Submission to Senate Rural & Regional Affairs Committee

on

Revised Draft Import Risk Assessment on Proposed Importation of New Zealand Apples to Australia - February 2004

In no country has fire blight been eradicated,

unless it was detected at an early stage

and confined to a limited area.

BA, 2000

Science: Systematised knowledge

derived from observation, study

and experimentation.

Collins, 1981

Submitted on behalf of Springfield Orchard Partnership, Batlow, NSW by the principal partner Peter Wilkinson BSc(Hons) Dip Ed.

PO Box 166

Batlow NSW 2730

email: sfield@dragnet.com.au

PH/Fax:(02) 6949 1021

20 June 2004

##

CONTENTS

1.INTRODUCTION

This submission is by no means exhaustive - addressing a few specific points. A significant thrust of the submission is to question a key aspect of Biosecurity Australia's (BA's) approach to scientific method in this IRA.

2.KEY ISSUES

2.1 Biosecurity Australia's Back-to-Front Scientific Method

Standard scientific method consists of the following ordered steps

- Propose an hypothesis

- Design an experiment to test the hypothesis

- Carry out the experiment and obtain results

- Repeat the experiment

- Draw conclusions

(- If necessary, adjust the hypothesis and retest.)

The relevant point here is that **the conclusion is based on experimental results**.

My assumption that BA followed this order in all of its work - even if some of the 'experimentation' was in the form of 'expert opinion'- underlay my original submissions to both BA in 2000 and the Senate Committee in 2001. I realised that this assumption was wrong during BA's meeting with Batlow growers & community in Batlow on 2.6.04. The questions (with some background) and BA's answers that led to this realisation are given below.

2.1.1 Visual inspection of orchards

The first of BA's three proposed risk management protocols for Fireblight is that orchards must be certified free of Fireblight symptoms. Certification is to be based on visual inspection of the orchard. My question to BA was:

"What evidence do you have that visual inspection of orchards for fireblight will be effective?"

BA offered a number of answers to the question (which was repeated several times), none of which was satisfying, because no evidence was produced. What they finally said was very illuminating - viz. once the recommendation regarding NZ's application is made, BA will work with its NZ counterpart to design an inspection procedure that will produce the required level of effectiveness (risk).

2.1.2 NZ's application to export apples free of trash

BA states on p.86 of Part A of the Revised Draft IRA :

"Importation of trash is another potential pathway for introduction of E. amylovora. This pathway was not considered in this analysis, because the scope of this assessment is limited to export from New Zealand of mature apples free from trash".

My question to BA was:

"Trash (leaves/spurs) is a known carrier of Fireblight. Yet you have not considered it in the Revised Draft IRA. What evidence do you have to explain and justify this?"

Again, no evidence was offered. The explanation given was that NZ has stated in their application that the apples **will** be trash free, and that BA would work with the NZ authorities to ensure that they are.

Regardless of NZ's "free from trash" claim and Dr Stynes' assertion that the issue was discussed by the IRA panel, given that trash is an acknowledged vector for fireblight, I would have thought that trash should have been included as a formal component of the importation pathway in the IRA, so that BA could make an informed assessment of associated risk. To accept that the apples will be trash free because NZ says they will be, even if NZ already has in place (which they may not) audited QA procedures to 'ensure' that they are, is naive. In support of this claim, I include the following extract from my 2001 submission to the Senate Rural & Regional Affairs & Transport Legislation Committee in response to the original Draft IRA.

"124:22-24 "These requirements would ensure that only low risk fruit are packed for Australia and that is done in a manner that minimises phytosanitary risks. Registration requirements would ensure diligent application of the specified requirements."

.

This conclusion sounds good, but then ideals usually do. The commercial reality is often very different. Two quick case histories illustrate this.

Case History #1 Batlow Fruit Co-op has a Certificate of Registration stating that it

"...complies with the requirements of

AS/NZS ISO 9002:1994

Quality systems-Model for quality assurance in production and servicing

HAACCP 9000:1996

Application of ISO 9000 and HACCP Requirements to Global Food and Beverage Industries

for the following capability

The registration covers the Quality and Food Safety Management Systems for the storage, washing, waxing and packing of apples."

In spite of this certification, and all the audit trails that go with it, fruit from the Co-op regularly goes to market containing trash. (Batlow BA meeting - Bob Heatley).

Case History #2 My own experience - on Springfield, we regularly sort through bins of #2 grade apples from the Batlow Fruit Co-op. (The Co-op sorts according to four grades - #1, #2, Juice and dump). It is not uncommon to find rotten apples - apples that should have been dumped. They were missed in the sorting and grading process. "

BA's treatment of orchard inspection and trash reverses the accepted order of scientific method. The conclusion (the desired level of risk will be achieved) is followed by the design and implementation of the experiment (the risk assessment protocol) to achieve the conclusion.

The recommendation coming out of this Revised Draft IRA is based on a risk matrix containing risk values, some of which are experimentally unfounded.

2.1.3 Implications

This back-to-front approach is not really about impartial scientific enquiry (although the IRA contains a great deal of this type of enquiry) but about enabling a desired result (a positive recommendation) to happen. It seems to me that underlying this approach is the premise that virtually all new and/or unforseen risks can be 'managed' satisfactorily - a protocol can be designed and put in place to do it. This approach is fraught with danger, because it does not employ rigorous scientific method and because it fails to take into account the difference between theory and practice.

.

2.1.4 Risk Management protocols - theory versus practice

To assume that a risk management protocol (RMP) will consistently achieve the desired level of risk/protection in a commercial environement is very unwise. A RMP involves procedures, machinery and people. The procedures can be designed and described in great detail and so become enshrined, permanent. Machinery and people on the other hand, regardless of maintenance programs, training and audit trails are subject to failures and mistakes. Any assessment of the effectiveness of a RMP must take this into account. In its treatment of orchard inspection and 'free of trash' apples the Revised Draft IRA does not do so. This alone is a serious flaw, undermining the credibility of the overall risk assessment and resulting recommendation.

2.2 Long term risk of an incursion under Australia's ALOP

Common sense suggests that the longer trade in apples goes on, the greater the risk of a pest incursion. An indication of the way the risk increases with time is given in the following table.

Period of Trade	1 yr	2 yr	3 yr

Risk of Incursion Less than 5% Less than 20% Less than 32%

Even if the ALOP is satisfied, the model used to generate these figures suggests that the risk of incursion over longer periods of trade increases rapidly to unacceptable levels.

The way in which these figures were calculated is set out in Appendix A.

2.3 Importance of independent peer review process for IRA's

Independent peer review of a paper prior to acceptance for publication is standard practice in reputable professional journals. While negotiation between author and reviewer(s) may occur, ultimate acceptance for publication depends on a satisfactory resolution between the two parties. This mechanism ensures that accepted standards of scientific investigation are adhered to and establishes a basis for the reader's confidence in the findings and for progress in the relevent field of investigation.

I suggest that response by interested stakeholders to the Revised Draft IRA is the closest it has got to peer review. While this response continues to bring to light many valid, serious and unresolved issues, it is not independent. Nor do the 'reviewers' have the authority accorded normal peer reviewers. Little wonder the lack of stakeholder confidence in the process by which the IRA is produced and in the IRA itself.

The NZ Apple IRA has now been carried out twice, and is still very seriously flawed. Many of these flaws have been identified not by BA, but by other non-independent stakeholders. This extraordinary situation, as well as being a huge waste of time and money, would almost certainly have been avoided, had the original Draft IRA been subjected to independent peer review prior to publication.

4 CONCLUSIONS

4.1 BA's recommendation to allow importation of NZ apples to Australia is seriously flawed.

4.2 BA's selective use of unsubstantiated assumptions in the allocation of risk exemplifies it's reversal of the accepted order of scientific method. Conclusions relating to two examples of this reversal follow.

> **4.2.1** No evidence is presented to substantiate the claim that yet-to-be designed orchard inspection procedures will reduce the level of risk by the stated amount.
>
> **4.2.2** No evidence is presented to justify BA's acceptance of the 'free of trash' clause in NZ's application to export apples to Australia.

4.3 BA's selective disregard for accepted scientific method implies that IRA's are compiled within a working framework designed primarily to facilitate trade rather than to ensure that IRA recommendations are based on rigorous science.

4.4 Modelling of incursion risk over periods of trade longer than one year suggests that Australia's ALOP ('very low') is not low enough.

4.5 Had BA subjected the original Draft IRA to independent peer review, it almost certainly would not have had to undertake the Revised Draft IRA, let alone find itself in the position of having published a still seriously flawed Revised Draft IRA.

4.6 Independent peer review should become an established part of the Australian IRA process.

5 Appendix - Modelling of risk associated with extended periods of trade

As BA has discovered, it is not easy to model with any degree of certainty the probability of incursion in one year, let alone over a longer period of time. However, if fruit are allowed to be imported, it has to be assumed that the risk of incursion in any one year is less than the ALOP. i.e. 5%. This fixed requirement is a starting point from which to build a defensible (but by no means precise or rigorous) estimate of risk over longer periods of trade.

To do this, let incursion be the 'event', where the probability of a successfull incursion in one year is 0.05. Because the ALOP is fixed, take this to imply (and this is acknowledged to be an approximation) that incursions in succeeding years are 'independent' events.

Accepting these approximations, the Binomial Probability Distribution can be used to model the behaviour of risk over longer periods of time where

p = Pr(success) = 0.05

n = no. of years (trials) that trade goes on

x = no. of incursions in n trials

Pr(x=1) = n(0.05)((0.95)^(n-1))

The 'percentage chance of incursion' figures in 2.2 are Binomial probabilities calculated for n = 1, 5, 10 and x = 1, with the resulting probabilities converted to percentage chance.