IMPORT RISK ANALYSIS

POSSUM FIBRE FROM AUSTRALIA

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1. Introduction

New Zealand importers have indicated interest in importing commercial shipments of possum fibre. This assessment examines the risks to animal and human health posed by such imports, and suggests ways to manage those risks to an acceptable level.

2. Risk identification

2.1 Definition of the commodity

Possum fibre: hair of Brushtail possums (*Trichosurus spp*).

The commodity can be sourced from:

1. Premises processing game meat for human consumption

Possums for human consumption are processed under the *Australian Standard for the Hygienic Production of Game Meat for Human Consumption*. Ante and post-mortem inspection is carried out at a government licenced processing establishment.

2. Premises processing game meat for pet food

The processing of possums for pet food is not government controlled.

3. Animals shot in the wild

Harvesting of fibre from animals shot in the wild is not controlled in any way.

2.2 Diseases of concern

The diseases of possums listed in Table A were compiled from a review of veterinary texts and literature pertaining to possums, with the inclusion of relevant multi-species diseases from the OIE List B[1,2,3,9,10].

3.0 Risk assessment

3.1 Method

The risk from exotic disease can be broken down into three factors; the risk of release (contamination of the product), the risk of exposure (an infectious dose of imported pathogens contacting a susceptible host) and the consequences of disease introduction.

The risk of release is considered in the column headed *Product as a vehicle*. The information in this

column is from knowledge of pathogens known to be carried on fibre of other species, and assessment from texts or literature as to whether the pathological process affects the skin or fur.

The risk of exposure is not examined in the table. The most likely routes of exposure would be the release of pathogens from processing premises into waterways, with subsequent contamination of agricultural land, and the exposure of vermin to the imported commodity.

The consequences of disease introduction are considered to be unacceptable for any exotic OIE-listed disease of livestock or humans. The occurrence in Australia of these diseases, for which the commodity may act as a vehicle, will therefore result in the risk being estimated as not negligible. Risk management measures will be recommended for these diseases.

The consequences of introducing a non-OIE listed disease that is present in Australia, but exotic to New Zealand, are assessed by examining the effects and life cycle of the disease/organism concerned.

The consequences of introducing a disease present in Australia which is known to occur naturally in NZ are not considered.

The overall risk (risk estimation) posed by the commodities is summarised in the column headed *Negligible risk?* in Table A. Those diseases for which the risk was assessed as not negligible (N) will be considered further in section 4.0, Risk Management.

Risk estimations were made by assessing the risk of release and the consequences of introduction. It was assumed that any organism introduced could find its way to a susceptible host.

3.2 Results

Table A: Estimation of risk from pathogens in possum fibre from Australia

Disease	Product as a Vehicle (Yes/No)	Status in NZ	Status in Australia	Negligible Risk ? (Yes/No)
List A				
None				
List B				
Anthrax	Y	(1954)	+ ()	N
Aujeszky's disease	N			Y
Echinococcosis/hydatidosis	N			Y
Leptospirosis	N			Y
Rabies	N			Y

Disease	Product as a Vehicle (Yes/No)	Status in NZ	Status in Australia	Negligible Risk ? (Yes/No)
Johne's disease	N			Y
Screw-worms (New and Old world)	N			Y
Q fever	Y	0000	+?	N
Bovine tuberculosis (*M. bovis*)	N			Y
List C				
Toxoplasmosis	N			Y
Melioidosis	N			Y
Clostridial infections	N			Y
Actinomycosis	N			Y
Intestinal salmonellae	N			Y
Coccidiosis	N			Y
Other				
Nocaridia asteroides (lumpy jaw)	N			Y
Fusibacterium necrophorum (lumpy jaw)	N			Y
Bacteroides spp (lumpy jaw)	N			Y
Yersiniosis	N			Y
Dermatophytosis	Y	+	+	Y
Adiaspriromycosis	N			Y
Arboviruses	N			Y
GI and respiratory nematodes	N			Y
Other cestodes	N			Y
Trematodes	N			Y
Sarcocystis spp	N			Y
Other protozoa	N			Y
External parasites (ticks, fleas etc)	Y	0000	+	N

Key:	0000	Disease never reported
	(Year)	Date of last reported occurrence of the disease
	+	Reported present or known to be present
	()	Disease limited to specific zones
	+?	Serological evidence and/or isolation of the causal agent, but no clinical signs of disease
	?	Disease suspected but presence not confirmed

References for disease status: OIE World Animal Health in 1997[4]
List C and 'Other' diseases - MAF Surveillance data, Veterinary Handbook[5]

4.0 Risk management

4.1 Introduction

This risk management section proposes safeguards to manage the risk of disease introduction for those diseases assessed as posing some risk to New Zealand (not negligible). These diseases are:

Anthrax
Q fever
Ectoparasites

It is preferred that the safeguards are applied offshore to minimise the exposure risks involved in processing these commodities.

4.2 Anthrax - *Bacillus anthracis*

Anthrax in Australia is confined to certain regions and occurs only exceptionally in domesticated animals. In is unknown if anthrax affects possums. There are no reports of possum infection in the available literature.

Article 3.1.1.5 of the International Animal Health Code suggests that veterinary administrations of countries importing products of animal origin (from ruminants, equines and pigs) for industrial use should require the presentation of an international sanitary certificate attesting that these products:

1)___originate from animals which have been slaughtered for human consumption at an abattoir; or

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2)___originate from animals which have come from a country where there are procedures that ensure the detection of outbreaks of anthrax, the effective quarantining of premises on which outbreaks of anthrax occur, and the destruction of all parts of animals with anthrax;
or

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3)___have been subjected to a treatment that kills spores of *Bacillus anthracis*[3].

Those animals processed under the *Australian Standard for the Hygienic Production of Game Meat for Human Consumption*, are harvested alive and subjected to ante and post-mortem inspection. This would detect pathology associated with anthrax infection[6]. MAF considers that this standard provides adequate assurances that fibre sourced from animals for human consumption are free from anthrax contamination.

Australia has procedures as outlined in 2) above to deal with outbreaks of anthrax. However, as possums are wild animals and not subject to the same intensity of surveillance, any cases in possums may not be detected in endemic areas. Considering that anthrax has never been recorded in some States, and not for many years in others, it is proposed that this safeguard is sufficient if amended to include regional freedom from disease.

A treatment safeguard is also recommended. Process details are not prescribed by the OIE, but spores exposed to moist heat survive for 15-45 minutes at 90°C, for 10-25 minutes at 95°C and 2-15 minutes at 100°C[7].

Recommended safeguards

EITHER

Certification that the fibre originates from animals that have been processed under the *Australian Standard for the Hygienic Production of Game Meat for Human Consumption*, and passed an ante and post-mortem inspection in a government licensed processing establishment.

OR

Certification that the fibre originates from animals in an anthrax-free State of Australia where there are procedures that ensure the detection of outbreaks of anthrax, the effective quarantining of premises on which outbreaks of anthrax occur, and the destruction of all parts of animals with anthrax.

OR

Certification that the fibre has been immersed in water, heated and maintained at a temperature of 95°C for 25 minutes or at a temperature of 100°C for 15 minutes.

4.3 Q fever - *Coxiella burnetii*

According to OIE World Animal Health 1997 there is evidence of Q fever occurring in Australia but no incidence of clinical disease in any animal species[4]. However, outbreaks occur periodically in humans working with animal products (ProMED-mail post. PRO/AH/EDR> Q fever-Australia(NSW), 25 September 1998.) The International Animal Health Code makes no recommendations regarding safeguards for Q fever.

Q fever may be unapparent and not manifest in the live animal, nor be detected at post-mortem inspection[6]. Risk management safeguards must physically inactivate the organism. C. burnetii is known to survive for at least 30 minutes at 62°C, and for about one minute at 71°C[7]. It is inactivated by moist heat at 75°C within 8 seconds and at 100°C within 1 second[8].

Recommended safeguards

Certification that the fibre has been immersed in water, heated and maintained at a temperature of 75°C for at least 1 minute.

4.4 Ectoparasites

External parasites (fleas, ticks, mites etc) are present in both New Zealand and Australia[1,10]. However,

there are some species of ticks that occur in Australia that are exotic to New Zealand, eg *Rhipicephalus sanguineus*, itself a known vector of exotic disease. Possums are commonly infected with *Ixodes holocyclus*, the paralysis tick, and exotic to New Zealand[1]. Safeguards are therefore considered necessary.

The International Animal Health Code makes no recommendations regarding safeguards for ectoparasites.

Post-mortem inspection may not detect insects in fibre due to their size. Treatment safeguards are therefore required. Most insects are killed by exposure to temperatures over 50°C. Exposure to detergents in water would kill insects by breaking down surface tension and allowing water to penetrate the respiratory system, effectively drowning the insect (McLaren GF. Horticultural and Food Research Institute of New Zealand Ltd, Clyde Research Centre, Alexandra, New Zealand. Personal communication with HJ Pharo, 14 November, 1997).

Recommended safeguards

Certification that the fibre has been immersed in water, heated and maintained at a temperature of 65°C for at least 5 minutes, in the presence of a non-ionic detergent at a concentration of at least 1 g per litre.

4.5 Summary of safeguards

1. Certification that the fibre originates from animals that have been processed under the *Australian Standard for the Hygienic Production of Game Meat for Human Consumption*, and passed an ante and post-mortem inspection in a government licensed processing establishment.

   OR

   Certification that the fibre originates from animals in an anthrax-free State of Australia where there are procedures that ensure the detection of outbreaks of anthrax, the effective quarantining of premises on which outbreaks of anthrax occur, and the destruction of all parts of animals with anthrax.

   AND

   Certification that the fibre has been immersed in water, heated and maintained at a temperature of 75°C for at least 5 minutes, in the presence of a non-ionic detergent at a concentration of at least 1 g per litre.

OR

2. Certification that the fibre has been immersed in water, heated and maintained at a temperature of 95°C for 25 minutes or at a temperature of 100°C for 15 minutes.

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