

# **GUIDELINES FOR ACCEPTANCE OF FOOD IRRADIATION**

**REPORT OF A TASK FORCE MEETING  
ON MARKETING/PUBLIC RELATIONS OF FOOD IRRADIATION  
CONVENED BY THE  
INTERNATIONAL CONSULTATIVE GROUP ON FOOD IRRADIATION  
AND HELD IN [REDACTED]**



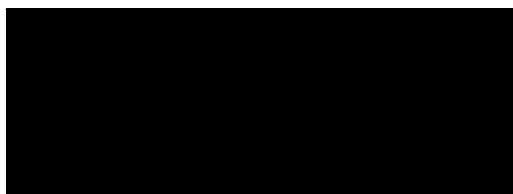
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GUIDELINES FOR ACCEPTANCE OF FOOD IRRADIATION  
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## FOREWORD

The International Consultative Group on Food Irradiation (ICGFI) was established originally by 15 Governments on 9 May 1984, under the aegis of FAO, IAEA and WHO, for an initial period of 5 years. ICGFI is composed of experts and other representatives designated by Governments which have accepted the terms of the "Declaration" establishing ICGFI and have pledged to make voluntary contributions, in cash or in-kind, to carry out the activities of ICGFI.

The functions of ICGFI are as follows:

- a. To evaluate global developments in the field of food irradiation;
- b. To provide a focal point of advice on the application of food irradiation to Member States and the Organizations; and
- c. To furnish information as required, through the Organizations, to the Joint FAO/IAEA/WHO Expert Committee on the Wholesomeness of Irradiated Food, and the Codex Alimentarius Commission.

At present, the following Governments had become members of ICGFI:

Argentina, Australia, Bangladesh, Canada, Chile, Egypt, France, Federal Republic of Germany, Hungary, India, Iraq, Israel, Italy, Malaysia, Mexico, The Netherlands, Pakistan, Philippines, Poland, Syria, Thailand, Turkey, U.S.A., and Yugoslavia.

A Task Force on Marketing/Public Relations of Food Irradiation was established by ICGFI as a follow-up to the Task Force on Trade Promotion of Irradiated Foods, also established by ICGFI in 1985.

At the invitation and partial support of Agriculture Canada, the meeting of this Task Force was convened in Ottawa, from 15 to 19 September 1986. The primary objective of the Task Force meeting was to develop guidelines to facilitate wider acceptance of food irradiation and irradiated food to national authorities, industry, trade and consumers. The attached report of the meeting provides guidelines for the acceptance of food irradiation, including the benefits offered by the process, by different target groups which are likely to be involved in the introduction of this technology.

## ***EDITORIAL NOTE***

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## A. INTRODUCTION

An international Task Force, comprising 11 delegates from 9 nations, met at the Holiday Inn, Ottawa, Canada, from 15-19 September 1986.

The Meeting was convened by the International Consultative Group on Food Irradiation (ICGFI), established in May, 1984 under the aegis of FAO, IAEA and WHO.

The meeting was hosted by Agricultural Canada and opened by Mr. Yvon Jacques, Assistant Deputy Minister, International Programme Branch.

The Secretariat consisted of Mr. M. Satin, Chief, Food Industry Service, AGS, FAO, Rome, Italy, and Mr. P. Loaharanu, Head, Food Preservation Section, Joint FAO/IAEA Division, Vienna, Austria.

Mr. Yvon Jacques and Dr. J. de Graaf of International Programme Branch, Agricultural Canada served as co-chairman of the meeting. They were assisted by Mrs. M. Young and Mr. J. Samson who led the group discussions on subjects related to market development and public education campaigns on food irradiation. Mrs. J. Howard acted as the rapporteur of the Meeting.

The meeting was opened by Mr. Yvan Jacques, Assistant Deputy Minister, International Programme Branch, Agricultural Canada. He stated that Agricultural Canada was an enthusiastic host because of its interests in marketing both irradiation technology and irradiated food products. Agricultural Canada had recently accepted the responsibility of being Canada's lead government agency dealing with food irradiation. An interdepartmental food irradiation advisory committee has been established with the participation of industry and consumer, under Mr. Jacques's chairmanship. It will provide a forum for the exchange of action to be taken in the areas such as regulations, marketing, education and research.

Mr. Paisan Loaharanu expressed the appreciation on behalf of the Directors General of FAO, IAEA and WHO to Agricultural Canada for hosting the meeting. He stated that the ICGFI had attached its highest priority to the acceptance and trade promotion of irradiated food. Consequently, ICGFI convened a Task Force on Trade Promotion of Irradiated Food in Vienna in

October 1985. Invited experts on legislation, marketing, consumer attitudes, and industry representatives participated in the deliberations. The first of this Task Force's nine recommendations was as follows:

"To develop a strategy on dissemination of information to facilitate public acceptance of the process, a Task Force on Marketing/Public Relations should be established by ICGFI and convened as soon as possible. Carefully designed and executed programmes of information and education tailored for specific interests should also be developed by this Task Force."

In accordance with this recommendation, a Task Force on Marketing and Public Relations of Food Irradiation was convened by ICGFI in Ottawa, from 15 to 19 September 1986. It comprised of 13 delegates from nine Member States and 20 Observers. A list of participants appear in Appendix III of this report.

The primary objective of this Task Force Meeting was to develop guidelines to facilitate wider acceptance of food irradiation and irradiated food to national authorities, industry, trade and consumer. A draft document entitled "Marketing and Communication Guidelines for Acceptance and Usage of Food Irradiation", prepared by F. Defesche and R.W. Urbain under a consultancy with ICGFI, was used as a working document.

It was recognised that considerable obstacles must be overcome before food irradiation is accepted on a worldwide basis, and that enabling legislation is a matter for individual countries.

The attitudes of governments, food industry groups and consumers differed widely between countries, but there was pronounced consumer opposition to the introduction of irradiation on grounds of its generic safety, and of deleterious effects upon treated foods.

Nevertheless, 34 countries have already approved collectively over 40 irradiated food items for consumption, either on an unconditional or a restricted basis. In 18 countries, the process is being applied on a commercial scale, in volumes varying with market demand. The Task Force produced a number of specific recommendations designed to facilitate a wider acceptance of the irradiation technology by national authorities, industry,



retailers and the consumer (end-user) segment. The agreed Report and recommendations appear on the following pages.

#### B. TASK FORCE OBJECTIVES

The purpose of the meeting was to develop an action plan which can be applied in countries with varying philosophies towards food irradiation, but which would help foster a common international attitude to what is undoubtedly a controversial issue. In this context, objectives were to:

- Define target groups which influence the introduction of food irradiation technology;
- Formulate a co-ordinated communications policy towards these groups to inform them of the benefits inherent in the process and to dispel misconceptions as to possible harmful side-effects resulting from its use;
- Establish a marketing strategy to present food irradiation as a viable, cost-effective and safe method of quality control, with ongoing economic advantages to producer and consumer
- Suggest the basis of national organisations whose function would be to implement the marketing and communication activities within their own countries, and to liaise with FAO, IAEA, WHO and other international bodies, as well as play a part in facilitating import/export relationships.

The overall objective, therefore, is summarised as evolving a realistic program to achieve the approval, acceptance and usage of food irradiation on a worldwide basis.

It should be noted that the Task Force considered these goals to be achievable, but that it was not feasible to forecast a working time frame in this regard.

### C. BASIC PREMISES

The recommended marketing/communications strategies were based upon certain key assumptions.

These may be summarised:

- The basic irradiation process is safe and contains no residual effect upon foodstuffs;
- Over a period of time the process will become acceptable to processors and consumers;
- Continuing evaluation will demonstrate that it is superior to alternative methods;
- It will prove commercially viable in terms of cost-benefit to food processors.

#### 1. Safety Factor

This comes from the fact that harmful residual elements (radioactivity), adverse organic changes (radiolytic) and significant nutritional loss are absent.

#### 2. Acceptability

This must come from an 'educational' process to be directed towards defined target groups (see Marketing and Communications Strategies). The support of international and national scientific authorities is essential to achieving this goal.

#### 3. Superiority

While a competitive approach towards other methods of quality control and preservation does not form part of the proposed strategy, the health hazards inherent in other fumigation systems (carcinogenic in the case of ethylene dibromide) will emerge through regulatory restrictions on their use.

#### 4. Cost-effectiveness

The economic benefits of food irradiation to the producer, processor and marketer must be measured not only in the cost of treatment per kg. or cum, but also in savings realised from averting spoilage and extending shelf-life. The important aspect of product reputation (quality integrity) is also a cogent factor in production cost evaluation.

## D. HISTORICAL BACKGROUND

### 1. Irradiation Process/Source

Irradiation refers to the exposure of food to a particular form of radiant/electromagnetic energy. Radiant energy is widely utilized in food preparation and protection.

Irradiation utilizes high-energy gamma rays, x-rays or electrons to kill micro-organisms and insects that might contaminate or infest the produce.

Gamma radiation refers to the use of gamma rays emitted from the radioactive isotopes Cobalt-60 or Cesium-137. X-rays and electrons are produced by an electron beam generator powered by electricity.

The marketing plan assumes that both sources of irradiation will be available and utilized by the food industry.

### 2. Process Safety

Irradiation is not a new process. It was first patented for food preservation in France in 1930. Since then it has become accepted in more than 30 countries for a great variety of foods. Irradiation has been used most commonly to disinfect fresh fruits and vegetables, decontaminate spices, and inhibit sprouting of potatoes, onions, garlic and ginger. Several developed countries are now using the process commercially. Irradiated foods are routinely used in space exploration. Food treated by irradiation is also in current use for people who must have sterile diets due to immune system deficiencies.

On the basis of decades of worldwide safety testing, a committee of international experts appointed by the World Health Organization of the United Nations (WHO), Food and Agriculture Organization (FAO) and the International Atomic Energy Agency (IAEA), concluded in 1980 that any food irradiated up to an average absorbed dose of 10 kGy level was safe for consumption. This conclusion was adopted for food use by the Codex Alimentarius Commission, an international group that develops global food



standards, in 1983. Member nations are now in the process of adopting this standard, and several have already implemented their regulations based on this standard.

This marketing plan is based upon the recognition that the process is safe, but it is also recognised that consumers, up to now, do not necessarily share this view.

### 3. Costs

Large scale commercial experience of food irradiation is too limited for comprehensive economic analysis to have been undertaken. However, cost estimates indicate that the dose employed can be a major cost determinant. Cost estimates vary from about 2 cents US per kg or less for low doses to perhaps 20 to 30 cents US per kg for radiation-sterilized foods (e.g. meats).

It has been demonstrated that irradiation costs can be competitive with other food processing costs. Irradiation processed perishables especially do not have to cost more than untreated perishables because there are "trade-offs" - notably longer fresh life and less spoilage losses. However, some growers may see this as a negative factor because better preservation may reduce demand and cause lower prices. With processed foods, the cost "trade-off" can be the elimination of one or more chemical additives and/or reduced losses. Chemical treatments, gas fumigation and irradiation cost are similar.

The increasingly negative reaction to the use of fumigants will create additional opportunities for application of irradiation, and comparative cost benefits to industry and consumers should be closely evaluated.

Additionally, other savings may occur in inventory reduction costs, potential insurance cost savings for international trade, and reduced rejection potential. The important aspect of product reputation (quality integrity) is also a cogent factor in production cost evaluation.



#### 4. Major Benefits of Food Irradiation

The process constitutes a highly effective means of safeguarding product integrity against food-borne parasites and microorganisms. Major functional benefits include:

- residue-free alternative process to fumigants in disinfesting insects in stored grain, fruit, spices, etc.,
- extends shelf-life of perishable animal and plant products by destroying spoilage microorganisms,
- reduces the hazard of food-borne parasites and microorganisms in frozen and non-frozen fresh and processed foods,
- makes available shelf-stable sterilized dry pack foods and new fresh foods,
- improves physical/functional properties of a number of products,
- controls sprouting of potatoes, onions, garlic and other roots,
- kills harmful bacteria - e.g. salmonella and campylobacter,
- disinfests fruit and vegetable products,
- inhibits development of moulds and rots (e.g. strawberries), and
- delays deterioration of seafood products.

Product integrity can be further assured by use of irradiation to sterilize packaging material. Irradiation technology can be used in combination with other preservation techniques such as canning and freezing.

Table 1 below relates these benefits to the four major target market groups:

BENEFIT	GOVERNMENT	NON-GOVERNMENT	FOOD INDUSTRY	CONSUMER
Residue-free alternative to fumigants	safer food supply	safer food supply	safer food supply	safer food supply
Extends shelf-life	greater food supply; wider markets for production, economic benefits	greater food supply	less spoilage lower cost, reduction in waste	less spoilage longer keeping, lower costs reduction in waste. Better food quality.
Destroys food-borne parasites and microorganisms	safer food supply, improved nutrition	safer food supply, improved nutrition	safer food supply, improved nutrition	safer food supply, improved nutrition
Market availability new foods	increased trade, wider markets	increased variety	more revenue, out-of-season products/new products available	greater food of variety
Functional improvement of some products	minimal benefit	higher quality food to consumer	more growth, revenue, expanded markets	higher quality food greater convenience
Sprouting control	reduced losses, expansion of markets	safer food, reduced chemicals	more, higher quality foods better raw materials	safer food, reduced chemicals, longer storage

It is clear from Table 1 that the food industry has potentially a great deal to gain from the selective introduction of food irradiation techniques.

## E. MARKETING PLAN

### 1. The Food Industry

For the purposes of this Report, this reference covers the 'universe' of food production from the primary grower through processing, manufacturing, packaging, wholesaling and retailing to the end-user. These sectors - separately or in combination - stand to benefit from virtually all the applications of food irradiation. The Food Industry, corporately, forms, therefore, the primary target of proposed Communications and Marketing strategies. It is recognised, however, that given the sensitivity of the irradiation concept in the minds of many consumers, positioning to, and acceptance by, the end-user is critical to sanction of the process by Government and successful introduction to the food production and marketing decision-makers.

Because the irradiation process offers different benefits to different food products, diversified marketing and communications tactics must be developed, working on a case-by-case basis. Exchange of information internationally, and by type of industry will be essential in advancing usage of the technology at manufacturing and marketing levels - and by consumers generally.

### 2. Target Market Groups

Before developing Marketing and Communications plans, it is necessary to identify the key sectors which are responsible for approving, or which exercise influence in decision-making, in respect to the introduction of food irradiation. While their relative importance may differ from country to country, each must be included in any overall strategic appreciation. The same target structures are applicable to both Marketing and Communications activities, although the emphasis accorded to each sector will vary according to whether it calls primarily for a marketing input, or whether a public relations (communications) effort is more appropriate.



## Key Target Sectors

These are defined as:

- Governmental:  
Elected Representatives/Approvals Authorities Trade Departments  
(Import/Export)/Health and Food Administration Departments/Municipal
- Non-Government Agencies:  
Environmental/medical/dietetic/consumer associations/independent  
statutory bodies and trade unions
- Primary Producers:  
National Farm Associations/Individual Growers' Organisations (crop  
category)/Import/Export Groups (non-government)
- Processors and Manufacturers  
Post-harvest preservation/Produce storage in-plant  
preparation/Packaging/Warehousing/ Shipping and distribution
- Wholesalers and Retailers:  
Central Storage/Buying Organisations/Major Retail Chains and  
Groups/Independent Retailers/ Retail Traders' Associations
- Consumer Groups:  
Health Associations/'Natural Food' Groups/ Anti-Nuclear  
Groups/Environmental Associations and other concerned bodies.

A linking factor between these various target groups is the irradiation processing industry itself - consisting either of independent plant operators or of 'in-house' treatment by large food-processing corporations. Clearly, the initial investment in the irradiation process must be outlayed by these operators, who, of course, have a vested interest in securing regulatory approvals and fostering manufacturer and consumer acceptance. Thus, implementation of Marketing and Communications strategies must commence at this source. However, primary producers, processors, wholesalers and retailers all stand to derive benefits from the introduction and extended use of the technique. In

these circumstances it is reasonable to seek their co-operation and involvement in undertaking a concerted marketing/public relations effort.

### 3. Marketing Objectives

Summarised as follows:

- Increase 'share' of food preservation for irradiated products against techniques known to present health risk factors, where regulatory or cautionary restrictions have been applied.
- Investigate and approach potential users not already applying any method of sterilization/decontamination/fumigation/quality enhancement to their products.
- Support producers and manufacturers currently utilizing food irradiation techniques to secure acceptance and counter consumer resistance.
- Reach nominated target groups with individually designed programmes.
- Secure co-operation and input from wholesalers, retailers and other demonstrable beneficiaries.
- Work towards unified identification (branding/labelling/pack/positioning) for all products which have been irradiation-processed (internationally).
- Integrate marketing and degree to secure maximum effectiveness.
- Prepare plans in co-ordination with FAO/IAEA/WHO authorities, and aim for exchange of information with other countries to develop standardised marketing strategies and facilitate import/export activities.

It should be observed that the specialised nature of food irradiation requires a range of support activities which do not normally fall within the strict definition of marketing responsibility. Programming for key target groups is outlined below.

4. Activity to Major Target Groups

a) Government Agencies

Identify key decision-makers, organisationally and personally.

Provide this audience with complete information packages on food irradiation. These should include discussion on background information on food irradiation (history, safety, efficacy) and how specifically the country concerned will benefit from its usage.

Follow up with detail of the nature and extent of government action required (regulatory bodies, legislation, etc.) and emphasise WHO and other significant endorsements aim for maximum standardisation of regulations between countries to encourage and benefit international trade and commerce.

Government attitudes will be influenced by the opinions of responsible scientific and medical organisations, as well as by the trends of consumer opinion favoring or opposing the process.

The need to inform legislators of the facts (and benefits) of irradiation application - using rationalisation and terminology which is also understood by producers, manufacturers and consumers - is self-evident.

FAO/WHO should assist in effecting overall approval and acceptance of the process through the structure established in each country.

b) Non-Government Agencies

This is a more diverse target audience, which varies from country to country in terms of sophistication, organization and influence.

Identify principal personnel who influence approvals and acceptance of food irradiation.

Analyse the potential key issues and arguments which these groups raise for and against food irradiation.



Develop complete and factual answers to these issues. Include in a complete package on food irradiation.

Seek public response from these groups and retain a reputable public relations firm schooled in "issues" management to achieve a positive response from this target group and handle any negative issues that may be raised.

Establish a business-to-business communications programme to reach producers, industry and retail organizations

Work through food industry organizations e.g. the Coalition for Food Irradiation in the US, export trade associations, etc, as spokespersons, to provide a cohesive approach.

Show 'case history' examples of successful and beneficial applications of irradiation.

Cite scientific and regulatory endorsements of the use of irradiation in preservation of foodstuffs and contribution to public health and safety.

When endorsements from non-government agencies are forthcoming, ensure that they are circulated to other parallel bodies.

Enlist the support of respected community opinion-leaders who endorse the application of irradiation to foodstuffs.

c) Food Industry

Acceptance by the food industry is obviously crucial in gaining widespread acceptance and usage of food irradiation. The industry has much to gain in terms of increased products choice and product improvement. However, for an industry member to make the initial investment and to take the first risk will be difficult. There will be a great temptation to follow, rather than to be, the leader.

The Task Force considers that a legitimate and successful means of introducing an irradiated food product may be through the launch of a new brand concept where quality factors can be emphasized in their own right rather than on a comparative and therefore more directly competitive basis.

c.1 Internal to Industry

Identify all major companies and decision makers in the food industry that potentially could use the irradiation process or sell products utilizing the process.

Identify key industry organizations that represent the various components of the food industry e.g. the Produce Marketing Association (PMA), National Food Processors Association (NFPA), marketing cooperatives, etc.

Disseminate detailed, factual information on food irradiation to the targeted companies, decision makers, and organizations.

Identify industry leaders within individual farm and commodity organisations.

Provide technical and marketing data on the benefits of applying irradiation to their primary or processed product in terms of minimising spoilage, preserving freshness, etc.

c.2 Primary Producers

Work with industry members and organizations to seek a breakthrough with at least one or two manufactures who would and could "showcase" the acceptance of food irradiation. Target likely candidates with a high probability of success and, if feasible, help them technically or in funding to achieve a commercial breakthrough.

Utilize analogous "case-history" experience from industry to show how similar precedents have been set e.g. the introduction of aspartame.

Retain the services of Business to Business or Marketing consultancy to help counter the industry's potential inertia.

Apply leverage in special situations where governments may influence industry to move to accept food irradiation rapidly. For example, when in 1986 the ethylene dibromide (EDB) ban had an adverse effect on the export to the U.S. of fresh fruits and vegetables from the Caribbean and Central America (a major thrust of the Caribbean Basin Initiative programme), it was possible to promote low-dose irradiation as one of the most promising alternatives to EDB and thus show it would serve the government's interest if the process is accepted and utilized.

Initiate research studies to determine consumer attitudes to irradiation and what reassurances are most necessary to satisfy doubts about the process.

Emphasise export potential deriving from foods treated by irradiation. Quote countries which have approved admission of treated foods.

Introduce scientific evidence, including actual results of tests on their product categories by reputable laboratories.

Quote acceptance of irradiation by medical and other influential bodies.

### c.3 Processors and Manufacturers

Identify major companies with vulnerable food products, who can benefit economically from irradiation application in terms of spoilage minimisation and quality control.

Circulate scientific test results on affects of irradiation on their product category.

Quote regulatory approvals in their own country, and internationally.



Point up export advantages to countries which have approved importation of irradiated foodstuffs.

Stress benefits of irradiating food after it has been pack-sealed.

Quote acceptance of irradiation by medical authorities and consumer groups.

Demonstrate shelf-life extension advantages for shipping, warehousing and retailing.

Give examples of major processors/manufacturers in their field who already utilise the irradiation process.

#### c.4 Wholesalers and Retailers

Identify major retail chains and groups and seek contact with senior buyers in the food categories where spoilage is likely to affect the product, and where extended shelf-life offers the greatest potential advantage (e.g. berry fruits in supermarkets).

Indicate manufacturer use of the process domestically and for export markets, show that there are no residual effects arising from the process, and that flavor and appearance are not affected.

Emphasise additional safety factors which come from pre-destruction of such harmful microorganisms as salmonella.

Discuss labelling and branding of irradiated foods so that end-users will be completely informed as to what they are purchasing.

Quote endorsements from medical, dietetic and other authorities, as well as organisations.

c.5 Branding and Packaging

Sterilisation and decontamination by irradiation processes should be presented from the start as a positive quality control benefit.

A common theme-phrase - such as "protected by ionisation" should be adopted internationally, together with a symbol (logo) to identify visually foods treated by irradiation techniques.

In cases of manufactured items containing one or more irradiated components, classification as to whether or not it is denoted as 'irradiated' must conform to national regulations.

c.6 External to Industry

Encourage industry to utilize and fund a long term public relations campaign addressed to retailers, consumers and opinion formers which would both present a balanced, informed view of food irradiation, and help answer negative, sensational criticism.

Educate scientific, regulatory and marketing experts through a team approach to ensure common, and preferably, simple language which is understandable to both industry experts and the lay consumer.

d) Regulatory

Treatment of foodstuffs by irradiation techniques depends, in virtually all countries, upon the introduction of enabling legislation, with the necessary powers vested in regulatory bodies.

In cases of manufactured items containing one or more irradiated components, classification as to whether or not it is denoted as "irradiated" must conform to national regulations.

e) Consumers

Key issues and activities that concern the consumer are addressed in the communication plan which follows this section.

The initial marketing of food irradiation is not primarily aimed at consumers because its benefits are not immediately apparent to them. Consumers will not ask for food irradiation. They do not feel the need for it, since they are not sufficiently aware of many of the present problems with food and the benefits the process offers. Marketing efforts aimed at consumer acceptance of food irradiation cannot be undertaken until regulatory authorities and interest groups acting on behalf of the consumer get food irradiation approved.

Consumer acceptance will take place on two levels:

- 1) Acceptance of the process (relevant for those products that only contain irradiated components or raw materials).
- 2) Acceptance of product when the immediate benefits of quality and integrity can be communicated.

f) Consumer Groups

Identify the principal bodies concerned with the possible harmful affects of application of irradiation to foodstuffs and encourage frank and open debate on the subject.

Circulate information package containing scientific evidence, endorsements by medical and other authorities, and by international health organisations.

Indicate hazards from microbacteriological contamination which irradiation can prevent.

Show conclusively that the irradiation process is non-nuclear, and that fears of such occurrences as 'melt-downs' are invalid.

Demonstrate that there are no adverse environmental effects either to workers in the plant, or to those living in its vicinity.



g) Consumer Confidence

Ultimate market acceptance of irradiation as a beneficial and non-hazardous process depends upon tangible evidence rather than documentary reassurance. A number of practical courses suggest themselves in this context:

- Work with industry members/organisations to seek a breakthrough with at least one or two manufacturers to "showcase" the practical benefits of irradiation in a given food category. Processors/products with a high probability of success should be targeted. If feasible, technical co-operation should be extended, and funding assistance rendered (possibly upon a joint-venture basis).
- Highlight case-history experience in industry innovation to demonstrate the acceptance and success of analogous precedents (e.g. aspartame in sweetening).
- Note humanitarian aspects (how irradiation reduces post-harvest spoilage and thus helps increase food supply availability in many developing countries).
- Publicise special situations where government initiatives have been applied to industry (and by implication) the consumer, to accept food irradiation more rapidly. For example, ethylene dibromide (EDB) bans are adversely affecting export to the U.S. of fresh fruits and vegetables from the Caribbean and Central America - a major thrust of the Caribbean Basin Initiative program. Low-dose irradiation appears to be one of the most promising alternatives to EDB, and it serves the purpose of governments that the process is accepted and utilized.

It must be recognised that, while the initial marketing of food irradiation is not primarily aimed at consumers (end-users) their acceptance will constitute a decisive factor in government regulatory approval and in use of the process by industry. It is anticipated that

consumer acceptance will take place at two levels:

- Favorable attitudes to the process (for products which contain only irradiated components or raw materials)
- Willingness to purchase the whole (irradiated) product when the immediate benefits of quality have been effectively communicated.

#### F. COMMUNICATIONS STRATEGY

Implementation of Marketing and Communications Plans are, of course, interdependent, and all activities should be closely correlated. This section of the report addresses the principles and guidelines which should be considered in developing an effective Food Irradiation Communications strategy.

##### 1. Target Groups

Ongoing communication between the following sectors is necessary:

##### a. Government Agencies

They are responsible for ultimate approvals, and are the means by which consumers are reassured. They include:

- Health, safety and regulatory agencies
- Trade (internal and import/export)
- Consumer and environment
- Foreign relations and aid programs

##### b. Non-Government Agencies

They represent informed opinion. They also represent and influence large groups of people. They include:

- Consumer associations
- Unions (trade and professional)
- Scientific and medical associations
- Educational institutions

c. Food Industry

Requires reassurance on consumer attitudes, as well as information on profitability and potential benefits of irradiated food, particularly in comparison with their present preservation methods. They include:

Primary producers

Processors and manufacturers

Distributors (wholesale/retail/export)

Food service and caterers (restaurants)

d. Radiation Processors

As prime movers, radiation processors require a means by which they can fully evaluate the potential of particular irradiated foods, and an awareness of the climate in which they could be introduced. They should formulate a unified approach to assist consumer understanding.

Processors may be classified:

- Independent contractors
- Food industry linked

e. Consumers

Their acceptance through a balanced and rational understanding of the process is essential before irradiated food can be marketed. In many instances, general misinformation on irradiated food has created a confused, anxious climate of opinion which must be addressed by a communications program.

They include:

Food and health associations

Environmentally concerned bodies

Anti-nuclear groups

Consumer protection organisations.

## 2. Communication Channels

Methods to reach these target groups will obviously vary from country to country, but in general, they can be classified as:

- Media  
Print/television/radio/video/direct mail
- Organisational  
Associations (international/professional/trades) and special interest groups

## 3. Communications Techniques

These may be categorized:

- Media Relations  
(via public relations activities)
- Controlled Communications  
(Business-to-business/direct mail, etc.)
- Direct Contact  
(By management and qualified personnel)
- Indirect Contact  
(Through government and supportive bodies)

## 4. Public Relations Techniques

This means of communication falls into four broad areas:

- a. Media relations
  - Press relations
  - Feature articles
  - Syndicated news
  - Captioned pictures
  - Interviews
  - Press briefings
  - Facility visits
  - Product sampling



- b. Controlled Communications
  - Brochures
  - Publications
  - Videos
  - Press support advertising
  - Inserts (magazines, etc.)
  - Syndicated tapes/films
  - Editorial Photography
  - Direct Mail
- c. Direct Contact (one-to-one communication)
  - Seminars
  - Conferences
  - Lectures
  - Exhibitions
  - Demonstrations
  - Research (qualitative/quantitative)
  - Inter-Management meetings
- d. Indirect Contact (through outside bodies)
  - Government publications
  - Medical/Dietetic papers
  - Environmental association pronouncements
  - Educational authorities' material
  - International Endorsement (FAO/IAEA/WHO)
  - Approvals bodies in other countries

The most effective available combinations of these resources should be co-ordinated in each country, and their utilization scheduled upon an ongoing basis - taking into account the existing attitudes towards the irradiation of foodstuffs.

## 5. Benefit Identification

The Chart on page 33 of this report summarises the general benefits which irradiation of food can provide for Government, Non-Government, Food Industry and Consumers (end-users). In communicating the major attributes of the process, more specific details of these known benefits will be necessary. They are categorized under

Health/Safety; Quality Enhancement; Cost Advantages; Volume/Supply; New Market Development Opportunities; and New Product Development Opportunities. On the other side of the coin, key issues must be frankly examined and debated. They are concerned with safety and quality (involving a wide range of topics); and perceived association with the nuclear industry. Added to these definable factors is the natural reluctance to accept change, particularly in such vital and traditional areas as food supply. Specific benefits accruing from the irradiation process are noted below, together with a brief summary of key negative issues.

a. Positive Identifiable Benefits

- Quality

Destroys insects, parasites.  
Gets the product to the consumer faster.  
Delays ripening/sprouting.

- Health/Safety

Destroys bacteria/pathogens/parasites.  
Reduces needs for chemical additives and pesticides.

- Costs

Low energy cost after initial investment.  
Reduced handling and storage costs.

- Volume/Supply

Prevents loss of food (less spoilage).  
Enhanced product yield (e.g. juice).  
Inhibits product shrinkage (e.g. potatoes).

- Market Development Opportunities

More economical transportation.  
Enlarged export market potentials.  
More consistent quality and uniformity.

- New Product Development Opportunities

Opens the way to industry innovation.  
Will contribute to superior manufacturing.



b. Key Issues to be Addressed

- Safety and Quality
  - Toxicological/radioactive
  - Adverse microbiological changes
  - Loss of nutritional benefits of adequacy
  - Poor organoleptic properties
- Process Safety
  - Environmental (in terms of the facility)
  - Internal (workers in irradiation plants)
  - Transport and disposal of radioactive sources
- Negative Associations
  - Nuclear industry (reactor accidents)
  - Radioactive fallout in plant vicinity
  - Waste transportation and disposal
  - Affinity with nuclear weapons manufacture

c. Questions Relating to Nuclear Energy Sources

- Does irradiation make food radioactive?
- What is the result if overdose occurs?
- Does residual accumulation occur in foods?
- Can excessive consumption cause ill-effects?
- Does undesirable change (or addition) occur?
- How is source material disposed?
- Are  $^{60}\text{Co}$ / $^{137}\text{Cs}$ /Electron Beam comparable?
- What happens if "something goes wrong"?
- Is a food irradiation plant safe for those who work in it and live close to it?

It is clear that the whole subject of Benefit Identification - which immediately evokes the negative corollaries - must form the central aspect of the Communications Plan.

## 6. Information and Reassurance

The form and style of information issued should satisfy the technical level of the target groups concerned, and should be drawn from quotable (and credible) sources. A substantial body of information already exists internationally, which provides documentation and practical examples of irradiation of food and the integrity of the process. Government bodies are in place in many countries to regulate and control the irradiation industry and the marketing of products treated by the process. Approvals issued by these authorities should be widely disseminated. Studies undertaken internationally (IAEA/FAO/WHO etc.) should be described and their conclusions made known. Means of communication will differ widely from country to country, as will industry and consumer attitudes to irradiated food.

In developing the formula for a communications plan, we have based activity proposals upon the following internal situation:

The country concerned has not yet approved the process through legislative or other regulatory channels. A sophisticated consumer market exists which is generally aware of food irradiation. The community includes groups of anti-nuclear or anti-technology activists. There are also groups which have expressed interest in the process and are prepared to examine the questions dispassionately, which are designated as 'SEEDING GROUPS'.

## 7. Communications Plan

Positioning the benefits of food irradiation (and addressing the perceived negative associations) is jointly a function of Marketing and Public Relations, related to the level of interest towards food irradiation in individual countries and their progress towards approval, acceptance and commercialization of the process. Communication planning would need to be most extensive in a country which has:

- a group expressing interest in the process (the seeding group)
- no approval of the process
- sophisticated consumer
- active consumer lobbies, addressing and challenging industry, technology and establishment issues.

We assume such a situation, but expect countries to adapt those parts of the following plan which are relevant to them. Interactions between target groups involve two stages, which may overlap in practice.

#### Stage 1

##### Exploration and Process Approval

SEEDING GROUP -----	OTHER SUPPORT
radiation processor	total food industry
small food industry	government agencies
government agencies	trade/import-export
(foreign aid trade)	other organizations

-----

GOVERNMENT AGENCY  
Health/Safety - Regulatory

#### Stage 2

##### Acceptance and Usage

SEEDING GROUP ----- OTHER SUPPORT

COALITION OF PRIME MOVERS

-----

APPROPRIATE	VARIOUS NON-
GOVERNMENT AGENCIES	GOVERNMENT AGENCIES

CONSUMER MEDIA

#### 8. Communication and Support

The success of any communications plan depends on trained, capable and effective personnel with sound background in irradiation, and establishment of co-ordinated strategies to make best use of their contribution.



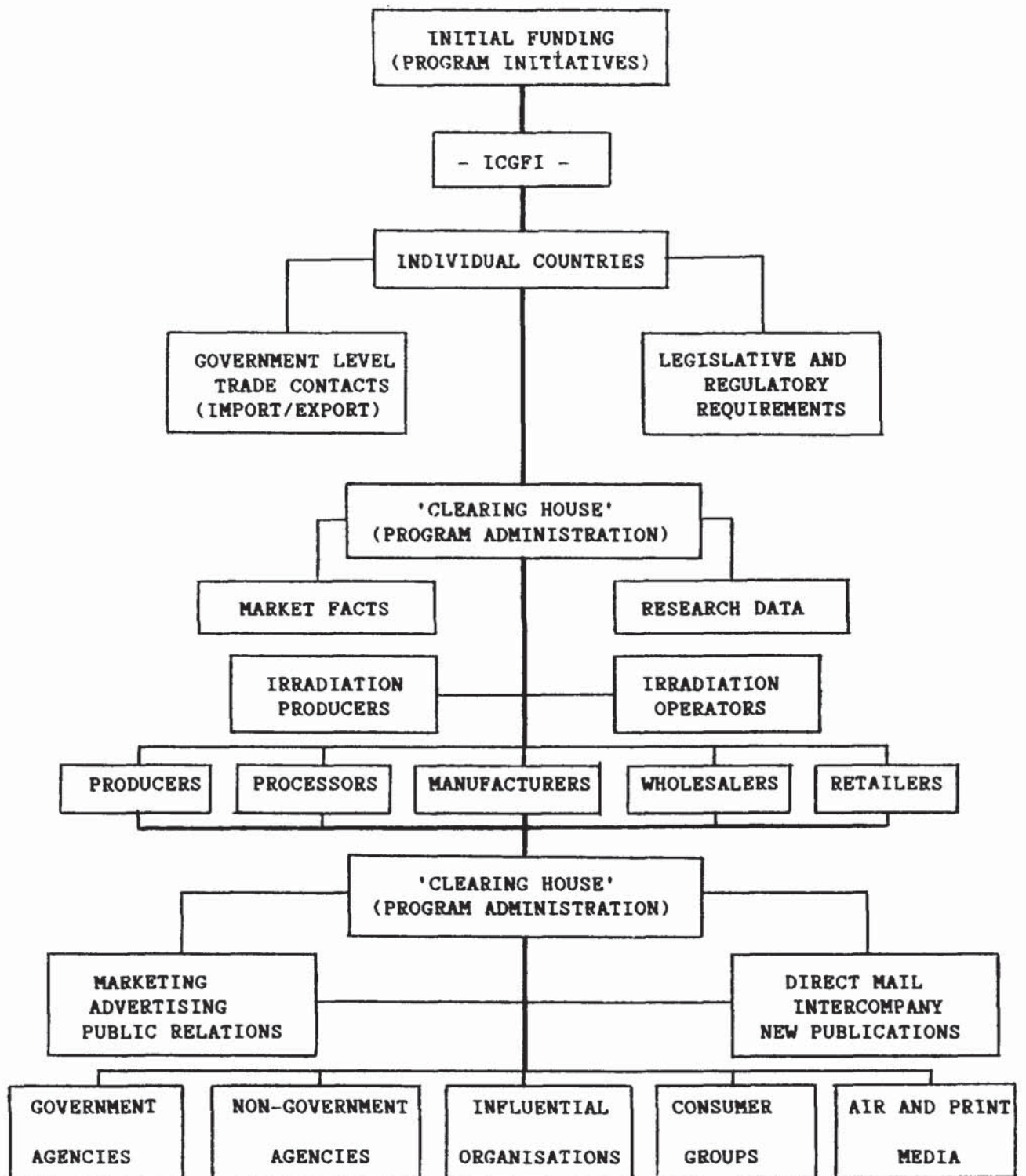
a. Strategy Requirements

- It is recommended that qualitative and/or quantitative consumer research is undertaken as required, to determine concerns, needs and levels of understanding.
- The coalition of prime movers, through their communications systems, should provide accurate information in an ethical manner.
- Issues which consumers perceive as negative should not be avoided, but faced frankly.
- Consumer education and information should focus on the merits of the product without disparaging or attacking other practices or techniques.

In line with the Strategy requirements, it was agreed that, on a national level, it was desirable for one lead organisation to take responsibility for the control of marketing and public relations activities. Such an organisation should be one which stands to benefit from treatment of food by the irradiation process. This definition includes such groups as irradiators, exporters, food industry associations and national atomic energy committees. (Coalition of Prime Movers).

Stemming from this lead organisation, it will be necessary to establish an action responsibility structure (see Organisation Chart on the following page). The Coalition should designate a 'Clearing House' to handle implementation of marketing and communications plans as specified in this Chart.

b. Organization Chart



On the basis of the Organisation Chart set out on the preceding page, the Coalition will keep track of positive reactions and attitudes and respond to hostile or negative perceptions. With this in mind, it is proposed that the 'Clearing House' will take charge of program administration to achieve these aims. For such purpose, the Coalition will probably wish to appoint reputable consultants in marketing, business-to-business communications and public relations. It will be the task of these consultants to co-ordinate a campaign aimed at generic acceptance of irradiated foods, and generate an atmosphere in which irradiated food products may be marketed. A two-stage communication strategy is envisaged (page 30), based upon co-operation with the 'Seeding Group' and publicising their conclusions.

c. Stage 1 - Exploration and Approval

At this juncture the major communication effort will be between the 'Seeding Group' and the appropriate government regulatory agency. Its purpose is to convince the regulatory authority that food irradiation merits approval on the basis of:

- Wholesomeness of the product
- Safety and control of the process
- Net benefit of the process to the community
- Avoidance of dangers from contamination.

This information can be provided most credibly by the international agencies who are expected to provide support for the 'Seeding Group'. Such support should be in conjunction with available local agencies. Concurrent with these contacts will be information flow between the 'Seeding Group' and the food industry, non-government organisations and other government (trade-related) agencies. Its purpose is to demonstrate as widely as possible a base of support and need for the process. The appointed 'Clearing House' will co-ordinate these efforts and ensure that all target groups are kept fully in touch with developments.

d. Stage 2 - Acceptance and Usage

The initial step in the second stage of the strategy is to convince the food industry that irradiation constitutes an effective technology for their products and that consumer reaction will be positive. The



supporting data is needed by the 'Seeding Group' and should include evidence of:

- International acceptance of the process
- Successful experience in other countries
- Economic feasibility studies and methods
- Particular product benefits
- Government regulatory approvals
- Increasing interest in the food industry.

The Coalition, through its 'Clearing House', will direct incoming information to appropriate government and non-government agencies, trade and professional associations, interested consumer groups - and to the mass of end-users via media channels. These recommendations focus on the overall goal to motivate national governments to accept and approve food irradiation. Although some developing countries may not have legislative barriers to the introduction of food irradiation, they still appreciate the reassurance that developed countries are using the process.

In this context, the most urgent need is to influence advanced countries to approve use of food irradiation. Actions directed towards various agencies, organisations and associations to achieve these objectives are outlined on pages 18-25 of this Report. In addition, support from ICGFI is essential to provide initial impetus and to facilitate the proposed steps within individual countries. ICGFI support should be accorded to:

- Initial funding assistance for contact with the Prime Mover organisations in individual countries. (The Organisation Chart [page 33] illustrates progression from initiators to end-users in a typical national situation).
- Approaches to WHO to declare food irradiation a significant and safe method of reducing food-borne diseases. FAO should also be approached to endorse the importance of irradiation in post-harvest pest control and reduction of loss due to spoilage.
- Requests to UNCTAD/GATT to declare formally that food irradiation can exert a positive and beneficial impact upon international trade.
- Contact with ICGFI Members asking them to meet personally with key decision-makers to help secure approval of irradiation of foodstuffs.

- Provide a model for an in-depth economic survey to investigate cost factors in relation to production, processing and marketing of irradiated foods. All information gained will be made available to any interested country.
- Securing the co-operation of food-handling unions in acceptance of food irradiation as a residue-free process, and invite union representatives to work with the lead organisation towards this end.
- Urge ICGFI Members and their contacts in the food industry to approach other interested parties (producers, processors and manufacturers) to help raise funds to promote the process.

e. The Food Industry

As remarked on page 15 in this Report, the food industry overall is the principal communications target because of the benefits which it stands to receive from application of the irradiation process. On this premise, the industry should be encouraged to:

- Work with relevant organisations (for instance the United States National Food Processors' Association [NFPA]) to motivate individual members of their associations to take the lead and advocate use of food irradiation.
- Publicise arguments/rationale in favour of food irradiation based upon world health issues, using endorsement from WHO and FAO, and world trade issues via UNCTAD/GATT.
- Liaise with other industry members to seek a breakthrough with at least one or two manufacturers in order to "showcase" the quality, viability and integrity of food irradiation. Efforts should be aimed at candidate manufacturers with a high probability of success. In such situations, joint-venture concepts should be entertained, where technical and funding assistance is extended.
- Involve industry members in forums where food irradiation policy is to be considered and solicit their views and endorsements for such occasions.



f. Non-Government Organisations

These bodies (as defined on page 26) contribute to gaining government approval of food irradiation. To encourage them to exert favourable influence on government policies, it is of the greatest importance to enlist their support in the role of intermediaries between:

Government - Consumer

Industries - Consumer

Indeed, it is unlikely that food irradiation can be successfully introduced without their active support. Industry coalitions, through the 'Clearing House' facility, should:

- Invite appropriate organisation officials to join existing or proposed national food irradiation co-ordinating committees.
- Request FAO/IAEA to fund preparation of information brochures and promotional material, together with an international mailing program.
- Suggest to FAO/IAEA that the present Food Irradiation Newsletter should be adapted to interest a wider target audience (including non-scientific readers).
- Produce an educational audio-visual, with the flexibility to be used world-wide.
- Collect and categorise from all parties and individuals concerned the nature of the questions they receive. Their answers to such queries should be carefully recorded -with emphasis on responses helpful in gaining acceptance of food irradiation.
- Correlate the activities of non-government organisations with the scientific and public enquiry mechanisms established by governments which are considering whether approvals should be extended to food irradiation, and what regulatory constraints should apply.

g. The Consumer (End-User)

Although the introduction of food irradiation is dependent upon government approvals, it has been demonstrated that policies in this respect are influenced, to a greater or lesser extent, by prevailing consumer attitudes to the process. Correct information flow to the consumer is, therefore, a priority from the outset. This may well be



achieved by industry and non-government organisations as questions are debated - but should adverse and inaccurate statements be made, then direct contact will clearly be necessary. However, the task of convincing the consumer of the benefits of food irradiation will commence through government/non-government/individual/industry levels, providing that support is forthcoming from at least some representatives from each intermediary body.

As food irradiation enters a commercial phase the food industry as a whole can be expected to throw its weight behind the issue and help to inform the consumer of specific benefits. The most effective means of reaching the consumer market on a mass scale include:

- Press Releases
- Television and radio interviews
- Articles in publications
- Wide literature distribution.

#### G. SUMMARY OF FINDINGS

The Task Force took into account the differences in attitudes to food irradiation as between countries (government and other bodies) as well as the fact that granting of, or progress towards, approval of food irradiation has as yet attained no international uniformity.

Basic recommendations were to:

- Identify target groups which influence policy in regard to food irradiation.
- Establish a cohesive marketing strategy with flexibility to meet varied national needs.
- Implement an ongoing communications system designed to reach and inform decision-makers.
- Work in each country through an information "chain" commencing with irradiation processors.
- Promote to - and through - the food industry as potentially the greatest beneficiaries.

- Set up an administrative 'Clearing House' in each country to co-ordinate promotion efforts.
- Assemble 'Seeding Groups' who will contact and communicate with other organizations.
- Aim for common international branding and packaging identification for irradiated foods.

The Task Force considered ICGFI support to be vital in facilitating international exchange of information on food irradiation, and in providing initial impetus necessary to stimulate the prime movers (irradiation processors and food manufacturers) to contribute to the proposed marketing and communications structures. Relevant contact with appropriate international bodies (FAO/WHO/UNCTAD/GATT) through ICGFI was also seen as essential to underline credibility and ensure that new information became available to all countries.

The Task Force endorses moves by ICGFI to ensure proper control of the process (from irradiation plant to consumer) as an essential step to build support and trust amongst all target groups.

The Task Force accepted that the application of irradiation to food is a safe and beneficial process, and that this premise was borne out by:

- long "history" of irradiation (nearly 50 years)
- endorsements by FAO, WHO and other authorities
- already approved by 34 countries (used in 18)
- no significant adverse findings have been established.

#### Key Target Groups

These were summarised as:

- Government Agencies
- Non-Government Agencies
- Primary Industries
- Processors and Manufacturers
- Wholesalers and Retailers
- Consumer Groups/Consumers generally.

## Main Means of Reaching Target Audiences

The Task Force considered the application of:

- Marketing strategies
- Public relations activities (media channels)
- Business-to-business communication
- Dissemination of international information
- Existing industry coalitions and associations
- Establishment of 'Seeding Groups'
- Planned use of direct mail
- Preparation of educational video.

It was recommended that these channels should be evaluated and utilized according to the circumstances prevailing in each individual country.

## Additional Tools Considered Necessary

- Qualitative and quantitative consumer research
- In-depth economic survey (through ICGFI)
- Publications (Food Irradiation Newsletter)
- Officially sponsored scientific forums.

Assuming certain levels of approval for food irradiation have been granted, the food industry in the country concerned should be encouraged to create a joint-venture to launch a new line of (irradiated) food products, or should tacitly support an innovative industry leader in embarking upon such an undertaking.

## H. CONCLUSIONS

The Task Force accepts that the successful introduction of food irradiation worldwide requires a long and sustained effort, with results emerging unevenly according to the regulatory approvals situation in the countries concerned. The problems of convincing the consumer (end-user) that food irradiation is not only non-toxic, but actively beneficial in decontaminating and preserving foodstuffs, are clearly recognised. However, the Group is firmly of the belief that a properly programmed effort, flexible enough to adapt to the needs of each country, will ultimately result in approval, acceptance and utilisation of the process. In this Report, the



organisational means of establishing a viable marketing/communications structure were examined, and a number of specific recommendations made. The strategies outlined were unanimously agreed by the Task Force, which included delegates with diverse marketing, commercial, scientific and communications backgrounds. This resulted in a wide spectrum of expertise being applied to the subject - which reinforces the validity of the conclusions reached, and the prospects of their practical application. It is a historical fact that most new technologies encounter opposition. It is equally true to say that reasoned argument and ongoing demonstration eventually lead to their endorsement and adoption.

## APPENDIX I

### COMMITTEE ORGANIZATION: SUGGESTED MEMBERS

#### - Country of Origin

Countries with existing or projected irradiation facilities

Countries with food irradiation approvals existing/pending/intended

Countries with import/export needs requiring use of food irradiation

Countries habitually encountering post-harvest food spoilage and wastage

#### - Functional Expertise

Nuclear/Electron Technology

Food Technology

Marketing Skills

Communications Specialisation

Consumer Organisations (international)

Food Industry - Production/Processing

Food Retailing

Food Handling/Other Food Unionists

## APPENDIX II

### REFERENCE SOURCES

Food Preservation Section, Joint FAO/IAEA Division IAEA, P.O. Box 100,  
A-1400, Vienna, Austria.

Codex Alimentarius Commission, Food Standard Program, FAO, Rome, Via delle  
Terme di Caracalla, 00100 Rome, Italy.

Food Safety Unit, World Health Organisation, 1211 Geneva 27, Switzerland.

Council for Agricultural Science and Technology, Committee Organisation,  
137 Lynn Avenue, Ames, Iowa, 50010-7120, U.S.A.

Federal Research Centre for Nutrition, Engesserstrasse 20, D-7500  
Karlsruhe, Federal Republic of Germany.

Food Irradiation Information Centre, National Agricultural Library, USDA,  
Beltsville, Maryland, U.S.A.

Coalition for Food Irradiation c/o Bruce Harrison Company Inc., Suite 500,  
605 Fourteenth Street NW, Washington D.C. 20005, U.S.A.

International Facility for Food Irradiation Technology, P.O. Box 230, 6700  
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