Ministry for Primary Industries
Manatū Ahu Matua

Guidance Document

Egg Pulping for RMPs or FCPs

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Title

Guidance Document: Egg Pulping for RMPs or FCPs

About this document

The Ministry for Primary Industries (MPI) has developed this guidance document to help businesses to develop their Risk Management Programme (RMP) or Food Control Plan (FCP).

Document history

Version Date	Section Changed	Change(s) Description
NA	NA	New document

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1 Purpose

This document has been developed by the Ministry for Primary Industries (MPI) to help operators understand the requirements of egg pulping for a Risk Management Programme (RMP) under the Animal Products Act 1999 (APA) or for a Food Control Plan (FCP) under the Food Act 2014.

2 Background

This generic guide can be used to help operators establish and maintain procedures to meet the requirements under the APA and the Food Act 2014. It provides information on how to meet regulatory requirements and procedures for producing fresh and pasteurised egg pulp.

Operators who break eggs and make egg pulp must operate under a registered RMP under the APA or a FCP under the Food Act 2014. Exporters requiring an official assurance must operate a registered RMP.

Operators are expected to meet all other requirements of an RMP or FCP not covered by this guidance e.g. water, packaging, labelling, pest control, etc. Operators must also control their food safety hazards and be able to trace their individual eggs and the egg pulp. Operators are responsible to comply with the requirements and to demonstrate compliance. Your operation may differ from this generic guide so you may need to adapt your documentation accordingly.

Specifically for RMPs

Egg pulping is classed as further processing (a processing step beyond grading and packing) for human consumption under the APA. Pulping, as a process, has not been included in the Risk Management Programme (RMP) Template for Harvesting, Candling or Packing Eggs. If an operator wishes to add pulping to this template, the operator will need to have their pulping procedures evaluated.

This document will assist operators to reduce the evaluation step when registering their RMP by providing a basis to develop their own procedures. Operators should also refer to the Risk Management Programme Manual (RMP Manual) for guidance on developing and registering their RMP.

Template forms and procedures that can be used are found in the RMP Operator Resource Toolkit. These are referenced throughout this document as appropriate.

Specifically for FCPs

Manufacturers of egg pulp need to develop a custom FCP and register it with MPI to meet the requirements of the Food Act 2014. Guidance on how to achieve a registered custom FCP can be found on the MPI website or by searching on “custom food control plan”.

3 How to interpret this guide

Regulatory requirements and guidance information are differentiated in this document.

A regulatory requirement is identified by having a citation at the end of the relevant sentence or clause in [square brackets] and the specific legislation from which the requirement is derived. The word 'must' is often used to indicate its mandatory status. For example, "all inputs, including raw materials, ingredients, additives and packaging must be handled, processed and stored in a manner that minimises any potential contamination or deterioration [AP Reg 9].

In many cases the requirements have been paraphrased or reworded using animal product examples for context. Operators should refer to the cited legislation for the actual wording of the legal requirement.

Guidance information, indicated by 'should', provides explanatory information, examples or options for achieving a particular outcome or requirement. Operators may use alternative methods or measure to those set out in the guide, provided they do not in any way compromise good operating practices and the achievement of the requirement.

The abbreviations used for legislation citied in this document are:

APA	Animal Products Act 1999
AP Reg	Animal Product Regulations 2000
HC Spec	Animal Products Notice: Specifications for Products Intended for Human Consumption 2019
FSC	Australia and New Zealand Food Standards Code

4 Definitions

broken egg means an egg with breaks in both the shell and the membrane, resulting in the exposure of its contents [HC Spec Definitions]

cracked egg means an egg that has a damaged shell but has an intact membrane [HC Spec Definitions]

egg pulp means the contents of an egg, which may contain sugar or salt [FSC Chapter 4]

processing grade egg means an egg that can be used to produce egg product [HC Spec Definitions]

validation means the process of collecting evidence to show that your RMP or FCP is capable of consistently producing the desired outcome through the achievement of any regulatory limit or operator defined limit [RMP Spec Definitions]

5 Egg pulping regulatory requirements

Regardless of the regulatory regime, egg pulp must be pasteurised in order to sell the pulp through retail. Fresh egg pulp can only be sold onto another manufacturer to be further heat treated or processed [HC Spec 19.6(2)].

While there are no specific requirements for processing under the Food Act, sections 5.1 and 5.2 below for an RMP represent practices that would meet requirements for a FCP to manage hazards. Food Standard Code requirements listed in section 5.3 also need to be met by an operator under the Food Act 2014.

5.1 Regulatory requirements for processing

(1) An operator must ensure that processing grade eggs:

a) are assessed to ensure that they are not defective, including not leaking, excessively dirty, rotten or mouldy; and
b) show no evidence of embryo development, or significant blood clots; and
c) are not incubated; and
d) are handled and stored under conditions that minimise condensation on the surface of eggs; and
e) that are cracked or broken are transported and held at 6°C or lower prior to processing, or held at any other combination of times and temperatures that will ensure the eggs remain suitable for processing [HC Spec 19.5].

5.2 Cleaning of table eggs and processing grade eggs

(1) An operator must ensure that if any table egg or processing grade egg is cleaned, the cleaning process is not a source of contamination, and:

a) potable water and an approved egg-washing chemical are used, and the wash water is not a source of contamination; and
b) the egg is not soaked in the wash water; and
c) the egg is dried promptly after washing; and
d) the egg is not cracked or broken prior to washing; and
e) the washing equipment is cleaned and sanitised at least daily or more frequently if necessary to ensure that it is not a source of contamination.

(2) An operator must ensure that if any table egg or processing grade egg is:

a) wet wiped and, clean, sanitised cloths, potable water and an approved egg-washing chemical is used; and
b) dry buffed, clean, sanitised, dry cloths or another material that is not a source of contamination is used; and
c) washed prior to breaking for processing, only dry eggs are broken for processing [HC Spec 19.6].

5.3 Egg product

(1) Egg product must be heat treated or otherwise processed so that it meets the microbiological criteria specified in Standard 1.6.1 of the Australia New Zealand Food Standards Code (FSC), but does not need to be so treated if the egg product is to be used in another product and that product is heat treated or otherwise processed so that it meets the microbiological criteria for processed egg product specified in Standard 1.6.1 of the FSC.

(2) Egg product that has not been heat treated or otherwise processed to meet the microbiological criteria specified in Standard 1.6.1 of the FSC must not be sold by way of retail.

(3) Egg product must be processed without unnecessary delay and in a manner that minimises the transfer, proliferation, and redistribution of contaminants.

(4) Egg product that is preserved by refrigeration must be chilled or frozen without unnecessary delay in a manner that minimises any potential microbial proliferation and contamination of the egg product [HC Spec 19.6(2)c)].

6 HACCP Application

6.1 HACCP application for egg pulping

6.1.1 Product description of pasteurised egg pulp

Product	**Pasteurised egg pulp**
Description	Made from table eggs or processing grade eggs (can be cracked or broken eggs)
Intended consumer	Human consumption
Intended use of product that leaves RMP	Further processing Bakery trade
Regulatory limits	FSC 1.6.1 Schedule 27-4 *Salmonella* n = 5; c = 0; m = not detected in 25 g
Shelf life	7 days chilled after pasteurised pulping[1] Indefinitely if frozen
Labelling	Guidance Document: Understanding the Labelling Requirements for Eggs and Egg Products
Storage and transport	Cooler than 6°C if chilled or colder than -14°C if frozen

6.1.2 Product description of raw egg pulp

Product	**Raw egg pulp**
Description	Made from table eggs or processing grade eggs (can be cracked eggs)
Intended consumer	Human consumption
Intended use of product that leaves RMP	Further manufacturing or pasteurisation to a product that is heat treated or otherwise processed so that the microbiological criteria for pasteurised egg pulp is meet.
Regulatory limits	Not to be sold by the way of retail [HC Spec 19.6(2)a)]
Shelf life from date of lay	Operator to determine and validate the shelf life of raw egg pulp
Labelling	Guidance Document: Understanding the Labelling Requirements for Eggs and Egg Products
Storage and transport	Chilled at 6°C or cooler

[1] Alternative shelf life will need to be validated by the operator. MPI has developed a guide on How to Determine the Shelf Life of Food.

6.1.3 Guidance Table 1: Hazard identification

Inputs	Description/specification	Biological hazard (B)	Chemical hazard (C)	Physical hazard (P)
Eggs	Made from table eggs, cracked or broken eggs (no leaking eggs)	*Salmonella* and spoilage organisms	None	Egg shell
Packaging	Suitable for use as a food contact material as specified in HC Spec 7.2 or Food Regulations 2015, R.25	None	None	None
Sugar or salt	Food grade, accompanied by supplier information on suitability	Depending on food product	Depending on food product	Depending on food product

6.1.4 Process descriptions and hazard analyses

(1) The process flow diagrams and hazard analysis table for pasteurised egg pulping are generic, noting:

a) the process flow diagrams show the key steps based on a generic process; and
b) process steps and their sequence may differ for each operation.

(2) Operators who are processing raw egg pulp can omit processing step 4 pasteurisation process in Guidance Table 2: Hazard Identification and CCP Determination for Egg Pulping.

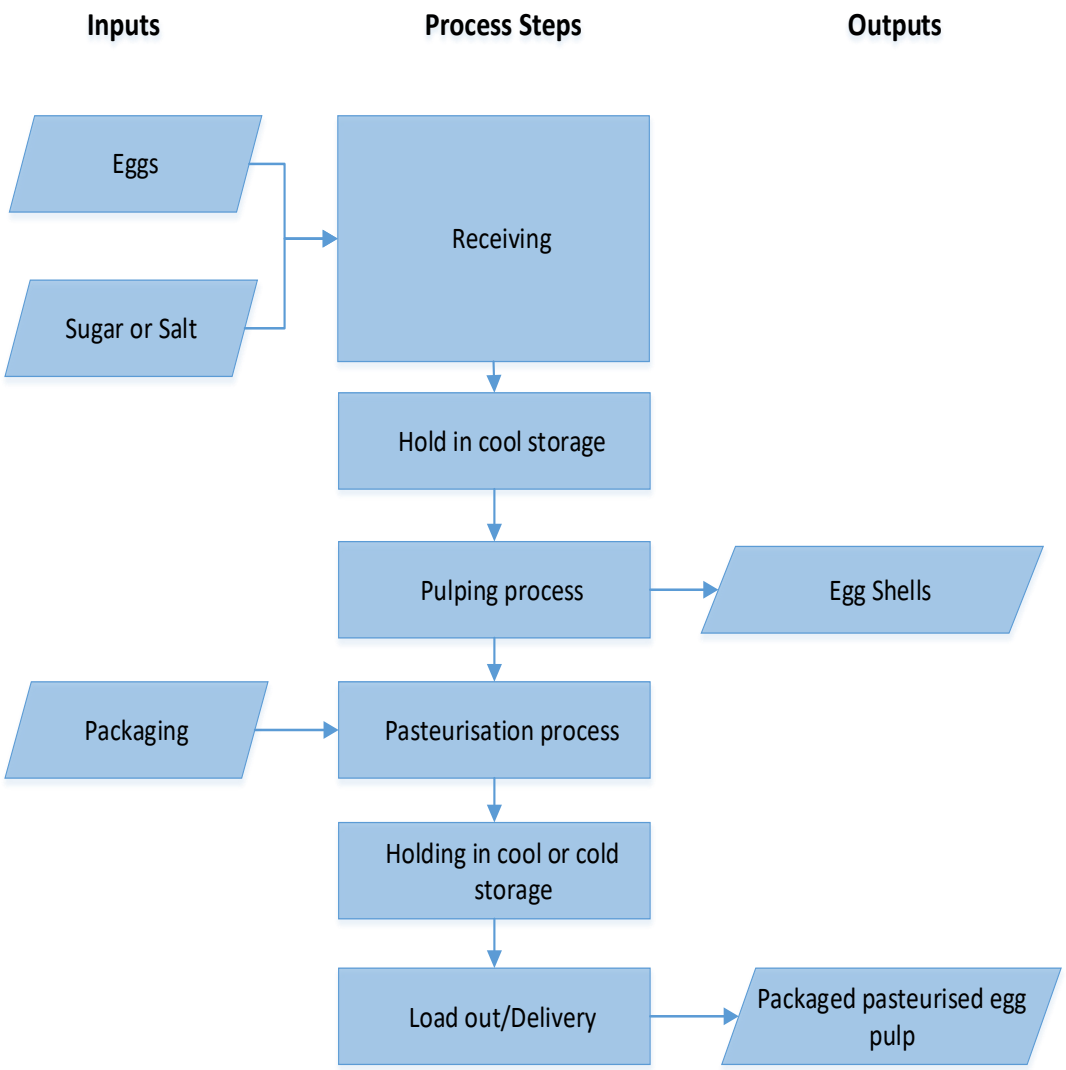
(3) Operators must ensure that their process is accurately reflected in their RMP [RMP Spec 11]), or FCP [Food Act 2014, S.42 (e) - (j)]. The operator may need to make some changes in the HACCP application to ensure that it accurately reflects the products and processes covered by their RMP.

(4) An operator should review their HAACP at least annually as part of operator verification.

6.1.5 Process flow diagram

(1) The process flow diagram for pasteurised egg pulp can be adapted for raw egg pulp if step 4 pasteurisation process is omitted.

Figure 1: Generic process flow diagram for the pasteurised egg pulp processing



6.1.6 Process step hazard analysis and CCP determination

Guidance Table 2: Hazard analysis and CCP determination for pasteurised egg pulping

Process step	**Inputs**	**Hazard reasonably likely to occur on or in the product at this step**	**Justification**	**Q1. Is there a control measure(s) for the hazard at this step?** If yes, identify the control measure and then answer Q2. If no, consider hazard at next step.	**Q2. Is the control measure at this step essential to food safety as defined by a regulatory limit?** If yes, this step is a CCP. If no, this step is not a CCP.	**CCP no.**
1. Receiving	Eggs	B – Bacterial pathogens	*Salmonella* may occur	Yes – receiving eggs at 6°C	No	
2. Holding in cool storage	Eggs	B – Bacterial pathogens	Hazard carried over from previous step	Yes – keeping eggs at 6°C or cooler and identified by dedicated trolleys for pulping, hygienic practices, maintenance and calibration of equipment	No	
3. Pulping process[2]	Pulped eggs	B – Bacterial pathogens	Hazard carried over from previous step	No	No	
		P – Physical hazard	Shell fragments can occur	Yes – centrifugation and filtering to remove any shell fragments		
4. Pasteurisation process	Pasteurised egg pulp	B – Bacterial pathogens	Hazard carried over from previous step	Yes – monitoring time / temperature regime of pasteurisation process, hygienic practices, maintenance and calibration of equipment	Yes	1
5. Holding in cool or cold storage	Pasteurised egg pulp	B – Bacterial pathogens	Hazard carried over from previous step	Yes – monitoring time / temperature regime of pasteurisation process, hygienic	Yes	2

[2] Packaging of egg pulp is not included in the hazard analysis as there are no hazards expected.

Guidance Table 2: Hazard analysis and CCP determination for pasteurised egg pulping

Process step	**Inputs**	**Hazard reasonably likely to occur on or in the product at this step**	**Justification**	**Q1. Is there a control measure(s) for the hazard at this step?** If yes, identify the control measure and then answer Q2. If no, consider hazard at next step.	**Q2. Is the control measure at this step essential to food safety as defined by a regulatory limit?** If yes, this step is a CCP. If no, this step is not a CCP.	**CCP no.**
				practices, maintenance and calibration of equipment		
6. Load out / delivery	Pasteurised egg pulp	B – Bacterial pathogens	Hazard carried over from previous step	Yes – hygienic practices; maintenance and calibration of equipment	No	

7 Procedure for pulping eggs

7.1 Receiving and holding eggs for pulping

(1) Only acceptable eggs are used for egg pulping, including:

a) table eggs; and
b) processing grade eggs; and
c) cracked and broken eggs that are not leaking.

(2) Eggs are stored in trays on a dedicated trolley(s).

(3) Cracked and broken eggs are stored at 6°C or cooler before pulping.

7.2 Pulping pre-operations

(1) Pulping area, equipment and machinery are cleaned and sanitised prior to pulping.

(2) Pulping equipment and machinery are checked for function. Faults are identified and repaired or reported in accordance with procedures.

(3) Routine servicing and maintenance of pulping equipment and machinery are carried out in accordance with manufacturer's instructions.

(4) Temperature measuring devices must be designed, provided, operated and maintained by FCP operators to enable food to be safe [Food Regulations 2015], and be calibrated by RMP operators against a reference standard [HC Spec 6.2]. Refer to M. Calibration Methods and Frequencies in the RMP Operator Resource Toolkit for calibration procedures and frequencies.

(5) Any equipment that is faulty or inaccurate is not used. It is repaired and recalibrated or replaced and calibrated as soon as possible.

(6) Personnel are wearing protective clothing and have followed other good hygiene practices.

(7) Packaging is new and visually checked for quality before use.

7.3 Pulping process

(1) Eggs are manually/mechanically broken and pulped hygienically. The yolk and albumen can be separated if required.

(2) No shell drainings are included in the egg pulp.

(3) Shell fragments are removed by centrifugation and filtration.

(4) Raw egg pulp (unpasteurised) must be stored in a separate area to pasteurised pulp to prevent the risk of cross contamination or misidentification.

7.4 Pasteurisation process

(1) Raw egg pulp to be pasteurised must be processed without unnecessary delay [HC Spec 19.6(2)b)].

(2) Raw egg pulp is pasteurised (or equivalent process) as a batch. The process must be validated by the operator [RMP Spec 18 and Food Regulations 2015 R.7].

Guidance on validation

What is Validation? is available on the MPI website (search on "validation") for a guide on how to undertake validation studies. There are also additional guidance on validation in section 5 of the RMP Manual.

An equivalent process is a process that ensures the egg pulp is rapidly heated and held using a temperature and holding time combination with the same process performance as pasteurisation.

(3) The following parameters are published as No. FSC 65 (Amendment No. 123, 2011):

Guidance Table 3: Pasteurisation parameters for pasteurised pulped eggs

Egg product	Retention temperature to be no less than (°C)	Retention time to be no less than (minutes)	Maximum temperature to be immediately rapidly cooled to (°C)
Egg pulp (without any sugar or salt)	64	2.5	≤ 7
Liquid egg yolk	60	3.5	≤ 7
Liquid egg white	55	9.5	≤ 7

(4) Alternative parameters to those listed in Guidance Table 3: Pasteurisation parameter for pasteurised pulped eggs may be used as long as the process is validated as equivalent.

(5) Egg product is not contaminated from services (including coolants), heat exchange media or cleaning/sanitising solutions.

(6) Following pasteurisation all pulped material is immediately cooled to a temperature below 7°C.

7.5 Sampling

(1) Sample of pasteurised pulped eggs for microbiological testing is collected, recorded, labelled and dispatched.

(2) *Salmonella* must not be detected in a sample of 25 g. Refer 6.1.1 Product Description of Pasteurised Egg Pulp.

7.6 Labelling

(1) Product is labelled accurately, including date-code and any instructions for storage and use if these are needed to keep the product safe.

7.7 Cleaning

(1) The pulping area, equipment and machinery are cleaned and/or sanitised:

a) as necessary; and
b) after repairs and maintenance; and
c) at least daily.

(2) Spills are cleaned up immediately.

(3) Cleaning equipment is cleaned and sanitised as necessary or otherwise daily.

(4) All cleaning cloths used on egg contact areas are used once before either being discarded or cleaned and sanitised before being used again.

(5) Scouring pads when not in use are kept dry or placed in a sanitiser solution.

(6) After being cleaned and/or sanitised, egg contact surfaces are visually inspected for egg residue and re-cleaned if necessary.

(7) Cleaning solutions and sanitisers are used in accordance with manufacturer's instructions and conditions of approval including concentration and contact time. Refer to H. Chemical Register in the RMP Operator Resource Toolkit for approved maintenance compounds for cleaning and sanitation.

(8) High pressure cleaning is avoided where possible and never used during processing. This is to prevent aerosols from contacting eggs, egg contact surfaces, workers or egg packaging materials.

(9) Hose nozzles are kept off the floor at all times to prevent cross contamination, back-siphonage and contamination of hands and food surfaces.

7.8 Cool or cold storage

(1) Any defined temperature is reached as quickly as necessary to ensure the eggs pulp remains fit for purpose and does not deteriorate.

(2) Temperature measuring devices are calibrated and located appropriately to measure the internal temperature of a room at the warmest point.

7.9 Monitoring

(1) The responsible person must carry out regular checks for compliance with documented procedures [RMP Spec 15 (1)(c) and Food Act S.50 (a)-(e)].

7.10 Records

(1) Records are kept of each batch for the time/temperature regime and microbiological results achieved.

(2) Additional records include:

a) incoming checks (e.g. delivery temperature, packaging integrity); and
b) storage and processing temperature recordings; and
c) calibration records; and
d) label checklists; and
e) copies of labels; and
f) cleaning and maintenance records; and
g) validation reports.