

Chapter 1

Background

Conduct of the inquiry

1.1 The Committee adopted the inquiry on 2 March 2004 of its own motion under Standing Order 25(2)(b), which allows committees to inquire into the performance of the departments and agencies allocated to them. The terms of reference are:

the administration of Biosecurity Australia with particular reference to the revised draft import risk analysis report released in February 2004 relating to the Philippines, including:

- a) the processes and research underpinning the analysis;
- b) the conclusions and recommendations; and
- c) related matters.

1.2 The Committee advertised the inquiry in *The Australian* and invited submissions from peak bodies and the NSW and Queensland governments. The Committee received 14 submissions (see Appendix 1) and held 6 public hearings (see Appendix 2). The Committee thanks submitters and witnesses for their contribution. Submissions and transcripts of the Committee's hearings are available on the Parliament's internet site at www.aph.gov.au

Background to import risk analysis

1.3 As a member of the World Trade Organisation (WTO), Australia adheres to the international *Agreement on the Application of Sanitary and Phytosanitary Measures* (SPS Agreement). Under the SPS Agreement Australia is obliged to consider requests by other countries to admit their agricultural produce into Australia. Decisions to accept or reject an application to import may only be made on grounds relating to quarantine risk. A key purpose of the SPS Agreement is to prevent unreasonable quarantine controls acting as a disguised restriction on trade.

1.4 Some key concepts in the SPS Agreement are:

- Member countries have the sovereign right to decide what level of quarantine risk they will accept (their 'appropriate level of protection' or ALOP). However they should take into account the objective of minimising negative trade effects. Australia's policy is to reduce

quarantine risk to a very low level, but not to zero, on the basis that ‘it is impossible in practice to operate a zero risk biosecurity regime’.¹

- Members must avoid arbitrary or unjustifiable differences in the appropriate level of protection in different situations, if this results in a disguised restriction on trade.
- If a member adopts a quarantine measure to achieve the appropriate level of protection, it must ensure that the measure is not more trade restrictive than required.
- Where scientific evidence is insufficient, a member may adopt a provisional quarantine measure, but must seek additional information to allow a more objective assessment of risk.
- Economic matters which may be considered are the potential damage to local production if a disease or pest enters the country; the cost of control; and the cost-effectiveness of alternative approaches to limiting risk.²

1.5 Quarantine risks are assessed in Import Risk Analyses (IRAs) carried out by Biosecurity Australia (BA). BA for most of this inquiry period was a group within the Department of Agriculture, Fisheries and Forestry (DAFF). It was established in 2000 to separate biosecurity policy development and market access negotiations from the operational border protection role of the Australian Quarantine Inspection Service (AQIS). During 2003-04 BA was working on 26 animal IRAs and 11 plant IRAs. Import risk analysis is done by ‘IRA teams’ which include external scientific experts as necessary.³

1.6 On 1 December 2004 BA was established as a ‘prescribed agency’ under the *Financial Management and Accountability Act 1997*. This means that it has a budget line and outcome statement independent from the Department’s. The Minister, Mr Truss, explained this at the time as intended to ‘boost the independence of its operations’:

Establishing Biosecurity Australia as a prescribed agency has further boosted the independence of its operations and ensured appropriate financial autonomy. This change will further reassure stakeholders of

1 Biosecurity Australia, *Guidelines for Import Risk Analysis*, draft September 2001, p.18,25. Australia’s ALOP is often said to be ‘very low risk’. In fact it is ‘very low risk *over one year*.’ The reference to a period of time is essential for the concept of ALOP to be meaningful. See paragraph 1.19.

2 SPS Agreement, article 5; annex A. Biosecurity Australia, *Import Risk Analysis Handbook*, 2003, p.5.

3 DAFF, *Annual Report 2003-04*, p113-4. Biosecurity Australia, *Import Risk Analysis Handbook*, 2003, p.12.

Biosecurity Australia's capacity to ensure that quarantine policy will always be based on sound science.⁴

1.7 The Minister had also announced in July 2004 that he would establish a group of eminent scientists to play a role in assessing stakeholder comments on IRAs. The Director of Quarantine appointed three scientists in August 2004.⁵

Summary of risk assessment methodology

1.8 Risk analyses are done according to the procedural rules in BA's *Import Risk Analysis Handbook* and the risk assessment methodology in BA's *Guidelines for Import Risk Analysis*.

1.9 Risk assessment involves estimating the probability (likelihood) of an unwanted event, and considering the severity of the consequences if the event occurs. Where the assessment shows that 'unrestricted risk' (risk in the absence of any special protective measures) is higher than Australia's appropriate level of protection (ALOP), the analysis must then consider whether there are risk management measures that would bring the risk down to within Australia's ALOP.⁶ According to BA, Australia's chosen ALOP is 'very low risk'.⁷

1.10 The unwanted event (for example, 'the pest enters, establishes and spreads') will very often be the outcome of a number of preceding steps each of which has its own probability ('the pest is in the harvested fruit... the pest survives transport and storage' etc.). These probabilities may be combined to calculate the probability of the outcome event. This procedure is in principle mathematical, although the result will be an estimate insofar as the inputs are estimates if the probabilities are not known exactly. The overall probability is rated on a scale of high/ moderate/ low/ very low/ extremely low/ negligible, where each of these categories is matched to a numerical probability range as follows:

4 Hon W. Truss, Minister for Agriculture, Fisheries and Forestry, *Government Commitment to Independence of Biosecurity Australia Delivered*, media statement 1 December 2004. See also discussion at hearing of the Committee's inquiry into IRA on apples from New Zealand: *Committee Hansard* 9 February 2005, p.1ff. BA remains part of the Department in relation to broader lines of accountability such as audit and parliamentary scrutiny: Mr J. Cahill, Interim Chief Executive, BA, correspondence 25 February 2005.

5 Hon W. Truss, Minister for Agriculture, Fisheries and Forestry, *Minister welcomes appointment of quarantine watchdogs*, media statement 11 August 2004.

6 Biosecurity Australia, *Guidelines for Import Risk Analysis*, draft September 2001, p.112ff

7 Biosecurity Australia, *Guidelines for Import Risk Analysis*, draft September 2001, p.25. In fact, to be meaningful, this must be read as 'very low risk in any one year'. See paragraph 1.19.

Figure 1: Nomenclature for semi-quantitative likelihoods		
likelihood	descriptive definition	probability range⁸
high	the event would be very likely to occur	0.7-1 (7/10-1)
moderate	the event would occur with an even probability	0.3-0.7 (3/10-7/10)
low	the event would be unlikely to occur	0.05-0.3 (1/20-3/10)
very low	the event would be very unlikely to occur	0.001-0.05 (1/1,000-1/20)
extremely low	the event would be extremely unlikely to occur	1/10 ⁶ -0.0001 (1/1,000,000-1/1,000)
negligible	the event would almost certainly not occur	0-1/10 ⁶ (0-1/1,000,000)
source: BA, <i>Guidelines for Import Risk Analysis</i> , draft September 2001, p.43.		

1.11 Consequences may be economic (for example, cost of lost production or control measures), or social (for example, social consequences of reduced rural and regional economic viability). Each type of consequence is estimated at the local, district, regional and national level, on a scale of highly significant/ significant/ minor/ unlikely to be discernible. The results for the various types of consequences are combined using rules in the IRA guidelines to give an overall rating for consequences on a scale of extreme/ high/ moderate/ low/ very low/ negligible.⁹

1.12 The ratings for probability and consequences are ‘combined’ (to use BA’s term¹⁰) to make a matrix such as the following:

8 In the case of repeatable experiments, probability expressed as a fraction x/y means that in the long run, over many trials, the outcome of interest occurs x/y of the time. For example, the probability that a tossed coin will show a head is 1/2. In the case of unique events, what it means to say ‘the probability of a certain outcome is x/y’ is a matter of argument among theorists.

9 Biosecurity Australia, *Guidelines for Import Risk Analysis*, draft September 2001, p.104ff.

10 Biosecurity Australia, *Guidelines for Import Risk Analysis*, draft September 2001, p.25,69.

Figure 2: Risk estimation matrix from Biosecurity Australia, <i>Guidelines for Import Risk Analysis</i> , 2001, p.70						
<i>probability of the event</i>	<i>severity of the consequences</i>					
	<i>negligible</i>	<i>very low</i>	<i>low</i>	<i>moderate</i>	<i>high</i>	<i>extreme</i>
<i>high</i>	negligible risk	very low risk	low risk	moderate risk	high risk	extreme risk
<i>moderate</i>	negligible risk	very low risk	low risk	moderate risk	high risk	extreme risk
<i>low</i>	negligible risk	negligible risk	very low risk	low risk	moderate risk	high risk
<i>very low</i>	negligible risk	negligible risk	negligible risk	very low risk	low risk	moderate risk
<i>extremely low</i>	negligible risk	negligible risk	negligible risk	negligible risk	very low risk	low risk
<i>negligible</i>	negligible risk	negligible risk	negligible risk	negligible risk	negligible risk	very low risk

1.13 The matrix expresses the intuitively and logically appealing propositions that:

- reading down each column: an unwanted event with a high probability creates a greater risk than the same event with a lower probability;
- reading across each row: an event with more serious consequences creates a greater risk than an event which has the same probability but less serious consequences.¹¹

1.14 It is tempting to add a third proposition: ‘Reading the diagonals from the top left: a very likely event with minor consequences creates the same risk as a less likely event with more serious consequences.’ However this is not a logical statement like the other two. It appears plausible only because the same risk category name is being

11 In this sense ‘risk’ refers to the *outcome* of ‘combining’ the two considerations: probability and consequences. This should not be confused with its common use as merely a synonym for ‘probability’, as in ‘the risk of an event occurring is such-and-such.’

used inexactly to label two situations which are in fact incommensurable. Whether in some sense these risks are ‘the same’ is a matter of judgment.¹²

1.15 A similar matrix from Australian Standard 4360, *Risk Management*, is:

Figure 3: Risk estimation matrix from Australian Standard 4360, <i>Risk Management</i> , 1999, p.35					
<i>probability of the event</i>	<i>severity of the consequences</i>				
	<i>insignificant</i>	<i>minor</i>	<i>moderate</i>	<i>major</i>	<i>catastrophic</i>
<i>almost certain</i>	high risk	high risk	extreme risk	extreme risk	extreme risk
<i>likely</i>	moderate risk	high risk	high risk	extreme risk	extreme risk
<i>moderate probability</i>	low risk	moderate risk	high risk	extreme risk	extreme risk
<i>unlikely</i>	low risk	low risk	moderate risk	high risk	extreme risk
<i>rare</i>	low risk	low risk	moderate risk	high risk	high risk

1.16 In both these matrixes the borders between different risk categories generally flow along diagonals from the top left to the bottom right. However in detail they are different. This reflects the fact that probabilities and consequences are different types of information, and ‘combining’ them to fill in the matrix is not a matter of mathematical calculation, but rather a matter of judgment which depends on one’s attitude to risk. A more risk accepting person would move all the category boundaries towards the top right; a more risk averse person would move them towards the bottom left. A person who gives relatively more weight to the severity of the consequences would make the diagonal boundaries between risk categories slope more steeply.

12 A higher risk, lower consequence situation is ‘If the coin shows a head, you lose \$100’. A lower risk, higher consequence situation is ‘If the die shows a six, you lose \$300.’ It is plausible that in some mathematical or logical sense these scenarios are equivalent: both scenarios, *if repeated many times*, will cause similar losses. However this is a poor analogy for real world situations where probabilities are imperfectly known, consequences cannot be quantified numerically for comparison, and there is only one trial. As well, it is still arguable that in principle ‘risk’ is a psychological, not a mathematical concept: whether these two scenarios are in some sense ‘the same’ is found only by polling people to see which they prefer.

An implication of this is that the concept of ‘iso-risk curve’ suggested in BA’s risk analysis guidelines (p.26) is not particularly helpful: it suggests a mathematical exactness which does not exist.

1.17 For example, Figure 3 shows a greater aversion to risk in cases where the consequences would be catastrophic: even when the event is judged as unlikely the risk is judged as ‘extreme’. The Australian Standard explains this: ‘Decisions should take account of the need to carefully consider rare but severe risks, which may warrant risk reduction measures that are not justifiable on strictly economic grounds.’¹³

1.18 Verbal descriptions of *probabilities* (very low, low etc) can be arbitrarily matched to numerical probability ranges if desired, as in Figure 1 above. By contrast, phrases like ‘very low/ low/ moderate *risk*’ are not quantifiable: to talk about a ‘one in one hundred risk’ is meaningless.¹⁴ The fact that words like ‘very low/ low/ moderate...’ are used with both probability and risk is perhaps confusing.

1.19 Note further that while it is often said that Australia’s ALOP is ‘very low risk’, in fact, as a matter of policy, this means ‘very low risk *in any one year*.’ If an unwanted event has equal probability of occurring at any time, then the probability that it will occur is greater as the period of interest increases. Therefore the reference to a period of time is essential for the concept of ALOP to be meaningful. The probability of an event occurring *within a period of interest* is ‘combined’ with an assessment of consequences to judge the risk associated with the event *considered over that period*. The import risk analysis guidelines could explain this more clearly.¹⁵ Further discussion is in chapter 2 (paragraph 2.2ff).

Comment

1.20 The fact that the parts of the risk assessment process to do with estimating probabilities can be done in a mathematical way (if there is enough information) should not be allowed to obscure the fact that other important parts of the process are not a matter of objective calculation, but rather rely on expert judgment.

1.21 This does not mean it is acceptable for IRAs to be ‘subjective’ in the sense of unsubstantiated or capricious. IRAs should of course follow an orderly and transparent methodology which allows for disciplined expert judgments, within clear parameters, in the places where they are unavoidable. BA’s detailed IRA guidelines aim to ensure this. The Committee accepts BA’s assurance that Australia’s IRA methodology is ‘by far the most explicit statement of appropriate level of protection used by any country in the world.’¹⁶

13 Australian Standard AS 4360, *Risk Management*, par. 4.5.2.

14 It must be remembered that ‘risk’ here refers to the *combination* of probability and consequences. It is not a synonym for ‘probability.’

15 Biosecurity Australia, *Guidelines for Import Risk Analysis*, draft September 2001, p.25,110,112. *Import Risk Analysis Handbook*, 2003, p.5: ‘Australia’s ALOP is currently expressed as providing a high level of sanitary or phytosanitary protection aimed at reducing risk to a very low level, but not to zero.’

16 Ms M Harwood (Biosecurity Australia), *Committee Hansard* 10 March 2004, p.6.

The IRA on bananas from the Philippines

1.22 BA initiated the IRA in June 2000 and appointed a risk analysis panel of six experts in January 2001.¹⁷ The panel established three technical working groups to help with detailed issues; released an issues paper in May 2001; and released a draft IRA report in June 2002. The report concluded:

- For Moko, freckle, Black Sigatoka and mealybugs, unrestricted risk of entry, establishment and spread is too high to satisfy Australia's appropriate level of protection.
- For mealybugs, using an insecticidal treatment would reduce the risk to an acceptable level.
- For freckle and Black Sigatoka, applying an area freedom regime would reduce the risk to an acceptable level.
- For Moko, there do not appear to be feasible measures capable of reducing the quarantine risk to an acceptable level.
- Therefore, import should not be permitted.

1.23 Twenty submissions were received in response to this draft, including substantial comments from the Philippines government and industry, the Australian Banana Growers Council, and the Western Australian government.

1.24 The IRA panel then 'extensively reviewed' the situation, as explained in the February 2004 revised draft now under discussion:

Given the substantial nature of the various submissions and reports, and the widely varying technical viewpoints, the IRA team considered it appropriate to undertake an extensive review of the technical information concerning each of the quarantine pests identified in the IRA. Additionally, the IRA team reviewed the various other technical issues arising from the submissions and reports. As a consequence, the IRA team identified the need to make significant changes to the analysis as reported in the June 2002 Draft IRA Report.¹⁸

1.25 The February 2004 revised draft changed the conclusions as follows:

- For Black Sigatoka, the unrestricted risk is now regarded as acceptable.
- For mealybugs, a combination of targeted inspection and targeted sponging and brushing between banana fingers would make the risk acceptable.
- For Moko and freckle, acceptable risk could be achieved either by sourcing bananas from areas of demonstrated low pest prevalence, or by

17 Dr Cheryl McRae of Biosecurity Australia was added to the panel later.

18 Biosecurity Australia, *Importation of Fresh Bananas from the Philippines - revised draft IRA report*, February 2004, p.14.

restricting distribution within Australia to areas where commercial bananas are not grown.

- Therefore, import should be permitted subject to certain conditions.¹⁹

1.26 In March 2004 BA advised that the IRA contained an error in a spreadsheet used to estimate risk. Corrected risk estimates were issued in an addendum to the IRA in June 2004. Changes are:

- For Moko, the unrestricted risk category (low) has not changed. However the component figures have changed in a way which means that an area of low pest prevalence regime would have to be more stringent than that suggested in the February 2004 draft, to make the risk acceptable.
- For mealybugs, the unrestricted risk category (low) has not changed. However the component figures have changed in a way which means that insecticidal treatment would need to be added to the proposed washing and brushing, to make the risk acceptable.
- For banana bract mosaic virus, the unrestricted risk increases from very low to low, which does not meet Australia's ALOP. The risk could be made acceptable by sourcing bananas from areas of low pest prevalence, or by restricting distribution within Australia to areas where commercial bananas are not grown.

1.27 In December 2004 the Minister for Agriculture, Fisheries and Forestry, Mr Truss, announced that BA would review and reissue all IRAs now in progress for a further period of public comment. At the 9 February 2005 hearing BA suggested this would take 'some months'.²⁰

Scope of the report

1.28 The report reflects the evidence received during 2004. The Committee thought it better to report on that evidence without further delay rather than awaiting another revision of the draft IRA. The Committee may wish to review the topic when a revised draft is released.

1.29 Chapter 2 considers issues to do with IRA methodology:

- what the time horizon for assessment should be;
- how to acknowledge sub-threshold risks on a number of pests;

19 Biosecurity Australia, *Importation of Fresh Bananas from the Philippines - revised draft IRA report*, February 2004, p.16-19.

20 Hon W. Truss, Minister for Agriculture, Fisheries and Forestry, *Government Commitment to Independence of Biosecurity Australia delivered*, media statement 1 December 2004. Mr J. Cahill (Biosecurity Australia). *Committee Hansard* 9 February 2005, p.6.

- use of probability distributions in IRAs; and
- assessment of consequences.

1.30 Chapter 3 considers the main arguments about the pests and diseases of concern.

1.31 Chapter 4 considers matters to do with the administration of Biosecurity Australia.

1.32 Chapter 5 draws conclusions.