



NSW Food Authority

safer food, clearer choices

# Plant Products Safety Manual

Policy and Information  
to help Plant Products businesses  
comply with the  
Plant Products Food Safety Scheme  
under the Food Regulation 2004



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## Foreword

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### About NSW Food Authority

The NSW Food Authority (the Authority) is a State Government agency established in April 2004 to provide New South Wales with the best food regulation system in Australia. The Authority was formed by merging SafeFood NSW with the food regulatory activities of NSW Health. As Australia's first completely integrated or "through-chain" food regulation agency, the Authority is responsible for food safety as well as other requirements of the *Australia New Zealand Food Standards Code*<sup>1</sup> (the *Food Standards Code*) across the entire food industry, from primary production to point-of-sale.

The power to make regulations prescribing Food Safety Schemes in respect of different types or classes of food products, food businesses and activities in relation to handling food was available to SafeFood NSW previously under the *Food Production Safety Act*. This provision has been adopted into the *Food Act 2003* to allow the Authority to continue to establish Food Safety Schemes for different industry sectors as required.

The *Plant Products Food Safety Scheme* is made under the *Food Act 2003* and *Food Regulation 2004*. Its purpose is to allow the Authority to regulate the production and handling of high priority plant products in NSW, with the aim of reducing the risk of foodborne illness associated with these products.

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<sup>1</sup> To access the *Australia New Zealand Food Standards Code* go to: [www.foodstandards.gov.au](http://www.foodstandards.gov.au)

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## Definitions

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**Food Safety Program** - must comply with:

- the principles and guidelines set out in the document entitled *Hazard Analysis and Critical Control Point (HACCP) System and Guidelines For Its Application* published by the Codex Alimentarius Commission, **or**
- Standard 3.2.1 - Food Safety Programs of the *Food Standards Code*, **and**
- meet any other requirements notified in writing by the Authority to the applicant for a licence or the holder of the licence for the food business concerned.

**Fresh Cut Fruit** - means any raw fruit that has been cut, sliced, peeled or, trimmed or pulled apart and is intended to be consumed raw.

**Fresh Cut Vegetable** – means any raw vegetable that has been cut, sliced, peeled, trimmed or pulled apart and is intended to be consumed raw.

**Pasteurisation** - means:

- Heating to a temperature of at least 72°C for at least 15 seconds or any other time and temperature combination to have the same lethal effect on microorganisms; or
- Treating with alternative technology or method that provides the same lethal effect on microorganisms as heating to a temperature of 72°C for at least 15 seconds.

**Plant product – is one of the following:**

- fresh cut fruit;
- fresh cut vegetable;
- vegetables in oil
- unpasteurised juice; or
- seed sprouts.

**Plant products business** - means a business involving the handling of plant products, but only if any of the following activities are carried out in the course of that business:

- the extraction of juice from vegetables or fruits without pasteurising the juice;
- the processing of seed sprouts, fruits or vegetables to produce plant products, including (but not limited to) cutting, peeling, preserving and cooking;
- the storage of plant products;
- the distribution of plant products;
- the transportation of plant products;
- the packaging of plant products.

**Plant Products Safety Manual** - means the document of that name published by the Food Authority, as in force from time to time.

**Seed Sprouts** - means sprouted seeds or beans.

**Unpasteurised Juice** – means fruit or vegetable juice, or a mixture of fruit or vegetable juice that has not been pasteurised.

**Vegetables In Oil** - means fruit, vegetables and/or herbs completely or partially immersed in oil.

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# Introduction

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The Authority has prepared the Plant Products Safety Manual (the Manual) to outline and explain the requirements of the *Plant Products Food Safety Scheme* under the *Food Regulation 2004* (the Regulation).

The manual also contains technical details that, due to their nature are more appropriately detailed in this Manual than the Regulation. This also allows updating and streamlining as knowledge and experience accumulates.

The Manual attempts to group information in a user-friendly way, and may not follow the order of the Regulation. However, cross-reference is made to the Clause number of the Regulation where appropriate.

## **Mandatory requirements**

Within each of the following sections, regulatory requirements that must be addressed at a minimum are identified as a must. Compliance with these requirements is mandatory and auditors will be checking for compliance during audits and inspections.

## **Recommendations**

Following these requirements there may also be additional practices the Authority strongly recommends that your business implements. These recommendations are not mandatory and are specified as a should.

## What is the Manual?

The Manual is an official document published by the Authority to provide interpretation of the Regulation.

The Manual is provided to all businesses licensed under the *Plant Products Food Safety Scheme* and updates will be provided to all current licence holders when required.

The Manual will be used as the basis for determining and resolving most day-to-day operational issues between the Authority and businesses. However, where there is discrepancy between the contents of this Manual and the legal interpretation of the Regulation, the latter prevails.

## Need Help?

The Food Authority is here to help. Contact us by:

- Phone on 1300 552 406,
- Fax on (02) 9647 0026 or
- Email at [contact@foodauthority.nsw.gov.au](mailto:contact@foodauthority.nsw.gov.au).

For example if you need:

- Clarification of specific issues in this Manual,
- Guidelines for Food Safety Program implementation, or
- Advice on licensing requirements.

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## Section 1: The Regulation

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### Who is affected by the Regulation?

The *Food Regulation 2004* states that certain food businesses that engage in particular activities are managed by a licensing system administered by the Authority.

Certain businesses within the NSW meat, dairy, seafood, egg and plant products industries are captured under this Regulation.

### Who is required to be licensed with the NSW Food Authority?

The *Plant Products Food Safety Scheme* within the Regulation applies to a plant products business (*Clause 135 of the Regulation*) involving any of the following activities:

- *the processing of fruit or vegetables to produce fresh cut ready-to-eat (RTE) products;*
- *the sprouting and processing of seed sprouts;*
- *the extraction and/or packaging of juice from fruit or vegetables where the juice is not subsequently pasteurised;*
- *the production of vegetables or fruit in oil;*
- *the refrigerated storage of these plant products, and*
- *the refrigerated distribution and/or transporting of these plant products*

All plant products businesses must hold a licence with the Authority stating the activities that they are authorised to undertake (see *Section 2: Licensing*).

If a business undertakes more than one of these activities, they only require a single licence, but each activity must be listed on the licence issued by the Authority.

Each licence activity may have specific requirements for food safety controls (see *Section 3: Regulatory requirements for plant products businesses*). The Authority may charge a fee for each additional licence activity included on a licence.

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## Exempt Activities

Certain activities are exempt from requiring to be licensed with the Authority (*Clause 137 of the Regulation*). The following activities are not covered by the Regulation:

- Storing shelf-stable vegetables or fruit in oil
- Distributing shelf-stable vegetables or fruit in oil
- Transporting shelf-stable vegetables or fruit in oil
- Retail shops and restaurants that prepare products in the shop or restaurant where the product is usually consumed on or sold from the same premises

Although exempt from the requirement of being licensed under the Regulation, these businesses are still required to comply with the requirements of the *Food Standards Code* for these activities (Section 21 of the *Food Act 2003*).

These businesses are also required to notify the Authority of their business details. For more information, refer to the Authority's Fact Sheet:

- Food Business Notification

This fact sheet is available through the Authority's website ([www.foodauthority.nsw.gov.au](http://www.foodauthority.nsw.gov.au))

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## Section 2: Licensing

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### Licensing

All plant products businesses (as defined in *Clause 136 of the Regulation*) must hold a licence with the Authority. This licence must state the activities that the business is permitted to undertake, and show the premises and/or vehicles where the activities take place (*Clause 10 of the Regulation*). The licence will also list specific conditions that may be imposed on your licence, such as the requirement for a Food Safety Program. Specific requirements for each licence activity are given in *Section 3: Regulatory requirements for plant products businesses*.

If a plant products business operates without a licence, they are breaching the requirements of the NSW Food Authority (*Clause 8 of the Regulation*).

The licence activities and conditions of licence permitted by the Authority under the *Plant Products Food Safety Scheme* are listed in Table 1.

### What activities does my licence let me do?

#### Process fresh-cut produce

A *Process fresh-cut produce* licence permits your business to:

- cut, slice, peel or trim vegetables or fruit intended to be consumed raw.

Examples where a licence would be required are:

- businesses that prepare fresh-cut products for retail outlets, restaurants, caterers and/or hospitals, including any of the following:
- diced rockmelon; de-stemmed grapes; fruit salad or cut fruits supplied packed or in bulk; or
- coleslaw; prepared salad mixes; green salad, sliced mushroom supplied packed or in bulk, intended to be consumed raw.

Examples where a licence would not be required are:

- retail shops and restaurants that prepare products in the shop or restaurant where the product is usually consumed on or sold from the same premises, including any of the following:
- fruit salad or fruits; or
- salads or raw vegetables
- businesses producing or handling:
- fruit salad or apricot halves for canning; fruit pieces for manufacture into pulps as food ingredients where they are later heat treated; or
- soup mixes, peeled and cut potatoes and cut pumpkin where they are later cooked.

## Process seed sprouts

A *Process seed sprouts* licence permits your business to produce:

- sprouted seeds or beans.

Examples where a licence would be required are:

- businesses that produce seed sprouts for supply to retail outlets, restaurants, markets or hospitals, including any of the following:
- short sprouts and bean shoots of mung beans, alfalfa sprout, soya bean shoots, sprout of mustard seed, onion and radish sprouts, supplied packed or in bulk, single or mixed sprout types.

Examples where a licence would not be required are:

- retail shops that sell seed sprouts; sandwich bars that use seed sprouts in sandwich fillings;
- businesses producing or handling:
  - unsprouted seed or beans.
  - wheatgrass

## Process unpasteurised juice

A *Process unpasteurised juice* licence permits your business to produce:

- fruit or vegetable juice or mixtures of fruit or vegetable juice that is not pasteurised

Examples where a licence would be required are:

- Manufacturers of unpasteurised juice where the juice is not for immediate consumption, e.g. the juice is packaged, supplied to retail and subsequently consumed by the consumer, including any of the following:
- fruit juice supplied packed or in bulk that has not undergone pasteurisation or an equivalent treatment.

Examples where a licence would not be required are:

- retail shops/bars that prepare unpasteurised juices;
- businesses producing or handling:
- fruit or vegetable juice that has been, or will be pasteurised before sale;
- juices prepared at a retail outlet on demand from the consumer
- juice prepared by reconstitution of a concentrate, provided the concentrate has been pasteurised during preparation or subject to an equivalent treatment.

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## Process vegetables in oil

A *Process vegetables in oil* licence permits your business to produce:

- fruit, vegetables and/or herbs completely or partially immersed in oil

Examples where a licence would be required are:

- businesses or home based operations that prepare products for retail outlets, restaurants, caterers and/or markets, including any of the following:
- sun-dried tomatoes, eggplant, capsicums, tomatoes, garlic, chilli, mushrooms and/or herbs immersed in oil, bottled or packed in bulk containers.

Examples where a licence would not be required are:

- restaurants using vegetables in oil on their dishes;
- businesses producing or handling any of the following:
- salad vegetables sprinkled with olive oil (although this may be covered under fresh-cut vegetables);
- salsa sauce containing oil;
- vegetables in brine or vinegar.

## Store plant products

A *Store plant products* licence permits your business to:

- receive and store plant products at wholesale level only not at retail level (NOTE - a licence is not required for storing shelf-stable vegetables or fruit in oil).

## Transport plant products

A *Transport plant products* licence permits your business to:

- receive and transport plant products (NOTE - a licence is not required for storing shelf-stable vegetables or fruit in oil)

**Table 1 - Plant products business licence activities and conditions of licence**

<b>Licence Activity</b>	<b>Typical processes</b>	<b>Condition of Licence Must comply with the following:</b>
<b>Process fresh-cut produce</b>	<ul style="list-style-type: none"> <li>Produce fresh-cut fruit and or vegetables.</li> </ul>	a) <i>Food Act 2003;</i> b) <i>Food Regulation 2004;</i> c) <i>Food Standards Code;</i> d) <i>Plant Products Safety Manual</i> e) <i>Food Safety Program certified by the Authority</i>
<b>Process seed sprouts</b>	<ul style="list-style-type: none"> <li>Receive seed from approved supplier</li> <li>Produce seed sprouts</li> </ul>	a) <i>Food Act 2003;</i> b) <i>Food Regulation 2004;</i> c) <i>Food Standards Code;</i> d) <i>Plant Products Safety Manual;</i> e) <i>Food Safety Program certified by the Authority.</i>
<b>Process unpasteurised juice</b>	<ul style="list-style-type: none"> <li>Process unpasteurised juice</li> </ul>	a) <i>Food Act 2004;</i> b) <i>Food Regulation 2004;</i> c) <i>Food Standards Code;</i> d) <i>Plants Products Safety Manual;</i> e) <i>Food Safety Program certified by the Authority</i>
<b>Process vegetables or fruit in oil</b>	<ul style="list-style-type: none"> <li>Process fruit, vegetables and/or herbs that are completely or partially immersed in oil</li> </ul>	a) <i>Food Act 2003;</i> b) <i>Food Regulation 2004;</i> c) <i>Food Standards Code;</i> d) <i>Plant Products Safety Manual;</i> e) <i>Food Safety Program certified by the Authority.</i>
<b>Store plant products</b>	<ul style="list-style-type: none"> <li>Receive plant products</li> <li>Store plant products</li> </ul> <p><i>NOTE:</i></p> <ul style="list-style-type: none"> <li><i>Does not apply to storage of shelf-stable vegetables or fruit in oil</i></li> </ul>	a) <i>Food Act 2003;</i> b) <i>Food Regulation 2004;</i> c) <i>Food Standards Code;</i> d) <i>Plant Products Safety Manual;</i>
<b>Transport plant products</b>	<ul style="list-style-type: none"> <li>Transport and distribution of plant products</li> </ul> <p><i>NOTE:</i></p> <ul style="list-style-type: none"> <li><i>Does not apply to transport of shelf-stable vegetables or fruit in oil</i></li> </ul>	a) <i>Food Act 2003;</i> b) <i>Food Regulation 2004;</i> c) <i>Food Standards Code;</i> d) <i>Plant Products Safety Manual.</i>

Plant products businesses that prepare, store, distribute or transport the products mentioned in Section 1 must have a NSW Food Authority licence. You must also comply with any conditions on your licence (*Clauses 10 and 12 of the Regulation*). If you operate without a licence, you are breaking the law (*Clause 8 of the Regulation*).

Licensing under this Regulation is a method used to ensure that a business has the capacity to produce safe food before the food is supplied to the market. This differs from Notification, a requirement under the *Food Act*, which only requires a business to advise of its existence and the type of product(s) it is producing (*Section 100 of the Food Act 2003*). Being licensed with the Authority removes the requirement to notify (*Section 101 of the Food Act 2003*).

## New Businesses - Applying for a licence

If you are starting a new business or buying a business from another person you must apply for a licence before you begin your plant products business. A licence is not transferable from one person or business to another (*Clause 15 of the Regulation*).

Your application for a licence must:

- be on the application form available from the Authority;
- include the approved fee.

The Authority may also request other information in addition to that required by the regulation, if it is considered necessary for processing your licence application (*Clause 9 of the Regulation*).

After applying for a licence, the Authority will arrange for a Food Safety Officer to visit your business and conduct an inspection on the facility and/or vehicles to ensure compliance with Standard 3.2.2 - *Food Safety Practices and General Requirements* and Standard 3.2.3 - *Food Premises and Equipment* of the *Food Standards Code* (where applicable).

You will be inspected or audited to ensure your compliance with the regulatory requirements detailed in *Section 3: Regulatory requirements for plant products businesses*. If you are a business requiring a Food Safety Program you will be given a six month timeframe during which a Food Safety Program must be developed and implemented. After this time, an audit of the Food Safety Program will occur with the aim of certifying the Program.

## Conditions of Licence

You must always operate within the following conditions on your licence:

- The provisions of the *Food Act 2003*, *Food Regulation 2004* and the *Food Standards Code* are complied with in relation to the carrying on of any activity authorised by your licence and any premises or vehicle to which your licence relates (*Clause 12 of the Regulation*);
- Implement, maintain and comply with a food safety program, certified by the Authority which complies with:
  - the principles and guidelines set out in the document entitled Hazard Analysis Critical Control Point (HACCP) System and Guidelines for its Application published by the Codex Alimentarius Commission, or
  - Standard 3.2.1 of the Food Standards Code and;meet any other requirements notified in writing by the Food Authority to the applicant for a licence or the holder of the licence for the food business concerned
- Comply with the requirements set out in the *Plant Products Safety Manual* published by the Food Authority, as in force from time to time in relation to

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the carrying on of any activity authorised by the licence and any premises or vehicle to which the licence relates.

## Changes to a Licence

You are required to notify the Authority prior to you:

- Changing premises or vehicles where your licensed activities occur; or
- Changing the licensed activities you perform (*Clause 13 of the Regulation*).

You should contact the Authority prior to any of these occurring and complete a "Change of Licence Form".

The Authority can charge a fee for any changes requested by a business and perform an inspection or audit prior to approving the change.

Any changes to the licence will result in the Authority issuing a replacement licence (*Clause 13 of the Regulation*).

## Display of your Licence

A copy of your licence must be displayed at every premises and vehicle where you handle plant products (*Clause 17 of the Regulation*). The Authority will issue a copy of your licence for each premise and vehicle.

## Renewing your Licence

A licence has effect for one year from the date the licence was last issued.

A renewal notice will be sent by the Authority when the renewal is almost due. This must be returned to the Authority along with the appropriate licence fee (*Clause 16 of the Regulation*).

## Suspension or cancellation of your licence and appeal mechanism

The Authority may suspend or cancel your licence for any of the following reasons (*Clause 14 of the Regulation*):

- To prevent a potential threat to food safety;
- If you do not comply with the requirements in the *Food Act 2003*, the *Food Regulation 2004*, or the *Food Standards Code*;
- If you do not comply with the conditions shown on your licence;
- If your Food Safety Program is not adequate or is not being properly implemented;
- If your licence or audit fees are unpaid;
- If you do not have the necessary skills or knowledge to ensure the production of safe food; or
- At the request of yourself.

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The Authority will explain to you in writing the reason why your licence is to be cancelled or suspended.

Cancellations or suspensions are normally only used as a last resort to deal with major and/or repetitive breaches.

In the event that your licence is suspended or cancelled, you may apply to the Administrative Decisions Tribunal for a review of the decision (*Clause 22 of the Regulation*).

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## Section 3: Regulatory requirements for plant products businesses

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The *Plant Products Food Safety Scheme* of the Regulation outlines the regulatory requirements that plant products businesses in NSW must comply with. Compliance with these requirements is mandatory and auditors will be checking for compliance during audits and inspections. Additional control measures that the Authority strongly recommends your business implements are specified in this section as should.

### Food Safety Programs

The following plant products businesses licensed with the Authority must implement a Food Safety Program:

- Process fresh-cut produce
- Process seed sprouts
- Process unpasteurised juice
- Process vegetables or fruit in oil;

Businesses that only store or transport plant products are not required to implement a Food Safety Program but still need a licence issued by the NSW Food Authority.

Your Food Safety Program must adequately address steps taken to eliminate or reduce any food safety hazards associated with your product. The hazards may be present due to the raw ingredients used or may be introduced during processing and handling of the products.

Guidance material on Food Safety Programs is provided as an appendix within this document. This material has been developed in consultation with industry representatives and is designed to minimise the cost to industry in preparing a Food Safety Program by providing pre-prepared components of such a program, which can be customised by individual businesses. Customisation of this material involves making changes to the template as required to align it with the actual process used by the business. Businesses with in-house resources to develop a HACCP-based program may do so. Others may use the assistance material and/or engage professional assistance.

Table 2 outlines the licence categories for the NSW plant products industry, whether a Food Safety Program is required, and the frequency that an audit or inspection will apply.

**Table 2 - Minimum Audit / Inspection frequency for plant products businesses**

<b>Licence Activities (see table 1 for a full description of activities)</b>	<b>Food Safety Program Required</b>	<b>Verification of Compliance With Regulation</b>	<b>Minimum Audit/Inspection Frequency</b>
<b>Process fresh-cut produce</b>	Yes	Audit	6 Monthly Audit
<b>Process seed sprouts</b>	Yes	Audit	6 Monthly Audit
<b>Process unpasteurised juice</b>	Yes	Audit	6 Monthly Audit
<b>Process vegetables in oil</b>	Yes	Audit	6 Monthly Audit
<b>Store plant products</b>	No	Inspection	12 – 18 Monthly inspection may be conducted
<b>Transport plant products</b>	No	Inspection	12 – 18 Monthly inspection may be conducted

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## Food Safety Program Requirements

If your business requires a Food Safety Program, your program must comply with:

- the principles and guidelines set out in the document entitled *Hazard Analysis and Critical Control Point (HACCP) System and Guidelines For Its Application* published by the Codex Alimentarius Commission (available at [www.codexalimentarius.net/](http://www.codexalimentarius.net/)), **or**
- Standard 3.2.1 - *Food Safety Programs* of the *Food Standards Code* (available at [www.foodstandards.gov.au/](http://www.foodstandards.gov.au/)); **and**
- meet any other requirements notified in writing by the Food Authority to the applicant for a licence or the holder of the licence for the food business concerned (*Clause 18 of the Regulation*).

**The minimum requirements for a Food Safety Program are outlined below. During an audit, the auditor will assess your compliance with these requirements for your processes.**

### **Systematically analyse your food handling operations**

You must assess your food handling operations and identify, in the order they occur, all the process steps. One way to ensure that all processes have been captured, and are in order, is by using a process flow chart but this is not mandatory.

### **Identify potential hazards associated with your operations**

You must identify the potential food safety hazards (microbiological, physical and chemical) that are reasonably expected to occur at each of the process steps.

### **Identify where and how the hazards can be controlled**

You must identify and document how each of the hazards can be controlled. Guidance material on identifying hazards and appropriate control measures for Food Safety Programs is provided in *Section 5: Technical Information*.

### **Implement processes to monitor the control measures**

You must implement and document suitable monitoring processes for the control measures (e.g. temperature and holding time of pasteurisation of juice) to ensure they remain within specifications.

### **Implement appropriate corrective actions**

You must implement and document the corrective action to be taken when hazards are found not to be under control. This may include what corrective action is taken and who is responsible. Any corrective action taken must also be documented.

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## Written document

Your Food Safety Program must be set out in a written document.

## Comply with the Food Safety Program

Your Food Safety Program is designed to show that food under your control is safe and you must comply with your program (i.e. do what you say you are doing). This includes keeping appropriate records that demonstrate the implementation of, and compliance with your Food Safety Program.

Where there is monitoring specified for a food safety hazard in the Program, you must record:

- the result of monitoring;
- its compliance or otherwise with the specified limits; and
- any corrective action taken.

## Annual review of your Food Safety Program

You must routinely audit or review (annually at a minimum) your Food Safety Program. These reviews must be documented and cover your entire Food Safety Program.

## Verification of Food Safety Programs

You must verify your Food Safety Program. Verification of your program is essential to ensure that all hazards can be controlled and all controls are operating correctly. Apart from other activities determined in your Food Safety Program, sampling and testing is required as part of verification (see *Section 4: Sampling and Analyses*). Its purpose is to verify the Food Safety Program is working properly. The results of the verification tests must be kept for the purposes of being audited.

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## What if I already have a Food Safety Program?

If you already have a Food Safety Program, you will not need to develop another program. However, you must check to see if your program covers all the elements appropriate to your business to ensure it meets the minimum requirements listed in this Section. If it does not, you must add the additional elements to your Food Safety Program.

If you are controlling the food safety hazards in other ways compared to the regulatory requirements specified in this Manual, you must be able to validate your process in order to demonstrate equivalent effectiveness. You must contact the Authority to discuss potential alternative methods of compliance.

## Audits and Inspections

The Authority will audit your implemented Food Safety Program and/or conduct an inspection of your premises and equipment (*Clause 142 of the Regulation*). The frequency of these audits or inspection is listed in *Table 2: Minimum Audit / Inspection frequency for plant products businesses*.

If you are required to implement a Food Safety Program, the Authority will conduct an initial audit of your system and will certify whether your Food Safety Program complies with the regulatory requirements (*Clause 19 of the Regulation*).

The Authority may conduct additional audits or inspections if there is any information that suggests you are not complying with the program. Audits and inspections may be announced or unannounced.

## What happens if you fail an audit or inspection?

In most cases, if you are not complying with the Regulation, including your Food Safety Program, at the time of an audit or inspection, the Food Safety Officer will discuss the issue with you. The period for rectifying the issue will depend on the seriousness of the problem and the Food Safety Officer will revisit your business to ensure the issue has been resolved.

Please note that irrespective of the type of visit, if a Food Safety Officer identifies a serious food safety issue, enforcement action will be taken to rectify the situation immediately. If you consistently fail audits or if the Food Safety Officer continues to find the same problem, enforcement action can be taken as per the *Food Act 2003* and in alignment with the NSW Food Authority's enforcement policy which is located on the NSW Food Authority's website at [www.foodauthority.nsw.gov.au](http://www.foodauthority.nsw.gov.au).

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## Seed Sprout Producers

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This section applies to plant products businesses that produce seed sprouts (sprouted seeds or beans). Documented evidence of the following food safety control measures must be provided at audit.

### **Sprout producers must develop and implement a Food Safety Program in accordance with**

- the principles and guidelines set out in the document entitled *Hazard Analysis and Critical Control Point (HACCP) System and Guidelines For Its Application* published by the Codex Alimentarius Commission  
(available at [www.codexalimentarius.net/](http://www.codexalimentarius.net/)), **or**
- Standard 3.2.1 - *Food Safety Programs* of the *Food Standards Code* (available at [www.foodstandards.gov.au/](http://www.foodstandards.gov.au/)); **and**
- meet any other requirements notified in writing by the Food Authority to the applicant for a licence or the holder of the licence for the food business concerned (*Clause 18 of the Regulation*).

Sprout producers must demonstrate compliance with the *Food Standards Code*, in particular Standard 3.2.2 - *Food Safety Practices and General Requirements* and Standard 3.2.3 – *Food Premises and Equipment*. These standards cover general hygienic food handling practice, premises and equipment requirements. A generic guide to assist compliance with these two Standards called *Safe Food Australia – A Guide to the Food Safety Standards* is available from the FSANZ website at: [www.foodstandards.gov.au](http://www.foodstandards.gov.au).

Sprout producers will be audited at a minimum of every 6 months to verify compliance with these requirements.

## Food safety control measures you must address as a minimum

### **1. Raw material receipt and storage**

For traceability purposes, businesses must retain records of:

- the name and addresses of the persons or businesses supplying seeds or seed products.
- The seed supplier's batch number(s) of the seeds or seed products for each delivery.

Seed bags must be clean and intact, constructed from closely woven material. Each delivery of seed bags must be visually inspected for any evidence of rodent activity, droppings and other foreign matter. The batch must be rejected if rodent droppings or other foreign matter are found. Records must be kept upon receipt.

Seed must be stored in a manner to protect it from vermin (e.g. open bags must be stored in closed bins).

## 2. Seed pre screening

### All seeds

The seed supplier must conduct a pre-screening test for each batch of seed (see *Section 5: Technical Information - Pre-screening Test Guidelines for Seeds*). The seed supplier must certify that spent irrigation water from a test bath of seeds, made up of a total weight of at least 3kg, taken evenly across the batch (just before harvest or at least 48 hrs after lay) is free from *Salmonella* in 100mL (see *Section 4: Sampling and Analyses*). The seed supplier must keep copies of test results.

OR

Before germination of each delivery batch of seed, the sprout producer must conduct a pre-screening test (see *Section 5: Technical Information - Pre-screening Test Guidelines for Seeds*). The sprout producer must certify that spent irrigation water from a test bath of seeds, made up of a total weight of at least 3kg, taken evenly across the batch (just before harvest or at least 48 hrs after lay) is free from *Salmonella* in 100mL (see *Section 4: Sampling and Analyses*). The sprout producer must keep copies of test results.

Note: The pre-screening test must be conducted in addition to the Spent Irrigation Water test.

## 3. Raw material quality

### Alfalfa

Seed must be sourced from a supplier with documented evidence showing that the seed is grown, cleaned, packed and distributed under an audited HACCP based food safety program.

This would include Good Agricultural Practices (GAP) such as: management of grazing animals on farm; management of fertilisers and other inputs; minimising damage to seed (damaged seed should not be used for sprouting); segregation of seed for sprouting from seed for animal feed; protection of seed during storage, packaging and transport from pests and environmental contamination.

Note: (Approval from the Authority is necessary to use this step)

OR

Seed must be sanitised by soaking prior to germination in at least 20,000ppm calcium hypochlorite for at least 10 minutes (see *Section 5: Technical Information – Guidelines for Sanitising Alfalfa (Lucerne) Seed*) or; by using a scientifically validated method to effect an equivalent reduction of *Salmonella spp* and *E. coli* 0157:H7.

### Other seeds

Seed must be sourced from a supplier with documented evidence showing that the seed is grown, cleaned, packed and distributed under an audited HACCP based food safety program.

This would include Good Agricultural Practices (GAP) such as: management of grazing animals on farm; management of fertilisers and other inputs; minimising damage to seed (damaged seed should not be used for sprouting); segregation of seed for sprouting from seed for animal feed; protection of seed during storage, packaging and transport from pests and environmental contamination.

Note: (Approval from the Authority is necessary to use this step)

OR

Seed must be sanitised prior to germination in at least 2000ppm calcium hypochlorite or for at least 10 minutes or; by using a scientifically validated method to effect an equivalent reduction of *Salmonella spp* and *E. coli* 0157:H7

#### 4. Washing and sprouting

Prior to sanitising and sprouting, seeds must be washed with potable water<sup>2</sup>.

#### 5. Spent irrigation water test

Irrigation water must be tested in accordance with the requirements in *Section 4: Sampling and Analyses*.

The highest numbers of pathogenic bacteria (e.g. *Salmonella*) are likely to occur just before harvest. This is because the germination process in sprout production involves keeping seeds warm and moist for one to ten days. In these conditions, low levels of microbial contaminants present on seeds can quickly reach levels high enough to cause illness.

As the harvest time varies with each sprout type, irrigation water must be sampled just before harvest. A 1L composite sample must be taken evenly across each sprouting container from the sprout producer's production batch fortnightly or every 10 production days (see *Section 5: Technical Information – Guidelines for Sampling of Spent irrigation Water during Sprout Production*).

Note: If seeds are pre-soaked (e.g. soaked in water for a short time and then transferred to growing units for sprouting), pre-soak time should be included in the total sprouting time prior to harvest.

#### 6. Post-harvest washing

All sprouted product must be washed in potable water.

Washing sprouts in potable water cools the product and removes the husks.

The low levels of sanitiser of at least 3-5ppm chlorine functions to maintain the potability of the wash water. This may not be a requirement if town water is used.

#### 7. Sprout storage

In accordance with Standard 3.2.2 of the *Food Standards Code* all food business must, when storing food, store the food in such a way that:

- it is protected from the likelihood of contamination; and
- the environmental conditions under which it is stored will not adversely affect the safety and suitability of the product.

Sprout producers must also ensure that the spouts are stored, distributed and if applicable, displayed at 5°C or below.

<sup>2</sup> The *Food Standards Code* defines potable water as water that is acceptable for human consumption

## 8. Cleaning and sanitising

In accordance with Standard 3.2.2 all equipment and other processing surfaces must be cleaned and sanitised after production. A suitable detergent and chemical sanitiser agent must be used.

## 9. Finished product testing

Testing of finished product must be conducted in accordance with the requirements in *Section 4: Sampling and Analyses*. One sprout type from each process line must be tested in rotation so that, over a 12 month period, all sprout types from each process line are tested.

If multiple sprout types are processed on a line, a fair representation of high risk sprout types e.g. alfalfa must be tested over a 12 month period.

For a small sprout producer that has only one process line and is producing multiple sprout types, each sprout type must be tested in rotation so that, over a 12 month period all sprout types are tested.

## It is recommended that sprout producers implement the following practices

- During seed sanitation, seed should be agitated in the solution to maximise surface contact of the seed with the sanitiser.
- Non scarified seed (seeds with uncracked coats) should be used as seeds with broken and cracked coats are more likely to harbour and protect pathogenic micro organisms during the seed sanitiser treatment.
- In addition to cleaning and sanitising equipment and processing surfaces after production, sanitise contact surfaces immediately prior to start up.

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## Section 4: Sampling and Analyses

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Plant products businesses must analyse their products as required by this Manual or as directed by the Authority (*Clause 138 of the Regulation*).

### 4.1 Regulatory Testing Requirements

If you process any of the products listed in Table 3 you must conduct the microbiological tests as described in the table. These are the Authority's minimum testing requirements needed to verify the on-going effectiveness of your Food Safety Program.

Plant products businesses must ensure that the tests described in Table 3 are conducted at the correct frequency and that the specified pathogen testing must be conducted by a NATA<sup>3</sup> registered laboratory or a laboratory approved by the Authority (*Clause 139 of the Regulation*). Records of these results must be kept for audit.

**Note:** For a small producer (producing 5kg or less of sprout product per week) it may be possible combine the initial Seed pre screening test with the Spent irrigation water test. This requires approval from the Authority.

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<sup>3</sup> Laboratories are accredited by the National Association of Testing Authorities (NATA) for specific methods.

You can search for a NATA accredited laboratory using the NATA website at [www.nata.asn.au/](http://www.nata.asn.au/)

**Table 3 - Verification testing for businesses processing plant products**

Microbiological analysis of plant products				
Pathogen Testing				
Product	What to test	Pathogen	Standard	Frequency
Seed Sprouts	<b>1. Seed (pre-screening test)<sup>4</sup></b> Method: 1L sample of spent irrigation water from a test bath of seeds made up of 3kg taken evenly across the batch <sup>5</sup>	<i>Salmonella</i>	Not detected in 100 mL <sup>6</sup> Australian Standard Method for water testing Salmonellae AS 4276.14 (1995) OR A validated AOAC approved rapid method test	Every delivery batch of seeds
	<b>2. Spent Irrigation water</b> Method: 1L composite sample taken evenly across each sprouting container from each production batch. Irrigation water should be sampled just before harvest or at least 48 hrs after lay <sup>7</sup> .	<i>Salmonella</i>	Not detected in 100 mL <sup>6</sup> Australian Standard Method for water testing Salmonellae AS 4276.14 (1995) OR A validated AOAC approved rapid method test	Fortnightly or every 10 production days
	<b>3. Finished product</b> Method: 1 x 100g sample of any finished single sprout-type from each process line	<i>E. coli</i>	<u>Satisfactory</u> < 3 cfu/g <hr/> <u>Marginal</u> 3-100 cfu/g (plant sanitation practices must be reviewed, corrective action(s) must be documented.) <hr/> <u>Unsatisfactory</u> ≥ 100 cfu/g	Fortnightly or every 10 production days

4 This testing may be conducted by the seed supplier.

5 See Section 5 – Technical Information – Guidelines for Seed Pre-Screening for more detail

6 Australian Standard Method for water testing Salmonellae AS 4276.14 (1995), E.coli AS 4276.7 (1995) or equivalent method

7 See Section 5 – Technical Information – Guidelines for Sampling of Spent Irrigation Water during Sprout Production for more detail

Product	What to test	Pathogen	Standard	Frequency
Vegetables in oil	No testing required (pH must be monitored as in-process control)	-	pH of 4.6 or less <sup>8</sup>	-
Fresh cut fruit	Cut fruit	<i>Listeria monocytogenes</i> ; <i>Salmonella</i>	Not detected in 25 g	Fortnightly
Fresh cut vegetables	Cut vegetable	<i>Listeria monocytogenes</i> ; <i>Salmonella</i>	Not detected in 25 g	Fortnightly
Unpasteurised juice	Juice	<i>Salmonella</i>	Not detected in 25mL	Fortnightly

## 4.2 Reporting failures

Plant products businesses must have a documented procedure to ensure that the NSW Food Authority is notified verbally as soon as possible (usually within 24 hours) if the microbiological limits stated in Table 1 are exceeded or in the *Food Standards Code* are exceeded (*Clause 139 of the Regulation*).

### **Test failures must be notified to the Manager – Audit and Verification on (02) 9741 4803 or the Switch on (02) 9741 4777**

Notification of these results must also take place in writing to the Authority within 7 days after the plant products business became aware of the results.

Although the Authority does not prescribe specific testing of products for chemical residues, reporting these failures to the Authority is also mandatory. The applicable standards for chemical and microbiological testing are found in the following sections of the *Food Standards Code*:

- Standard 1.4.1 Contamination and restricted substances
- Standard 1.4.2 - Maximum Residue limits;
- Standard 1.6.1 - Microbiological Limits for Food.

Persons in charge of the laboratory which tests for compliance with those Standards or for the Authority's mandatory testing requirement, are also required to report failures to the Authority within 24 hours. (*Clause 139 of the Regulation*).

<sup>8</sup> Food Standards Code 2.3.1 *Fruit and Vegetables*

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## **Section 5: Technical Information**

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### **Seed Sprout Producers**

#### **Guidelines for sanitising Alfalfa (Lucerne) seed**

Sanitising Lucerne seeds, prior to sprouting is an important control measure to minimise contamination and growth of pathogens. There are several steps involved in the seed sanitation treatment.

It is important to note that seeds can become contaminated through contact with non sanitised seeds or chemical disinfectants. Therefore steps (e.g. initial rinse and sanitation treatment) should be conducted in an area separate from the germination and packing areas to avoid contamination. These steps are outlined in Table 4.

**Table 4 - Steps for growing Alfalfa sprouts**

<b>Step 1 - Initial Rinse</b>	<p>Seeds must be rinsed thoroughly prior to sanitising to remove dirt and to increase the effectiveness of the sanitiser treatment.</p> <p>In large volumes of potable water (e.g. use large buckets and sieves) rinse and agitate the seeds. Repeat the process with potable water until the dirt is removed and the rinse water remains clear.</p>
<b>Step 2 - Seed Sanitiser</b>	<p>Seeds must undergo a sanitiser treatment to reduce potential for growth of pathogenic bacteria. Sanitiser solution must be made immediately prior to use. A fresh sanitiser solution must be made for every production batch of seed.</p> <p><u>How to Make Enough Sanitiser for 5kg of Seed</u></p> <p>To 5kg of Lucerne seed add 25L of potable water. In a separate bucket dissolve 0.77kg of calcium hypochlorite in 1L of water (see Table 5 to calculate sanitiser strengths). Ensure granules have dissolved.</p> <p>Add the sanitiser solution to the seeds and water. Stir the sanitiser through the seed and water mix to ensure an even consistency of the sanitiser. The concentration of the liquid should be at least 20,000ppm initially.</p> <p>Use an appropriate test of concentration to verify the concentration is at least 20,000ppm. Record the concentration.</p> <p><u>Note:</u> When determining the concentration of the solution using test paper, usually the maximum concentration range the test paper will detect is around 500-750ppm. The concentration of the sanitiser solution is too strong for most test papers. Therefore you will have to dilute the solution to be able to use test papers to verify concentration.</p> <p>Please note there should be at least five times the volume (L) of sanitiser per amount of seeds (kg). Calculations in the table below can be used as a guideline.</p> <p>Allow the seeds to sit in the sanitiser for at least 10 minutes. Agitate the seeds to ensure maximum surface contact of the seed with the sanitiser. Discard the sanitiser solution for each sprout producer's batch.</p>
<b>Step 3 - Rinse</b>	<p>Drain the sanitiser from the container and thoroughly rinse the seeds with potable water until the sanitiser has been completely removed.</p>
<b>Step 4 - Pre-germination soak</b>	<p>Soaking is often used to improve germination.</p> <ul style="list-style-type: none"> <li>• Ensure containers used for soaking are sanitised prior to use.</li> <li>• Soak seeds in potable water.</li> <li>• After soaking, rinse seeds thoroughly with potable water.</li> </ul>

<b>Step 5 - Germination</b>	<p>During germination, it is critical to keep the environment and equipment clean to avoid potential contamination. All equipment should be cleaned and sanitised before each new batch.</p> <p>As the harvest time varies with each sprout type, irrigation water must be sampled just before harvest and tested in accordance with the requirements contained in <i>Section 4: Sampling and Analyses</i>.</p>
<b>Step 6 - Harvesting</b>	<p>All equipment should be cleaned and sanitised before each new batch. Harvesting should be done with cleaned and sanitised tools dedicated for this use.</p>
<b>Step 7 - Final Wash and Cooling</b>	<p>A final wash in potable water cools the product and removes the husks.</p> <p>The low levels of sanitiser of at least 3-5ppm chlorine functions to maintain the potability of the wash water. This may not be a requirement if town water used.</p> <p>Prevent cross-contamination by changing the water between each batch.</p>

**Table 5 - Calculations using variable amounts of water and calcium hypochlorite (with 65% conc.) to achieve a 20,000ppm**

Volume of water (Litres)	Amount of Calcium Hypochlorite (kg)	Amount of seed (kg)
25L	0.77	5kg
20L	0.62	4kg
15L	0.46	3kg
10L	0.31	2kg

The formula used for the above calculation is:

$\frac{\text{Volume of water (L)} \times \text{Sanitiser Concentration required}}{\text{Calcium hypochlorite Concentration (e.g. 65%)}} = \text{Amount of calcium hypochlorite required}$
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## Guidelines for seed pre-screening

A pre-screening\* test for each batch of seeds is an important control measure to ensure the safety of your seeds prior to the germination. Once a representative seed sample is taken, visual examination is an effective way to detect foreign matter contamination.

There are two components to the pre-screening test (Table 6):

- sample collection and visual inspection; and
- testing of spent irrigation water testing from a test bath of seeds.

**Table 6 - Seed pre-screening for all seeds**

<b>Sample collection and visual inspection</b>	
<b>Step 1</b>	For each delivery batch of seeds, visually inspect each bag for evidence of rodent activity, urine or droppings, insect larva, bird larva, vermin and rat droppings.
<b>Step 2</b>	Using your sanitised sampling fork, collect a 3kg sample of seed that is representative across the entire batch. <i>(refer to Table 8 for statistically valid sampling plan on lot sizes and sample sizes).</i>
<b>Step 3</b>	Close the opened seed bags and ensure the bags are protected from foreign matter contamination.
<b>Step 4</b>	Visually examine the 3kg sample of seed. Ensure there is no evidence of foreign matter as listed above in Step 1 (Note: rodent droppings can resemble small, black seeds). Do not cross contaminate seeds during visual inspection as they can be used for testing of Spent irrigation water (below).
<b>Step 5</b>	If evidence of foreign matter is found in the sample, reject the entire delivery batch and notify your supplier.
<b>Testing of spent irrigation water</b>	
<b>Step 6</b>	Assuming the 3kg sample taken above is free from foreign matter and has not been cross contaminated during visual inspection, these seeds can now be used to make up a test bath.
<b>Step 7</b>	Regardless of sprout type, at least 48 hrs after lay collect 1L of spent irrigation water from the test bath.
<b>Step 8</b>	The sample should be placed directly into a clean, sterile, labelled container and sent to the laboratory promptly. The water sample should be kept at <5°C.
<b>Step 9</b>	Results should indicate that the spent irrigation water is free from <i>Salmonella</i> in 100mL.

\* The seed pre-screening sampling process is based on the method developed by International Speciality Supply of Cookeville, TN, USA and Jonathon Sprouts of Marion, MA USA. [www.sproutnet.com/sprouting\\_seed\\_safety.htm](http://www.sproutnet.com/sprouting_seed_safety.htm) (accessed 5/12/06). Its applicability to Australian conditions was reviewed/confirmed by the South Australian Research and Development Institute (SARDI).

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## Guidelines for sampling of spent irrigation water during sprout production

Spent irrigation water that has flowed over and through sprouts is a good indicator of the types of bacteria present in the sprouts themselves. Testing of spent irrigation water, in combination with approved seed sanitation treatments, are important controls to prevent contaminated sprouts entering the food supply.

### Requirements

The following criteria must be met to ensure best practice for sample collection:

- **Sampling plan-** Sprouters should have a sampling plan to ensure consistent and even collection of samples per production batch.
- **When to sample-** The highest numbers of pathogenic bacteria (e.g. *Salmonella*) are likely to occur just before harvest. This is because the germination process in sprout production involves keeping seeds warm and moist for one to ten days. In these conditions, low levels of microbial contaminants present on seeds can quickly reach levels high enough to cause illness.
- As the harvest time varies with each sprout type, irrigation water must be sampled just before harvest. A 1L sample must be taken evenly across each sprouting container from the sprout producer's production batch. If seeds are pre-soaked (e.g. soaked in water for a short time and then transferred to growing units for sprouting), pre-soak time should be included in the total sprouting time prior to harvest..
- **Equipment-** Equipment used to collect samples should be clean and sterile. Sampling tools and sampling containers may be purchased pre-sterilised. The type of sample containers used will depend on the type of samples collected but may include pre-sterilised plastic bags, tubes, cups and flasks. Containers should be dry, leak-proof, wide mouthed and of suitable size for the samples. Sample containers should be properly labelled prior to starting sample collection. Thio sulphate or similar containers are recommended for sampling.
- **Clothing-** Sample collectors should wear a lab coat, gloves and a hair net to ensure they do not contaminate the samples. Hands should be washed immediately before sampling. Hands should be kept away from mouth, nose, eyes and face while collecting samples.

**Table 7 - Sample collection method for testing spent irrigation water**

<b>Step 1</b>	Irrigation water from each production batch <sup>9</sup> must be tested for <i>Salmonella</i> , at a laboratory that is NATA accredited or has been approved by the NSW Food Authority.
<b>Step 2</b>	<p>A sterile sample container must be used to take samples. It should be opened only sufficiently to admit the sample. Place the sample directly in the container, then immediately close and seal.</p> <p>If collecting samples in a container with a lid, the lid and container should be held in one hand while collecting the sample. The lid should not be placed on a counter or any other surface whilst collecting the sample as it may become contaminated.</p> <p><u>Amount to collect</u> - The volume of spent irrigation water that should be collected as the water leaves the drums or trays should be a 1 litre sample. The sample container should be filled no more than <math>\frac{3}{4}</math> full to prevent overflow.</p> <p><u>Trays</u>- If sprouts are grown in trays, and all trays in a production batch have a common trough for collecting spent irrigation water, a 1 litre sample may be collected at that point. If there is no common collection point from trays, you will have to collect water samples from individual trays and pool these samples, for e.g. when 10 trays make up a production batch collect 100mL of water from each tray to make a total sample volume of 1 litre. Collect samples from the entire production batch with equal volumes of water collected from individual trays.</p> <p><u>Drums</u>- Same as for trays, if you have for e.g. 8 drums that make up a production batch collect 125mL from each drum to make a total sample volume of 1 litre.</p>
<b>Step 3</b>	Sample should be placed directly into a clean, sterile, labelled container and sent to the laboratory promptly. Water samples must be kept refrigerated at 5°C or less, do not freeze samples.
<b>Step 4</b>	Spent irrigation water must be analysed by the Australian Standard Method for water testing <i>Salmonella</i> AS4276.14 (1995), or a validated AOAC approved rapid method test.

<sup>9</sup> For the purposes of this guidance, a production batch is defined as sprouts from a single batch of seeds that started the sprouting process at the same time in all growing units (i.e. drums or rack of trays).

**Table 8 - Effect of different sample sizes and lot sizes on the probability of capture\***

Note: The probability of capture has been determined based on the following assumptions; a constant minimum level of contamination and 4 contaminated seeds per kilo. Calculated seed weights for alfalfa (0.002 g) and mung beans (0.0625 g) were also used.

In order to achieve a 99.9994% probability of capture of contaminated seeds, the smallest sample that can be taken is 3kg. This holds true for lots with 1, 120, 480 and 800 bags. For lot sizes larger than 120 bags, an increase in sample size results in a negligible increase in the probability of capture.

For smaller lot sizes, such as 10 kg, at least a 2 kg sample must be taken in order to achieve a probability of capture of 99.98%

SEED TYPE	ALFALFA	ALFALFA	ALFALFA	ALFALFA	ALFALFA	ALFALFA	ALFALFA	ALFALFA	MUNG	MUNG
<b>NO. OF BAGS PER LOT (1 BAG = 25KG)</b>	1	1	<b>1</b>	<b>120</b>	<b>480</b>	480	<b>800</b>	800	<b>1152</b>	1152
<b>LOT SIZE (KG)</b>	25	25	<b>25</b>	<b>3000</b>	<b>12000</b>	12000	<b>20000</b>	20000	<b>28800</b>	28800
<b>CONTAMINATED SEEDS PER LOT</b>	100	100	<b>100</b>	<b>12000</b>	<b>48000</b>	48000	<b>80000</b>	80000	<b>115200</b>	115200
<b>SAMPLE AMOUNT (KG)</b>	0.025	1.5	<b>3</b>	<b>3</b>	<b>3</b>	12	<b>3</b>	20	<b>3</b>	28.8
<b>PROBABILITY OF CAPTURE (%)</b>	9.5163	99.7521	<b>99.9994</b>	<b>99.9994</b>	<b>99.9994</b>	100.0000	<b>99.9994</b>	100.0000	<b>99.9994</b>	100.0000

\*The seed pre-screening sampling process is based on the method developed by International Speciality Supply of Cookeville, TN, USA and Jonathan Sprouts of Marion, MA, USA. available at [www.sproutnet.com/sprouting\\_seed\\_safety.htm](http://www.sproutnet.com/sprouting_seed_safety.htm) (accessed 5/12/06). Its applicability to Australian conditions was reviewed/confirmed by the South Australian Research and Development Institute (SARDI).

## **Section 6: General Circulars**

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General Circulars are used by the Authority to communicate important information to industry. These are issued on an as needed basis.

This Section is included for you to file General Circulars that are applicable to your business.

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## Section 7: References and further reading

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### **Acts**

- Food Act 2003  
(available at [www.legislation.nsw.gov.au/](http://www.legislation.nsw.gov.au/)).

### **Regulation**

- Food Regulation 2004  
(available at [www.legislation.nsw.gov.au/](http://www.legislation.nsw.gov.au/)).

### **Food Standards Code**

- (available at [www.foodstandards.gov.au](http://www.foodstandards.gov.au)).

### **Other**

- Canadian Food Inspections Agency (2001) Code of Practice for the Hygienic Productions of Spouted Seeds  
(available at [www.inspection.gc.ca/english/plaveg/fresh/spronte.shtml](http://www.inspection.gc.ca/english/plaveg/fresh/spronte.shtml) accessed 2/2/07)
- Hazard Analysis and Critical Control Point (HACCP) System and Guidelines For Its Application. Codex Alimentarius Commission (2003)  
(available at [www.codexalimentarius.net/](http://www.codexalimentarius.net/)).
- Food and Drug Administration – Sampling and Microbial Testing of Spent Irrigation Water During Sprout Production  
(available at [www.cfsan.fda.gov/~dms/sproungd2](http://www.cfsan.fda.gov/~dms/sproungd2) accessed 5/12/06)
- Food Standards Australia New Zealand (2002) Food Industry Recall Protocol – A Guide to Writing a Food Recall Plan and Conducting a Food Recall  
(available at [www.foodstandards.gov.au](http://www.foodstandards.gov.au)).
- Industry Guide to Developing and Implementing a Food Safety Program for the High Priority Plant Products  
(available at [www.foodauthority.nsw.gov.au](http://www.foodauthority.nsw.gov.au))
- International Speciality Supply of Cookeville, TN USA and Jonathan Sprouts of Marion, MA USA  
(available at [www.sproutnet.com/sprouting\\_seed\\_safety.htm](http://www.sproutnet.com/sprouting_seed_safety.htm) accessed 5/12/06)
- National Advisory Committee on Microbiological Criteria for Foods (1999) 'Microbiological Safety Evaluations and Recommendations on Spouted Seeds' *International Journal of Food Microbiology* version 52 pp123-153

## Appendix 1:

# General Guidelines for the development and implementation of a Food Safety Program



*General Guidelines  
for the  
Development and  
Implementation of a  
Food Safety Program*

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***The Use of NSW Food Authority Assistance Materials***

*The NSW Food Authority "General Guidelines for the Development and Implementation of a Food Safety Program", "Food Safety Program Template" and "Industry Guides" are guidance documents only. NSW Food Authority disclaims any liability for any loss or injury directly or indirectly sustained by any person as a result of reliance upon these documents. **Businesses must not assume that these guidance documents cover all food safety hazards within their business. If using these document to develop your Food Safety Program then you must adapt these to fit your business, products, and market requirements, and to ensure that all potential food safety hazards are identified and controlled.** You are advised to seek independent legal advice in relation to any query you may have regarding the legal obligations imposed under the relevant Food Safety Scheme Regulation.*

# General Guidelines for Developing and Implementing a Food Safety Program

## 1. Introduction

	<p>This guideline has been prepared by the NSW Food Authority to assist businesses in developing and implementing a food safety program. This is based on the Hazard Analysis and Critical Control Point (HACCP) system as outlined by Codex Alimentarius Commission. This HACCP based food safety program will fulfill the requirements of "Standard 3.2.1 Food Safety Programs" of the Food Standards Code (FSC).</p> <p>This document should be read in conjunction with the "<b>Food Safety Program Template Book</b>" in which you can record the details of your program, and your "<b>Industry Guide</b>" which gives relevant information specific to your industry sector.</p> <p>In addition, it is important to note that food businesses must meet the requirements specified in "Standard 3.2.2 Food Safety Practices and General Requirements" and "Standard 3.2.3 Food Premises and Equipment" of the FSC.</p>
<p><i>What is a food safety program?</i></p>	<p>A food safety program is a set of practices and procedures that your business will need in order to manage food safety while it is in your care.</p>
<p><i>What does it consist of?</i></p>	<p>For most businesses, the food safety program will consist of a HACCP plan along with a number of support programs.</p> <p>Codex based HACCP requires an organised approach to food safety controls and has some additional requirements that are not required to be documented and monitored under FSC 3.2.1. It is strongly recommended that these additional requirements are included in a food safety program to maximise its effectiveness.</p>
<p><i>What is HACCP ?</i></p>	<p>HACCP is a system which clearly identifies hazards and establishes controls that will prevent, eliminate or reduce hazards to an acceptable level.</p> <p>HACCP forms part of many food businesses quality assurance system and is increasingly being included in food safety legislation both nationally and internationally.</p>

There are 7 Principles of HACCP and it is generally regarded that there are 12 steps in the logical sequence of developing a HACCP food safety system. These are:

1. Assemble the HACCP Team
2. Describe the product
3. Identify the intended use
4. Construct a flow chart
5. On-site confirmation of flow chart
6. Conduct a hazard analysis (**Principle 1**)
7. Determine the critical control points (CCPs) (**Principle 2**)
8. Establish critical limits for each CCP (**Principle 3**)
9. Establish monitoring systems for each CCP (**Principle 4**)
10. Establish corrective actions (**Principle 5**)
11. Establish verification procedures (**Principle 6**)
12. Establish documentation and record keeping (**Principle 7**)

## 2. Developing your Food Safety Program

For HACCP to be successfully put into practice it requires commitment from everyone in the food business. In addition, knowledge of the process, product and potential hazards is needed to ensure the system will work effectively. Information specific to your business has been provided in your **Industry Guide**. You are also advised to gather further information to help you understand how to control the hazards related to your industry and products.

The food safety program should include all components outlined in this section. In addition, for the program to be successful it must have support programs established, such as cleaning and sanitation, personal hygiene etc (refer to Section 3 of this guide). These will serve as a solid foundation to the effective implementation of a food safety program.

The development of the HACCP plan(s) will also involve:

- Developing the necessary work instructions or procedures;
- Developing the necessary worksheets/checklists; and
- Training staff in the monitoring and recording of critical control points and corrective action.

If a business is having difficulty with developing their program, assistance from external parties or consultants should be considered. This would be especially important when performing the hazard analysis, deciding on control measures for the hazards and determining CCP's and critical limits.



In Section 1. Introduction of the *Food Safety Program template Book*, give a general introduction of your organisation and the organisations philosophy towards food safety and quality management.

### 2.1 HACCP Team

*The HACCP team, responsible for developing and maintaining this food safety plan, must be identified.*

*Where possible, this should be a multidisciplinary team using expertise from various groups within the site(s).*

**NOTE:** *This is Step 1 of the 12 steps in developing a HACCP food safety system.*

A business will need to study its food handling operations and relate them to the food safety issues applicable to its product(s). As no one person usually has the complete knowledge required, development and implementation of HACCP is best achieved by a group of people usually referred to as a HACCP team.

Depending on the size of the business, a HACCP team should ideally consist of between three to seven people all with some knowledge of the food-related operations within the business and/or knowledge of the food safety hazards associated with the product. In addition, a HACCP team leader is usually nominated.

This person ensures that the HACCP process progresses as required and often deals with problems faced during the development and implementation of the program.

For some businesses this may be difficult, as the business may

	<p>consist of only one or two people. In these cases all the people in the business would be involved in the development of the program.</p>
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In Section 2.1 of the *Food Safety Program template book*, record the people involved in your HACCP team.

## 2.2 Scope and Purpose

<p><i>The scope and purpose of the HACCP food safety program should be defined.</i></p>	<p>At this stage it is also important to define the scope and purpose of the program. The scope is a statement outlining the products and processes covered by the HACCP plan and the parts of the operations it covers (the start and end point). The scope of the plan is important, as it is a reference point for many of the following steps involved in developing other HACCP plans in the business.</p> <p>The purpose of the food safety program should also be defined. The purpose is a statement of the reason the program has been put into practice. For example: to ensure food safety and to enhance quality.</p>
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In Section 2.2 of the *Food Safety Program Template book*, record the scope and purpose.

Your *Industry Guide* may be able to provide you with more information.

## 2.3 Product Description and Intended use

<p><i>The products covered by the program and their intended use must be defined.</i></p> <p><i>NOTE: This is Steps 2 and 3 of the 12 steps in developing a HACCP food safety system</i></p>	<p>The product(s) should be described and the intended use(s) outlined as these assist in determining what hazards are associated with your product by describing the nature of the product.</p> <p>Most businesses will need to state here if the product is to be cooked prior to consumption by the consumer, further processed by another business and/or served without any further processing.</p> <p>It is also important to consider who will eat the food. If the business sells its product to the general public, then it could be expected that the product would be consumed by anyone. If it sells directly to at-risk groups, then this should be stated in the intended use.</p>
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	<p>At-risk groups are those who may be more prone to food poisoning and would include young children, pregnant women, the immunocompromised and the elderly (eg If food is sold directly to nursing homes or child care centres).</p> <p>Your product description and intended use (Product Specifications) may include information such as:</p> <p>Product name (eg name used on the product)</p> <p>Ingredients used</p> <p>Form in which the product is sold (eg fresh/frozen/shelf-stable)</p> <p>Type of primary and secondary packaging (eg primary: packaging in contact with product, secondary: outer pack)</p> <p>Preservation methods (if any)</p> <p>Shelf life</p> <p>Storage and transport conditions required for the product</p> <p>Labelling (eg noting of any known allergens if required)</p> <p>The intended use by the consumer (eg indicate if the food is ready-to-eat or requires further processing)</p> <p>The consumers of the product (eg general population or specific group, such as a vulnerable population)</p>
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In Section 2.3 of the *Food Safety Program template book*, record the Product Description and Intended Use for each product you produce.

Your *Industry Guide* may be able to provide you with more information.

## 2.4 Process Flow Chart

<p><i>A process flow chart must be constructed.</i></p> <p><b>NOTE:</b> <i>This is Step 4 of the 12 steps in developing a HACCP food safety system.</i></p>	<p>The purpose of a process flow chart is to provide a simple, clear description of the steps involved in your process, ensuring that all processes mentioned in your scope are covered.</p> <p>You may choose to draw a process flow chart for each product you produce or group products which use a similar process. For example a food premises may have a separate process flow chart for a beef stew and a curry beef OR they may wish to group these and call their process flow chart – “Process Flow Chart for Wet Sauce Dishes”.</p> <p>The flow chart you develop should include all steps the product goes through while under your control, and in order of operation. It should also include any inputs into the process including ice, salt, food ingredients and chemicals etc. Use of symbols (for operation, storage, transport etc) is optional.</p>
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*The process flow charts must be confirmed to be accurate and complete on site. (charts are confirmed as accurate when they are authorised and dated for issue).*

***NOTE:*** *This is Step 5 of the 12 steps in developing a HACCP food safety system.*

It is important that the flow chart(s) are correct and complete as they are the basis for the hazard analysis.

The HACCP team should take the flow chart to the area(s) where the food is handled and follow through the operations using the flow chart to ensure it shows that the same process is actually happening. If the process is different to what has been documented in the flow chart, then the flow chart should be corrected to reflect actual process.

Businesses may find it useful to ask someone in the business that hasn't been involved in drawing the flow chart to check the diagram. Often a fresh set of eyes will see things overlooked by those more closely involved in the process.



In Section 2.4 of the *Food Safety Program template book*, draw your flow chart.

Your *Industry Guide* may be able to provide you with more information.

## 2.5 Hazard Analysis

*Documented evidence must be provided to demonstrate that a Hazard Analysis has been conducted.*

***NOTE:*** *This is Step 6 of the 12 steps in developing a HACCP food safety system and HACCP Principle 1.*

There are many different formats used for recording Hazard Analysis and the table in the *Food Safety Program Template book* is one option. This process is supported by the use of a decision tree, as in Figure 1.

All potential hazards that may occur at each step outlined in the flow chart must be identified. This is one of the most important steps when developing the program, as hazards not identified and therefore not controlled may lead to an unsafe product. When deciding what hazards may occur, consideration should be given to:

- the process that is occurring;
- the particular properties of the product;
- any other raw materials added;
- equipment in contact with the food;
- amount of contact by food handlers; and
- packaging or storage containers.

When identifying the hazards, only consider what is happening at that step. If other food substances are added, hazards related with these ingredients would also need to be identified.

	<p><b>What is a hazard?</b></p> <p>A hazard is a biological, chemical or physical agent, or condition of food with the potential to cause an adverse health affect.</p> <p>Typical hazards include:</p> <ul style="list-style-type: none"> <li>Growth of food poisoning microorganisms (pathogens)</li> <li>Microbial or physical contamination from food handlers</li> <li>Microbial or physical contamination from equipment</li> <li>Survival of food poisoning microorganisms</li> </ul> <p>More information on hazards related with your industry is provided in your <b><i>Industry Guide</i></b>.</p> <p><b>Control measures</b></p> <p>Once a hazard has been identified, the next step is to consider what control measure(s) can be used for each hazard. Control measures (also referred to as preventative measures) are anything that will prevent, eliminate or reduce the hazard from occurring. In some cases effective support programs are sufficient to control a hazard (eg a cleaning and sanitation program) and so these can be documented as the control measure. In other cases, specific activities other than support programs are required to control a hazard, these are referred to as critical control points and are discussed in detail further in Section 2.5.1.</p> <p>More than one control measure may be used to control a hazard, and a control measure may be used for more than one hazard. Some typical control measures are provided in your <b><i>Industry Guide</i></b>.</p>
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In Section 2.5 of the *Food Safety Program template book*, record your hazard analysis.

This will require you to write the name of the step in the table and next to each step, write any hazards associated with the step. Then, for each hazard, record the control measure(s).

This should be repeated for each step and for each of the hazards identified.

Your *Industry Guide* may be able to provide you with more information.

### 2.5.1 Determine Critical Control Points

*As part of the hazard analysis, CCP's must be identified.*

*CCP's are defined as a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.*

*NOTE: This is Step 7 of the 12 steps in developing a HACCP food safety system and HACCP Principle 2.*

The next step in the hazard analysis is to determine critical control points (CCP's) from the hazards you have identified. CCP's are usually steps in the process where a control measure is critical to ensure safety. Determining if a CCP is needed can be achieved by using the CCP decision tree as shown on Page 11. The decision tree is a series of questions that should be asked for each hazard at each step to determine if a CCP is required at that step.

It would be expected that different types of businesses will have different CCP's, although generally speaking CCP's would include cooking, storage and transportation steps for ready-to-eat products.

Sometimes, the CCP Decision Tree will identify a hazard as a CCP, but if an effective support program has been put in place (eg Cleaning and Sanitation Program) then the CCP can be classified as a support program instead.

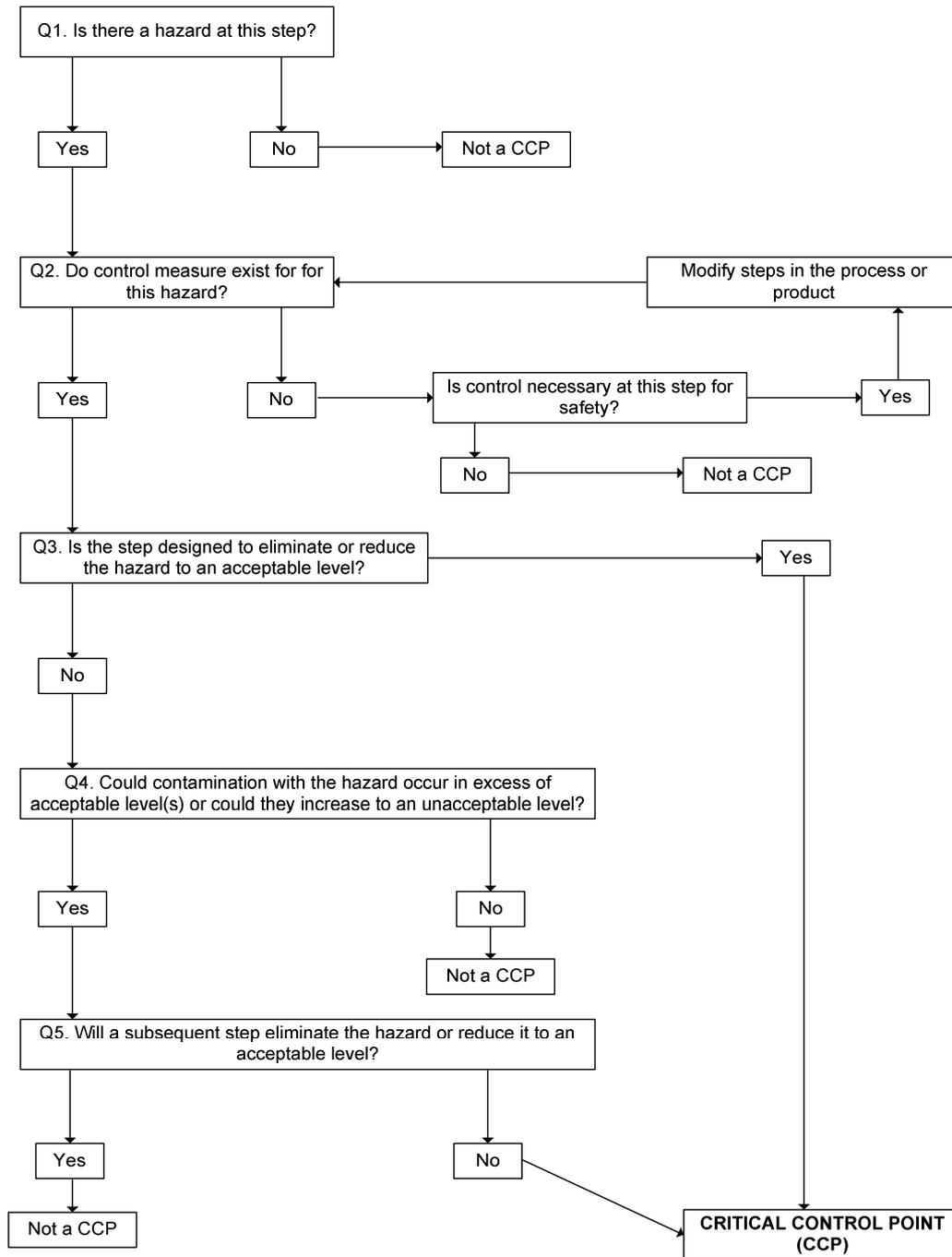


For each of the hazards lists in Section 2.5 of the *Food Safety Program Template book*, use the CCP decision tree (Figure 1) to determine your CCP's. Record your results in the table in Section 2.5

Your *Industry Guide* may be able to provide you with more information.

For each CCP identified record the step, hazard and control measure in the corresponding heading in Section 2.6 Hazard Audit Table of the *Food Safety Program Template book*.

Figure 1: CCP Decision Tree (Codex Alimentarius Commission.1997).



## 2.6 Hazard Audit Table

The Hazard Audit Table is used to determine how you will control each of your Critical Control Points. For each CCP you will need to establish and document:

- The critical limit;
- How you will monitor it;
- What to do if you exceed the critical limit; and
- How you will record you CCP results. Note: All CCPs will need to be recorded.

### 2.6.1 Establish Critical Limits

<p><i>Critical limits must be established and validated if possible for each CCP.</i></p> <p><i>This information is noted on the Hazard Audit Table.</i></p> <p><b>NOTE:</b> <i>This is Step 8 of the 12 steps in developing a HACCP food safety system and HACCP Principle 3.</i></p>	<p>Once a business has identified its CCP's, it must determine at what point the product may become unsafe at that particular step in the process. These are usually referred to as critical limits and are normally a measure (limit/specification/tolerance) that separates acceptable product from unacceptable product. Numerical values must include units and maximum, minimum or acceptable range of values.</p> <p>Critical limits usually refer to a parameter that can be checked while the step is occurring (eg. time) so that if the limit is exceeded, effective corrective action can be taken immediately to correct the process and to prevent the unsafe product from reaching the consumer. For this reason, microbiological testing is usually not a critical limit, as results may not be available before the product has been passed on to the buyer and possibly consumed by the customer. Therefore hazards that relate to food poisoning micro-organisms are typically controlled by effective temperature control and/or control of chemical parameters of the food (eg pH and salt). Examples of typical critical limits include:</p> <ul style="list-style-type: none"> <li>Temperature and time parameters for cooking</li> <li>Temperature for storage and transportation</li> <li>Chemical testing such as pH and salt measurements</li> <li>Physical checks such as the presence of foreign objects</li> </ul> <p>Critical limits are usually set based on scientific information. For example, it is generally accepted that perishable food should be kept at or below 5°C to stop most food poisoning micro-organisms from growing. Therefore the critical limit for the storage and transportation of foods is usually 5°C or less.</p> <p>If you are unsure of what the critical limit for the CCP will be you</p>
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*Critical limits must be referenced, validated and based on recognised standards such as regulatory requirements or scientific data.*

may refer to:

- Information from the Industry Guide,
- Industry Codes of Practice,
- Regulatory requirements or
- Published scientific information such as recognised scientific papers or literature.

In addition, some businesses may find it worthwhile obtaining external assistance.

It is essential to check that the control measures in the food safety system are achieving their aim and keeping food safe.

### **Validation (Justification) of Critical Limits.**

It is important to remember that the critical limit **must** control the hazards. Unless the critical limit is a commonly accepted limit, such as the storage temperature of foods in accordance with the Food Standards Code, businesses will need to show proof that the critical limit will differentiate between safe and unsafe food.

This will usually involve having some documented information outlining the source reference, or a validation study showing data, to justify each critical limit. A table summarising the justification for each CCP is recommended.

Validation of processes may consist of a number of components:

- Reference to industry guidelines and Codes of Practice eg accepted time temperature parameters for cooking.
- Reference to regulated standards eg compliance to the *Food Standards Code 3.2.2*.
- Intensive product testing may be used to validate a change to a process.
- Environmental testing may be used to validate the effectiveness of a cleaning system.

This documented evidence should be maintained and revised whenever any changes to the product or process are made to support the justification of the critical limits established for the food safety program.



In Section 2.6 of the *Food Safety Program template book*, record the critical limit for each CCP.

A justification table for each CCP should be set up and documented – Refer to 2.6.1 of Template.

Your *Industry Guide* may be able to provide you with more information.

## 2.6.2 Establish Monitoring Procedures

<p><i>Monitoring is the scheduled measurement or observation of a CCP against its critical limits.</i></p> <p><i>This requirement is noted on the Hazard Audit Table.</i></p> <p><i><b>NOTE:</b> This is Step 9 of the 12 steps in developing a HACCP food safety system and HACCP Principle 4.</i></p>	<p>Once the critical limits have been determined, requirements for measuring against the critical limit needs to be established (eg monitoring procedure). The monitoring procedures must state:</p> <p><b>What</b> is to be monitored;</p> <p><b>When</b> the monitoring will occur (frequency);</p> <p><b>Who</b> performs the monitoring; and</p> <p><b>How</b> it will be monitored.</p> <p>Examples of monitoring procedures include:</p> <ul style="list-style-type: none"> <li>Temperature checks;</li> <li>Measuring the chlorine concentration in water;</li> <li>Measuring the pH of a food;</li> <li>Measuring the salt concentration;</li> </ul> <p>The data collected must be recorded accurately (eg on a recording form – refer to Form 2 of the template) as per Section 2.6.5 and kept on file at all times.</p>
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In Section 2.6 of the *Food Safety Program template book*, record the monitoring procedures for each CCP.

Your *Industry Guide* may be able to provide you with more information.

## 2.6.3 Establish Corrective Actions

<p><i>You must determine and document corrective actions to be taken when monitoring shows that critical limits are not met.</i></p> <p><i>This information is noted on the Hazard Audit Table.</i></p> <p><i><b>NOTE:</b> This is Step 10 of the 12 steps in developing a HACCP food safety system and HACCP Principle 5.</i></p>	<p>If the monitoring reveals that the critical limit has not been met, a business will need to have corrective actions in place that rectifies the situation. The corrective action procedure should state:</p> <ul style="list-style-type: none"> <li>How to bring the process back under control;</li> <li>What to do with product produced while the process was not controlled; and</li> <li>Who is responsible for the corrective action?</li> </ul> <p>Product produced while the process was not under control should either be reworked/reprocessed or rejected.</p> <p>Reworking or reprocessing the product should only occur if the business can assure that the hazard(s) can be eliminated or reduced to a safe level.</p> <p>A record of the corrective action(s) taken must be maintained.</p>
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In Section 2.6 of the *Food Safety Program template book*, record the corrective action for each CCP.

Your *Industry Guide* includes some examples of monitoring procedures for some steps.

## 2.6.4 Establish Verification Procedures

*Procedures for verification must be established. This includes checks to verify that the HACCP food safety program is achieving its purpose of providing safe food.*

*Verification activities should be documented, for example on the Hazard Audit Table or on a separate table.*

***NOTE:** This is Step 11 of the 12 steps in developing a HACCP food safety system and HACCP Principle 6.*

One of the final steps involved in the HACCP system is to establish verification procedures. This can include verifying CCP's and support programs are effective. Verification procedures are post-process checks on the program to ensure it meets its objective to control food safety. Examples of checks you may undertake:

Review of records to ensure monitoring is occurring in accordance with the HACCP plan and when necessary, corrective actions are taken;

Internal audit of support program(s); and

Testing of product/process to ensure CCP's are effective in controlling the safety of the food (an example of a testing schedule is included in the Appendix of the *Food Safety Program Template book*). This may include chemical testing as well as process testing.

The frequency of verification activities will differ depending on the activity undertaken. You may check your records weekly to ensure recording is occurring. Confirmation of this could simply be a signature of the person checking on the bottom of each weekly record.

You should ensure that the entire system is reviewed at least annually and whenever there are changes to the product or process. This would include:

Ensuring all product is covered by the HACCP program;

Reconfirming the flow chart;

Reviewing hazard analysis

Reviewing monitoring procedures and recording; and

Reviewing corrective actions and recording.

Should the verification activities reveal that the system was not working correctly then revisions of the system should occur. For example:

If records of monitoring and/or corrective actions were not taken then it may be necessary for the business to retrain the person involved;

If the internal audit reveals that the flow chart does not reflect the process, then the HACCP program would need to be revised;

If product testing reveals that the hazard was not being controlled then it would be necessary to revise the HACCP program, in particular the CCP's and critical limits; and

	The review of the hazard analysis may result in changes to the CCP's.
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In Section 2.6 of the *Food Safety Program template book*, record the verification activities established for each CCP.

Your *Industry Guide* may be able to provide you with more information.

You should review this Section and ensure that you comply with the CCP.

See Table 2.6.2 in Template book to record your verification activities.

As an example of a verification activity, a schedule for final product testing is shown in the Appendix of the *Food Safety Program template book* (Form 11 – Product Testing Schedule).

### 2.6.5 Establish Documentation and Record Keeping

<p><i>Efficient and accurate record keeping is essential to the application of a HACCP system.</i></p> <p><b>NOTE:</b> This is Step 12 of the 12 steps in developing a HACCP food safety system and HACCP Principle 7.</p>	<p>The last step in developing your HACCP plan involves preparing the documentation required. Most businesses will need to have:</p> <ul style="list-style-type: none"> <li>Your process flow chart(s), hazard analysis and hazard audit tables documented;</li> <li>Instruction sheets or procedures for its processes, detailing how to perform the activity, monitoring procedures and corrective actions;</li> <li>Records for each monitoring activity and corrective action taken; and</li> <li>Verification procedures documented.</li> </ul> <p>It is important that monitoring sheets used to record CCP's are designed to collect the information when the process is occurring. Information can be recorded on paper manually or by computer. It is important that actual information is collected at the time, data is not transposed (re-written) onto a "clean" sheet and that the data is not lost.</p>
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The *Food Safety Program template book* has been developed to allow you to document your program.

In Section 2.6 of the *Food Safety Program Template book* record all the necessary monitoring information.

Your *Industry Guide* may be able to provide you with more information.

For further related information on document and data control refer to Section 3.11 below.

## 3 Support Program

Support programs are the general food safety and hygiene requirements which all food businesses must follow.

They include Good Manufacturing Practices (GMP) or Good Hygienic Practices (GHP) and are necessary to support the controls for establishing food safety.

<p><i>What do Support Programs cover?</i></p>	<p>The support programs include a wide range of activities and programs essential to ensure food safety, and may include:</p> <ul style="list-style-type: none"> <li>• Maintenance – including design, construction and condition of premises, equipment, vessels or vehicles;</li> <li>• Approved Supplier Program;</li> <li>• Good Food Handling Practices;</li> <li>• Cleaning and Sanitation;</li> <li>• Pest Control Program;</li> <li>• Personal Hygiene Program;</li> <li>• Product Recall Program;</li> <li>• Staff Training Program;</li> <li>• Calibration Program;</li> <li>• Internal Audit Program;</li> <li>• Document and Data Control Program;</li> <li>• And others as required.</li> </ul> <p>There may also be support programs specific for your industry sectors. These have been included in your <i>Industry Guide</i>.</p>
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Details of Support Programs should be recorded in Section 3 of the *Food Safety Program template book*.

You will need to develop your own procedures for support programs based on the information below. The *Industry Guide* may be able to provide you with more information.

### 3.1 Maintenance Program

*Maintenance of buildings and equipment is important to minimise the risk of food contamination.*

*The Food Standards Code 3.2.3 sets out the requirements for Food Premises and Equipment.*

*The premises and food handling equipment should be designed, constructed and maintained in a way that will reduce the chance of food becoming contaminated.*

Poorly maintained or damaged equipment and buildings may result in possible physical, chemical and biological contamination of food.

A maintenance program should be established and should include:

- *A system to regularly review condition of building structure and equipment (eg monthly maintenance check by the manager or delegated employee to ensure the integrity of the building and equipment; and daily checks prior to work commencing in the premises and operation of equipment to ensure it is satisfactory to use. This information is to be recorded).*
- Ensure that all corrective action is documented.
- Monthly maintenance check.
- Preventative maintenance where machinery servicing is scheduled.
- Ensure changes made to buildings and equipment that may impact food safety is documented. For example:
  - Building construction activities may increase the risk of contamination from bacteria, pests or foreign matter.

*NOTE: New equipment or changes to existing equipment may require new verification studies, such as re-evaluating temperature controls.*



In Section 3.1 of the *Food Safety Program template book*, document the Maintenance Program for your organisation.

### 3.2 Approved Supplier Program

*Controls should be in place to ensure that the safety of supplies is acceptable.*

Businesses need to set up a system for approving and reviewing their suppliers. Your business may choose some of the following approaches:

- Some businesses may decide to purchase high risk foods only from suppliers who have a food safety system in place.
- Businesses should have a list of all suppliers used, their contact details and materials they supply. This would assist with traceability.
- Ideally the performance of suppliers should also be monitored – this may include a history of their ability to supply within an agreed specification.
- Ideally a record of all suppliers and a copy of their HACCP

	<p>certification to prove accreditation status.</p> <p>Suppliers test results, where applicable, are to be available for audit. Supplier certification may be an appropriate alternative. <i>All information should be recorded along with any correction action taken.</i></p>
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In Section 3.2 of the *Food Safety Program template book*, document the Approved Supplier Program for your organisation.

### 3.3 Good Food Handling Practices

<p><i>It is essential to ensure good handling practices are maintained throughout the whole process.</i></p> <p><i>All foods are to be stored and transported under the conditions prescribed in the Food Standards Code 3.2.2. They must meet temperature and hygiene requirements.</i></p>	<p>A business should establish policies and procedures for good handling practices in the following areas:</p> <ul style="list-style-type: none"> <li>• packaging</li> <li>• storage</li> <li>• handling practices</li> <li>• temperature monitoring procedures</li> <li>• waste management</li> <li>• food disposal</li> </ul> <p>Some of the types of issues and checks may include:</p> <ul style="list-style-type: none"> <li>• <i>A Pre-Operational Checklist – an example can be found in the Appendix (Form 8) of the Food Safety Program Template book. This type of check can be used at the commencement of each shift/day to ensure the premises and equipment are satisfactory to use. Also refer to the Hygiene and Sanitation Program.</i></li> <li>• <i>Receival of Raw Materials - all raw materials are checked to ensure product quality and all relevant information along with any correction action taken is recorded – an example of a Product Receival Sheet can be found in the appendix (Form 5) of the Food Safety Program Template book. Also refer to the Approved Supplier Program.</i></li> <li>• <i>Storage - there are three important factors to consider when storing food:</i> <ul style="list-style-type: none"> <li>• <i>Appropriate temperature control</i></li> <li>• <i>Stock rotation</i></li> <li>• <i>Prevention of contamination</i></li> </ul> </li> <li>• <i>If storing and transporting refrigerated food, ensure temperature is at 5°C or less. As an example, prior to dispatch of the product, the temperature is recorded on the</i></li> </ul>
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	<p><i>Product Despatch Sheet (Refer to Appendix (Form 7) of the Food Safety Program Template book ).</i></p> <p><i>Further examples of workplace activities regarding good handling practices are shown in Forms 5, 6 and 7 in the Appendix.</i></p>
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In Section 3.3 of the *Food Safety Program template book*, document the Good Food Handling Practices for your organisation.

Examples of good handling policies are outlined in Appendix 5 of this document.

### 3.4 Cleaning and Sanitation Program

<p><i>Proper cleaning and sanitation will decrease the likelihood of the food becoming contaminated and will discourage pests from the premises and vehicles.</i></p> <p><b>Cleaning</b> The removal of waste, dirt and grease from equipment, premises and vehicles.</p> <p><b>Sanitation</b> Reduces the number of microorganisms present.</p>	<p>A cleaning and sanitation program should be set up to include a cleaning schedule and cleaning procedures which are documented. The schedule procedures should cover processing areas, amenities, coolrooms, storerooms, wash rooms etc. as well as utensils and equipment, floors, walls, drains etc. The following should be addressed in the procedure:</p> <ul style="list-style-type: none"> <li>• How is the cleaning/sanitation conducted,</li> <li>• frequency of cleaning,</li> <li>• use of chemicals,</li> <li>• other points to consider regarding your cleaning and sanitation program.</li> </ul> <p>Cleaning detergent solution strengths, times and temperature requirements are to be in accordance with the manufacturer's specifications.</p> <p><i>All chemicals used for cleaning and sanitation should be stored away from any food.</i></p> <p>Generally, food handling areas should be cleaned at least daily and food contact surfaces, equipment and utensils should be sanitised more frequently if required.</p> <p>The verification of the effectiveness of cleaning should be determined; this may include visual assessment and regular environmental swabbing as part of the verification program (refer to Section 2.6.4).</p> <p><i>A pre-operational hygiene check of the premises may be carried out to ensure that all surfaces are clean prior to use and recorded on a Pre-operational Checklist (refer to Food Safety Template book appendix Form 8).</i></p> <p><i>Evidence that all chemicals used in the processing area and hand wash stations are suitable for use with food products should be available. Chemicals must be well labelled at all times.</i></p> <p><i>Material Safety Data Sheets (MSDS) for all chemicals stored</i></p>
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	<p><i>and/or used should be kept. It is suggested that a list be kept of all chemicals used on site, their suitability for use in food processing areas (if the chemical is to be used in a food handling or processing area) and where the chemical is used.</i></p>
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In Section 3.4 of the *Food Safety Program template book*, document the Cleaning and Sanitation Program for your organisation.

### 3.5 Pest Control Program

<p>Animals and pests including insects and rodents must be excluded from the premises.</p>	<p>A Pest Control Program must be established and documented. It must be effective without posing any risk to food safety.</p> <p>Listed below are issues regarding pest control and chemical application you must comply with. You must also document this information in a documented procedure.</p> <p>This Pest Control Program should include:</p> <ul style="list-style-type: none"> <li>• A documented procedure for regular inspections. It should cover the effectiveness of flyscreens, doors, insectocutors, air locks etc. and results recorded.</li> <li>• You should document the location of bait and insect stations used.</li> </ul> <p style="margin-left: 40px;"><u>NOTE:</u> Bait and insect stations are not permitted to be placed in areas where food is stored or processed. Instead a perimeter border of bait stations around the building can be used. Any bait stations are checked regularly in accordance with an inspection program.</p> <p>When using chemicals ensure that:</p> <ul style="list-style-type: none"> <li>• All chemicals are used in accordance with the manufacturer's instructions;</li> <li>• Chemicals are not used near food; and</li> <li>• Chemicals are not applied to food contact surfaces. If chemicals contaminate food contact surfaces and equipment, affected areas must be washed well before use.</li> <li>• All chemicals used for pest control must be stored away from any food.</li> </ul> <p style="margin-left: 40px;"><u>NOTE:</u> Chemicals used for pest control can be extremely hazardous and there are other government regulations you must comply with (eg. NSW Workcover). You should seek expert advice before using chemicals to control pests.</p> <p>If premises are treated by a pest control company the business will need to:</p> <ul style="list-style-type: none"> <li>• Ensure chemicals are not applied during food processing</li> <li>• Obtain a report from the pest control company and retain for</li> </ul>
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	<p><i>audit.</i></p> <p>Records of pest control contractor visit, pest control treatments and contract details must be held on site.</p>
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In Section 3.5 of the *Food Safety Program template book*, document the Pest Control Program for your organisation. Your *Industry Guide* may be able to provide you with more information.

### 3.6 Personal Hygiene Program

<p><i>Personal hygiene, staff clothing and headwear must comply with Food Standards Code 3.2.2 requirements.</i></p>	<p>Policies and procedures should be established to ensure that staff and their conduct do not adversely impact on food safety. Procedures must be in place to ensure that activities of food handlers who may be suffering from a food-borne disease or are a carrier of a food-borne disease is in accordance with FSC 3.2.2 (14).</p>
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In Section 3.6 of the *Food Safety Program template book*, document the Personal Hygiene Program for your organisation. An example of a personal hygiene policy is provided in Appendix 4 of this document.

### 3.7 Product Recall Program

<p><i>The FSC 3.2.2 (12) requires that wholesale suppliers, manufacturers and importers have a recall system that will ensure that unsafe food is returned to the supplier.</i></p>	<p>A product recall program must be developed to enable the retrieval of unsafe product that has been distributed to other businesses and/or the consumer in order to protect the consumer.</p> <p>Hence, it is essential to be able to trace products to the manufacturer and the raw materials used.</p> <p>Product may need to be recalled if it is:</p> <ul style="list-style-type: none"> <li>• Not from an approved source</li> <li>• Contaminated with harmful microorganisms</li> <li>• Contaminated with harmful chemicals</li> <li>• Contaminated with physical matter (eg glass, wood)</li> <li>• Has been tampered with.</li> </ul> <p>Therefore records may need to be kept of:</p> <ul style="list-style-type: none"> <li>• Batch codes of ingredients and raw materials used</li> <li>• Batch coding, volumes produced etc to allow for in-process traceability</li> </ul>
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	<ul style="list-style-type: none"> <li>List of all customers and sale information as well as invoices for product delivered and/or despatch records in order to identify where product has been delivered to (if relevant)</li> </ul> <p>In the event of a product recall, the program will need to be controlled by the manager or delegated employee of the business and the system as defined in the guide Food Recall Protocol prepared by Food Standards Australia New Zealand (FSANZ) should be used. A copy of this document should be held with this manual.</p> <p>A list of Government Food Recall Officers supplied by FSANZ must be held. FSANZ is to be contacted in the event of a recall. They can be contacted on 02 6271 2222 during normal business hours or on weekends / after hours on 0412166965</p> <p>The NSW Food Authority should also be contacted in the event of a recall on (02) 9741 4777.</p>
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<p><i>All packages of food are required to be labelled in accordance with the Food Standards Code, Part 1.2 Labelling and other information requirements.</i></p>	<p>Care should be taken to ensure labelling requirements are met. It is particularly important to declare ingredients to prevent potential adverse health reactions (eg allergic reactions) and to correctly label date codes etc for the purposed of traceability and to facilitate potential product recalls.</p> <p>Details on the requirements of food labelling can be found at the following website:</p> <p><a href="http://www.foodstandards.gov.au/assistanceforindustry/userguides/index.cfm">http://www.foodstandards.gov.au/assistanceforindustry/userguides/index.cfm</a></p>
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In Section 3.7 of the *Food Safety Program template book*, document the Product Recall Program for your organisation.

### 3.8 Staff Training Program

<p>A food business must ensure that persons undertaking or supervising food handling operations have skills in and knowledge of food safety and hygiene matters commensurate with their work activities.</p>	<p>All staff must be trained to enable them to perform their job safely and competently.</p> <p>All new staff should receive an induction covering instructions on how to perform their duties to ensure good food handling procedures are followed.</p> <p>Training can be conducted internally or externally and may include:</p> <ul style="list-style-type: none"> <li>Good personal hygiene;</li> <li>Food handling procedures; and</li> <li>Cleaning and sanitation, including:             <ul style="list-style-type: none"> <li>Correct storage and handling of chemicals;</li> <li>Correct make up of the chemicals; and</li> <li>Procedure for cleaning and sanitation.</li> </ul> </li> </ul> <p>Training of staff should be recorded and show the dates training was completed and proposed future training for all staff. A simple table recording staff knowledge, training and ability (a training</p>
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	matrix) is recommended see eg in Food Safety Program template book).
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In Section 3.8 of the *Food Safety Program template book*, document the Staff Training Program for your organisation.

### 3.9 Calibration Program

<p>All equipment used at the premises must be calibrated and maintained in working order.</p>	<p>The accuracy of all equipment used to conduct inspections and testing must be monitored to ensure that it is reading correctly. For example, if a thermometer used to check a critical heating temperature is not reading accurately, you may not know that process requirements are not being met.</p> <p>All equipment used to conduct food safety system checks must be calibrated. This may include scales, thermometers.</p> <p>Calibration procedures, for both internal and external (contracted) calibration, must be documented. Records of all calibration must be kept and be available for review during audits.</p> <p>Calibration procedures must include:</p> <ul style="list-style-type: none"> <li>• A master list of all equipment to be calibrated</li> <li>• The frequency of calibration for each instrument.</li> <li>• Each instrument that is calibrated must be uniquely identified in the calibration documents and on the instrument.</li> <li>• Equipment which is not calibrated must be clearly identified.</li> </ul> <ul style="list-style-type: none"> <li>• The maximum error allowed before corrective action is required must be stated.</li> <li>• The corrective action to be taken when instruments are found to be out of specification.</li> </ul>
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In Section 3.9 of the *Food Safety Program template book*, document the Calibration Program for your organisation.

An example of a calibration method and calibration intervals is outlined in Appendix 3 of this document.

### 3.10

### Internal Audit Program

Internal Audits are conducted to ensure that practices comply with the requirements of the food safety program (the manual) and are adequate to ensure food safety.

Internal audits should review the entire system. They review compliance to the system described in the food safety manual and the ability of the system to achieve its purpose. They also identify areas of non-compliance (so that corrective and preventative action can be taken).

Internal audits are generally conducted by staff within the organisation. Where possible, these staff should be independent of the operation being audited.

*An internal audit is conducted:*

- *When the products that are produced changes;*
- *When the process changes; or*
- *At least annually*

*An internal audit checklist may be used (see example in the Food Safety Program template book)*

The findings of the internal audits must be documented, retained and available for audit for four years.

The findings must be brought to the attention of personnel responsible for the section being audited. Managers responsible for the area are to take timely corrective action on deficiencies found during the audit. A record must be kept of action taken.



In Section 3.10 of the *Food Safety Program template book*, document the Internal Audit Program for your organisation.

### 3.11 Document & Data Control Program

*Effective document and data control ensures that*

- *people can be confident that they are using the current version of a document, and*
- *the information contained in these documents has been approved by management*

The following should be followed:

- All documents should be identified, authorised and dated.
- Obsolete and/or invalid documents must be removed
- Current documents may be held in a master manual which can be a "working" manual or held electronically.
- Diaries are an accepted document in smaller operations.
- Ticks or crosses are generally not acceptable records.
- Data entry / records are to be signed.

Records of HACCP checks and compliance to procedures provide evidence to auditors and management that the system is being complied with. Records could include data recorders, cleaning, cool room temperature data and temperature loggers.

Records can be held electronically but must be accessible and retained for a minimum of 12 months.



In Section 3.11 of the *Food Safety Program template book*, document the Validation Program for your organisation.

## Appendix 1 - Glossary

***Codex Alimentarius Commission*** – The Commission was created by FAO/WHO to develop food standards, guidelines and related codes of practice. In 1993 the Commission adopted the Codex Guidelines for the Application of HACCP. This document refers to Codex HACCP.

***Critical Control Point (CCP)*** – a step at which an essential control process can be applied which will prevent, reduce to an acceptable level or eliminate a food safety hazard or reduce it to an acceptable level.

***Food Safety Program*** - as described by FSC 3.2.1 and/or Codex Based HACCP.

***HACCP (Hazard Analysis and Critical Control Point)*** – a system that identifies, evaluates, controls and prevents specific hazards to ensure the safety of food.

***Hazard*** – a biological, chemical or physical agent in, or condition of food, with the potential to cause an adverse health effect.

***Pathogen*** – an agent, such as bacteria, that can cause disease.

***Retrieval*** – product that may be considered a risk to consumers and may need to be recalled or retrieved.

***Vulnerable Populations*** - the elderly (70 and over), the immunocompromised, pregnant women, and children aged four years or less (as described by the FSANZ Advisory Group).

## **Appendix 2 - References / Bibliography**

The following publications may be useful:

Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its Application, Alinorm 97/13 Appendix II

Food Standards Code – Food Standards Australia New Zealand  
[www.foodstandards.gov.au](http://www.foodstandards.gov.au)

Food Recall Protocol – Food Standards Australia New Zealand.

NSW Food Act 2003

- Food borne Microorganisms of Public Health Significance. Hocking AD (ed) AIFST (NSW Food Microbiology Group) 6th Ed. 2003
- Microorganisms in Foods 4. Application of the Hazard Analysis Critical Control Point (HACCP) System to Ensure Microbial Safety and Quality. International Commission on Microbiological Specifications for Foods (ICMSF). Blackwell Scientific Publications. 1<sup>st</sup> Ed. 1988.
- Microorganisms in Foods 5. Characteristics of Microbial Pathogens. International Commission on Microbiological Specifications for Foods (ICMSF). Aspen Publishers. 1<sup>st</sup> Ed. 1996.
- Microorganisms in Foods 6. Microbial Ecology of Food Commodities. International Commission on Microbiological Specifications for Foods (ICMSF). Aspen Publishers. 1<sup>st</sup> Ed. 1998.
- Microorganisms in Foods 7. Microbiological Testing in Food Safety Management. International Commission on Microbiological Specifications for Foods (ICMSF). Kluwer Academic. 1st Ed. 2002
- Basic Text on Food Hygiene. Codex Alimentarius Commission. 1997.

## Appendix 3 - Example of Calibration Methods for Thermometers

### Thermometer/temperature gauge calibration

Hand-held thermometers are calibrated monthly and results recorded on the Monthly Maintenance Checklist (Form 1). If in-house calibration of the temperature gauges on coolrooms/freezers occurs then this is also recorded on the same checklist.

Thermometer gauges on coolrooms, freezers and ice rooms are calibrated every 6 months and the calibration result recorded in the records diary.

Thermometers used to measure the temperature of both cold and hot potentially hazardous foods are calibrated using an 'Ice Point Check' and a 'Boiling Point Check'.

An example of calibration intervals is outlined:

Fixed and / or digital thermometers	6 monthly
Hand held thermometers	Monthly

### Handheld Thermometer Calibration Method:

Ice Point Check:

- Make sure that the thermometer has been at ambient room temperature for at least 10 minutes.
- Fill a small insulated container (eg. small foam esky) with crushed ice that has been made from potable water (town drinking water is OK).
- Add a little water to the container, no more than one third the quantity of ice, to start the ice melting. Pour off the excess water.
- Place the thermometer probe in the centre of the container so that the point of the probe is in contact with the ice. The point of the probe should not touch the base of the container.
- Leave for about 10 minutes to obtain a steady reading.
- Read the temperature on the thermometer. If:
  - The thermometer is accurate it should read 0°C.
  - The temperature is not at 0°C note the difference in the temperature reading. For example, if the thermometer is 0.5C, then the difference is -0.5C.
  - The temperature is greater than 1°C or colder than -1°C, it is recommended that thermometers be replaced or returned to the manufacturer for servicing.
- When using the thermometer the difference must be used as a correction factor. For example, if the difference of the thermometer was -0.5°C and the product temperature was 4.0°C, then the correct temperature would be  $4.0 - 0.5 = 3.5^{\circ}\text{C}$

**Boiling Point Check:**

- Make sure that the thermometer has been at ambient room temperature for at least 10 minutes.
- Boil an amount of water in a saucepan/pot.
- Place the thermometer probe in the centre of the pot so that point of the probe does not touch the base of the saucepan/pot.
- Leave until a steady reading is obtained.
- Read the temperature on the thermometer. If:
  - The thermometer is accurate it should read 100°C.
  - The temperature is not at 100°C note the difference in the temperature reading. For example, if the thermometer is 100.5C, then the difference is -0.5C.
  - The temperature is greater than 1°C or colder than -1°C, it is recommended that thermometers be replaced or returned to the manufacturer for servicing.
- When using the thermometer the difference must be used as a correction factor. For example, if the difference of the thermometer was -0.5°C and the product temperature was 90.0°C, then the correct temperature would be  $90.0 - 0.5 = 89.5^{\circ}\text{C}$

**Chiller/Freezer Gauges Calibration Method**

- Once the handheld thermometer is calibrated it can also be used to check the accuracy of any temperature gauges on equipment such as coolrooms and freezer. This should be done at least 6 monthly and can be done by:
- Placing the thermometer in the coolroom/freezer, with the thermometer probe placed as close to the gauge probe as possible, for at least 5 minutes (making sure not to open the door during this period).
- After this period, read the temperature on the thermometer (taking into account any difference noted during the calibration of the handheld thermometer).
- Read the temperature on the gauge and determine any difference between the handheld thermometer reading and the gauge, as above.

**NOTE:****Temperature monitoring procedure**

- Prior to taking the temperature, the probe is to be:
  - Checked to ensure it is clean. If not, it is to be cleaned with warm water and a mild detergent and dried with a clean cloth.
  - Once clean the probe is sanitised using an alcohol swab or hot water at  $>77^{\circ}\text{C}$ .
- The probe is then allowed to air dry without touching anything.
- The temperature of the food is then taken by inserting the probe into the item and allowing it to stabilise for one minute before

reading the temperature. For packaged product, the probe is placed between two packages.

- After each temperature measurement the probe is cleaned and re-sanitised as above, and stored in a safe and clean area.

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## Appendix 4 - Example of Personal Hygiene Policy

The following is a general guide for all personnel including visitors:

- Clean clothing is to be worn by everyone entering the food handling area. Coverings such as aprons are not worn outside the food handling area. Disposable coverings are changed and disposed of regularly, especially when changing work duties, taking breaks and when going to the toilet.
- Hair must not be able to contaminate food. Long hair must be tied back or covered with a hair net. Beards are to be kept tidy or beard snoods used.
- All people must wash their hands prior to handling of food. Where gloves are used, they are kept clean and intact.
- Fingernails are kept short and clean with no nail polish or false nails.
- Only plain wedding band rings are worn in the food handling area.
- People with sores, boils, cuts or abrasions must not handle food unless:
  - The affected area is covered with a waterproof adhesive dressing; and
  - The food cannot be contaminated.
- All persons must ensure they:
  - Do not eat over food or food handling surfaces;
  - Do not smoke in food handling areas; and
  - Do not sneeze, blow or cough over uncovered food or food contact surfaces.
- All personnel handling food shall be knowingly free from infectious diseases or skin conditions, which may be transmitted through the handling of food products.

***Any personnel suffering from a transmittable condition or symptoms of food borne disease (such as diarrhoea or vomiting) shall not engage in food handling if there is any possibility of them contaminating the products being processed/delivered.***

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## Appendix 5 - Examples of Good Handling Policies

Below are listed some issues for consideration when developing policies relating to Good Handling Practices.

### Storage

- As soon as supplies are received they should be placed in the appropriate storage area (freezer, coolroom or dry storage area).
- Packaging materials must be stored in a manner that prevents contamination by dust, vermin and chemicals. Opened boxes of packaging material must be sealed between production days.
- All stock should be rotated to ensure the oldest stock is used first. Prior to use, any expiry dates are checked and if the product has expired it is not to be used.
- Products should be either stored in the original packaging or transferred to food-grade packaging. If product is not packaged/sealed, then it should be covered.
- Raw food is stored separately to ready-to-eat food – if separate storage areas are not available, ready-to-eat food is stored above raw.
- All dry products are stored in a manner to prevent contamination from moisture, dust, dirt, pests and rodents.
- All perishable/refrigerated/frozen foods must be stored under temperature control.
- Refrigerated products – stored at 5°C or less
- Frozen products – stored at 18°C or less
- All products are stored and transported at 5°C or less.

### Waste management

Procedures for handling waste materials and cleaning waste bins should be documented.

### Food disposal

Unsafe product is to be disposed of properly to ensure that it is not included with food for sale.

Food may need to be disposed of because:

- Of a product recall;
- The product has exceeded its shelf life; or
- The product does not comply with your food safety program.

If food is to be disposed of but cannot be discarded immediately it is marked clearly with 'HOLD' for disposal, and separated from other food.

**Equipment**

- Unsealed wood and timber are not to be used in food handling areas.
- All equipment should only be used for what it was intended and should be kept clean and well maintained.
- Equipment such as coolrooms, freezers and ice rooms should be serviced and temperature gauges should be calibrated regularly (eg every six months).
- If food transport vehicles are used they must be maintained in a clean and sound condition so that food does not become contaminated.
- If refrigerated food is transported, vehicles with refrigeration units may be used and should be serviced regularly to ensure the vehicle will maintain food at 5°C or less. Records of maintenance activities should be kept.

## Appendix 2:

# Food Safety Program Template

## Food Safety Program

Template for

**(Insert Business name  
here)**

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### The Use of NSW Food Authority Assistance Materials

The NSW Food Authority "General Guidelines for the Development and Implementation of a Food Safety Program", "Food Safety Program Template" and "Industry Specific Guides" are guidance documents only. NSW Food Authority disclaims any liability for any loss or injury directly or indirectly sustained by any person as a result of reliance upon these documents. **Businesses must not assume that these guidance documents cover all food safety hazards within their business. If using these document to develop your Food Safety Program then you must adapt these to fit your business, products, and market requirements, and to ensure that all potential food safety hazards are identified and controlled.** You are advised to seek independent legal advice in relation to any query you may have regarding the legal obligations imposed under the relevant Food Safety Scheme Regulation.

# 1. Introduction



In this Section you should give a general introduction to your organisation and outline the principle of management's commitment to the development and implementation of a Food Safety Program. This could include:

- Nature of business
- Scope of products
- Major customers
- Commitment to quality statement
- Organisational chart showing positions within the organisation responsible for food safety

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.

## 2. HACCP-based Food Safety Plans

### 2.1 HACCP Team



In this section record the team that is responsible for developing and maintaining this food safety plan, updating the HACCP manual, analysing and improving procedures and implementing effective controls to manage food safety risks.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.

The HACCP team includes:

	NAME	POSITION IN COMPANY
TEAM LEADER		
TEAM MEMBER		
TEAM MEMBER		
TEAM MEMBER		

## 2.2 Scope and Purpose



In this section document the scope and purpose of the food safety plan.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.
- your *Industry Guide*.

## 2.3 Product Description and Intended Use



In this section complete details for each product you produce (the example layout below can be used as a guide).

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.
- your *Industry Guide*.

Product Name	
Ingredients used/composition	
Form	
Packaging	
Shelf Life	
Storage and Transport	
Intended Use	
Consumer	

## 2.4 Process Flow Chart



In this section construct a flow chart for each product or like-products by providing a simple, clear description of the steps involved in your process.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.
- your *Industry Guide*.

## 2.5 Hazard Analysis



In this section carry out a Hazard Analysis for each product or like products in your process.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*,
- your *Industry Guide*, and the CCP Decision Tree (located in general guide).

Note:

CCP's should be decided using the CCP decision tree and should assume that the control measures are followed.

Copy more pages of the table as needed.

CCP= Critical Control Point

SP= Support Program

PROCESS STEP	HAZARD	CONTROL MEASURE	Q1	Q2	Q3	Q4	Q5	CCP

PROCESS STEP	HAZARD	CONTROL MEASURE	Q1	Q2	Q3	Q4	Q5	CCP

## 2.6 Hazard Audit Table



In this section set up the Hazard Audit table for each product or like products in your process.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*
- your *Industry Guide*.

Copy more pages of the table as needed.

Step	Hazard	Control Measure	Monitoring Procedures	Critical Limits	Corrective Action	Records
			What: How: When: Who:			
			What: How: When: Who:			
			What: How: When:			

Step	Hazard	Control Measure	Monitoring Procedures	Critical Limits	Corrective Action	Records
			Who:			

Step	Hazard	Control Measure	Monitoring Procedures	Critical Limits	Corrective Action	Records
			What: How: When: Who:			
			What: How: When: Who:			
			What: How: When: Who:			
			What: How: When:			

			Who:			
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**2.6.1 Justification Table**

Hazard/Control Measure	Critical Limit	Reference/Justification

**2.6.2 Verification Table**

CCP or Support Program	Verification Activity	Frequency	Person Responsible	Records	Corrective Action/Comments

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### 3. SUPPORT PROGRAMS

In the following sections document information on policies and procedures for each of the Support Programs established in your organisation.

Refer to:

- the *General Guidelines for the development and implementation of a food safety program*
- your *Industry Guide*.

#### 3.1 MAINTENANCE PROGRAM



In this section, document information on policies and procedures for the Maintenance Program established in your organisation.

Ensure that you include the relevant aspects of the premises, equipment and food transport vehicles as part of the program. An example of a Monthly Maintenance Checklist can be found in the Appendix (Form 1) and Pre-Operational Checklist (Form 8) of this document.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.

## 3.2 APPROVED SUPPLIER PROGRAM



In this section document your Approved Supplier Program.

An example guide of an Approved Supplier Program and documents required is as follows:

- All goods and services are to be sourced from an approved supplier.
- Suppliers are required to complete the Supplier Approval Application (Form 3b) which is sent to each supplier along with the Supplier Approval Letter (Form 3a).
- It is your responsibility to determine criteria for approving and maintaining suppliers (eg HACCP program required for high risk ingredients).
- All suppliers approved are listed on the Approved Supplier List (Form 4) along with the products they supply.
- Documents provided by the supplier and the completed Supplier Approval Application Form need to be kept.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*
- your *Industry Guide*.

### 3.3 GOOD FOOD HANDLING PRACTICES



In this section document information on policies and procedures for Good Handling Practices established in your organisation.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.
- Appendix 5 of this document for an example of good food handling policy.

Ensure that you incorporate all areas relevant to your business.

## 3.4 CLEANING AND SANITATION PROGRAM



In this section, document information on policies and procedures for the Cleaning and Sanitation Program established in your organisation.

Ensure that you incorporate the relevant aspects of the premises, equipment and food transport vehicles as part of the program.

A Pre-Operational Checklist is a useful tool. This type of check can be used at the commencement of each shift/day to ensure the premises and equipment are satisfactory for use. This can be carried out daily before processing to ensure that all surfaces are clean prior to use. An example is found in Form 8 of the Appendix.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.

### 3.5 PEST CONTROL PROGRAM



In this section document information on policies and procedures for the Pest Control Program established in your organisation.

Animals and pests including insects and rodents must be excluded from the premises. As an example, any evidence of pests can be recorded on the Pre-Operational Checklist (Form 8).

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.

### 3.6 PERSONAL HYGIENE PROGRAM



In this section document information on policies and procedures for the Personal Hygiene Program established in your organisation.

Personal hygiene is a vital part of minimising the risk of food poisoning or a contamination incident affecting the business.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.

## 3.7 PRODUCT RECALL PROGRAM



In this section document information on policies and procedures for the Product Recall Program established in your organisation.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*
- your *Industry Guide*.

## 3.8 STAFF TRAINING PROGRAM



In this section document information on policies and procedures for the Staff Training Program established in your organisation.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program* and
- your *Industry Guide*.

All staff must be trained to enable them to perform their job safely and competently. All staff are trained for their appropriate work activity, which may include at least:

- Good personal hygiene;
- Food handling procedures; and
- Cleaning and sanitation.

Records of staff training should be kept. An example of a Staff Training Matrix, where staff training can be recorded, is shown in Form 9 of the Appendix.

## 3.9 CALIBRATION PROGRAM



In this section document information on policies and procedures for the Calibration Program established in your organisation.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program* and
- your *Industry Guide*.

All equipment used at the premises must be calibrated and maintained in working order.

Records must be kept and an example of hand-held thermometers calibrated monthly on a Monthly Maintenance Checklist is shown in Form 1 of the Appendix. If in-house calibration of the temperature gauges on coolrooms/freezers occurs then this is also recorded on the same checklist.

Thermometer gauges on coolrooms, freezers and ice rooms should be calibrated regularly, for example every 6 months and the calibration result recorded.

- An example of calibration intervals and methods is shown in Appendix 3 of the *General Guidelines for the Development and Implementation of a Food Safety Program*.

### 3.10 INTERNAL AUDIT PROGRAM



In this section document information on policies and procedures for the Internal Audit Program established in your organisation.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.
- your *Industry Guide*.

Internal audits are conducted to ensure that procedures and practices used at the business are being controlled adequately according to what is documented in this manual and in the records associated with this manual.

An example of an Internal Audit Checklist is shown in Form 10 of the Appendix. Where non-conformities are found, corrective actions are taken and recorded.

### 3.11 DOCUMENT AND DATA CONTROL PROGRAM



In this section, document information on policies and procedures for the Data and Document Control Program established in your organisation.

Refer to:

- the *General Guidelines for the Development and Implementation of a Food Safety Program*.
- your *Industry Guide*.

## Appendices

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Form 6	Product Monitoring Sheet
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Form 8	Pre-operational Checklist
Form 9	Staff Training Matrix
Form 10	Internal Audit Checklist
Form 11	Product Testing Schedule

Figure 1      CCP Decision Tree

## Form 1: Monthly Maintenance Checklist

Completed at the end of each month.

Satisfactory (S) Unsatisfactory (U) and complete corrective action/comments column

Completed by: \_\_\_\_\_ Date: \_\_\_\_\_

Item	S/U	Corrective action/Comment
<b>Processing Area</b>		
Ceiling, walls and floors free from cracks and other signs of damage		
Food processing benches free from rust, damage and deterioration		
All equipment free from rust, damage and deterioration – no exposed wood present		
Lights above processing area covered		
All sinks (including hand washing) accessible and in working order		
Other fitting and fixtures in good condition and in working order		
<b>Coolrooms/Freezers/Ice Room</b>		
Walls, floors and ceiling clean and in good condition		
Shelving free from rust and kept cleaned		
Lights covered		
Seals clean and in good condition		
Cooling units free from rust and corrosion		
<b>Storage Areas</b>		
Chemicals stored separately to food and packaging material		
All food and packaging material stored in a manner to prevent contamination		
<b>Staff Amenities (eg. toilets, staff rooms)</b>		
Staff amenities kept clean and tidy		
Hand washing facilities accessible and in good order		
<b>Pest Control</b>		
No sign of pest within processing area, storage area or staff amenities		
Rodent and insect bait stations maintained and correctly situated		

Comments/Further Action:

Thermometer/Temperature gauge calibration

Date	Thermometer number/Gauge position	Temperature reading	Difference	Signed

Food Safety Program

Issue Date: / /

Authorised by:

--	--	--	--	--

## Form 2: Temperature Monitoring Sheet

Temperature for each area is recorded twice daily when being used

Week commencing: \_\_\_\_\_

Area		Temperature (°C)							Corrective action	Initials
		M	T	W	T	F	S	S		
Coolroom	AM									
	PM									
Freezer	AM									
	PM									
	AM									
	PM									
	AM									
	PM									

Week commencing: \_\_\_\_\_

Area		Temperature (°C)							Corrective action	Initials
		M	T	W	T	F	S	S		
Coolroom	AM									
	PM									
Freezer	AM									
	PM									
	AM									
	PM									
	AM									
	PM									

Week commencing: \_\_\_\_\_

Area		Temperature (°C)							Corrective action	Initials
		M	T	W	T	F	S	S		
Coolroom	AM									
	PM									
Freezer	AM									
	PM									
	AM									
	PM									
	AM									

	PM									
--	----	--	--	--	--	--	--	--	--	--

## Form 3a: Supplier Approval Letter

Application to supply goods

Dear supplier,

Our business is committed to providing our customers with product that is of the highest quality and which complies with the requirements of the Food Production Food Act 2003 and the Food Regulation 2004.

To facilitate this commitment we have implemented a food safety program that complies with these requirements. This program identifies the potential food safety hazards and, where necessary, introduces measures to control and correct them.

A critical component of this food safety program requires all suppliers of product to demonstrate that their goods are produced with due care. We therefore ask that you complete the attached application to join our Approved Suppliers List. Once completed the form should be returned to us at the address below.

This business values your past custom and upon receiving details of your commitment to a food safety program, we look forward to continuing our business relationship and your assistance in offering our customers the highest possible level of food safety.

Yours sincerely

Name of business  
Postal address of business:  
Contact name:  
Contact details:

## Form 3b: Supplier Approval Application

### Supplier Details

Registered Name: \_\_\_\_\_

Trading As: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

Mobile: \_\_\_\_\_

Fax: \_\_\_\_\_

Details of product that you will supply \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Details of current food safety or quality assurance programs (which may include: HACCP accreditation or testing program eg. NSW Food Authority licence)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please complete the above details and return as soon as possible

Note: All details provided to us will be treated as confidential and only used to support the accredited supplier requirements of our food safety program









## Form 8: Pre-Operational Checklist

Complete at the commencement of each shift/day

Satisfactory (S) Unsatisfactory (U) and complete corrective action/comments column

Completed by: \_\_\_\_\_

Date									Corrective Action
Premises clean and tidy									
Processing areas clean and tidy									
No evidence of pests									
Hand washing facilities clean and accessible with soap and paper towels available									
Food contact surfaces clean									
All equipment clean									
All packaging material stored correctly									
Coolrooms/Freezers and/or Ice Rooms clean and tidy									
Food transport vehicles clean and tidy									



## Form 10: Internal Audit Checklist

Complete every 6 months

Satisfactory (S) Unsatisfactory (U) and complete corrective action/comments column

Completed by: \_\_\_\_\_

Date: \_\_\_\_\_

Section	S/U	Corrective Action
<b>1. Management responsibility</b> Is the food safety statement still current? Is the scope and purpose still current? Are the members of the HACCP team still current?		
<b>2. HACCP Plan</b> Are the product specifications still valid? Is the flow chart still correct? Is the Risk Analysis still valid?		
<b>3. Premises and Equipment</b> Has the Monthly Maintenance Checklist been completed? Have the Temperature Monitoring Sheets been completed?		
<b>4. Supplier Approval Program</b> Is the Supplier Approval List up to date?		
<b>5. Food Handling Procedures</b> Is the Treatment Register Sheet up to date? Has the Fish Treatment Diary been completed? Have the Product Dispatch Monitoring Sheets been completed?		
<b>6. Testing and Calibration</b> Have water and ice tests been completed? Are all results within the Standards specified? Have any results which exceed the Standards been reported to the NSW Food Authority Have all thermometers and temperature gauges been calibrated every six months?		
<b>7. Cleaning and Sanitation</b> Has the Pre-Operational Checklist been completed? Are the chemicals listed still used?		
<b>8. Pest Control</b> Are procedures still correct? Are pest company records available?		
<b>9. Personal Hygiene</b> Have all staff been briefed on personal hygiene?		
<b>10. Product Identification and Traceability</b> Is the list of customers up to date? Are invoices for each sale available?		
<b>11. Food Recall</b> Is there a copy of the FSANZ Food Recall Protocol available? Are the contact numbers up to date?		
<b>12. Staff Training</b> Is the Staff Training Matrix up to date?		

Food Safety Program

Issue Date: / /

Authorised by:

Comments/Further Action:

**Form 11: Product Testing Schedule**

As an example of a verification activity, finished product testing can be undertaken to verify that the practices and procedures in place at this business are achieving safe food. Five samples of the same product can be sampled (can be pooled) and provided to the laboratory. An example of schedule of tests follows.

<i>Product</i>	<i>Testing frequency</i>	<i>Tests</i>	<i>Standard</i>



# Appendix 3: Industry Guide for the development of a Food Safety Program for High Priority Plant Products

## Industry Guide for the Development of a Food Safety Program (High Priority Plant Products Industry)

These include:

- Seed Sprouts
- Fresh Cut Fruit (usually consumed raw)
- Fresh Cut Vegetables (usually consumed raw)
- Vegetables in Oil
- Unpasteurised Juice

# Industry Guide to Developing a Food Safety Program for High Priority Plant Products

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### **The Use of NSW Food Authority Assistance Materials**

The NSW Food Authority "General Guidelines for the Development and Implementation of a Food Safety Program", "Food Safety Program Template" and "Industry Guides" are guidance documents only. NSW Food Authority disclaims any liability for any loss or injury directly or indirectly sustained by any person as a result of reliance upon these documents. **Businesses must not assume that these guidance documents cover all food safety hazards within their business. If using these documents to develop your Food Safety Program then you must adapt these to fit your business, products, and market requirements, and to ensure that all potential food safety hazards are identified and controlled.** You are advised to seek independent legal advice in relation to any query you may have regarding the legal obligations imposed under the relevant Food Safety Scheme Regulation.

# Introduction

This Industry Guide has been prepared by the NSW Food Authority in order to assist businesses in the development and implementation of a food safety program for high priority plant products which include:

- Seed Sprouts;
- Fresh Cut Fruit (usually consumed raw);
- Fresh Cut Vegetables (usually consumed raw);
- Vegetables in oil; and
- Unpasteurised Juice

These documents are based on the Hazard Analysis and Critical Control Point (HACCP) system as outlined by Codex Alimentarius Commission, which satisfies the requirements of "Standard 3.2.1 Food Safety Programs" of the Food Standards Code (FSC).

This Industry Guide aims to:

- Provide you with some additional information for developing a food safety program for plant products;
- Provide you with some basic food safety information on plant products, in particular, provide examples for the production of common food processes;
- Help you understand some of the hazards associated with plant products and how to control them; and
- Assist you in developing your own food safety program.

***It is important to note that the Industry Guide should be used and read in conjunction with the NSW Food Authority's "General Guidelines for Developing and Implementing a Food Safety Program" and the "Food Safety Program Template". Additional copies of these documents can be located on the NSW Food Authority website: [www.foodauthority.nsw.gov.au](http://www.foodauthority.nsw.gov.au)***

This Industry Guide contains the following sections and follows the format of the "General Guidelines for Developing and Implementing a Food Safety Program" and the "Food Safety Program Template".

- Scope and Purpose;
- Product Description and Intended Use;
- Process Flow Diagram;
- Hazard Analysis;
- Identifying Critical Control Points;
- Hazard Audit Tables;
- Support Programs; and
- Verification and Validation

Even if you already have an existing food safety program, the "General Guidelines for Developing and Implementing a Food Safety Program"

should still be used as a guide to ensure that you cover all the sections required.

***NOTE: This Industry Guide consists of examples only and may not cover all the processes and activities within your production process. Consequently, other hazards, process steps must be analysed and covered by your business which has not been identified here in the Industry Guide.***

## Scope and Purpose

Refer to **Section 2.2** of the General Guidelines for the Development and Implementation of a Food Safety Program and the Food Safety Program Template

The scope is a statement outlining the products and processes covered by the Food Safety Program and the parts of the operations it covers (from start to the end point).

The purpose of the food safety program should also be defined. The purpose is a statement of the reason the program has been implemented.

An example of a scope and purpose below:

**Scope:**

*This Food Safety Program covers all activities, procedures, hygienic controls used in the receipt, processing, storage and transport of fresh cut fruits and vegetables.*

**Purpose:**

*The purpose of this Food Safety Program is to minimise the risk of hazards during the handling and processing of the food which is in the company's control, ensuring that the products meet regulatory requirements of the NSW Food Authority, Food Standards Code and the Food Act 2003.*

## Product Description and Intended Use

Refer to **Section 2.3** of the General Guidelines for the Development and Implementation of a Food Safety Program and the Food Safety Program Template

The product description and intended use should list every product you make and should include:

- Product name – name used on the product
- Ingredients used
- Form in which the product is sold (eg. fresh/frozen)
- Type of primary and secondary packaging (eg. primary: packaging in contact with product; secondary: outer pack)
- Preservation methods used (if any)
- Shelf life of product
- Storage and Transport conditions required for the product
- Labelling (if required – eg. allergen declaration)
- The intended use by the consumer (eg. ready-to-eat or requires further cooking)
- The consumers of the product (eg. General population or specific group).

### An example of a Product Description and Intended Use for Seed Sprouts – Mung Beans:

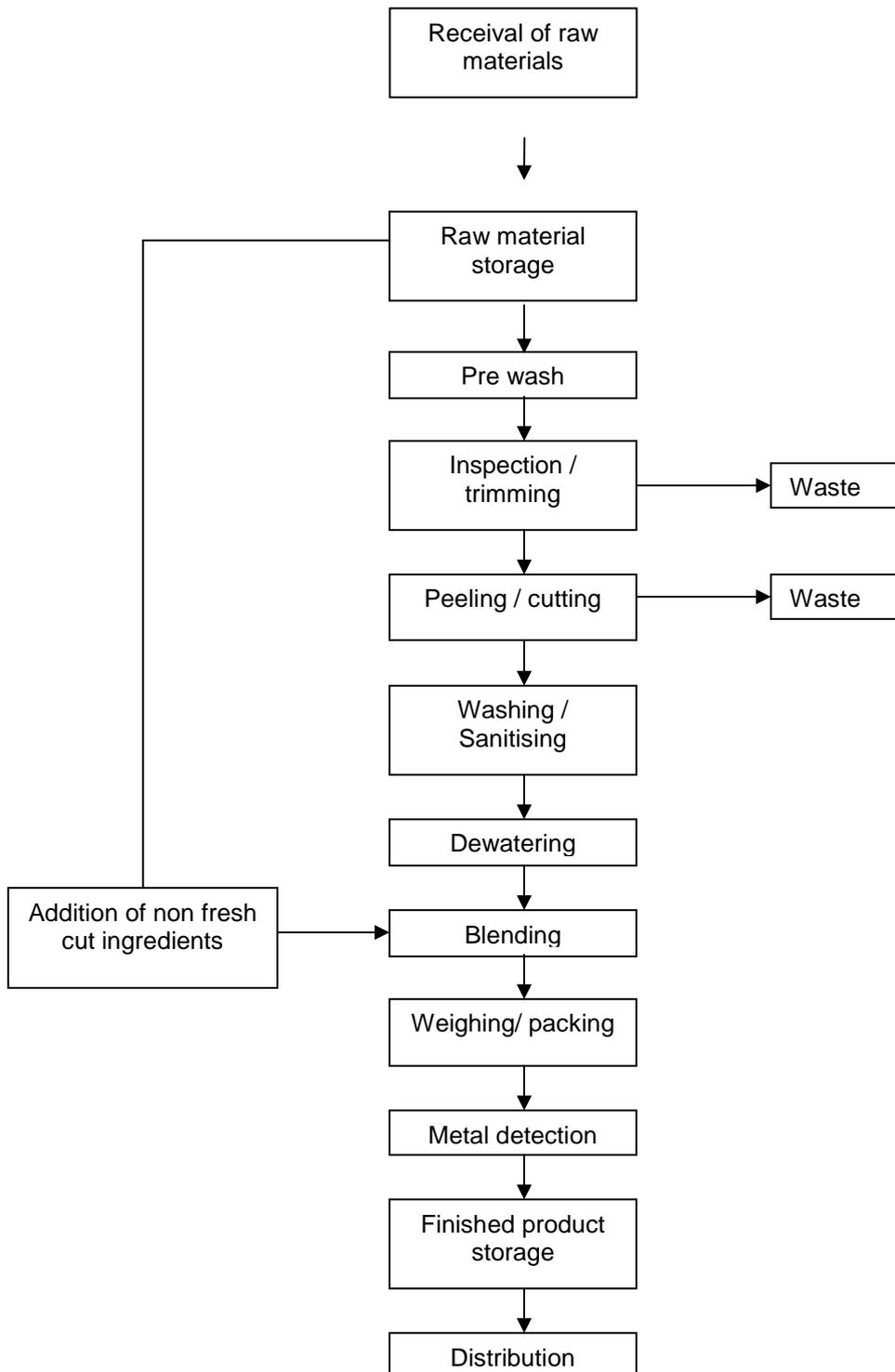
<b>Product Name</b>	Mung Beans
<b>Ingredients Used</b>	Mung Beans
<b>Form</b>	Fresh
<b>Packaging</b>	Pre-packed retail packs or bulk food service packs
<b>Preservation Methods</b>	Nil
<b>Shelf Life of Product</b>	14 days
<b>Storage and Transport</b>	Chilled product: 5°C or less
<b>Labelling</b>	In compliance with Part 1.2: Labelling of the Food Standards Code.
<b>Intended Use</b>	May or may not be cooked prior to consumption.
<b>Intended Consumer</b>	Intended for General consumption

# Process Flow Diagram

Refer to **Section 2.4** of the General Guidelines for the Development and Implementation of a Food Safety Program and the Food Safety Program Template

For each type of process you need to draw a process flow diagram showing the steps involved in producing your product. It should cover the scope of the program. For most businesses this will be from receipt of raw materials through to distribution of finished product.

## An example of a Flow Process Diagram for Fresh Cut Vegetables:



## Hazard Analysis

Refer to **Section 2.5** of the General Guidelines for the Development and Implementation of a Food Safety Program and the Food Safety Program Template

For each step mentioned in the process flow diagram you need to assess the hazards associated with that step. Some of the questions which need to be asked include:

- Can microbial, chemical or physical hazards contaminate the food at this step? – contamination can come from:
  - People handling the food
  - Equipment and utensils
  - Any added ingredients (eg. salt, water, processing chemicals)
- Can microorganisms grow at this step? – this could occur if the food is left unrefrigerated (eg. >5°C) for long periods.
- Can the raw material be already contaminated? – This should be asked of all raw materials being used in the production of plant products. It can be controlled by ensuring that you purchase all products from reputable companies and implement a Supplier Approval Program.

Listed in Tables 1-4 are some example hazards you may find applicable to your operation. **These are examples only and should be used for guidance only. There may be many more not identified here.**

- Table 1: Examples of Potential hazards for Seed Sprouts;
- Table 2: Examples of Potential hazards for Fresh Cut Fruits and Vegetables;
- Table 3: Examples of Potential hazards for Vegetables in Oil; and
- Table 4: Examples of Potential hazards for Unpasteurised Juice

## Identifying Critical Control Points

Refer to **Section 2.5** of the General Guidelines for the Development and Implementation of a Food Safety Program and the Food Safety Program Template

Next you will need to assess each hazard at each step and determine if a Critical Control Point (CCP) is required. Generally CCP's are required where control is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

***You now need to complete Table 2.5 of the Food Safety Template for each hazard identified. See Table 5 of this document for a worked example.***

The CCP Decision Tree can be found in the General Guidelines Figure 1 in Section 2.5.1 and should be used to assist with identifying a Critical Control Point.

In some instances, the CCP Decision Tree will identify that hazard steps are not CCP's, but are simply control points (eg. points where control is necessary but not critical to ensure food safety). As such, these hazards are managed through the use of Support Programs (SP).

***Refer to Table 6 and 7 of this document for worked examples. If a support program is identified a formal documented procedure will be required. Refer to Section 3: Support Programs of the General Guidelines for more information.***

Some typical CCP's of plant products include:

- Receiving temperatures of perishable raw materials
- Pasteurisation time & temperature requirements
- Sanitiser strength used in the washing of RTE vegetables
- Storage and transportation temperatures of finished product that is not shelf-stable.

**Table 1: Examples of potential hazards for Seed Sprouts**

<b>Process Step</b>	<b>What is the potential food safety problem?</b>
<b>Seed receipt and storage</b>	Microbiological contamination from seed. Residues of field chemicals on seed.
<b>Wash/Sanitise seed</b>	Microbiological survival is likely to occur if this process is not well designed or controlled. There is also the risk of chemical contamination.
<b>Soak seed</b>	Microbiological growth is likely to occur if this process is not well controlled. There is also a risk of chemical or physical contamination.
<b>Water</b>	Chemical contamination (Introduction of root inhibitors and growth hormones). Microbiological contamination and growth.
<b>Lay seed in growing bed</b>	Microbiological contamination and/or growth can occur at this stage, encouraged by the time in and temperature of the growing environment. There is also a risk of chemical or physical contamination.
<b>Harvest</b>	Microbiological contamination and/or growth can occur at this stage. There is also a risk of chemical or physical contamination.
<b>Wash</b>	Microbiological growth is likely to occur if this process is not well designed/controlled. There is also the risk of chemical contamination.
<b>Drain</b>	No food safety problems identified at this step.
<b>Packaging materials</b>	Microbiological or physical contaminants can be brought in on packaging materials.
<b>Packing</b>	Microbial contamination from product handling, chemical contamination from cleaning chemicals or physical contamination from equipment and staff.
<b>Metal detector</b>	Physical (metal) contamination, from the production or processing environment if the metal detector is not functioning adequately.
<b>Finished product storage</b>	Growth of potentially harmful organisms if the finished product is not under temperature control after packaging.
<b>Distribution</b>	Growth of potentially harmful organisms if the product is not chilled during distribution.

**Table 2: Examples of potential hazards for Fresh Cut Fruits and Vegetables**

<b>Process Step</b>	<b>What is the potential food safety problem?</b>
<b>Receival of all food and packaging materials</b>	Microbiological contamination can be brought in on raw or packaging materials. Residues of field chemicals on the fruit or vegetable.
<b>Raw product storage</b>	Microbiological or foreign object contamination can result from an unclean storage environment. Opportunity for continued growth of existing microbiological contaminants.
<b>Prewash</b>	Growth of Microbiological contaminants during initial wash step. There is also the risk of chemical contamination, from the sanitiser.
<b>Inspection/ trimming</b>	Microbiological contamination and/or growth can occur with poor process controls. There is also a risk of chemical or physical contamination at this process step.
<b>Peeling/ cutting</b>	Microbiological contamination may occur if this process is not well controlled. Risk of chemical or physical contamination at this process step.
<b>Washing/ sanitising</b>	Microbiological growth is likely to occur if this process is not well designed/controlled. There is also the risk of chemical contamination.
<b>Dewatering</b>	Microbiological contamination and/or growth can occur at this stage. There is also a risk of chemical or physical contamination.
<b>Storage/ Addition of ingredients</b>	Ingredients may include pre-prepared fresh cut products or other loose/packageed food products. Microbiological or physical contamination can occur at this step.
<b>Blending</b>	Microbiological growth is likely to occur if the product is not chilled to the correct temperature. There may also be a risk of microbiological contamination
<b>Weighing/ packing</b>	Microbial contamination from product handling, chemical contamination from cleaning chemicals or physical contamination from equipment and staff
<b>Metal detection</b>	Physical (metal) contamination, from the production or processing environment if the metal detector is not functioning adequately.
<b>Finished product storage</b>	Growth of potentially harmful organisms if, the finished product is not stored under temperature control after packaging.
<b>Distribution</b>	Growth of potentially harmful organisms if the product is not chilled during distribution.

**Table 3: Examples of potential hazards for Vegetables in Oil**

<b>Process Step</b>	<b>What is the potential food safety problem?</b>
<b>Receival of all food packaging materials</b>	Microbiological contamination can be brought in on raw or packaging materials. Residues of field chemicals on the fruit or vegetable.
<b>Raw product storage</b>	Microbiological or physical contamination can result from an unclean storage environment. There may also be the opportunity for continued growth of existing microbiological contaminants.
<b>Wash/ sanitise</b>	Microbiological growth is likely to occur if this process is not well controlled. There is also a risk of chemical contamination.
<b>Prepare/ process (peel, dry, cook)</b>	Microbiological growth is likely to occur if this process is not well controlled. Microbiological growth can be controlled if the water activity of the product is controlled through drying. There is also a risk of chemical or physical contamination at this process step.
<b>Storage/ addition of ingredients</b>	Ingredients may include herbs, spices, or other dried vegetables. Microbiological or physical contamination can occur when ingredients are mixed, or batched, ready for addition.
<b>Acidify</b>	This step is designed to reduce or eliminate the likelihood of <i>Clostridium botulinum</i> survival or growth. Correct and uniform acidification is necessary to ensure this. ph must be 4.6 or less.
<b>Heat/ cook in oil</b>	Microbiological growth is likely to occur if this process is not well controlled.
<b>Addition of Oil</b>	Impure oil may cause microbiological or chemical contamination.
<b>Hot/cold fill, immerse in oil</b>	The filling process can expose the product to microbiological growth (if the product is not filled correctly or fully immersed), chemical contamination (cleaning chemicals); or physical contamination (open bottles).
<b>Pasteurise</b>	Depending on the conditions of pasteurisation, this may not eliminate all microorganisms. Spores and toxins may not be destroyed also. This is an optional step.
<b>Ambient finished product storage</b>	The product should only be stored at ambient temperature if previously pasteurised or the water activity of the product is reduced to a level not supporting the growth of pathogens. Duration of storage must be sufficient to ensure pathogen die off. Microbiological growth may still occur if the product is incorrectly sealed, or incorrectly pasteurised.
<b>Ambient distribution</b>	The product should only be stored at ambient temperature if previously pasteurised or the water activity is reduced to a level not supporting the growth of pathogens. Microbiological growth may still occur if the product is incorrectly sealed, or incorrectly pasteurised.
<b>Chilled finished product storage</b>	After packaging, unpasteurised product with water activity high enough to support growth of pathogens must be stored under temperature control to minimise the growth of potentially harmful organisms.
<b>Chilled distribution</b>	Unpasteurised product with water activity high enough to support growth of pathogens must also be chilled during distribution to minimise the growth of potentially harmful organisms.

**Table 4: Examples of potential hazards for unpasteurised juice**

<b>Process Step</b>	<b>What is the potential food safety problem?</b>
<b>Receival of all food and packaging materials</b>	Microbiological contamination can be brought in on raw or packaging materials. Residues of field chemicals on the fruit or vegetable.
<b>Raw product storage</b>	Microbiological or physical contamination can result from an unclean storage environment. There may also be the opportunity for continued growth of existing microbiological contaminants.
<b>Inspection Conveyor</b>	Microbiological contamination from product handling, chemical contamination from cleaning chemicals, or foreign objects from open surfaces or staff.
<b>Wash/ scrub/ sanitise</b>	Microbiological growth is likely to occur if this process is not well controlled. There is also a risk of chemical or physical contamination.
<b>Extractor/ juicer</b>	Microbiological, chemical, or foreign object contamination can result from an unclean and/or poorly maintained extractor.
<b>Storage tank/ Chiller</b>	Microbiological growth is likely to occur if the juice is not chilled to the correct temperature. There is also a risk of chemical or physical contamination.
<b>Storage and addition of ingredients</b>	Ingredients may include pulp or puree of other fruits. Microbiological or physical contamination can occur when ingredients are mixed, or batched, ready for addition to juice.
<b>Batching Tanks</b>	Microbiological, chemical, or physical contamination can occur when ingredients are batched, ready for addition to juice.
<b>In-line screen or filter</b>	The in-line screen is critical to entrap any physical contaminant (eg metal, wood). Foreign objects will not be effectively removed if this is not functioning adequately. There is also a potential for microbiological or chemical contamination.
<b>Fill</b>	The filling process can expose the juice to microbiological contamination (dirty filler), chemical contamination (cleaning chemicals); or physical contamination (open bottles).
<b>Finished product storage</b>	Growth of potentially harmful organisms, if the finished product is not stored under temperature control after packaging.
<b>Distribution</b>	Growth of potentially harmful organisms if the product is not chilled during distribution.

An example of a Hazard Analysis is given below using the CCP decision tree to identify Critical Control Points and Supporting Programs within a process.

***Refer to Figure 1 in Section 2.5.1: General Guidelines for the Development and Implementation of a Food Safety Program and work through the questions of the CCP Decision Tree.***

**Table 5: Hazard Analysis: Outcome – Critical Control Point**

Process Step	Hazard	Control Measure	Q1	Q2	Q3	Q4	Q5	CCP/SP
Finished product storage	Microbiological contamination	Storage temperature	Y	Y	Y			CCP

**Table 6: Hazard Analysis: Outcome – Support Program**

Process Step	Hazard	Control Measure	Q1	Q2	Q3	Q4	Q5	CCP/SP
Receival of Raw Materials	Microbiological contamination	Approved Supplier Program	Y	Y	N	Y	Y	SP

**Table 7: Hazard Analysis: Outcome – Support Program**

Process Step	Hazard	Control Measure	Q1	Q2	Q3	Q4	Q5	CCP/SP
Wash/Sanitise equipment	Microbiological and Physical contamination	Cleaning and Sanitation Program	Y	Y	Y			SP

From Table 7: Hazard Analysis: Outcome – Support Program, using the CCP decision tree, this step has been identified as a Critical Control Point (CCP). BUT, since the hazard will be effectively controlled if an effective implemented Support Program has been put in place (Cleaning and Sanitation Program), this step is not identified as a CCP, but is designated as being controlled by a Support Program.

## Hazard Audit Table

Refer to **Section 2.6** of the General Guidelines for the Development and Implementation of a Food Safety Program and the Food Safety Program Template

The Hazard Audit Table is used to document how you will control your Critical Control Points. For each CCP you will need to document:

- What is the critical limit;
- Monitoring of CCP's;
  - What you need to monitor;
  - How will you monitor the CCP;
  - When (frequency) you will monitor the CCP; and
  - Who will monitor the CCP;
- What Corrective Action to take if the critical limit is exceeded;
- How you will record your monitoring results – Note: all monitoring results of CCP's must be recorded.

Process Step	Hazard	Control Measure	Monitoring	Critical Limits	Corrective Actions	Records
Raw material storage	Microbiological growth	Storage temperature	<b>WHAT:</b> Storage temperature <b>HOW:</b> Temperature gauge <b>WHEN:</b> Daily <b>WHO:</b> Manager or delegated employee	$\leq 5^{\circ}\text{C}$	If temperature rises above $5^{\circ}\text{C}$ call refrigeration service. If above $7^{\circ}\text{C}$ for more than 2 hours arrange alternative storage or discard product.	Temperature records – Coolroom Monitoring Form

Process Step	Hazard	Control Measure	Monitoring	Critical Limits	Corrective Actions	Records
Product Wash water used for sanitising	Microbiological contamination	Use of sanitiser in wash water	<b>WHAT:</b> Level of sanitiser in wash water <b>HOW:</b> Residual sanitiser testing <b>WHEN:</b> 3 times daily <b>WHO:</b> Manager or delegated employee	Varies depending upon sanitiser	If sanitiser level is below the effective level, follow manufacturers recommended method for topping up the level of sanitiser.	Production records - Sanitiser Monitoring Form

Process Step	Hazard	Control Measure	Monitoring	Critical Limits	Corrective Actions	Records
Acidify	Microbiological contamination	pH level of the product	<b>WHAT:</b> Acidity of product <b>HOW:</b> pH meter/indicator <b>WHEN:</b> Every batch <b>WHO:</b> Manager or delegated employee	$\text{pH} \leq 4.6$	If pH limit not met, either rework or discard	Production records – pH Monitoring Forms

Refer to **Section 2.6.1** of the General Guidelines for the Development and Implementation of a Food Safety Program and the Food Safety Program Template

## Critical Limits

All critical limits must be based on either:

- Information from Regulatory Standards (eg. Food Standards Code);
- Published scientific information;
- Validated results from credible scientific programs; or
- Supplier's recommendations.

Any information supporting your decision to use a critical limit must be kept with your food safety program and manual to assist the auditor in assessing this information.

## Monitoring of Critical Limits

For each of the CCPs you will need to define:

- What you are monitoring? (What?)
- How you are monitoring it? (How?)
- When or How often you are monitoring it? (When?)
- Who is responsible for the monitoring? (Who?)

## Corrective Action

For each CCP you will need to state, what you would do if any of your CCPs are not met. This would include:

- What you would do with any product while the CCP was not met;
- What you would do to bring the step back into control

Corrective Actions must also be recorded.

## Records

Here you should state what records you keep of your daily monitoring and your monitoring of corrective actions.

# Support Programs

This section provides you with some information on supporting programs which is relevant to the five high priority plant product industries.

## Maintenance Program

Refer to **Section 3.1** of the General Guidelines for the Development and Implementation of a Food Safety Program

Premises, Equipment, and Transport vehicles should be designed, constructed and maintained in a way that will minimise the chance of food becoming contaminated. Refer to the "Code of Practice for the Transport of Primary Produce and Seafood".

Food Transport vehicles must comply with the "Code of Practice for the Transport of Primary Produce and Seafood" developed by the NSW Food Authority.

## Supplier Approval Program

Refer to **Section 3.2** of the General Guidelines for the Development and Implementation of a Food Safety Program

Refer to **Section 3.9** of the General Guidelines for the Development and Implementation of a Food Safety Program

All supplies (eg raw materials, packaging) used in plant products businesses must be sourced from an approved supplier.

All equipment used to conduct food safety system checks must be calibrated to ensure accuracy and precision of the readings taken. Consideration is required in particular for the following in plant product industries:

- thermometers;
- pH meters;
- Water activity meters;
- Pasteurisation flow meters

## **Validation and Verification**

Microbiological testing is required to verify that practices and procedures in place are effective and are achieving safe food.

See Section 4 *Sampling and Analyses* Table 3 of Plant Products Manual for the minimum testing requirements required for the five high priority plant product industries.

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