Australian Government

Assessment Requirements for FBPRBK4008 Apply bread baking science

Release: 1

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Modification History

Release	Comments
Release 1	This version released with FBP Food, Beverage and Pharmaceutical Training Package version 1.0

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 explored baking science through processing two of the following bread product varieties:

- white/bakers flour product
- low protein flour product
- rye flour product
- meal flour product
- grain flour product.

For each the two bakery product varieties, the individual must have explored:

- the chemical and physical changes during the processing and mixing, including:
  - undermixing protein development using low intensity mixing
  - overmixing protein development using high intensity mixing
  - baking of undermixed dough to record volume and baked colour against a uniform standard dough
  - baking of overmixed dough to record volume, pan flow and baked colour against a uniform standard dough
  - recording the change in extension of gluten or window testing of fermentation doughs between undermixed dough and overmixed dough against a uniform standard dough
- liquid washing of bread doughs, including:
  - baking of protein balls to record volume and baked colour against protein level
  - measuring baked and cut protein balls to record crumb strength and texture
- adjusting the salt levels lower in a bread dough product to record the acceptable levels of both dough maturity and bread flavour, including:
  - mixing tolerance changes in reduced salt doughs
  - flavour tolerance changes in reduced salt doughs

  - mixing time changes in delayed salt method doughs
  - liquid hydration of reduced salt doughs
- adjusting and recording yeast levels in bread doughs to counteract the effect of sugar on fermentation doughs, including:
  - raising the percentage of yeast to percentage of sugar in the dough between 5% up until 15% sugar
  - comparing the rises in yeast levels against the processing times of a uniform standard bread dough based on 2% sugar
  - recording the change in hydration levels against the change in sugar levels
  - recording the change in salt levels against the change in sugar and yeast levels.

The individual must record the changes in the overall processing times of production of the two different bread dough types, including different protein and sugar levels. The individual must record the changes in processing times using two different varieties of bread improver, including the:

- overall processing time changes in fermented product
- finished baked product internal characteristics
- external baked product characteristics
- volume differences against a uniform standard product.

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:

- the chemical and physical changes during the processing and mixing of bread dough products
- mixing bread doughs, including:
  - energy inputs of different mixing systems, including high energy and low energy mixing
  - the effects of energy on mixing fermented dough, and how it affects gluten development
  - the effects of energy on mixing fermented dough, and how it affects baked qualities
- liquid washing of bread doughs, including how the protein level affects:
  - the baked quality of protein balls
  - the internal structure of baked protein balls
- the effects of altering the salt levels in bread doughs, including changes in:
  - dough tolerance during mixing
  - fermentation and flavour
  - mixing times
  - processing and fermentation times
- the effects of altering the yeast levels in doughs to counteract the effect of sugar or fat on bread doughs, including changes in:

  - yeast levels to counter-affect the quantity of sugar and fat levels
  - hydration levels to counter-affect the quantity of sugar or fat levels
  - salt levels to counter-affect the quantity of sugar or fat levels
- the characteristics of different varieties of bread improver and their effects, including:
  - processing changes
  - finished baked product internal characteristics
  - external baked product characteristics
  - baked volume differences
- the cause-and-effect relationship on bread production processes of the following:
  - mixing and fermentation changes
  - changes of yeast levels
  - changes of salt levels
  - changes of protein levels
  - changes of sugar levels
  - changes of hydration levels
- dough rheology and bread baking science considerations, including:
  - the basic structures and properties of sugars, proteins and fats
  - common chemical reactions
  - common physical reactions
  - physical dough testing
  - panary aeration
- the content and purpose of a Certificate of Analysis for a commercial grade bread making flour, including the detailed analyses and how these affect bread production, including:
  - protein percentage
  - moisture percentage
  - water absorption percentage
  - extensograph height in Brabender Units (BU)
  - extensograph length in centimetre square (CMS)
  - falling number
  - development time in minutes
- food and bakery science terminology.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- • physical conditions:
  - a commercial bakery or laboratory, or an environment that accurately represents workplace conditions
  - access to the internet
- resources, equipment and materials:

  - relevant trade magazines and published articles
  - commercial Certificate of Analysis
  - equipment and ingredients relevant to the product and process types specified in the performance evidence
  - bread science measuring equipment to meet the requirements of the performance evidence
- specifications:
  - access to the Food Standards Code
  - bread recipes and specifications
- timeframes:
  - according to work requirements.

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

Links

Companion Volumes, including Implementation Guides, are available at VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=78b15323-cd38-483e-aad7-1159b570a5c4