



Australian Government

FBPFST4001 Apply food processing technologies

Release: 1

FBPFST4001 Apply food processing technologies

Modification History

Release	Comments
Release 1	This version released with the FBP Food, Beverage and Pharmaceutical Training Package Version 2.0.

Application

This unit of competency describes the skills and knowledge required to implement fermentation, concentration and drying, cooking or steaming processes, and to review and monitor their effectiveness and efficiency based on an understanding of food science and technology.

The unit applies to individuals who have responsibility for maintaining product safety, quality and the production environment.

Legislative and regulatory requirements apply to food safety and are enforced through state/territory jurisdictions. Users must check with the relevant regulatory authority before delivery.

Pre-requisite Unit

Nil

Unit Sector

Food science and technology (FST)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Carry out fermentation as part of food or beverage production	1.1 Prepare materials and equipment for a fermentation process 1.2 Apply and monitor a fermentation process 1.3 Test and evaluate the fermented product
2. Review a fermentation process for a commercial	2.1 Review the critical control points (CCPs) and critical limits for product safety

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
food product	2.2 Review operating procedures for food safety and quality in fermentation 2.3 Review the food safety and production plans for the fermentation process 2.4 Review environmental impacts and associated costs for fermentation in commercial food production 2.5 Take corrective action in response to out-of-specification results
3. Carry out concentration and drying as part of food or beverage production	3.1 Prepare materials and equipment for a concentration and drying process 3.2 Apply and monitor a concentration and drying process 3.3 Test and evaluate the concentrated and dried food product
4. Review a concentration and drying process for a commercial food product	4.1 Review the CCPs and critical limits for product safety 4.2 Review operating procedures for food safety and quality in concentration and drying 4.3 Review the food safety and production plan for the concentration and drying process 4.4 Review environmental impacts and associated costs for concentration and drying in commercial food production 4.5 Take corrective action in response to out-of-specification results
5. Carry out cooking or steaming as part of food or beverage production	5.1 Prepare materials and equipment for a cooking or steaming process 5.2 Apply and monitor a cooking or steaming process 5.3 Test and evaluate the cooked or steamed food product
6. Review a cooking or steaming operation for a commercial food product	6.1 Review the CCPs and critical limits for product safety 6.2 Review operating procedures for food safety and quality in cooking or steaming 6.3 Review the food safety and production plan for the cooking or steaming process 6.4 Review environmental impacts and associated costs for cooking or steaming in commercial food production 6.5 Take corrective action in response to out-of-specification results

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	• Interpret manuals, diagrams, drawings and other technical information relevant to food processing technologies • Interpret procedures for test equipment • Interpret food safety guidelines and regulations • Interpret environmental management procedures and plans for different types of food processing technologies
Writing	• Document biochemical and biological changes to food products and testing criteria • Document effectiveness and efficiency of food processing technologies
Numeracy	• Monitor and adjust critical limits for processing a food product, including time and temperature, weights, flow rates and flow diversion • Determine calibration procedures and schedule for test equipment

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
FBPFST4001 Apply food processing technologies	FDFST4001A Apply food processing technologies	Updated to meet Standards for Training Packages Minor changes to Performance Criteria to clarify intent	Equivalent unit

Links

Companion Volume Implementation Guides are found in VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=78b15323-cd38-483e-aad7-1159b570a5c4>

Assessment Requirements for FBPFST4001 Apply food processing technologies

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Performance Evidence

An individual demonstrating competency in this unit must satisfy all of the elements and performance criteria of this unit.

There must be evidence that the individual has produced two different items of food using at least two of the following technologies:

- fermenting
- concentrating or drying
- cooking or steaming.

For each process, the individual must show evidence of:

- monitoring parameters of food processing
- applying appropriate quality control processes and procedures to assess food products
- taking corrective action in response to out-of-specification results.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- fermentation:
 - biochemical principles of fermentation, including lactic acid fermentation and alcohol fermentation
 - the major microorganism groups used in fermentation, including Lactococcus, Streptococcus, Leuconostoc, Pediococcus, Lactobacillus bacterial species, yeasts and moulds
 - the role of microorganisms in the fermentation process
 - the microbial growth phases: lag phase, log phase, stationary phase and death phase
 - materials used in the fermentation process, including raw materials/pre-processed materials and starter cultures (single strain starters, multiple strain cultures, mixed strains)

- quality control processes and procedures used to assess fermented food products
- the principles of concentration in production, including:
 - the aim of concentration in food processing
 - the need for concentration in food processing
 - heat transfer mechanism
- the principles of drying in food production, including:
 - the aim of drying in food processing
 - the need for drying in food processing
 - heat transfer mechanism
- the principles of heat transfer in the concentration of food
- the principles of heat transfer in the drying of food
- the various methods of concentration of foods, including evaporation, filtration, reverse osmosis and freeze concentration
- the various methods of dehydrating foods, including cabinet, spray, drying and freeze dehydration
- quality control process and procedures used to assess concentrated and dried food products
- cooking or steaming:
 - the purpose and basic principles of heat sterilisation and effect on physical, chemical, microbiological and organoleptic characteristics of the cooked product
 - basic operating principles of equipment, including safe operating procedures
 - quality characteristics and conditioning required of ingredients used and their role in the product (conditioning may include reconstituting dry ingredients and bringing ingredients to a required temperature)
 - effect of ingredient quality/condition on the process
 - effect of variables including temperature, viscosity/texture, microbial load and acidity
 - heat treatment requirements for low and/or high acid foods as appropriate to production requirements
 - stages and changes that occur during the blending and heat treatment stages
 - quality requirements of the cooked product
 - relationship between time and temperature in the cooking process
- health and safety in the hazards in the workplace and controls relating to work processes
- Food Standards Code
- state/territory, Commonwealth and industry requirements relevant to food processing.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a workplace setting or an environment that accurately represents a real food processing workplace
- resources, equipment and materials:

- personal protective equipment required for applying food processing technologies
- production process and related equipment, manufacturers' advice and operating procedures
- testing equipment used to report relevant product and process information
- specifications:
- equipment manuals, including operating parameters.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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