Complex

Food Safety

Systems

Our Food:
Food Safety and Control System

Introduction

In food business assurance of quality has become a central part of all activities focusing on safety.

The global business demands international valid standards comprising all steps from farm to table.

The NASA was the first organization to produce a set of procedures, specifications and requirements being known as Military Specifications (Mil Specs).

Public concern over food safety issues is widespread.

The Codex Alimentarius from the WTO has become reference point for trade in foodstuffs and further regulations at national level.

Codex Alimentarius

Very important parts of the Codex Alimentarius are

- The Code of Ethics for International Trade in Food and the
- The International Code of Marketing of Breastmilk Substitutes.

Ethics play a high role in production and retail of food. All safety systems can be ruled out when criminal interests play a role.

Aside of removing barriers to trade, the Codex Alimentarius encourages food traders to adopt voluntarily ethical practices as an important way of protecting consumers' health.

A principal objective of the Code of Ethics is to stop exporting countries and exporters from dumping poor quality or unsafe food on to international markets.

Code of Ethics for International Trade in Food

General Principles of the Code of Ethics

- No food should be in international trade which:

→ has any substance which is poisonous, harmful or injurious to health;
→ consists of any filthy, putrid, rotten, decomposed substance;
→ is adulterated;
→ is sold, prepared, packaged, stored or transported for sale under insanitary conditions.

A code of ethical conduct for the international trade in food can supplement national food legislation and food control infrastructures .

Code of Ethics for International Trade in Food

Food additives: Should be in accordance with the General Principles for the Use of Food Additives .

Pesticide residues: Limits for pesticide residues in food should be in accordance with the international maximum limits recommended for pesticide residues.

Microbiological contaminants: All food should be free from micro-organisms and parasites in amounts harmful to man and should not contain any substance originating from micro-organisms or parasites.

Code of Ethics for International Trade in Food

Food standards: Appropriate and adequate national food standards should be established through the acceptance of food standards of the Codex Alimentarius.

Food hygiene: Food should be subject at all times to sound hygienic practices as set forth in the codes of practice.

Labeling: All food should be accompanied by accurate and adequate descriptive informations.

Code of Ethics for International Trade in Food

Irradiated food

Irradiated food should be produced and controlled in accordance with provisions and standards.

Foods for infants, children and other vulnerable groups

Food for infants, children and other vulnerable groups should be in accordance with specific standards.

The International Code of Marketing of Breastmilk Substitutes sets forth principles for the protection and promotion of breastmilk feeding which is an important aspect of primary health care.

Code of Ethics for International Trade in Food

Nutritional aspects concerning in particular vulnerable groups and regions where malnutrition exists

No claims in any form should be made about food with minimal nutritive value stating that the food can make a valuable contribution to the diet.

Implementation

Food that is exported should conform to regulations in force in the importing country.

Import and Export Inspection and Certification

Codex Alimentarius regulating the field of inspection and certification has developed four important guidelines:

- Principles of Food Import and Export Inspection and Certification CAC/GL 20-1995 1 A substantial part of the worldwide trade in food, for example in meat and meat products, depends upon the use of inspection and certification systems.

- Accreditation of Food Import and Export Inspection and Certification SystemscAC/GL 26-1997 1

- Equivalence of Certification Systems CAC/GL 34 –1999 1

- Food Import Control Systems Prepubl CAC/GL -2003

Principles Import and Export Inspection and Certification *CAC/GL 20-1995*

Inspection systems: Inspection systems may be focused on the foodstuffs themselves; the procedures and facilities employed in the production and distribution chain; and on the substance and materials which can be incorporated into or contaminate foodstuffs.

Principles: Food inspection and certification systems should be used wherever appropriate to ensure that foods, and their production systems, meet requirements in order to protect consumers against food-borne hazards.

Non-discrimination: Countries should ensure that they avoid arbitrary or unjustifiable distinctions in the level of risk deemed to be appropriate in different circumstances so as to avoid discrimination or a disguised restriction on trade.

Principles Import and Export Inspection and Certification *CAC/GL 20-1995*

Harmonization: Member countries should use Codex standards whenever appropriate as elements of their inspection and certification systems.

Equivalence: Countries should recognise equivalence of systems.

Transparency: The principles and operations of food inspection and certification systems should be open to scrutiny by consumers and other interested parties.

Certification validity: Validation measures by exporting countries may include achieving confidence that official or officially recognised inspections systems have verified the product or process referred to be conform with requirements.

Design,Operation, Assessment and Accreditation of Inspection and Certification Systems *CAC/GL 26-1997*

Objectives

The guidelines are intended to assist countries in the application of requirements and the determination of equivalency, thereby protecting consumers and facilitating trade in foodstuffs.

Risk Analysis

Consistent and transparent application of risk analysis will facilitate international trade by increasing confidence in the food safety and in the inspection systems of trading partners.

The use of a HACCP approach by food businesses should be recognized by governments as a fundamental tool for improving the safety of foodstuffs.

Design,Operation, Assessment and Accreditation of Inspection and Certification Systems *CAC/GL 26-1997*

Quality Assurance

The voluntary utilization of quality assurance by food businesses should also be encouraged in order to achieve greater confidence in the quality of products obtained.

Equivalence

The recognition of equivalence of inspection and certification should be facilitated when the exporting country has implemented a system for inspection and certification of food.

Control programmes

Control programmes help to ensure that inspection actions relate to objectives set for the inspection and certification system.

Design,Operation, Assessment and Accreditation of Inspection and Certification Systems *CAC/GL 26-1997*

Decision criteria and action

The frequency and intensity of controls by inspection systems should be designed so as to take account of risk and the reliability of controls already carried out by those handling the products.

Laboratories

Inspection services should utilize laboratories that are evaluated and/or accredited under officially recognized programmes. Validated analytical methods should be used wherever available.

Certification systems

Bilateral or multilateral agreements, such as mutual recognition agreements or pre- certification agreements, may provide for dispensing with certification.

Equivalence of Inspection and Certification Systems *CAC/GL 34 -1999*

Scope

This document provides practical guidance for governments desiring to enter into bilateral or multilateral equivalence agreements concerning food import and export inspection and certification systems.

Pilot Studies

Before entering into an agreement, the competent authorities in the importing and exporting countries may agree to the conduct of a trial or pilot study.

Guidelines for Food Control Systems

CAC/GL - 2003

Scope

These guidelines provide a framework for the development and operation of an import control system to protect consumers and facilitate fair practices in food trade while ensuring unjustified technical barriers to trade are not introduced.

Sampling and Analysis

The inspection system should be based on Codex sampling plans. Internationally validated standard methods of analysis or methods validated should be used.

Guidelines for Food Control Systems

CAC/GL - 2003

Emergency Situations

This will include holding suspect product upon arrival and recall procedures and rapid notification of the problem to international bodies and possible measures to take.

Documenting the System

A food import control system should be fully documented, including a description of its scope and operation, responsibilities and actions for staff, in order that all parties involved know precisely what is expected of them.

Activity of Retailers

British Retail Consortium (BRC)

With global expansion the BRC publishes standards, individual technical policies, guidelines, codes of practice and product management systems which retailers have with their suppliers. Relevant BRC issues are:

BRC Food Technical Standard,
BRC Global Standard - Consumer Products,
BRC/IOP Packaging Standard and the
BRC/FDF Standard for the Supply of Identity Preserved Non-Genetically Modified Foods.

Activity of Retailers

British Retail Consortium (BRC)

BRC Standards

The purpose of all these standards is to set a common standard of best practice to minimise the risk of cross contamination and reinforce good manufacturing practice.

The BRC certifies manufacturers to their standards.

Activity of Retailers

Global Food Safety Initiative (GFSI)

The Global Food Safety Initiative (GFSI)was launched in 2000 by o group of international retailers in the need to enhance food safety as a response to ongoing food scandals.

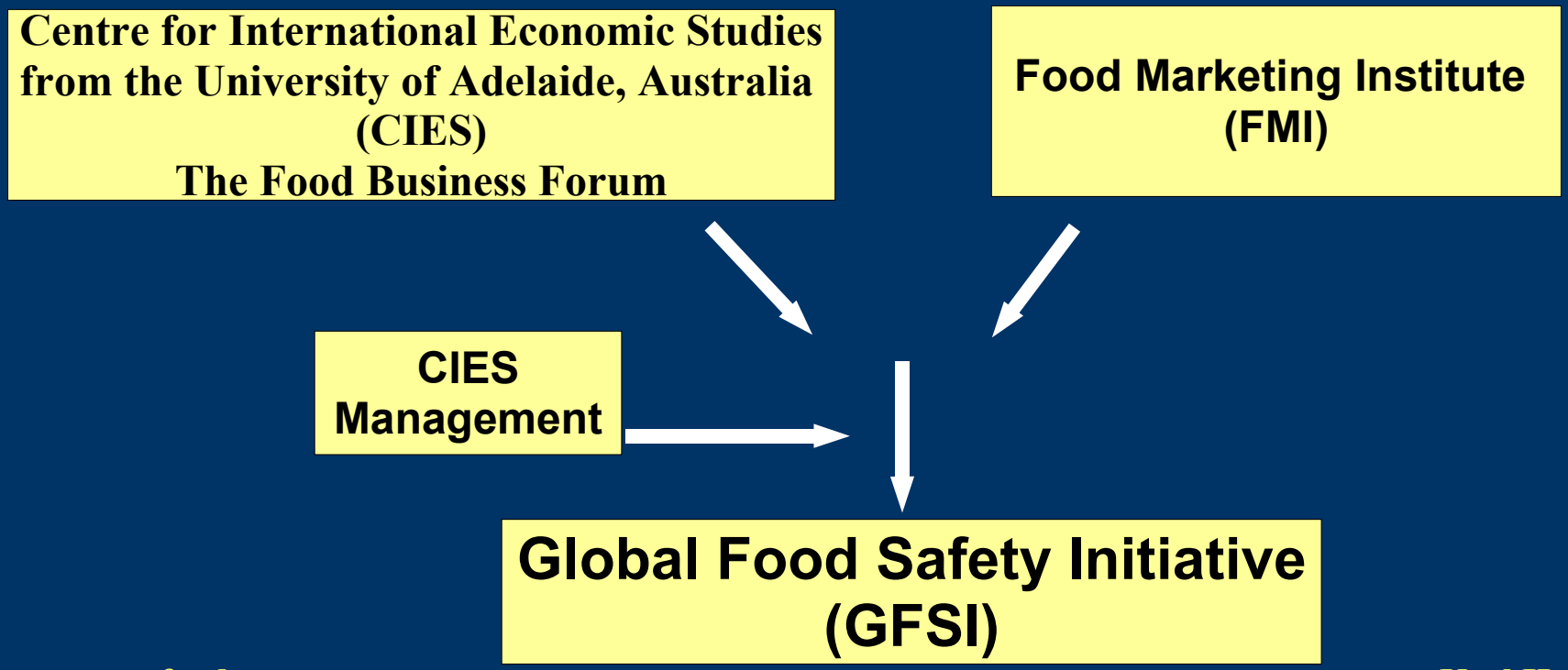
Key priorities of the Global Food Safety Initiative

- Benchmark food safety standards world-wide
- International early warning system
- Co-operation between the world-wide food sector and national and pan-national governments and authorities
- Good Retailing Practices

The Global Food Initiative calls for fewer, stricter standards, a "farm to fork" approach , the elimination of trade barriers, and sharing of retail experience and know-how in food regulation focusing on the work of the US Food and Drug Administration, a "rapid alert system." **Manufacturers that do not subscribe to the final set of standards shall be delisted.**

Global Food Safety Initiative

The Global Food Safety Initiative is a cooperative project of CIES and the Food Marketing Institute (FMI) intending to heighten worldwide food safety. The Initiative is managed by CIES .



Activity of Retailers

Benchmarking of Standards

A Task Force initially compiled a set of 'Key Elements' to serve as the requirements against which existing food safety standards now are benchmarked Global Food Safety Initiative Benchmark Project. The 'Key Elements' as defined by the Task Force are:

- Food Safety Management Systems
- Good Practices for Agriculture, Manufacturing and Distribution
- HACCP (Hazard Analysis and Critical Control Points)

Some food safety standards have already been submitted by their owners to be benchmarked against these 'Key Elements':

- BRC Technical Standard
- Dutch HACCP Code
- EFSIS standard
- International Standard for Auditing Food Suppliers (International Food Standard).
- SQF 2000 food safety standard developed in the US

The International Code of Marketing of Breast-milk Substitutes ***WHA Resolution 3422***

The International Code: The International Baby Food Action Network (IBFAN) was founded by the WHO and UNICEF in 1979. It aims to improve the health and well-being of babies and young children, their mothers and their families through the protection, promotion and support of breastfeeding and optimal infant feeding practices.

Study supporting breath-feeding: A study published in The Archives of Diseases in Childhood January 2004 suggests that babies aged from two to three months are less likely to suffer from Sudden Infant Death Syndrome (SID) if they are breastfed.

The International Code of Marketing of Breast-milk Substitutes *WHA Resolution 3422*

Other Organizations supporting breastfeeding

WABA (World Aliance for Breastfeeding Action) was formed in 1991 to help UNICEF and governments to reach the operational targets of the Innocenti Declaration.

HAI (Health Action International): Many of the major pharmaceutical-companies also market baby milks and foods. (HAI) campaigns against unethical marketing of medicines.

Agreement on the Application of Sanitary and Phytosanitary Measures

With the formation of the World Trade Organization (WTO) in January 1995, the Agreement on the Application of Sanitary and Phytosanitary Measures (the "SPS Agreement") came into force.

Various countries were using food safety concerns to justify barriers to trade.

Agreement on the Application of Sanitary and Phytosanitary Measures

The SPS Agreement relates to three main issues:

- Food safety
- Animal health
- Plant health.

Article 2.2 of the SPS Agreement

"Members shall ensure that any sanitary and phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health ..."

Article 3.1 of the SPS Agreement

"To harmonize sanitary and phytosanitary measures on as wide a basis as possible, Members shall base their sanitary and phytosanitary measures on international standards."

Agreement on the Application of Sanitary and Phytosanitary Measures

Article 2.1

"Members have the right to taken sanitary and phytosanitary measures necessary for the protection of human, animal or plant life or health, ...

These measures will not be applied or maintained without sufficient scientific evidence, ..".

Scientific justification

Sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by international standards, guidelines may be introduced, if there is a scientific justification.

Agreement on the Application of Sanitary and Phytosanitary Measures

International food trade using the WTO, increases pressure on the Codex setting residue limits for hormones in meat and in milk.

Two specific substances on the headlines

Growth promoting hormones used in beef cattle: estradiol 17-beta, progesterone, testosterone, zeranol and trenbolone acetate

Production aids used to increase milk production in cows: recombinant Bovine Somatotropin (BST)

USA and some other countries had permitted the use of both hormones based on scientific evidence. The European Union did not follow the alleged scientific evidence and baned hormone meat, acting against Agreement.

Agreement on the Application of Sanitary and Phytosanitary Measures

JECFA (Joint FAO/WHO Expert Committee on Food Additives) concluded that "the potential intake of residues and available toxicity data of residues of BST represent no hazard to human health". At the meeting, in July 1993, BST was adopted .

Regional Trade Agreements and Arrangements

NAFTA The North American Free Trade Agreement was signed between Canada, USA and Mexico. Codex standards are cited as basic requirements to be met by the three member countries in terms of the health and safety aspects of food products.

MERCOSUR: Argentina, Brazil, Paraguay and Uruguay have signed the Treaty of Assunción establishing the Southern Common Market. Codex standards were adopted by member countries for deliberations.

APEC: Asia-Pacific Economic Cooperation has drafted a Mutual Recognition Arrangement on Conformity Assessment of Foods and Food Products, using Codex standards, including the Codex Import and Export Certification Systems.

Good Agricultural Practice

Introduction: The concept of Good Agricultural Practices (GAP) has evolved in recent years out of the concern about food production and security, food safety and quality, and the environmental sustainability of agriculture.

At present, GAP is formally recognized in the international regulatory framework for reducing risks associated with the use of pesticides.

The **World Food Summit Plan of Action** commit governments to reduce hunger by half by 2015.

The governments agreed upon a Plan of Implementation and Partnership Initiatives. They include actions to promote sustainable agriculture and natural resources management contributing to food security.

Good Agricultural Practice

The FAO COAG/2003/5 wants GAP to be extended along the whole food chain.

Sustainable agricultural methods: IPM is specified as a recommended practice in the Code of Conduct on Pesticides and in Chapter 14 of Agenda 21.

National agencies have also promoted GAP including the government agencies of Canada, France and Brazil.

Good Agricultural Practice

The private sector, in particular industrial processors and retailers codes increasingly incorporate sustainability criteria in response to consumer demand.

Examples include the EUREPGAP generic Codes of Practice for fresh produce; the Sustainable Agriculture Initiative (Unilever, Nestlé, Danone and others); and, the EISA Common Codex for Integrated Farming.

NGOs are also working to address good practices, in particular for food crops.

For example, the Better Banana Project, managed by a coalition of non-profit conservation groups and coordinated by the Rainforest Alliance promotes sustainability by certifying banana farms.

Good Agricultural Practices for Selected Agricultural Components Annex

The **Codex guidelines on organically produced food** refer to the production process of organic foods.
The Codex Alimentarius specifically defines GAP in the context of the use of pesticides.

Soil: Good practices related to soil include maintaining or improving soil organic matter through the use of soil carbon-build up by appropriate crop rotations, manure application, pasture management and other land use practices, rational mechanical and/or conservation tillage practices.

Water: Good practices related to water will include those that maximize water infiltration and minimize unproductive efflux of surface waters from watersheds. Prevent soil salinization by adopting water-saving measures and re-cycling where possible.

Good Agricultural Practices for Selected Agricultural Components Annex

Crop and Fodder Production

Good practices related to crop and fodder production will include those that select cultivars and varieties on an understanding of their characteristics, including response to sowing or planting time, productivity, quality, market acceptability and nutritional value, disease and stress resistance.

Crop protection

Use of resistant cultivars and varieties, crop sequences, associations, and cultural practices that maximize biological prevention of pests and diseases.

Adopt organic control practices where and when applicable, apply pest and disease forecasting techniques where available.

Good Agricultural Practices for Selected Agricultural Components Annex

Animal Production: Livestock require adequate space, feed, and water for welfare and productivity.

Manure management minimises nutrient losses and stimulates positive effects on the environment.

Animal Health and Welfare: Good practices related to animal health and welfare will include those that minimize risk of infection and disease by good pasture management, safe feeding, appropriate stocking rates and good housing conditions.

Treat sick or injured animals promptly in consultation with a veterinarian; purchase, store and use only approved veterinary products in accordance with regulations and directions, including withholding periods

Good Agricultural Practices for Selected Agricultural Components Annex

Protocols, harvesting and other operations

Harvesting must conform to regulations relating to pre-harvest intervals for agrochemicals and withholding periods for veterinary medicines.

Food produce should be stored under appropriate conditions of temperature and humidity in space designed and reserved for that purpose.

Good Agricultural Practices for Selected Agricultural Components Annex

Human Welfare, Health and Safety: Good practices related to human welfare, health and safety will include those that direct all farming practices to achieve an optimum balance between economic, environmental, and social goals.

Energy and Waste Management: Good practices related to energy and waste management will include those that establish input-output plans for farm energy, nutrients, and agrochemicals to ensure efficient use and safe disposal.

Wildlife and Landscape: Good practices related to wildlife and landscapes will include those that identify and conserve wildlife habitats and landscape features.

Manage field margins to reduce noxious weeds and to encourage a diverse flora and fauna with beneficial species.

Good Laboratory Practice

The primary objective of the OECD Principles of GLP is to ensure the generation of high quality and reliable test data related to the safety of industrial chemical substances and preparations in the framework of harmonising testing procedures for the Mutual Acceptance of Data (MAD).

Good Manufacturing Practice

Good manufacturing practice (GMP) is a system for ensuring that products are consistently produced and controlled according to quality standards. GMP covers all aspects of production.

WHO has established detailed guidelines for good manufacturing practice. Many countries have formulated their own requirements for GMP based on WHO Guidelines.

Good Manufacturing Practice in Poultry Operation

An example which could serve as basis could be the Good Manufacturing Practice in Poultry Operation manual from the National Chicken Council from the University of Georgia. It focuses on:

Proper facilities: Proper facilities such as access roads, construction size and proper distances between poultry houses of buildings (flock separation and air quality) screening of houses to avoid wild birds and insects to enter, water supply drainage and pest control.

Feed: Cooperation with growers to insure that Insecticide, Fungicide and Rodenticide Regulations, as well other local regulations are followed.

Good Manufacturing Practice in Poultry Operation

Biosecurity: Minimize flock contact or contamination from humans, other flocks, wild birds or other animals, pets,unsafe water, or contaminated equipment.

Pharmaceuticals: Only veterinary allowed pharmaceuticals should be used and records on every individual flock must be kept.

Hatcheries: Only clean eggs should be used. The incubator must be clean. After 18 days they should be transferred to clean hatcheries.

Good Manufacturing Practice
National Poultry Improvement Plan (NPIP)

"U.S. Sanitation Monitored" is the a program from 1988, intending to reduce the incidence of *Salmonella enteritidis* (SE) organisms in hatching eggs and chicks through an effective and practical sanitation program.

- Protein source for pelletized feed is non-animal or animal protein produced under Salmonella Reduction Program.

- Environmental samples collected from flock when more than four months of age and every 30 days thereafter.

- Isolation of SE from an environmental specimen will require that a random sample of 60 live birds be examined bacteriologically for Salmonella in an authorized laboratory.

Recommended Code on Hygienic Practice for Poultry Processing *CC/RCP 14-1976*

This Code is concerned with all poultry products. It applies to all premises in which poultry is slaughtered, packed, or otherwise handled in the course of preparation.

Sanitary disposal of human and animal wastes.
Adequate precautions should be taken to ensure that human and animal wastes are disposed of in such a manner as not to constitute a public health or hygienic hazard and extreme care should be taken to protect products from contamination with these wastes.

Recommended Code on Hygienic Practice for Poultry Processing *CC/RCP 14-1976*

Sanitary techniques: Any live poultry holding section and attendant processes such as egg collection should be quite separate from the slaughtering and poultry packing section.

Location, size and sanitary design: The building and surrounding area should be such as can be kept reasonably free of objectionable odours, smoke, dust, or other contamination.

Walls, ceilings and floors: Walls should be finished to a smooth, non-absorbent, washable surface, be light in colour, and the junction between walls and floor should be covered or splayed to facilitate cleaning.

Recommended Code on Hygienic Practice for Poultry Processing ***CC/RCP 14-1976***

Woodwork, doors, and windows: Woodwork should preferably not be used. Doors where necessary should be fitted with self-closing devices.

Water: A supply of both hot and cold water should be available of the potable quality.

Plumbing and waste disposal: All plumbing and waste disposal lines (including sewer systems) must be large enough to carry peak loads. Sumps or solid matter traps should be emptied and cleaned frequently and at the end of every working day.

Lighting and ventilation: Premises should be well lit and ventilated.

Recommended Code on Hygienic Practice for Poultry Processing CC/RCP 14-1976

Toilet-rooms and facilities: Adequate and convenient toilets should be provided and toilet areas should be equipped with self-closing doors.

Sanitary design, construction and installation: Bleeding equipment, including blood tunnels and blood containers, should be constructed of non-corrodible metal or other suitable material which is easy to clean.

Scalding: Scalding should preferably be carried out by hygienic methods. The rate of flow of water into these tanks should provide for a continuous replacement of the water so as to protect against a build-up of contamination. Feathers conveyed by continuous running water should be removed from the water which should preferably be run to waste.

Recommended Code on Hygienic Practice for Poultry Processing CC/RCP 14-1976

Premises where poultry carcases, poultry parts, and other edible material are kept should have adequate refrigerated storage.

Sanitary maintenance of plant, facilities and premises

The building equipment, utensils and all other physical facilities of the plant should be kept in good repair and should be kept clean and maintained in an orderly sanitary condition.

Detergents and disinfectants employed should be appropriate to the purpose and should be so used as to present no hazard to public health.

Recommended Code on Hygienic Practice for Poultry Processing *CC/RCP 14-1976*

The premises should be cleared of all live poultry at least once weekly to facilitate complete and thorough cleansing.

Feed in the crop and faecal material should be removed by such means as will protect against contamination; for example, by suction.

Recommended Code on Hygienic Practice for Poultry Processing ***CC/RCP 14-1976***

Wax dipped poultry should be handled so that the set wax and removed feathers will fall into a suitable container. Only clean wax which has been stored in a clean place should be used for wax dipping.

Feather separation sieves included in wax dipping machines should be removable and cleaned once daily.

Recommended Code on Hygienic Practice for Poultry Processing *CC/RCP 14-1976*

Hygiene and health of personnel

Managers of establishments should arrange for adequate and continuing training of every employee in hygienic handling of poultry. All persons working in a food plant should maintain a high degree of personal cleanliness while on duty.

Recommended Code on Hygienic Practice for Poultry Processing *CC/RCP 14-1976*

Processing: To protect against the risk of cross contamination, domesticated birds including chickens, turkeys, ducks, geese, guinea-fowl, or pigeons should be processed completely separate from one another.

General cooling requirements: After preparation there should be no delay in cooling the carcase to an internal body temperature of 4^0C or less.

Cooling giblets: Giblets should be chilled to 4^0C or lower within 2 hours from the time they are removed from the bird.

Hygiene Control Programme: A single individual, whose duties are preferably divorced from production should be designated, to be held responsible for the cleanliness of the plant.