Quality Control in Food Technology

2008
25 minutes

Teacher Notes:
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Program Synopsis

When customers purchase mass produced food products they expect consistency in taste, texture, appearance and smell. Food companies spend large amount of money ensuring that all factors of quality control meet the consumer’s expectations. This program identifies the various levels of controls in place in Australia to ensure that the food provided to consumers is of high quality.

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Introduction

The aim of food manufacturers is to prepare and market foods that will be safe to eat and that will have a reasonable shelf-life. This program explores the many factors on how quality can be measured in food manufacturing. Students will be able to understand the importance of quality control in food manufacture, due to the recent food poisoning outbreaks.

Program Rationale

This program is aimed at students in senior levels in secondary schooling or tertiary education.

Program Timeline

00:00:00 Introduction
00:00:27 Chapter 1 – Quality control
00:04:17 Chapter 2 part 1 – Food regulation
00:10:39 Chapter 3 part 1 – How is it measured?
00:15:55 Chapter 4 - The importance of quality control
00:20:21 Chapter 5 – Responsibility
00:24:12 Credits
00:24:55 End program

Useful Resources

Books and Other Print Resources

• Burnett-Fell, B. and Stutchbury, K. 2nd Edition, Food Technology In Action

Internet Resources

www.fda.gov
www.food.gov.uk

Related Programs

• Dying for a Meal
• Processing and Preserving Foods
• Designing and Preparing a Meal
Program Worksheet

Before the Program

1. Form a group discussion on the role of food safety in food manufacturing. What would be the consequences of no rules or guidelines in relation to safe food practices when manufacturing food?

2. Sensory Testing – As a group, determine the desirable characteristics for processed food products. Examples of processed food products are:
   - rice cracker
   - golden syrup
   - tomato sauce
   - two-minute noodles

3. Research what food poisoning is and how it can occur. Include in the research, a newspaper article about recent food poisoning cases in your local area.

4. Think/pair/share activity – introduce the HACCP concept. Read through the following recipe and find all the critical control points (i.e. what are all the risks and hazards?) in relation to the recipe.

**Herbed Chicken Rice Paper Rolls**

(Reference: aww.ninemsn.com.au)

**INGREDIENTS**

- 200g chicken tenderloins
- 1 tablespoon coarsely chopped fresh basil
- 1 tablespoon coarsely chopped fresh mint
- 1 tablespoon white wine vinegar
- 1 medium carrot (120g)
- ½ medium red capsicum (100g)
- ½ Lebanese cucumber (65g), seeded
- 16cm-square rice paper sheets
- 2 tablespoons finely chopped roasted unsalted peanuts
- 1 tablespoon lime juice
- 2 tablespoons soy sauce
- ½ teaspoon grated fresh ginger

**METHOD**

1. Combine chicken, basil, mint and vinegar in medium bowl, cover; refrigerate at least 10 minutes.

2. Meanwhile, cut carrot, capsicum and cucumber into thin strips.

3. Cook chicken on heated lightly oiled grill plate (or grill or barbecue) until lightly browned all over and cooked through. Stand 5 minutes; slice thinly.

4. Using hands, dip rice paper sheets, one at a time, in medium bowl of warm water until just softened; dry carefully with absorbent paper. Divide chicken, carrot, capsicum and cucumber along centre of each rice paper sheet; scatter peanuts over filling. Roll rice paper sheets to enclose filling, folding in sides after first complete turn of roll. Serve rolls with dipping sauce made with combined remaining ingredients.
During the Program

1. Why does quality control play a vital role in the food industry?

2. Define quality in relation to food.

3. What food examples are used in the program to demonstrate food quality to the consumer?

4. Safety, nutritional properties and shelf life are all factors that contribute to a food’s quality. Give examples of what consumers would expect from each of components.

   SAFETY

   NUTRITIONAL PROPERTIES

   SHELF LIFE

5. Why do consumers have faith in proper quality control of food products?
6. What is quality control in the food industry?

7. What are the three methods used to ensure quality control in food manufacturing?

8. Food quality is measured by which independent agency?

9. List the six responsibilities of the FSANZ.

10. Food Standards Code was introduced in 2002, what does the code contain?

11. List four items that must be stated on a label.

12. Define the HACCP system.
13. What are the seven elements of the HACCP system?

14. What is GMP?

15. Under GMP regulation what must occur?

16. What does ISO mean?

17. To meet the requirements of the ISO 22000, list two standards an organisation must meet.

18. What does Halal mean?

19. What is food poisoning usually caused by?

20. How can chemical contamination occur?

21. Why are food products recalled?

22. How do local councils participate in the enforcement of the Food Safety Code?


**Suggested Student Responses**

**During the Program**

1. Why does quality control play a vital role in the food industry?
   - It protects consumers and food manufacturers.
   - To meet consumer’s expectations of commercial made products.

2. Define quality in relation to food.
   - In the food industry, quality can be defined as the maintenance or improvement of the key components of a product, whether a raw ingredient or a processed food.

3. What food examples are used in the program to demonstrate food quality to the consumer?
   - Consumers expect:
     - potato chips to be salty and crunchy
     - watermelon to be juicy and sweet
     - ice cream should be rich and creamy
     - lettuce should be crisp

4. Safety, nutritional properties and shelf life are all factors that contribute to a food’s quality. Give examples of what consumers would expect from each of components.
   - **SAFETY** – free from any bacterial, chemical or physical contamination
   - **NUTRITIONAL PROPERTIES** – contain the advertised amounts of vitamins, minerals, proteins or carbohydrates
   - **SHELF LIFE** – food to remain high in quality for its specified shelf-life

5. Why do consumers have faith in proper quality control of food products?
   - Proper quality control of food products plays an important part in ensuring consumer confidence in a product, and, more importantly, protecting consumers from health dangers such as food spoilage or contamination. The quality control process also helps protect businesses from any financial loss that may be suffered as a result of a food contamination scare.

6. What is quality control in the food industry?
   - Quality control in the food industry is a system of regulating the multiple controllable factors that can each positively or negatively impact on the final product.

7. What are the three methods used to ensure quality control in food manufacturing?
   - Methods used to ensure quality control in food manufacturing include inspections, laboratory testing, hygiene assessments, research and development.
8. Food quality is measured by which independent agency?

Food quality in Australia and New Zealand is measured by an independent agency called Food Standards Australia New Zealand (FSANZ).

9. List the six responsibilities of the FSANZ.

- Developing standards for food manufacturing, labelling, processing and primary production;
- Providing information to consumers so as to help them make better choices;
- National food surveillance, enforcement and food recall;
- Consumer and industry research;
- Scientific risk assessments; and
- Risk assessment advice on imported food.

10. Food Standards Code was introduced in 2002, what does the code contain?

The Code contains food standards for general food products and specific food types, as well as standards for food hygiene and primary production.

11. List four items that must be stated on a label.

- Nutrition information panel
- Percentage labelling
- Name or description of the food
- Food recall information
- Information for allergy sufferers
- Date marking
- Ingredient list
- Food additives
- Country of origin
- Directions for use and storage
- Legibility requirements

12. Define the HACCP system.

This is a preventative food safety system that involves the analysis of potential hazards and the tightening of controls at these hazard points so as to prevent problems before they occur.
13. What are the seven elements of the HACCP system?

- to identify potential hazards and assess the likelihood of these hazards occurring;
- to determine the Critical Control Points, or steps, that can be controlled in order to eliminate or minimize the hazard;
- to establish the criteria that must be met to ensure these Critical Control Points remain under control;
- to establish a monitoring system;
- to establish corrective action when the Critical Control Point is not under control;
- to establish procedures for verification;
- to establish accurate documentation and record keeping.

14. What is GMP?

Good Manufacturing Practice

15. Under GMP regulation what must occur?

All aspects of the manufacturing process must be documented.

16. What does ISO mean?

International Standards Organisation

17. To meet the requirements of the ISO 22000, list two standards an organisation must meet.

- plan, implement, operate, maintain and update a food safety management system aimed at providing safe products for consumers
- demonstrate compliance food safety requirements
- evaluate and assess customer requirements
- effectively communicate food safety issues to suppliers, customers and other parties in the food chain
- ensure that the organisation conforms to its stated food safety policy
- seek certification or registration of its food safety management system

18. What does Halal mean?

Halal is an Arabic word meaning ‘permissible’

19. What is food poisoning usually caused by?

Chemical, physical or bacterial contamination of a food product
20. How can chemical contamination occur?

- Pollution of air, water and soil where the raw product is produce;
- Through the intentional use of chemicals, such as cleaning products, pesticides, animal drugs and fertilizers;
- Naturally occurring toxins found in foods such as some wild mushrooms and in some fish species.

21. Why are food products recalled?

- Result of an incorrectly labelled product
- After the discovery of a foreign object in a product

22. How do local councils participate in the enforcement of the Food Safety Code?

Local councils participate in the enforcement of the Food Safety Code by policing products on supermarket shelves, checking for compliance with the codes.