Ministry for Primary Industries
Manatū Ahu Matua

Risk Management Proposal

Processed Egg Products

EGGPRODS.GEN

New Zealand Government

Growing and Protecting New Zealand

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1 Purpose

(1) The purpose of this document is to:

a) Summarise the biosecurity risks associated with the importation of egg products.
b) Show how options for the management of biosecurity risk organisms have been assessed.
c) Provide recommendations for the biosecurity import requirements for the generic *Import Health Standard (IHS): Egg Products, EGGPRODS.GEN.* [Formerly POUEGGIC.ALL]

(2) The *IHS: Egg Products* has been developed under Section 24A of the Biosecurity Act 1993.

(3) For a detailed analysis of risks and management options, refer to:

a) *Import Risk Analysis (IRA): Egg Powders from All Countries* October 2008 (IRA 2008) www.biosecurity.govt.nz/files/regs/imports/risk/egg-powder-ra.pdf
b) *Rapid risk assessment (RRA): Miscellaneous egg products for human consumption* November 2014 (RRA Nov 2014)
c) *RRA- Pasteurised Eggs: Addendum to 2008 Import Risk Analysis* (RRA 2015)

2 Background

(1) Import of processed egg products is currently allowed under the following import health standards:

a) IHS for the Importation of Products Containing Pasteurised Egg into New Zealand from Australia, 24 February 1999 (POUEGGIC.AUS)
b) IHS for Shelf-Stable Spray Dried Egg Powders or Egg Crystals from Specified Countries, 1 September 2009 (POUEGGIC.SPE)
c) IHS for the Importation of Whole Egg Powder for Use as a Bovine Animal Remedy into New Zealand from Japan, 27 July 1998 (POUEGGIC.JAP)
d) IHS for Frozen Pasteurised Egg White Products from Australia, 24 February 1999 (PASALBIC.AUS)
e) IHS for the Importation into New Zealand of Spray-Dried Egg Products for Further Processing into Animal Food from the United States, 28 January 2000 (FODEGGIC.USA)
f) IHS for Specified Foods for Human Consumption Containing Animal Products, 17 March 2015 (EDIPROIC.ALL)

(2) The *IHS: Egg Products* consolidates the requirements in these IHSs and aligns the measures to be consistent with the generic IRA 2008. There have been no changes to the IRA 2008 for this update. Addendum rapid risk assessments were conducted in 2012 to assess liquid pasteurised products and in 2014 to assess miscellaneous products containing egg

(3) With the IHS, a guidance document will be issued by MPI. A model veterinary certificate and model manufacturer's declaration is also located in the guidance document and any new bilaterally-agreed veterinary certificates for trade in egg products will be added as they become available.

3 Objective

(1) The objective is to manage all biosecurity risks posed by the import of egg products, consistent with New Zealand's domestic legislations and international obligations.

4 Commodity Definition

(1) The commodities included under this IHS are as follows:

a) Processed egg products, derived from chicken (*Gallus gallus*) eggs limited to:

i) Shelf-stable spray-dried egg powders or crystals.
ii) Pasteurised liquid whole egg or egg yolk (includes frozen and chilled).
iii) Pasteurised liquid egg white (includes frozen or chilled).

iv) Products containing 5% to 100% egg (includes products composed entirely of chicken egg, non-shelf stable frozen products such as omelettes, cooked fertilised egg and boiled egg).

b) Specified commercially manufactured and packaged products containing egg:

i) Alcoholic drinks containing chicken egg yolk that contain at least 14% alcohol.
ii) Alkalised duck or chicken eggs ("Century or 100 year old eggs").
iii) Baked confectionery, bread, biscuits, cakes, crackers and puddings containing egg ingredients.
iv) Cake, pudding, sauce or baking mixtures containing egg ingredients.
v) Dietary protein supplements containing chicken egg.
vi) Pasta and noodles containing egg.
vii) Mayonnaise and salad dressing containing egg ingredients containing no more than 20% egg ingredients.
viii) Mooncakes.
ix) Non-alcoholic drinks containing greater than 5% pasteurised chicken egg yolk.
x) Retorted or equivalent thermally processed products containing egg (includes cooked salted duck eggs).
xi) Products containing no more than 5% egg ingredients
xii) Products containing more than 5% egg and less than 21% egg ingredients

(2) The commodities included in the IHS were defined in the relevant risk analyses or assessments and are described below. Note these descriptions describe the minimum eligibility criteria for the products included under the new IHS.

(3) The IRA 2008 assessed the biosecurity risks associated with the commodity defined as shelf-stable spray-dried egg powders prepared from clean eggs, containing less than 100mg/kg of eggshell remains, egg membrane and other particles that have been pasteurised at a temperature of at least 60°C for at least 3.5 minutes (egg powders and egg yolk powders), or a final heat treatment of at least 54.4°C for at least 7 days (egg albumen powders). These requirements are the minimum eligibility criteria for processed egg powders.

(4) The *RRA: Pasteurised Eggs*: Addendum to 2008 IRA 2015 assessed the risks associated with pasteurised liquid eggs heated to at least 64°C for at least 2.5 minutes, and liquid pasteurised egg white heated to a temperature of at least 55°C for at least 9.5 minutes. These requirements are the minimum eligibility criteria for liquid pasteurised egg.

(5) The *RRA*: *Miscellaneous Egg Products for Human Consumption* 2014 included an assessment of the risks associated with non-shelf-stable food containing up to 100% egg and frozen poached eggs. The new IHS will include a new category, defined as "products containing chicken egg cooked to a time/temperature parameter of at least 70°C for at least 2 minutes or at least 60°C for at least 3.5 minutes." This new commodity category will include items such as frozen poached eggs, and products containing cooked eggs, such as frozen omelettes and non-shelf stable baked goods.

Many of the items covered in the *RRA: Miscellaneous Egg Products for Human Consumption* were covered by the *IHS: Specified Foods for Human Consumption (EDIPROIC.ALL)*. Commercial consignments of these commodities will now be incorporated into the *IHS: Egg Products, EGGPROD.GEN*.

The requirements for mooncakes, products containing no more than 5% egg ingredients, and products containing more than 5% and less than 21% egg were previously listed in the *IHS: Specified Foods for Human Consumption (EDIPROIC.ALL).* These requirements (except for private consignments of mooncakes) will also be incorporated the new IHS.

(6) The following product types are not included in the new IHS although there would be a possibility to add them at a later date if appropriate risk analysis work became available:

a) Raw or unprocessed egg.
b) Egg or products containing processed egg that do not meet the minimum eligibility criteria described in the risk assessments.

(7) For private consignments of specific shelf-stable products containing egg refer to the *IHS: Specified Foods for Human Consumption Containing Animal Products (EDIPROIC.ALL)*.

5 Recommendations for Identified Risk Organisms

(1) The biosecurity risks associated with the importation of processed egg products were examined in the risk analysis and assessments listed above.

(2) The commodity definition for processed egg products includes the minimum eligibility requirements that are used during manufacture of egg products. As such a number of disease agents (e.g. Newcastle disease virus) are likely to be inactivated by the processing conditions defined for these commodities so specific measures for these agents are not required.

(3) While there is the ability to add other egg products to the *IHS: Egg Products*, such as table eggs, products containing raw egg, or egg products that have undergone processing that is not currently covered in the IHS for egg products, these products will not be included in the IHS unless additional risk analysis work is undertaken.

5.1 Minimum eligibility requirements

5.1.1 Processed egg products

(1) Shelf-stable spray-dried egg powder/crystal and liquid pasteurised eggs derived from chicken (*Gallus gallus*) eggs must be accompanied by a manufacturer's declaration, verified and endorsed by the Competent Authority, certifying:

a) The eggs used to manufacture the product were derived from chickens (*Gallus gallus*) and were inspected prior to being broken and found to be intact, free from dirt, blood, faecal contamination and other foreign matter.
b) The egg products contain no more than 100 mg/kg of eggshell remains, egg membrane and other particles.
c) The egg products comply with relevant national standards of the exporting country for hygienic processing of egg products.
d) The product for export to New Zealand was sealed in tamper-proof packaging at the time of manufacture and has remained separated from non-processed product not of equivalent health status.
e) During manufacturing, quality control measures were in place to ensure that no contamination could occur; and one of the following applies:

i) Shelf-stable spray-dried whole egg powder/crystal or egg yolk powder/crystal has reached a core temperature of at least 60°C for at least 3.5 minutes; or
ii) Shelf-stable spray-dried egg albumen powder/crystal has reached a core temperature of at least 54.4°C for at least 7 days; or
iii) Liquid pasteurised egg must have been heat treated in accordance with the parameters in the table below:

Liquid Egg Product	**Retention temperature to be no less than (ºC)**	**Minimum holding time requirements in minutes**
Albumin (without the use of chemicals)	55	9.5
Whole egg	60 64	3.5 2.5
Whole egg blends (less than 2% added non-egg ingredients)	61.1 60.0	3.5 6.2
Fortified whole egg blends (24-38% solids, 2-12% added non-egg ingredients)	62.2 61.1	3.5 6.2

Salted whole egg (with 2% or more salt added)	63.3 62.2	3.5 6.2
Sugared whole egg (with 2% or more salt added)	61.1 60.0	3.5 6.2
Plain yolk	60.0	3.5
Sugared yolk (2% or more sugar added)	63.3 62.2	3.5 6.2
Salted yolk (2-12% salt added)	63.3 62.2	3.5 6.2

5.1.2 Specified shelf-stable products containing egg

(1) Alcoholic drinks (including egg liqueur, advocate, advokat or advocaat) containing chicken egg yolk that contain at least 14% alcohol.

(2) Alkalised duck or chicken eggs ("Century or 100 year old eggs") which are accompanied by a manufacturer's declaration stating the eggs have been transformed in an alkaline salt to gradually raise the pH of the egg to 10 or higher during the curing process.

(3) Baked confectionery, bread, biscuits, cakes, crackers and puddings containing egg ingredients.

(4) Dietary protein supplements containing egg ingredients.

(5) Pasta and noodles containing egg.

(6) Mayonnaise and salad dressing containing no more than 20% egg ingredient as stated on the product label or an accompanying manufacturer's declaration.

(7) Mooncakes containing whole egg that are accompanied by a manufacturer's declaration which states:

a) The product does not contain any meat or meat product fillings; and
b) The product reached a core temperature greater than 60°C for at least 3.5 minutes or 70°C for 2 minutes.

(8) Non-alcoholic drinks (such as eggnog) containing greater than 5% egg yolk which are accompanied by a manufacturer's declaration stating that the egg has undergone one of the following heat treatments:

a) 69°C for at least 30 minutes; or
b) 80°C for at least 25 seconds; or
c) 83°C for at least 15 seconds.

(9) Products that have been either;

a) subjected to a retort process of Fo3 or greater measured at the core (refer to Schedule 3 of the IHS for time and temperatures to achieve Fo3 measured at the core) as declared in an accompanying manufacturer's declaration; or
b) subjected to an equivalent thermal process of Fo3 or greater (see Schedule 3 of the IHS) as declared in an accompanying competent authority endorsed manufacturer's declaration.

Note: Other ingredients contained in these products must meet the requirements of the applicable IHS. See the IHS EDIPROIC.ALL for requirements for private consignments.

5.1.3 Other products containing chicken egg

(1) Products containing no more than 5% egg ingredients may be imported from any country provided all the following requirements are met;

a) The product is commercially prepared and packaged,
b) The product is in the original sealed packaging on arrival,
c) The product must be:

i) Accompanied by a manufacturer's declaration which certifies that the product contains no more 5% egg ingredients; or
ii) Is contained in the original packaging which states the product contains no more than 5% egg.

(2) Products containing pasteurised egg in quantities more than 5% and less than 21% may be given clearance provided that:

a) The product(s) is accompanied by a manufacturer's declaration specifying that at any stage of the manufacturing process the product or the egg ingredients were heat treated and have reached a core temperature of:

i) At least 60°C for at least 60 minutes; or
ii) At least 80°C for at least 10 minutes; or
iii) At least 100°C for at least than 5 minutes.

(3) Products containing up to 100% egg, including products that are not shelf-stable and whole cooked frozen eggs, [and other than those specified in clause 5.1.2 and 5.1.3 (1)] may be imported from any country provided the consignment is accompanied by a Competent Authority endorsed manufacturer's declaration stating the product, or egg included in the product has reached a core temperature of at least:

a) 60° C for at least 3.5 minutes, or
b) 64°C for at least 2.5 minutes, or
c) 70° C for at least 2 minutes.

5.2 Additional risk management measures

(1) Additional risk management measures above the eligibility criteria listed above are justified for the following two organisms:

a) Exotic group 1 avian adenoviruses associated with hydropericardium syndrome (Angara disease).
b) Exotic avian influenza (AI) viruses.

5.3 Group 1 Adenoviruses

5.3.1 Discussion

(1) Group 1 adenoviruses are considered common in New Zealand, and the majority of them have a limited role, if any, as primary pathogens. Angara disease caused by serotype fowl adenovirus 4 (FAdV-4) has not been described in New Zealand and is considered a risk in egg products. Angara disease is not listed by the World Organisation for Animal Health (OIE) in the *Terrestrial Animal Health Code* (the *Code*).

(2) The following risk management options were presented for this organism in the IRA 2008 and are also considered appropriate for liquid pasteurised egg in the *RRA*: *Pasteurised Eggs* Addendum to 2008 Import Risk Analysis (RRA 2015):

a) Assurance that eggs used have been derived from flocks in countries or geographic regions where Angara disease has not been recognised.
b) The source flock could be tested to ensure freedom from FAdV-4.
c) Studies of liver homogenate extracts have shown that heat treatment of 60°C for greater than one hour destroys FAdV-4 infectivity. Further heat treatments of manufactured powders could therefore be used to destroy any FAdV-4 present.

(3) The options presented in the IRA 2008 are consistent with the *IHS POUEGGIC.SPE*. In addition, there is a heat treatment option. This option can be included in the new IHS.

Note: This heat treatment option is not available for the liquid pasteurised products as this heat treatment is not likely to be suitable for their manufacture.

(4) Required documentation will be a manufacturer's declaration and veterinary certification that the product meets the eligibility requirements and that the egg product is either:

a) Heat treated at a temperature of ;

i) at least 60°C for at least 60 minutes; or
ii) at least 80°C for at least 10 minutes; or

iii) at least 100°C for at least 5 minutes; or

b) Sourced from flocks in a country, zone or compartment where Angara disease has not been recognised (i.e. no cases reported); or
c) Sourced from flocks that have been tested to ensure freedom from Angara disease.

(5) The *IHS POUEGGIC.SPE* also required the product to be manufactured in a country, zone or compartment free from Angara disease. This clause can be replaced by the general condition that product for export is sealed in packaging and has remained separated after heat treatment from non-processed product and from product not of equivalent health status.

(6) Consideration was given to the manufacturing processes and exposure pathways of specified shelf-stable products and, with the exception of mayonnaise and salad dressings, it was concluded that the minimum eligibility requirements are sufficient to mitigate the risks associated with importation of these products.

(7) Further risk work on commercially manufactured shelf-stable mayonnaise with up to 20% egg content assessed the likelihood of exposure and establishment of FAdV-4 to be negligible. The commercial processing, limited egg content, the acidic pH and the shelf-stable nature of the product provide additional risk reduction. Mayonnaise and salad dressing that is commercially manufactured and packaged and is shelf stable and contains no more than 20% egg ingredients pose minimal risk of exposure and can be imported from all countries.

(8) Recommendations for other products containing egg were made in the risk assessments mentioned in Section 4(5) above. From these assessments it was concluded that risk mitigation measures for products that contain up to 100% egg should be in accordance with the recommendations listed in 5.3.1 (4) above. For imports of mayonnaise and salad dressing from all countries where the egg content exceeds 20%, the requirements in 5.3.1 (4) above must be met.

(9) Private consignments of mayonnaise, salad dressing and mooncakes from all countries are covered in the *IHS EDIPROIC.ALL*.

(10) Products that contain no more than 5% egg are considered to pose a negligible risk so no additional measures are proposed. For products containing more than 5% and less than 21% egg ingredients, the heat treatments recommended for Angara disease are currently listed in the *IHS EDIPROIC.ALL* and these will be carried over into the new IHS.

5.3.2 Recommendation

(1) Shelf-stable spray dried egg powder/crystal (whole egg, yolk and albumen):

a) The product must be accompanied by a Competent Authority endorsed veterinary certificate, which states the eggs used to manufacture the product originated from flocks in a country, zone or compartment where Angara disease has not been recognised (i.e. no cases reported); or
b) The product must be accompanied by a Competent Authority endorsed veterinary certificate, which states the egg products originated from flocks that have been tested prior to the first egg collection and then at least 6 monthly thereafter, with negative results for Angara disease; or
c) The product must be accompanied by a manufacturer's declaration, verified and endorsed by the Competent Authority, which states the egg powders/crystals reached a core temperature of at least 60°C for at least one hour.

(2) Liquid pasteurised egg products:

a) The product must be accompanied by a veterinary certificate endorsed by the Competent Authority which states the eggs used to manufacture the product originated from flocks in a country, zone or compartment where Angara disease has not been recognised (i.e. no cases reported); or
b) The product must be accompanied by a Competent Authority endorsed veterinary certificate, which states the egg products originated from flocks that have been tested prior to the first egg collection and then at least 6 monthly thereafter, with negative results for Angara disease.

(3) Specified shelf-stable products

a) No specific recommendations are made for these highly processed products with defined end uses, which limit the exposure pathway, with the exception of mayonnaise and salad dressing containing

greater than 20% egg. The combination of the processing and exposure pathway means there is a negligible risk associated with these commodities.

(4) Products containing up to 100% egg, including products that are not shelf-stable and whole cooked frozen eggs, [with the exception of those specified in clause 5.1.2 and 5.1.3(1) and (2))] may be imported from any country provided:

a) For Angara disease (caused by FAdV-4) the product is accompanied by either:

i) A veterinary certificate endorsed by the Competent Authority that states the eggs used to manufacture the product originated from flocks in a country, zone or compartment where Angara disease has not been recognised (i.e. no cases reported); or
ii) The product must be accompanied by a Competent Authority endorsed veterinary certificate, which states the egg products originated from flocks that have been tested prior to the first egg collection and then at least 6 monthly thereafter, with negative results for Angara disease; or

b) A manufacturer's declaration, verified and endorsed by the Competent Authority, which states the product, or the eggs used to manufacture the product reached a core temperature of at least;

i) 60°c for at least 60 minutes; or
ii) 80°c for at least 10 minutes; or
iii) 100°C for at least 5 minutes; or

5.4 Avian influenza viruses

5.4.1 Discussion

(1) AI viruses are not identified as a hazard in egg powders that have been pasteurised at a temperature of at least 60°C for a period of 3.5 minutes. AI viruses may not be inactivated following treatment at 54.4°C for a period of 7 days, so are assessed to be a risk liquid pasteurised egg white.

(2) The options presented in the IRA 2008 to manage the risk in egg albumen powder are as follows:

a) Heat treatment of no less than 54.4°C for at least 21.38 days or no less than 67°C for at least 0.83 days (consistent with the *Code*). (Note: The *Code* was amended in 2017 and the time for the 54.4°C temperature was lowered from 21.38 days to 50.4 hours).
b) Source flocks tested to ensure freedom of AI viruses.
c) Eggs used could be certified to have originated from a country, zone or compartment free of AI (consistent with the *Code).*
d) An additional heat treatment option of a temperature of at least 60°C for 10 days is also considered suitable. This heat treatment has been considered previously by the risk analysis team as a request for an equivalence decision.[1]

(3) The RRA: *Pasteurised Eggs Addendum to 2008 Import Risk Analysis* identified that a heat treatment of at least 64°C for no less than 2.5 minutes would be sufficient to inactivate AI viruses, but not for product treated at 55°C for no less than 9.5 minutes.

(4) The *Code* has the following recommendations for inactivation of AI virus in liquid egg white which can also be included in the IHS, although they were not specifically considered in the risk assessment for pasteurised egg whites. The product must have reached a core temperature of:

a) At least 55.6°C for at least 870 seconds (14.5 minutes); or
b) At least 56.7°C for a least 232 seconds (3.9 minutes).

(5) The requirement in the IHS POUEGGIC.SPE to declare the product is manufactured in a country, zone or compartment free from avian influenza can be replaced by the general condition that product for export is sealed in packaging and has remained separated after heat treatment from non-processed product and from product not of equivalent health status.

[1] Swayne and Beck (2004) determined that the D value for HPAI in dried egg white is 1.3 days at 59C and 1.0 days at 61C.

5.4.2 Recommendation

(1) No further measures are recommended for egg powders that have undergone a heat treatment of at least 60°C for at least 3.5 minutes, or liquid egg that has undergone a heat treatment of at least 64°C for at least 2.5 minutes.

(2) Shelf-stable, spray-dried egg albumen powder/crystal:

a) The product must be accompanied by a manufacturer's declaration, verified and endorsed by the Competent Authority, which states the product has been processed to ensure the destruction of avian influenza viruses in accordance with one of the following time and temperature parameters:

i) At least 54.4°C for at least 7 days; or
ii) At least 60°C for at least 10 days; or
iii) At least 67°C for at least 20 hours.

(3) Liquid pasteurised egg white:

a) The product must be accompanied by a veterinary certificate endorsed by the Competent Authority, which states the eggs used to manufacture the product originated from flocks in a country, zone or compartment which is free from notifiable avian influenza as described in the *Code*; or
b) The product must be accompanied by a manufacturer's declaration, verified and endorsed by the Competent Authority, which states the product has undergone a heat treatment suitable for the inactivation of avian influenza viruses in accordance with the *Code*.

(4) Specified shelf-stable products:

a) No specific recommendations are made for these highly processed products with defined end uses which limit the exposure pathway. The combination of the processing and exposure pathway means there is a negligible risk associated with these commodities.

(5) Products containing up to 100% egg, including products that are not shelf-stable and whole cooked frozen eggs, [and other than those specified in clause 5.1.2 and 5.1.3 (1)and (2)] may be imported from any country provided the consignment is accompanied by a manufacturer's declaration stating the egg ingredient in the product is heat treated and has reached a core temperature of at least:

i) 60° C for at least 3.5 minutes, or
ii) 64°C for at least 2.5 minutes; or
iii) 70° C for at least 2 minutes.

Note: Other ingredients contained in these products must meet the requirements of the applicable IHS. See the IHS EDIPROIC.ALL for requirements for private consignments