

FOOD PROCESSING

Food Processing is the conversion of agricultural product to substances which have particular textural, sensory and nutritional properties using commercially feasible methods.



PRIMARY PROCESSING

Primary processing is the conversion of raw materials to food commodities. Milling is an example of primary processing.

SECONDARY PROCESSING

Secondary processing is the conversion of ingredients into edible products - this involves combining foods in a particular way to change properties. Baking cakes is an example of secondary processing.



A considerable variety of products can be made using similar basic ingredients e.g. to make bread we need flour, water and salt. Breads such as chappatti and pitta are examples of unleaven breads. If yeast is added this produces carbon-dioxide, given the correct conditions, this raises the mixture to produce breads such as those they eat more commonly in Great Britain.

PRODUCT DEVELOPMENT

STAGES OF PRODUCT DEVELOPMENT

Product development is the process of making new or modified food products. The process of product development involves a complex series of stages, requiring the combined talents of many specialists to make it successful.

The aim of product development is for a company to increase sales and remain competitive.

1. Develop ideas for a new product

2. Test ideas on a small scale

Research is carried out to form a number of recipes and specify the ingredients to be used. Several versions of the product are usually made, using slightly different ingredients or processes. i.e. the products are PROTOTYPED in the company's test kitchen, often by a professional chef or food consultant. A small number of staff, experienced in sensory evaluation, test the products and evaluate them informally.



3. Sensory evaluation

Sensory evaluation is carried out at many stages of the development process. Trained assessors comment on the appearance, odour, taste and texture of the products to make sure that the product being developed displays the desired sensory characteristics.

4. Modify product

5. Pilot plant

A pilot plant is a small version of the equipment used in manufacture.

6. Sensory evaluation

7. Perform consumer testing

8. Finalise product specification

Product specifications detail exact ingredients and precise methods of production. The specification is very important as it will be used for the production of each batch of the product to ensure consistency.

9. Produce product on a large scale

The manufacturing process is sometimes organised in unit operations, such as size reduction, mixing and cooking. These are controlled to maintain consistent product quality, safeguard staff health, food safety standards and to avoid problems that may stop the production line running, which would result in 'down time'.

!!!The processes involved in manufacturing food products are known as 'unit operations'. These include:

- **storage** e.g. keeping raw materials in good condition
- **cleaning**, e.g. removing foreign matter
- **sorting/grading** e.g. assessing the quality



- **size reduction** e.g. trimming, slicing, crushing
- **mixing/combining**
- **heat transfer** e.g. cooking and cooling

10. Advertise the product

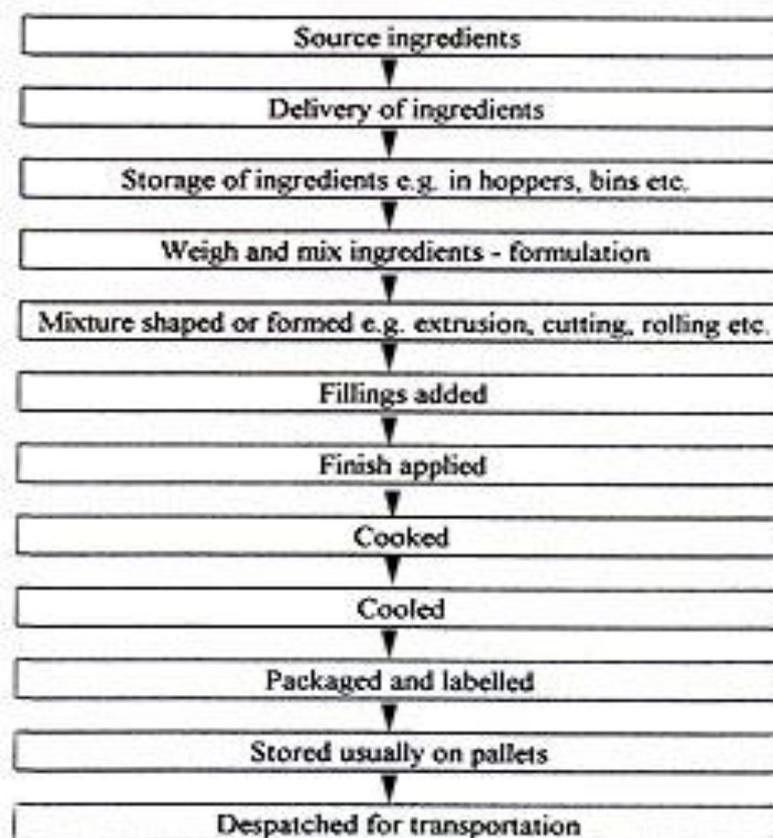
11. Launch new product

WHY DO WE PROCESS FOOD?

- to convert to edible products
- to preserve
- to extend availability and provide accessibility
- to provide variety and choice
- to add value

TYPICAL FOOD PROCESSES

Most food which is manufactured goes through a number of common steps. The specific details of each may differ, but the basic principles are the same:



The Sequence of Unit Operations in Food Processing - from delivery of raw materials to distribution of finished product

PROCESSING AND PRESERVATION

- destroys, inhibits or removes micro-organisms
- retards or prevents deteriorious biochemical, chemical and physio-chemical changes
- maintains and generates acceptable organoleptic properties
- preserves or enhances the nutritive value

Processing and preservation technologies used in the food industry:

- heating
- drying
- irradiation
- concentration
- freezing
- chemical preservation
- chilling
- fermentation
- a combination of those technologies

Vir: <http://www.foodtech.org.uk/processing/fsmain1.html>

EXERCISES

1. Fill in the missing words.

_____ is the conversion of an agricultural product into substances with particular _____, _____ and _____ properties by means of different feasible _____. (e.g. milling)

Primary processing is the conversion of _____ to food commodities. Secondary processing is the conversion of _____ to _____ products. (e.g. baking)

2. Match.

1. Pilot plant	...is the conversion of ingredients into edible products.
2. Secondary processing	...is when the appearance, odour, taste and texture of the product are being assessed.
3. Testing idea on a small scale	...is when several versions of the product are made, using slightly different ingredients or processes.
4. Full-scale production	...is a small version of the equipment used in manufacture.
5. Primary processing	...is the conversion of raw materials (crops) to food products.
6. Sensory evaluation	...is manufacturing of a product on a production line.
7. Product development is the process	... often organized in unit operations.
8. The aim of product development	... of making new / modified food products.
9. The manufacturing process is	... is to increase the company's sales.