

THE FOOD PROCESSING INDUSTRY

One of the primary objectives of the Government's policy is further expansion of the food processing industry to assist the country's agricultural development to the fullest extent possible.

2. It was pointed out at this time last year that our substantial food imports present an opportunity and a challenge to the agricultural sector, as well as to the food processing industry. It was stated that while it is clearly not possible in the short term to replace a significant part of our food imports with local production, the evidence is that a gradual process of substitution is taking place. In recognition of the further opportunities which exist for intensification of local food production, my Ministry continues to pursue a positive policy of import controls on the one hand, while at the same time fostering expansion of the processing of Jamaica's primary products.

3. During the period 1967 to 1969, Jamaica's food imports increased from \$42,879,366 to \$47,173,578. It should be noted, however, that whereas food imports increased by approximately 10% between 1967 and 1968, the increase for 1969 was virtually nil. In fact, had there not been an increase of over \$2 million in the value of sugar imports during 1969, there would have been a substantial decrease in the value of imported food last year. This was achieved despite further population growth, continued expansion of the tourist industry, (a sector which strongly influences food importation) and improved living standards of our people. It is noteworthy that the hotel industry is now co-operating more positively in the purchase of increased quantities of locally produced food, fresh as well as processed.

4. The relative stability of food imports during 1969 was significantly influenced by increased local production in certain product categories including: cereal products (bakery products and biscuits), cocoa products, corn milling, flour milling, poultry and milk processing. It is significant that there were no increases in the value of imports of any of these products over this period. In fact, there were substantial decreases in the import value of a number of the products involved.

5. Jamaica's agriculture cannot attain its full potential without development of the food processing industry on a viable and expanding basis. In recognition of this, my Ministry continues to pursue policies designed to secure further expansion of food processing, while at the same time endeavouring to achieve improved viability of the industry as a whole.

6. It must, however, be admitted that the industry faces a number of problems, including inadequate capital, consumer prejudice, sporadic supplies of raw materials, as well as a lack of technical expertise. Despite these problems, new developments and improvements are being achieved. In this context, it is noteworthy that a number of the leading food distribution firms are now participating in the equity and operations of various food processing plants, a development which will undoubtedly have a stimulating effect on the food processing industry as a whole.

Food Technology

7. In October, 1969, the Food Technology Division of my Ministry, which was established to conduct research and to develop commercially acceptable processed foods from local raw materials was integrated with the Jamaica Industrial Development Corporation. The Division now has greater flexibility in its operations and easier and more direct access to the expert services of JIDC in such fields as cost accounting and market research.

8. There is behind the work in this field the fundamental problem that in tropical countries there has been a lack of research in the processing of indigenous agricultural produce. This has led to the excessive dependence of developing countries on bulk exports of agricultural items, which are in most cases perishable, and which bring in far less income and other economic benefits than could otherwise be obtained. Largely through the work of the Food Technology Division, Jamaica can claim to be among those developing tropical countries which, by virtue of their own efforts and vision, have sought to develop a meaningful food processing industry utilizing indigenous raw materials to the maximum extent possible.

----- 9. Appended is a report by the Food Technology Department of the Jamaica Industrial Development Corporation which sets out broadly the work it has been pursuing and its objectives.

ROBERT C. LIGHTBOURNE
Minister of Trade and Industry
15th June, 1970

MTI FILE NO: 42/11/54

REPORT

BY THE FOOD TECHNOLOGY DEPARTMENT OF THE
JAMAICA INDUSTRIAL DEVELOPMENT CORPORATION

Introduction

The Food Technology Department of the JIDC has as its main objective the processing of Jamaican foods for both local and foreign markets. Its responsibilities include research and development of methodology, techniques, processes and products, costing analysis of the marketable products and consumer acceptance trials. Production is limited to pilot plant scale and commercial trials are carried out by the JIDC.

Project Organisation

All projects are being properly categorised as to the method of processing, food group, and technical requirements in order to provide for optimum efficiency as regards the use of equipment and staff. The four main divisions under which appropriate work is being carried out are:

- (a) Experimental Kitchens;
- (b) Food Science and Chemical Research Laboratory;
- (c) Pilot Plant;
- (d) Purchasing and Costing Department.

Project Evaluation

(a) Freezing Methods

(i) Banana Puree

Experiments on this project have been quite encouraging. A product has been produced which when packaged is of excellent colour, texture, flavour, aroma and keeping quality. It is also easily adaptable to incorporation into various recipes which have been developed and tested. A small supply of this product is being prepared for sale to determine consumer acceptance. Continuation of this project is intended with the aim of marketing both locally and overseas.

(ii) Coconut Cream

A product has been produced which has stood up to shelf life tests. The demand for this product has been very encouraging and consideration will be given to possible commercial production.

Investigations are being carried out into the possibility of producing coconut whipped cream in aerosol form as a dessert topping. This would not require refrigeration. Unfortunately, sufficient information on this method of processing is lacking and the Department is not equipped to do research on this at the moment. However, it is intended to continue investigating this method of processing as it may prove applicable to other products.

(iii) Guava Slices

Spanish Guavas were peeled, cored, sliced, and frozen in polythene bags. The product is attractive, and retains the original flavour and could find use as a dessert, or incorporated into various recipes such as fruit salad and preparation of guava delicacies, etc.

The major problem encountered concerns availability of satisfactory supplies of good quality. Until such time as supplies of good quality guavas are available this project will not be pursued further.

(b) Spray Dried Products

This method of processing appears to be one of the most encouraging as regards application to a variety of raw materials. The basic process is relatively simple and economical and appears easily adaptable to a wide variety of fruits. This procedure has been applied to sorrel, ginger, passion fruit, tamarind and lime and the resultant products have been quite good as regards reconstitution, flavour, taste and stability. In the case of lime juice extracts, there is still one problem to be solved involving some deterioration of flavour on standing.

Costing.../

Costing, packaging for sale and consumer acceptance trials still have to be done, but on the basis of the quality of the products, it is intended that this area of investigation be continued.

(c) Freeze Dried Products

This method of processing yields excellent products as regards reconstitution, taste and flavour but high operational costs have resulted in a temporary discontinuation of this project.

This method of processing has been applied to shell fish, meats, fruits and vegetables. Until such time as staff is available to investigate the possibility of lowering operational costs, this project has been deferred.

(d) Drum Drying

Experimental work is being carried out on the drum drier to determine which products are best suited to this form of drying. Flakes made from pumpkins and ripe bananas show promise. A properly planned programme for investigation of the full potential of this method of processing is being initiated.

(e) Hot Air Drying

This method has been applied to the production of banana and breadfruit flours. While these products could not compete pricewise with wheat flour, the possibility of these items finding a suitable market among West Indian migrants and health food stores in the U.K., U.S.A. and Canada cannot be overlooked. Further consideration is being given to this project especially with regard to the development of attractive recipes for utilization of these products.

Interest in the commercial production of banana flour has been indicated by two local processors.

(f) Fried Products

This method of processing is being applied to the preparation of dasheen and plantain chips. The products are quite good, especially the dasheen chips. The method of packaging.../

packaging at present is unsatisfactory resulting in poor shelf life as regards maintenance of crispness and flavour. Further work is being done on this project. This method of processing appears quite promising as regards adaptation to other local foods.

(g) Herring Project

This project has been long standing and shows no sign of coming to any satisfactory conclusion. Arrangements were made to purchase herrings from fishermen in the Yallahs area with a view to processing them for the local market. However, there have been many difficulties which have so far not been surmounted. The two major problems are:

- (i) the fish reaching the Department is usually of low quality due to poor storage and handling at the Yallahs end;
- (ii) methods of processing, e.g. canning, frying, escovitching, preparation of cat food, etc. have not been successful as regards producing a uniformly acceptable product. This is thought to be partly due to the point mentioned in (i).

The setting up of processing operations on site, at Yallahs, has been proposed, and discussions are currently underway with an interested party to take over the operation with some possible initial assistance from this Department.

(h) Crystallization of Fruits

Experiments in this field have not been altogether successful. Considerable work needs to be done to perfect methodology. The primary problems at the moment are:

- (i) appearance of final products;
- (ii) varied colour of final products;
- (iii) transient flavour of final products;
- (iv) keeping quality of final products;
- (v) more efficient drying methods.

Crystallization experiments have been carried out on the following: pineapple, breadfruit, otahiti apple, rose apple, nutmeg, pawpaw, mango, banana, ginger and guava. Pending.../

Pending expanded staff and other facilities, further development work on this project is being deferred.

(i) Preserved Products (Canning and Bottling)

A fair amount of work has been done on this type of product. This is one of the more common methods of processing food products and already there are several local food processors who are engaged in this form of processing. This form of processing has been applied to ackees, turnips, otahiti apples, plum tomatoes, onions and sweet peppers.

In the case of butter ackees, work is currently being done on producing ackees which will remain firm and attractive for a reasonable length of time. Butter ackees are a common variety in Jamaica, the major complaint among local processors being the instability of the final product on standing. Any improvement on the current processing methods that could enable satisfactory processing of butter ackees could provide a definite boost in the production capacity and quality of this product.

Results on kumquats have been extremely encouraging and it is intended to pursue this investigation.

Results with the other fruits and vegetables have also been encouraging but there are no immediate plans for developing these products for marketing.

Regarding these types of projects, it is felt that since most of the local processors are already directly involved in similar work it does not warrant the Department's full attention and projects of this nature should be assigned to summer university students interested in food processing under the proper supervision of the Senior Home Economist. Attention will primarily be directed to those products that are typically Jamaican and not already being processed by other local processors.

(j) Miscellaneous Projects

There are several miscellaneous projects which have been attempted such as candying of citron, tangerine, grapefruit and watermelon peel; guava syrup and cheese; pineapple chutney; pawpaw catsup....//

catsup; chew-stick bitters and confectionery which although they may find some use cannot as yet be considered as potentially good marketable products.

(k) Secondary Products from locally available raw materials

Adequate research in this area would require a highly competent and highly trained research scientist and also the purchase of more scientific equipment than is at present available in the Department.

There is a wide range of products which are currently being imported for use by some of our local processors and which could possibly be produced here in Jamaica from locally available raw materials. Examples of such items are citric acid, caramel, Glucose, etc. which are all by-products of starch or sucrose and which could conceivably be manufactured here.

It is intended to strengthen the chemical research section with a view to generating new local industries which could utilise our raw materials.

One project initiated by the Department along these lines is the hydrolysis of breadfruit starch to produce glucose. Glucose is an important ingredient in the confectionery industry, the manufacture of baby foods, etc.

Preliminary experiments have shown that glucose can be chemically produced from breadfruit starch. However, the economic feasibility of such a project has yet to be investigated.

J.I.D.C.
Food Technology Department
13th June, 1970.