

# TOWARDS THE 21ST CENTURY - AN EXPANDED FOCUS FOR THE FOOD TECHNOLOGY UNIT (FTU)

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## INTRODUCTION

A safe, nutritious and affordable food supply is the first requisite of human well-being. Food manufacturing processes have a basic role in food products that are suitable for human consumption, can be distributed widely, and are available throughout the year. As they fulfill these needed functions, the food manufacturing industries make a significant contribution to employment and economic development.

From the very beginning of the postgraduate programme in Food Technology, it was strongly felt that there was a need to develop a vibrant food processing industry in the Caribbean. This sense of purpose was, and still is, reflected in the philosophy and goals of the Food Technology Unit at the Faculty of Engineering, The University of the West Indies here in Trinidad. The programme is heavily applied-oriented and thus responds to the developmental needs of the food industry in the Caribbean, in the real world of commerce. Thus, the emphasis has continued to be in the areas of food processing and food product development and their application in commerce. This however does not imply that any less emphasis is placed on research and science per se since there are innumerable benefits which may accrue. The more readily apparent are to the following sectors:

- (i) Farmers - because new products developed will expand markets for farm commodities;
- (ii) Food processors - because they will have the knowledge necessary to develop safer, better-quality food products and have a more educated workforce to manufacture, distribute and market these products;
- (iii) Related industries - such as equipment and packaging manufacturers, transportation companies, and ingredient suppliers - who will have a market for their outputs;
- (iv) Consumers - who will have a wider choice of economical processed food products available throughout the year;

- (v) General public (all of whom are also consumers) - because of jobs created and general economic contributions through the multiplier effect, and
- (vi) Government - through increased revenues, foreign exchange earned through export and a sounder foundation for food regulations.

## THE EARLY FOCUS OF THE FOOD TECHNOLOGY UNIT (FTU)

Training and research were the essential ingredients of the focus for the Unit. In the area of training, graduate students satisfied the demand for middle-management personnel in:-

- (i) the food processing industry and
- (ii) food-related research and development (R&D) institutions.

These new food technologists were expected to function as Production Managers, Quality Assurance Managers and Food Engineers in the processing industry. Within the R & D institutions such as the Caribbean Industrial Research Institute (CARIRI), the Produce Chemist laboratories and other state-run agencies, the technologists undertook food product development type research, qualitative and quantitative analyses and provided technical advice to members of the food processing community.

As regards Research, the Unit sought to develop in a systematic and scientific manner, a body of knowledge relating to the utilisation of indigenous raw agricultural materials in the manufacture of existing and the development of new processed food commodities.

## RATIONALE FOR FOCUS

- (i) A shortage of Trained Food Technologists to satisfy the needs of the food processing industry.

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- (ii) Lack of appropriate information on the existing and potential utilisation of indigenous raw materials for the manufacture of food products.

### PRESENT FOCUS OF THE FOOD TECHNOLOGY UNIT (FTU)

The focus is an expansion of the initial focus (Training Technology/Research) to include a Technology Transfer Function. This transfer function attempts to transmit the information/technology developed by the Unit over the years, to end users (i.e., the regional food processing industry).

- (i) Much relevant and significant research information has been accumulated/generated by the Unit which needs dissemination/transfer to new products utilising local raw materials.
- (ii) The liberalisation of the economy has created an environment in which the existing, once protected food processor, is unable to compete with his/her North American counterpart manufacturing a similar product to ensure their continued existence. Regional processors will either have to become:
  - (a) cost-competitive or
  - (b) shift their thrust to the production of indigenous foods and increase the incorporation of local raw materials in their product formulation.
- (iii) The economic downturn has resulted in lowered incomes and increased unemployment in the region. Increased linkage between the food processor and the local farming sector (raw material producers) will enhance income generation and employment creation.

### TECHNOLOGY TRANSFER MECHANISMS

It is most important that the Unit does not depend on the food processing industries to identify their needs. The Unit must seek to identify industries' needs through a continuous evaluation of the local food processing industry. This can be accomplished through:

- (i) direct questioning;
- (ii) consultations, conferences, seminars and workshops.

Many projects have been completed by the Unit that can be commercialised. However, a problem exists, since, unlike the developed countries, there has been little or no interaction between the Unit and the food processing industry. University-industry interaction takes many forms including direct-research contracts; consortia; jointly-operated laboratories or research parks; sabbatical leaves; continuing education, including co-op programmes, seminars, gifts, scholarships and fellowships; and consulting arrangements. The Unit has therefore begun to establish links with the food industry. Some of the leading processors have already funded a student apprenticeship which provides for an attachment of one student to the plant for a three-month period each year. The intention is to create ties of this nature with other food processors not only in Trinidad and Tobago, but throughout the CARICOM territories.

The Caribbean Institute of Food Science and Technology (CarlFST), a non-profit organisation of food scientists and technologists, will be used as a primary link between those professionals in the food industry and the Unit, since the majority of its members are employed by the food industry. CarlFST workshops and seminars are always held in collaboration with the Unit and this allows for very high levels of interaction/communication.

### A SYSTEMATIC APPROACH TO COMMERCIALISATION OF NEW TECHNOLOGY

The approach to commercialisation of research projects should be market-driven. The process involves:

- (a) proper definition of the specific requirements of the potential entrepreneur, and assessment of the size of the market for nationally-developed technology.
- (b) a well-informed and sound analysis of the needs of the market.
- (c) identification of research programmes with potential of commercialisation.
- (d) prioritisation of identified programmes for implementation.
- (e) development of the technology on a comprehensive front.
- (f) application of research techniques which

ensure effective transfer of results to the market place.

- (g) establishment of an effective delivery system which gives the Unit some return on the investment made in developing the package, and which protects the entrepreneur and gives the maximum chance of commercial success.

### **PROBLEMS, DIFFICULTIES AND CHALLENGES FACED BY THE FOOD TECHNOLOGY UNIT (FTU)**

The most fundamental problem or difficulty encountered by the Unit today is **INADEQUATE FUNDING**. This has resulted in:

- i) the Unit's inability to recruit permanent staff. A possible solution will be increased inter-faculty/interdepartmental collaboration with respect to both teaching and research.
- ii) the development of training modules, information packages and programmes which are paid for by the recipients.
- iii) the use of existent facilities to develop linkages with the University's (Faculty of Agriculture) farm to obtain agricultural raw materials for use in the Food Technology Units pilot processing plant. These products may be offered for sale thereby generating additional income. Another benefit to be derived from this arrangement, if successful, is the demonstration of the important linkage that must exist between the farming and processing community, especially with regard to the contractual aspects involved (e.g., pricing, supply timing, quality and quantity requirements, etc).
- iv) the availability to the food processing sector the use of existing laboratory facilities for product development, processing, analytical and microbiological assays. A fee schedule is to be established which charges for equipment use, technician and/or staff time, surplus analysis, etc. Since the Unit does not wish to compete with other similar service institutions, this work will only be conducted on a time availability basis and clients will be referred to private consultants and laboratories where appropriate.

Technology transfer information is supposed to be a two-way flow but at present, this flow is at a very low level. CarIFST can play an important role here but more significantly, the already well-developed Department of Agricultural Extension which has successfully established itself, can be used as an assimilating and distribution agent for technology transfer and information throughout the CARICOM. The Unit intends to fully exploit the potential of these linkages.

Another major problem encountered by the Unit lies in the area of technology transfer and information. This is supposed to be a two-way flow but at present, this flow is at a very low level. CarIFST can play an important role here but more significantly, the already well-developed Department of Agricultural Extension which has successfully established itself, can be used as an assimilating and distribution agent for technology transfer and information throughout the CARICOM. The Unit intends to fully exploit the potential of these linkages.

### **CONCLUSION**

In view of these challenges and opportunities, the Food Technology Unit must become:

- (i) a pre-eminent multi-disciplinary scientific educational centre for Food Science and Technology in the region.
- (ii) an authoritative source of science-based information on Food Science Technology, and information and database satisfying diverse professional needs.
- (iii) a foremost agency recognised for conducting educational and training programmes for professional and sub-professionals in Food Science and Technology.
- (iv) the established and recognised link between all principal players in industry, academia and government.

With this renewed focus, there will inevitably be a strengthening of the technology-oriented, problem-solving research approach. Though the input of science will be increased in the coursework curriculum, the emphasis in applied research is in response to the more urgent needs of the society e.g., product development and the development of processing systems and their application to tropical foods. The proposed increase in scientific knowledge is to be used in the development of relevant technology for the food industry.