What is **quality**?

- A good quality system manufactures products with the characteristics that are needed by the consumer (sensory, labelling, safety), fulfil the legislation requirements and achieve the company goals
- Is a judgement by customers or users of a product or service
- 2 major meanings:
  1. Features which make the product saleable and competitive "quality of design"
  2. Freedom from the deficiencies which make up the cost of poor quality "quality of conformance"
- Main areas involved in a given quality program – raw materials, process, product

How? Follow regulations and appropriate standards for consumer-ready products and manufacturing processes

Regulations for consumer-ready products

- Specify both required properties of food products and how these should be tested
- Areas of regulation:
- Australia and New Zealand: FSANZ
- International: Codex Alimentarius
- Import/export: local country standards e.g. AQIS
- Industry-specific codes for product testing e.g. Australian Standards for dairy products; Dairy Australia

Regulations and codes/certification (regulatory systems) for manufacturing processes

- Key to maintaining standards of final products is efficient testing or monitoring of key manufacturing steps
  - GMP: Good Manufacturing Practice
  - HACCP: Hazard Analysis of Critical Control Points (specific system used to monitor food safety aspects during manufacturing and processing) *further test will be required to assure sensory qualities of a food product
  - Industry-specific code e.g. the wine industry GMP code, FSANZ

Certification of manufacturing processes for export

- Australian Quarantine and Inspection Service (AQIS) has developed hands-off certification tools for food exporters to meet internationally recognised process control requirements
  - AQA (Approved Quality Assurance) programs for all food industries
  - FPA (Food Processing Accreditation) specifically for export of fish, dairy and eggs
- The International Standards Organisation has developed a manufacturing quality certification system called ISO9002 suitable for large organisations though not for small or some medium sized enterprises - to address food safety issues it should incorporate HACCP plans

HACCP:

- System of controls specifically designed to prevent safety problems/specific system used to monitor food safety aspects during manufacturing and processing
- Normally applied to food manufacture and represents a proactive system of preventive actions by incorporating real-time troubleshooting
- Avoids the problems due to reliance on periodic inspection, end point testing and reactive responses to problems
- A logical system which requires only a sound understanding of the materials and processes relevant to a particular product
- Initial stages
    1. Define the product and the intended use of the product – include a detailed description of the product (customer specifications and intended use groups)
    2. Appoint a HACCP team typically comprises of management, technical, scientific and production staff, so that all aspects of the production system are represented

Hazards: a property of a material that may have a negative effect on human (or animal) health (in this instance by causing a food item to be unsafe)

- Biological e.g. pathogenic microorganisms or their toxins
- Chemical e.g. pesticide residues
- Physical e.g. foreign materials such as glass or metal fragments

Risk: an estimate of the likely occurrence of a hazard

Critical control point: a point in a process or system where loss of control may lead to an unacceptable health risk, or a point in a process or system where control can and must be applied to prevent a safety hazard (inspection, frequency, person responsible, specification corrective action)

Critical limit: the tolerance applied to a critical control, which describes the difference between a safe and unsafe product (always a measurable quantity – built-in margin for error)

e.g. pasteurisation (designed to destroy potentially dangerous microorganisms; T, t

- 7 stages/principles:

1. Conduct a hazard analysis. Prepare a list of steps in the process where significant hazards occur and describe the preventive measures
2. Determine the critical control points
3. Establish critical value limits for each CCP
4. Establish procedures for monitoring each CCP: use in-line (simple) “real-time analytical techniques
5. Establish correction actions when critical limits are not being achieved
6. Establish verification procedures to establish that appropriate control is being maintained (use analytical techniques)
7. Establish documentation and record keeping