the University calendar year. There was a total of twenty-four students, twenty-two of whom were sponsored by the governments of the English-speaking Caribbean countries: Antigua two; Bahamas two; Barbados five; Grenada one; Guyana two; Jamaica five; St. Lucia two; St. Vincent one; Trinidad and Tobago two; and of the remaining two, one was from the Philippines and the other from a Voluntary Organization.

The students represented a variety of disciplines: Agriculture two; Education (Home Economics) six; Community Development and Social Welfare two; and Health fourteen.

The first term was spent at U.W.I. Jamaica, gaining background knowledge with some field experience, the second term was mainly on the Trinidad Campus. The Interdisciplinary approach was continued in the second term with emphasis on the practical application of nutrition principles. Late in January the students were involved in a two-week nutrition survey in the village of La Poterie, Grenada.

Each student spent the last term in his home country working on a project relating to nutrition and useful to his work situation.

### NUTRITION EDUCATION - LAMBS RIVER CITIZENS TAKE INITIATIVE

*From the Daily Gleaner, 23 November 1972*

The people of the district of Lambs River in Westmoreland are trying to do something to solve their nutrition problems. In August 1971 the Caribbean Food and Nutrition Institute (CFNI) with the approval and support of the Ministry of Health launched a programme to investigate the usefulness of nutrition education in this district. The investigation, which is to run for three years, is being financed by a grant from the Freedom From Hunger Campaign (U.K. Committee).

Since that time studies have shown that there is a fair amount of moderate, if not severe, malnutrition among the children under five years of age, as well as among school children under ten. Other facts which emerged were the high prevalence of dental caries among school children of all ages, the inadequate amount of food grown, the very limited use that was made of locally grown foods in infant feeding, the shortness of the period of breastfeeding

and the unavailability of foods such as cheap brands of milk powder.

A Nutrition Education Action Committee (NEAC) comprised of citizens of the district, under the chairmanship of Miss Ruby Thorpe, headteacher of St. Leonards school was formed five months ago. They have set themselves the task of bettering nutrition in their district through more intensive planting of legumes and vegetables, chicken rearing, the revitalizing of school gardens, and devoting more time to teaching nutrition in schools, as well as through public meetings. The Committee has also approached the Ministry of Health on the subject of dental caries in school children as they consider this a most important health matter.

Another aspect of nutrition activities in the district is the Volunteer Home Visiting Programme. A group of twelve women - teenagers and mature women - have been receiving basic training in nutrition and in the preparation of local foods as "multimixes" for infants and children. They have started visiting selected families with young undernourished children encouraging breastfeeding and informing mothers about infant feeding. The demonstrations of "multimixes" in these homes and at group meetings is regarded as one of the most useful functions performed by the volunteers.

Several other persons including agricultural extension officers, teachers, nurses, artists, farmers and religious leaders have been contributing to "The Action" with their time, interest and skills; and the Cambridge Area Land Authority, the 4-H Organization, the Bureau of Health Education and the Jamaica Agricultural Society are among established bodies making splendid contributions to the project. Nevertheless, there remains a number of needs of which the most pressing is the need for more and better trained persons to teach nutrition in the district's schools, in the classroom the school garden and the school kitchen.

The whole of this very interesting programme is being carefully studied. Its outcome can be very significant for all Jamaica and the Caribbean and even the rest of the developing world where similar problems of malnutrition exist. The search for relatively simple, inexpensive and practical approaches to a solution is going ahead in many places on several fronts. This is one of them.

#### *NUTRITION EDUCATION SEMINAR - St. Lucia, July 24-28*

Castries, St. Lucia was the venue for a technical group meeting on "Nutrition Education in the English-speaking Caribbean" from July 24-28, 1972. This meeting, organized and sponsored by CFNI was the culmination of the first stage of preliminary work by the Institute's Nutrition Educator along the road to the development of new approaches in nutrition teaching in Teacher Training Colleges and in schools of the Caribbean region.

The very picturesque Morne Fortune site and its facilities were very graciously made available for the meeting by the Government of St. Lucia.

Altogether some fifty persons from all the English-speaking Caribbean territories were present. The majority were teachers from training colleges, home economics institutes, or nursing schools; other representatives coming from the administrative staff of Ministries of Education, Agriculture and Community Development.

There were, in addition, a number of resource people drawn from the fields of education, health, nutrition, home economics and agriculture; these included Mr. I. B. Beddoe of the UWI Institute of Education; Dr. A. S. Wood, Principal of the Jamaica School of Agriculture; Dr. Cecile Edwards, Chairman of the Department of Home Economics, Howard University; Mrs. Julia Wallace, Director of Nutrition Services, U.S. Virgin Islands; and staff members of the Caribbean Food and Nutrition Institute.

The meeting consisted of the presentation of individual "Country profiles" of nutrition programmes and more particularly, nutrition teaching activities, and papers on a variety of nutrition education topics. The accent was, however, on panel discussions and small group discussions. Some of the topics dealt with were: *Caribbean Food and Nutrition Problems; Meeting the Nutrition Needs of the Schoolchild; Teaching Nutrition Through the Five Senses; and Measuring Nutrition Education Effectiveness.*

The eight small groups, each working with a resource person, presented recommendations on selected subjects to a central committee which then submitted a summary of all recommendations for the consideration and approval of the entire meeting.

These recommendations were to receive further study in each territory represented, after which they were to be circulated to government departments, agencies and individuals with an interest in the subject of nutrition education.

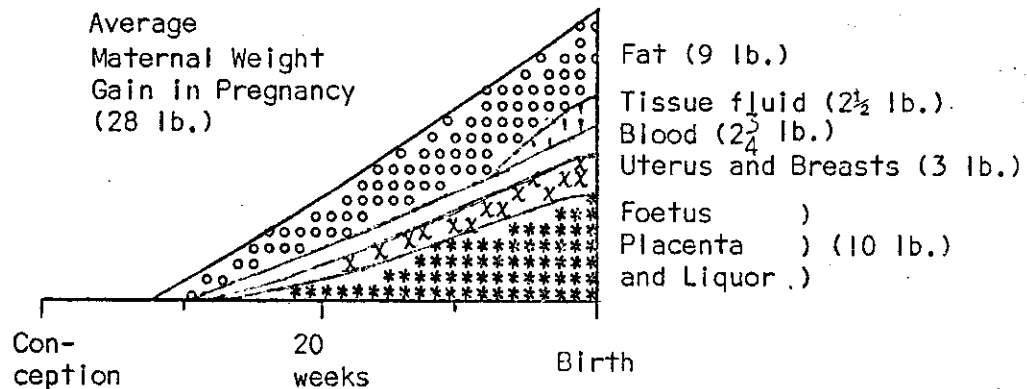
Further follow-up meetings are planned with the aim of influencing government policy on the teaching of nutrition and of ensuring that appropriate programmes of nutrition education are established at the level of teachers colleges, in nursing and agricultural courses and in primary and secondary schools of the region.

## NUTRITION MADE SIMPLE

## MATERNAL DEPLETION - J. Michael Gurney,

Maternal depletion is the jargon term given to the steady deterioration in health that occurs in many women who have repeated pregnancies and repeated and increasing responsibilities and strains from bringing up their children.

A baby may weigh only about 7 lbs. at birth; all these seven pounds must come from the mother's own body. In addition, her womb enlarges, she produces a placenta, her blood volume increases and her breasts enlarge in preparation for feeding her infant. She may also put on some fat which will serve as a reserve to protect herself and her baby from the stresses that will surely occur ahead. During breastfeeding she can get rid of this extra fat.



The nutritional demands of pregnancy are certainly severe. If a mother cannot increase her diet to match this increase in requirements, and if she has many such pregnancies she will surely deteriorate in health. In the Caribbean, deterioration often takes the form of anaemia. Almost half the mothers in a recent nationwide survey of Jamaica were found to be anaemic.

A woman who is breastfeeding her baby - and breast milk is better than *anything* else for the young infant - needs an increased diet. Otherwise she will draw on her own body tissues to keep up the quality of her milk. Even poorly nourished mothers produce high quality milk in adequate amounts for their infants. The cost to the family budget of ensuring that a breastfeeding mother gets an adequate diet is *much* less than the cost of artificial feeds for her baby.

It is clear that the prevention of anaemia by the giving out of iron tablets in antenatal and maternity and child health centres will not alone prevent maternal depletion although this will help considerably. If a mother has the freedom to control her pregnancies she can maintain her own health and thus increase her ability to look after the family she chooses to have.

## CANDI NEWS

Those of us who had the privilege of attending the inaugural meeting of CANDI were extremely pleased with the excellent participation and sustained interest at all sessions as reflected by the attendance and timely discussions. We all agree that the meeting was a tremendous success and we look forward to the continued enthusiasm, interest and support, not only of our own colleagues, but those in the medical and allied health professions, who gave so generously of their time and expertise.

On the afternoon of Wednesday June 28, 1972, the first general meeting was held. Mrs. D. St.Hill of Trinidad chaired this session. Following a vote and acceptance of the Constitution, Officers, Committee Chairman and Regional Representatives were elected. See page 308.

We would like to express our sincere thanks and appreciation to the many persons who made this meeting a success. It is not possible to mention all who so willingly gave their advice and assistance. However, we would like to say a special thank you to Mr. S. Richardson, barrister-at-law, Trinidad and Tobago, who so kindly gave of his legal expertise during our discussions of the draft Constitution.

Following the election of officers on the afternoon of Wednesday June 28, the Board of Directors held their first meeting. Mrs. H. Austin and Miss I. Foster attended as advisors. At this meeting the appointment of two honorary members was approved by the Board. They are Dr. Derrick B. Jelliffe and Dr. Frank Ramsey. Two other important decisions were made:

1. The mid-year Board Meeting will be held in Trinidad in January 1973.
2. The second annual general meeting will be held in Barbados in June 1973.

*Members and other interested persons please note this in your diaries:*

The Executive Committee has given its approval to the initiation of projects proposed by the **chairmen** of the Nutrition Admissions Committees. We look forward to hearing news of proposed projects from other committee chairmen.

You will be pleased to know that an Editor and Co-editor of the CANDI newsletter were appointed by the Executive Board at their July 21st meeting. Congratulations to Miss L. Clifton (Editor) and Miss P. Pena (Co-editor). They look forward to receiving articles and news items for publication. Articles for the next issue of 'Cajanus' should be sent to the editors, CANDI c/o CFNI, Trinidad Centre, who will forward them for submission to the editor of 'Cajanus'.

Another development of the 1970 Technical Group Meeting on Dietary Services for the Contemporary Caribbean is the training programme for food

service supervisors which was initiated in Barbados on August 14. The course was officially opened by the Minister of Health, the Honourable Captain George Ferguson. Participants in the course came from the following countries: Antigua, Bahamas, Barbados, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent, Trinidad and Turks and Caicos. CANDI welcomes this important event and sees it as a great step forward for the improved management of dietary services in the region. Good luck and success to the participants in this first course.

We were pleased to hear from those of you who were unable to attend the meeting that you were kept well informed of activities through the mass media. Newspaper quotations can be found on page 298 of this issue of 'Cajanus'.

### *ELECTED OFFICERS FOR THE YEAR 1972-1973*

#### *Executive Committee*

- Mrs. E. Phipps (Bermuda) - President
- Miss L. Clifton (Trinidad) - President Elect
- Mrs. V. Stephens (Trinidad) - Secretary
- Miss J. Rose (Trinidad) - Treasurer

#### *Standing Committees*

- Miss H. Deane (Barbados) - Nominating
- Mrs. D. St. Hill (Trinidad) - Admissions
- Miss P. Pena (Trinidad) - Nutrition
- Mrs. W. Davis (Jamaica) - Education
- Mrs. P. Ratteray (Bermuda) - Public Relations
- Miss J. Rose (Trinidad) - Finance

#### *Regional Representatives*

- Mrs. N. Shillingford (Dominica)
- Miss B. Davis (Bahamas)
- Miss E. Walker (Guyana)
- Miss C. Witter (St. Vincent)