

AUSTRALIAN
**FOOD &
GROCERY**
COUNCIL

BEST PRACTICE GUIDE

JUNE 2016

DATE MARKING

Sustaining Australia

AFGC BEST PRACTICE GUIDE – DATE MARKING

TABLE OF CONTENTS

Preface	3
1. Introduction	5
2. Background information	5
2.1 Regulatory Requirements	5
2.2 Definitions	6
2.3 Factors affecting shelf life of packaged foods	7
2.4 Determining end of shelf life	8
3. Provisions	11
4. Additional sources of information	13
5. Stakeholder issues	13

AFGC BEST PRACTICE GUIDE – DATE MARKING

PREFACE

This document has been prepared by the Australian Food and Grocery Council (AFGC) as a resource for the food industry and other stakeholders.

The provisions specified here take the place of all previous Industry Codes or Guides relating to date marking. The provisions are largely consistent with previous versions contained within the Industry Code of Practice. If there is conflicting advice, this version takes precedence and should be followed.

The AFGC may update this document from time to time so it is recommended that companies check the AFGC website (<http://www.afgc.org.au/key-projects/daily-intake-labelling/>) regularly for further updated versions.

For further information, please contact at the AFGC afgc@afgc.org.au.

Use of the Date Marking Best Practice Guide (hereafter referred to as the Guide) does not negate any legal obligations imposed by the Australia New Zealand Food Standards Code¹ (the Code) or other relevant legislation at Commonwealth or state and territory level. Food companies should ensure they are fully aware of the labelling requirements of the Code and other legislation and seek legal advice as appropriate.

Food companies need to apply their own skills and knowledge in determining compliance with the labelling requirements of the Code. If necessary the user should consider independent legal advice, or undertake appropriate training in labelling requirements.

The AFGC has made this document available on the basis and understanding that users exercise their own skill, care and judgement with respect to its use.

The AFGC provides no warranty or endorsement with regards to the materials contained within this document. In using this Guide, food companies acknowledge that the AFGC, its employees, Board, committees and working group members and agents accept no liability for any loss, injury or damage as a result of a product/s being labelled according to this style guide.

MANAGEMENT OF THE BEST PRACTICE GUIDE

The AFGC manages this Guide, providing support to companies applying date marking on some or all of their products. Queries regarding use of this Guide may be directed to the AFGC Secretariat.

¹ <http://www.foodstandards.gov.au/code/Pages/Food-Standards-Code-from-1-March-2016.aspx>

AFGC BEST PRACTICE GUIDE – DATE MARKING

The AFGC will regularly review this Guide to ensure it remains current. Reviews will be under the direction of the AFGC Health Nutrition and Scientific Affairs Committee and the AFGC Board.

Interested Stakeholders can suggest amendments for consideration at any time by contacting the AFGC afgc@afgc.org.au.

TERMS OF USE

You may display, print and reproduce this material in unaltered form only (retaining this notice) for your own personal use or use within your organisation. Apart from any other use permitted under the *Copyright Act 1968 (Cth)*, all other rights are reserved. You do not obtain any ownership right, title or other interest in copyrighted materials by downloading or otherwise using these materials.

Requests for further authorisation should be directed to the AFGC afgc@afgc.org.au.

AFGC BEST PRACTICE GUIDE – DATE MARKING

1. INTRODUCTION

The Australia New Zealand Food Standards Code (the Code) requires that a date mark is present on packaged food where the shelf life of the food is less than two years. The intention of date marking is to ensure consumer safety, provide a guide to retailers when to remove stock from sale, and provide a guide to consumers about the freshness and quality of the food. These requirements apply to both locally made and imported products. The only terms permitted for products with a shelf life of less than two years are either Use-by or Best-before, or in the case of bread a Baked on or Baked for date.

Foods with a shelf life of greater than two years do not require a date mark. However, increasingly a best before date of two years is applied to such products. This is to aid with stock management and helps consumers identify how long a food has been in their pantry. Alternatively, the term 'packed on' could be applied if the product has a shelf life greater than two years.

These provisions have been developed by AFGC, in consultation with food manufacturers and retailers, as an aid to the food industry in deciding whether packaged food should be labelled with a **best-before** or **use-by** date.

2. BACKGROUND INFORMATION

2.1 REGULATORY REQUIREMENTS

Standard 1.2.5, clause 1 of the Code states:

Best-before date, in relation to food for sale, means the date which signifies the end of the period during which the intact package of food, if stored in accordance with any stated storage conditions, *will remain fully marketable and will retain any specific qualities for which express or implied claims have been made.*

Use-by date, in relation to food for sale, means the date which signifies the end of the estimated period if stored in accordance with any stated storage conditions, after which the intact package of food should not be consumed because of *health and safety reasons.*

Both definitions include reference to 'any stated storage conditions'. Storage in conditions other than those stated by the manufacturer will invalidate the manufacturers date mark. It is not permitted to sell food once it has exceeded the **use-by** date, but permissible to sell food that is past the **best-before** date.

AFGC BEST PRACTICE GUIDE – DATE MARKING

2.2 DEFINITIONS

Unsafe food is food which, at a particular time, would be likely to cause physical harm to a person who might later consume it, assuming:

- a) it was, after that particular time and before being consumed by the person, properly subjected to all processes (if any) that are relevant to its reasonable intended use, [note that 'process' includes handling and storage] and
- b) nothing happened to it after that particular time and before being consumed by the person that would prevent its being used for its reasonable intended use, and
- c) it was consumed by the person according to its reasonable intended use.

but is not **unsafe** merely because its inherent nutritional or chemical properties cause, or its inherent nature causes, adverse reactions only in persons with allergies or sensitivities that are not common to the majority of persons.

Unsuitable food is food that:

- a) is damaged, deteriorated or perished to an extent that affects its reasonable intended use, or
- b) contains any damaged, deteriorated or perished substance that affects its reasonable intended use, or
- c) is the product of a diseased animal, or an animal that has died otherwise than by slaughter, and has not been declared by or under another Act to be safe for human consumption, or
- d) contains a biological or chemical agent, or other matter or substance, that is foreign to the nature of the food.

but is not **unsuitable** merely because:

- a) at any particular time before it is sold for human consumption it contains an agricultural or veterinary chemical, or
- b) when it is sold for human consumption it contains an agricultural or veterinary chemical, so long as it does not contain the chemical in an amount that contravenes the Food Standards Code, or
- c) it contains a metal or non-metal contaminant (within the meaning of the Food Standards Code) in an amount that does not contravene the permitted level for the contaminant as specified in the Food Standards Code, or
- d) it contains any matter or substance that is permitted by the Food Standards Code.

AFGC BEST PRACTICE GUIDE – DATE MARKING

Pathogen is defined as a disease producing organism, and may include bacteria, moulds, fungi, viruses and parasites. Contagious infectious diseases that result from bacterial pathogens in foods include salmonellosis, campylobacteriosis, and listeriosis. Non-contagious diseases include the effects of toxins produced from moulds that result in damage to organs such as the liver, kidney or central nervous system.

Perishable food is defined as food that is subject to decay or destruction. Perishable food may be considered to be food that has been minimally processed or not otherwise preserved, and which relies on refrigerated storage to reduce the rate of decay and loss of quality of the food.

Shelf stable food means a food that can be safely stored and sold at room temperature. Preservation methods used include canning, ultra heat treatment, reduced water activity, increased acidity and modified atmosphere packaging.

2.3 FACTORS AFFECTING SHELF LIFE OF PACKAGED FOODS

2.3.1 PERISHABLE FOODS

Shelf life may be considered as a continuum that ranges from slight deterioration, reduced quality attributes but fully useable, through to a product which is degraded to the point it is either unfit for consumption or the intended purpose by the manufacturer. The later situation would arise where the predicted growth of microbes in the food places a potential risk that consumption of the food could result in a food poisoning, or where the spoilage and degradation of the food renders the food inedible. The rate of change, and therefore the shelf life of the food, depends on a number of factors.

Perishable foods are subject to spoilage, from natural breakdown of plant and animal tissue, and from the growth of bacteria, moulds and fungi. Microbial growth will occur in a variety of perishable foods, particularly in protein-rich food. In some cases bacterial growth may support the growth of pathogens.

Keeping perishable foods chilled in a refrigerator can extend the shelf life by reducing the rate at which bacteria and moulds grow although some food poisoning bacteria, such as *Listeria monocytogenes*, will grow even at 4°C. Other factors which can reduce the spoilage rate and increase usable shelf life include the processing method, the use of additives or preservatives, and the type of packaging used.

Perishable foods may pose a risk of food poisoning from the growth of pathogens when they grow to sufficient numbers to cause illness. Some people are more susceptible to certain food poisoning bacteria than others, including pregnant women, the elderly and the immunocompromised.

AFGC BEST PRACTICE GUIDE – DATE MARKING

Perishable foods may also accumulate toxins from bacteria, moulds and fungi, as well as toxins from the breakdown of tissues in the food. Such chemicals do not always cause an immediate food poisoning reaction, but may cause long lasting organ damage that is not detected until long after consumption. The presence of spoilage (non-pathogenic) organisms at high levels and consumption may also cause an unpleasant reaction ranging from nausea to a mild upset stomach, and consequently such food is unfit for consumption.

2.3.2 SHELF STABLE FOODS

Shelf stable food means a food that can be safely stored and sold at room temperature. Preservation methods used include canning, ultra heat treatment, reduced water activity, increased acidity and modified atmospheric packaging.

Shelf stable foods will also deteriorate over time, although more slowly than perishable foods. Some shelf stable foods, such as canned foods will typically last for many years. Shelf stable foods may become stale due to oxidation and effects of ultraviolet light over a long period of time. Other shelf stable foods may become contaminated over time, for example flour through the infestation of weevils.

2.4 DETERMINING END OF SHELF LIFE

It is the responsibility of the manufacturer/packer of the food to determine the shelf life of a food, and thus the **best-before** or **use-by** date on local and imported foods.

The most direct way of doing this is to conduct properly constructed storage trials under realistic, defined conditions. Indirect methods are also frequently being used and can be faster and just as effective. These are often referred to as accelerated shelf life tests, and are usually based on storage of the product at higher than normal temperatures. The use of computer-based predictive models can also assist in accelerated testing by reducing the number of variables and samples that need to be tested, and therefore reduce the cost and time necessary.

No single factor can be relied on to determine shelf life, whether microbial, chemical or organoleptic. Shelf life determination requires an evaluation of all of these parameters, and cannot be determined by guess work or by copying the shelf life of a similar product from another source. Once a full evaluation has been performed, it may be determined that one of these factors can be used as an effective predictor of product shelf life.

Shelf life is specific for a food made on a particular site as it is affected by:

- initial microbial levels, lag times and microbial strain variations
- quality and composition of ingredients used
- product formulation
- processing conditions (heating, dehydration, fermentation, acidification, etc.)

AFGC BEST PRACTICE GUIDE – DATE MARKING

- packaging type
- storage conditions.

Packaging type, including the use of modified atmospheric gases in packaging, plays an integral part in the shelf life of a food. For example, if in a particular market segment a manufacturer determines that a shelf life of only six weeks is necessary, it may be possible for the product to be successfully packed in a plastic with lesser barrier properties than if the manufacturer was seeking a six month shelf life. In either case, the expected shelf life will be dependant on the integrity of the packaging to maintain the atmosphere.

In undertaking an assessment of shelf life, there needs to be a clear understanding of the following parameters:

- criterion for when the product is determined to be unsafe
- criterion for unsuitability
- acceptable frequency of non-compliance
- reasonable time for consumer use in the case of **best-before** date.

The evaluation of microbial parameters is one of the key criteria on which to determine shelf life and safety. Challenge testing may be used to determine if pathogens will be controlled or eliminated by the processes used in manufacturing, or to estimate the time it takes for them to grow to potentially hazardous levels in perishable foods.

The relationship between microbial spoilage, quality loss and end of shelf life is presented in Figure 1.

AFGC BEST PRACTICE GUIDE – DATE MARKING

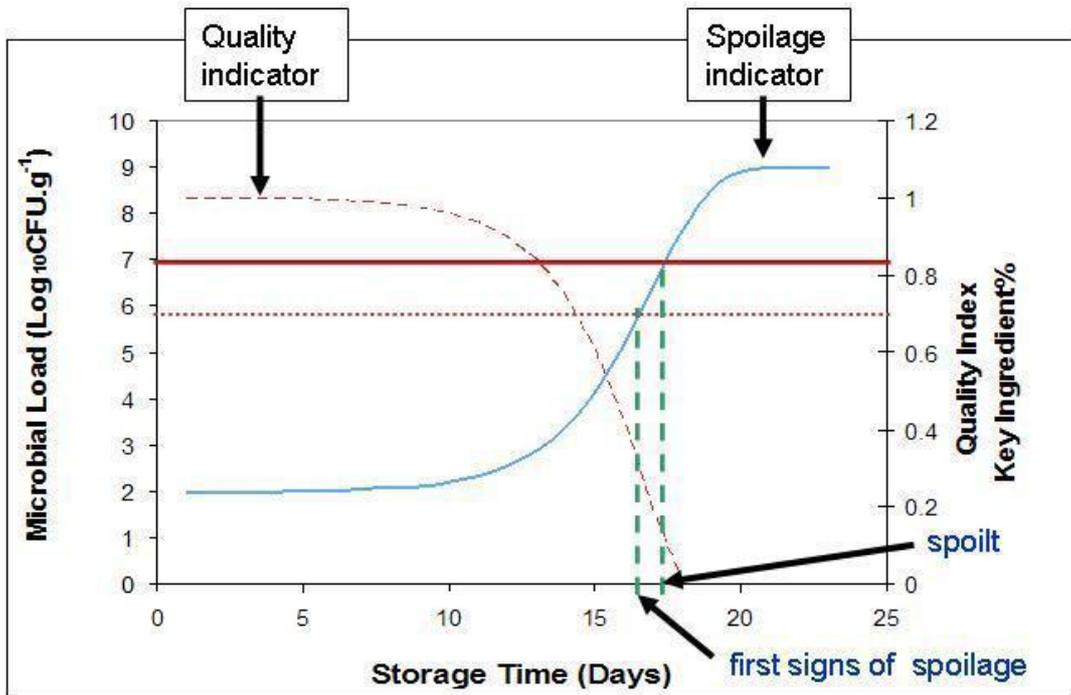


Figure 1: Indicative relationship between spoilage, quality loss and shelf life

Challenge testing using potential spoilage organisms can also be used for shelf life studies. There can be a direct and predictable relationship between the level to which spoilage organisms have grown in a food and the loss in quality of the food, but the rate at which this occurs is specific to the food, its formulation and its environment. In perishable foods, degradation moves rapidly from a slight loss of quality to unfit for consumption.

Microbial spoilage is an exponential process which, in a relatively small period of time, can change a product with a slight loss of quality to one with an unacceptable loss in quality and the presence of a substantial number of spoilage organisms, thus quickly rendering the food unfit for consumption. Packaging integrity, the presence of growth inhibitors and microbial growth conditions will influence the rate at which such degradation will occur, and this makes it difficult to accurately predict how long after the best before date the food may last.

Quality loss of a shelf stable food may merely result in staling which can be assessed chemically or organoleptically.

The New Zealand Food Safety Authority provides a detailed information booklet for the food industry as to how to calculate shelf life and the various testing methods used.

AFGC BEST PRACTICE GUIDE – DATE MARKING

3. PROVISIONS

3.1 SCOPE

Provided here is a guide to manufacturers on how to determine whether their product requires a **use-by** or **best-before** date.

3.2 PRINCIPLES

1. A **use-by** date is applied to food when:
 - a food is the sole source of nutrition and the vitamins present are likely to degrade (i.e. infant formula, formulated meal replacement or formulated dietary foods), or
 - a perishable food that may become unsafe for consumption and where the food does not require cooking prior to consumption, or the cooking processes will not remove the safety concern, or
 - a perishable food that deteriorates rapidly after the date mark to become 'unsuitable' (unfit for intended purpose) for retail sale.
2. Where a food deteriorates and becomes unfit for the intended purpose, the consumer is often able to make a judgement that the food is spoilt. However, this may not always be the case as spoilage or deterioration may not be apparent to the consumer prior to consumption. Perishable food that rapidly deteriorates after the date mark and becomes **unsuitable**, or unfit for the intended purpose, should be marked with a use by date to indicate the end of shelf life.
3. **Use-by** is a clear instruction NOT to use the product after the date, and products past the use by date are not permitted to be sold.
4. **Best-before** dates apply to shelf stable foods and to some perishable foods that are not unsafe to consume, or perishable foods that do not deteriorate rapidly after the date mark.
5. **Best-before** can be ambiguous as it is stating that up to the specified date the food is in its 'best' condition. This does not provide the consumer with advice as to when the product is intended to be discarded. Manufacturer's consumer advisory services should be able to suggest when a food should be discarded after the Best Before date when requested by the consumer.
6. Foods that contain *an express or implied claim* based on the presence of a degradable vitamin in a food, will require an excess or 'overage' of vitamins to be added during manufacture to ensure that there is sufficient active vitamin remaining in the product at the date mark so the claim remains valid up to the specified date.
7. If the food is stored in conditions contrary to that indicated on the packaging, or the packaging is damaged in any way, the date marking becomes null and void.

AFGC BEST PRACTICE GUIDE – DATE MARKING

The decision tree presented in Figure 2 should be used as a guide in applying the above principles.

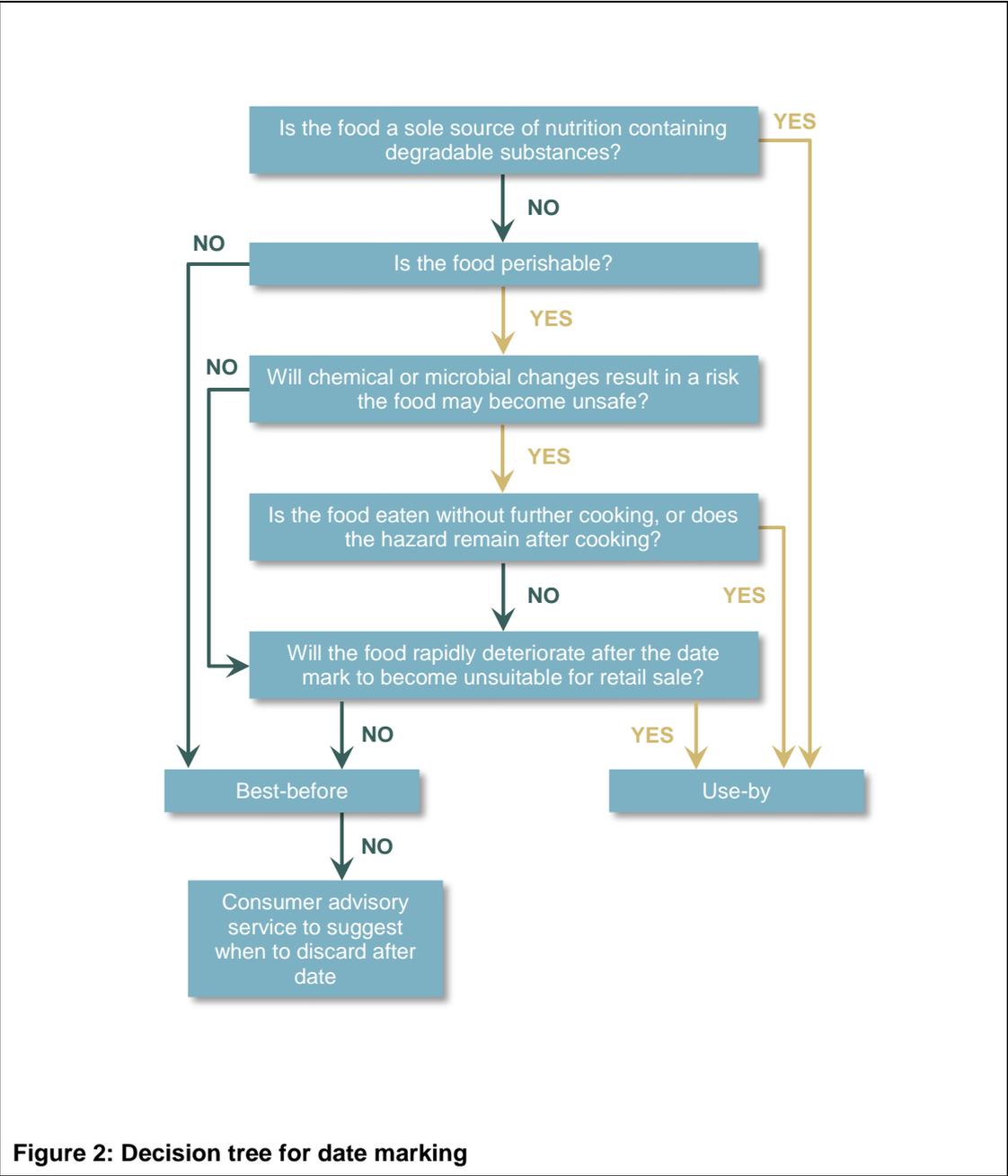


Figure 2: Decision tree for date marking

4. ADDITIONAL SOURCES OF INFORMATION

American Meat Institute Foundation – Principles of Integrated Time-Temperature Processing
<http://www.namif.org/namif/wp-content/uploads/Principles-of-Integrated-Time-Temperature-Processing.pdf>

CSIRO – Shelf life of foods
<http://www.csiro.au/en/Research/Health/Food-safety/Shelf-life>

Food Standards Australia New Zealand (FSANZ)
<http://www.foodstandards.gov.au/>

New South Wales Food Authority (NSWFA)
<http://www.foodauthority.nsw.gov.au/aboutus/science/food-risk-studies/shelf-life-testing-and-used-by-dates>

New Zealand Food Safety Authority – A Guide to Calculating the Shelf Life of Foods: Information Booklet for the Food Industry
<http://www.foodsafety.govt.nz/elibrary/industry/determine-shelf-life-of-food/>

The Institute of Food Technologists – Extended Shelf Life Refrigerated Foods
<http://www.ift.org/knowledge-center/read-ift-publications/science-reports/scientific-status-summaries/extended-shelf-life-refrigerated-foods.aspx>

5. STAKEHOLDER ISSUES

Consumers can expect to see food companies adhering to the requirements specified here in their date marking practices.