



CRC NPB Final Report CRC40035

Risk management processes for the movement of samples during an EPP incursion



Final Report

CRC40035

3. What is the Biosecurity Problem?

An EPP incursion will require the distant, rapid and ongoing movement of samples from the initial site of entry. This process involves inherent risk and R&D is required to underpin development of processes to manage risk.

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6. CRC NPB Budget

Expenditure	Year 1	Year 2	Year 3
Salaries	\$39,500		
Travel	\$4 500		
Operating	3,000		
Total	\$50 000		
Total (GST incl)	\$55,000		

7. Period of funding:

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30 June 2007

Executive Summary

The objective of CRC40035 was to review the process of moving emergency plant pest (EPP) samples during incursion, determine critical control points to manage risks and make recommendations for R&D. This review does not include samples collected by AQIS. Management of these is being reviewed internally.

There are two main groups of plant related diagnostic samples that could contain EPPs:

- Biosecurity samples generated by surveillance, emergency response, eradication and containment programs.
- Routine samples collected by farm consultants and primary producers to facilitate efficient farm management and access international markets.

Sample types vary widely and include herbaceous and woody plants, fruit, hay, seed, insects and soil. Each type of sample has specific packaging requirements for it to survive transport intact and arrive in good diagnostic condition.

There is a complex array of regulations that impact on packaging standards for plant diagnostic samples. Packaging requirements for biosecurity samples are outlined in PlantPlan and in the new Australian Standard 4834. Packaging for routine samples from interstate and exclusion zones have to comply with State and Federal quarantine regulations; the specific packaging requirements are specified in the permits issued to the laboratories receiving the samples. For routine diagnostic samples, packaging guidelines are provided by diagnostic laboratories and some also provide sample kits.

Packaging standards for plant diagnostic samples generally lack minimum technical standards to prevent use of substandard materials. One reason for this is that it is difficult to obtain technical information such as seal strength, puncture and tear resistance, etc for commonly used components such as press-seal bags. AS 4834 has attempted to address this issue by recommending the standards for medical samples are adopted for agricultural samples. This was not included in the draft standard. The decision to include samples that contain plant infective agents in AS 4834 seems to be driven by concerns about packaging for EPP samples. The practicality of this decision and the implications for routine diagnostic samples in particular does not seem to have been considered.

AS 4834 has 3 risk categories (A, B and C), these are based on the UN Recommendations on the Transport of Dangerous Goods, which is the model regulation for the International Air Transport Association (IATA) and the Australian Dangerous Goods Code (ADG Code). The UN regulations were developed to protect transport workers from infectious agents in medical samples. A broad range of packaging has been developed to cater for the different types of medical samples.

AS 4834 recommends that samples likely to contain EPPs should be packaged in accordance with Category A. This Category is for cultures of infectious agents that have a high risk of causing fatal disease to humans and/or animals (IATA Infectious Substances Shipping Guidelines). Samples likely to contain EPPs include those collected by incursion, eradication and containment programs. This will add to the cost of collection and likely to cause delays. Category A samples need to be packed by an IATA accredited packer using approved packaging and labelling. Note, Australia Post will not handle Category A samples. These issues will increase costs and cause delays.

For routine diagnostic samples that may contain plant infective agents other than EPPs, AS 4834 recommends packaging to conform to Category B. Most routine diagnostic samples including soil nutrient samples will fall into this category. Category B packaging will cost

>\$15 /sample, is currently difficult to access especially in country regions and will incur high courier fees of around \$30 / sample.

Australia Post currently only require packaging for plant diagnostic samples to comply with standard parcel post, although restricted samples need to conform to the respective State Quarantine regulations and be accompanied by Plant Health Certificates (*Post Guide, Parcels within Australia, 2005*). The requirements for parcel post is expressed in outcome terms e.g. must not leak etc, but do not have minimum technical specifications.

Better guidelines should be developed for the different types of plant, insect and soil samples to minimise the risk of substandard packaging being used. The recommended packaging must be readily available and reasonably priced if it is to be widely adopted.

New standards should be recorded in PlantPlan and updated as required. Incursion, eradication and containment programs are obliged to use the protocols in PlantPlan. PlantPlan is also readily accessible by diagnostic laboratories. User friendly brochures could be developed for primary producers and consultants, citing PlantPlan as the reference, and promoting biosecurity in the process.

Setting packaging standards too high will discourage people from sending samples. There are significant benefits to be achieved by encouraging people to send samples to approved laboratories; these include increasing the chance of early detection of EPPs and improved farm efficiency. By comparison, the risk they pose to spreading EPPs is very low, especially when compared to other means of dispersal.

Recommendations

The CRCNPB is in a unique position to make a useful contribution to developing practical packaging standards and streamlining delivery of plant diagnostic samples. The following areas need to be addressed:

- The decision to include plant infectious agents in AS 4834 was made with limited industry consultation and needs to be reviewed. Using Category A for samples that may contain EPPs will delay setup times and increase the cost of the incursion, eradication and containment programs, and associated research programs. The current definitions also encompass routine samples and this is likely to have an adverse impact on demand.
 - If AS 4834 standards are endorsed, then suitable packaging for each sample type needs to be identified and made available in regional areas.
 - If AS 4834 is considered excessive, then the standard will need to be revised, and new standards developed based on readily available components. These standards could be included in PlantPlan or developed as new categories in AS 4834.
- Contingency plans should be reviewed to ensure they include detailed packaging specifications and appropriate suppliers.
- To simplify the process of sending samples, endorsement should be sought from State Quarantine Authorities to remove the requirement for Plant Health Certificates or Written Approval notices to accompany samples sent in recommended packaging to approved laboratories. This will encourage agricultural consultants and producers to submit more diagnostic samples, and increase the chance of early detection of EPP incursions and farming efficiency.

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Background

An EPP incursion will require rapid and ongoing movement of samples from the initial site of entry to confirm diagnosis and define area of infestation. This process involves inherent risk that those conducting the surveys may enhance dispersal of the EPP. Inadequate packaging is one area of concern, and the regulations were reviewed by this project.

The findings are relevant to the movement of routine diagnostic samples for disease and pest diagnosis, both between states and from designated quarantine regions. These findings would also have relevance to the movement of international samples, both to and from Australia.

There are three main components to this project; these include reviewing regulations governing packaging and transport of plant health diagnostic samples, mapping movement of samples within Australia, and surveying a cross-section of people involved in collection, transport and processing of different types of plant health samples to identify gaps within the current system.

Methods

An analysis of sampling was undertaken and the results summarised in a diagram mapping the different activities that generate diagnostic samples from an EPP incursion through to it becoming another management issue. Selected people representing each activity were contacted to summarise their experiences and to identify any deficiencies relating to packaging and labelling (Appendix 1). Topics covered included; sample types, packaging used, technical specifications, conforming regulations, packaging standards for quarantine regions, sample numbers per annum, numbers lost, breached and arrived in poor condition; risk of samples containing an EPP, and the risk it would establish if the packaging was breached. They were also asked to identify any gaps and areas requiring R&D.

To determine the current legal requirements for packaging of diagnostic samples that may contain EPPs, the following regulations were reviewed; international and federal transport and Australia Post regulations governing the packaging standards for dangerous goods sent by air and road, and the State Plant Quarantine regulations, PlantPlan Version 1, 2007, and selected contingency plans and laboratory permits issued by State Quarantine sections.

Mapping movement of diagnostic samples.

Entry of EPPs into Australia, their detection and management are summarised in Figure 1.

The main avenues for EPPs to enter Australia are via plant introductions, international trade and travellers. AQIS has surveillance systems in place to monitor these. Diagnostic samples generated as part of these programs are managed by AQIS, and the packaging requirements for these samples (1 to 3) are currently being reviewed internally.

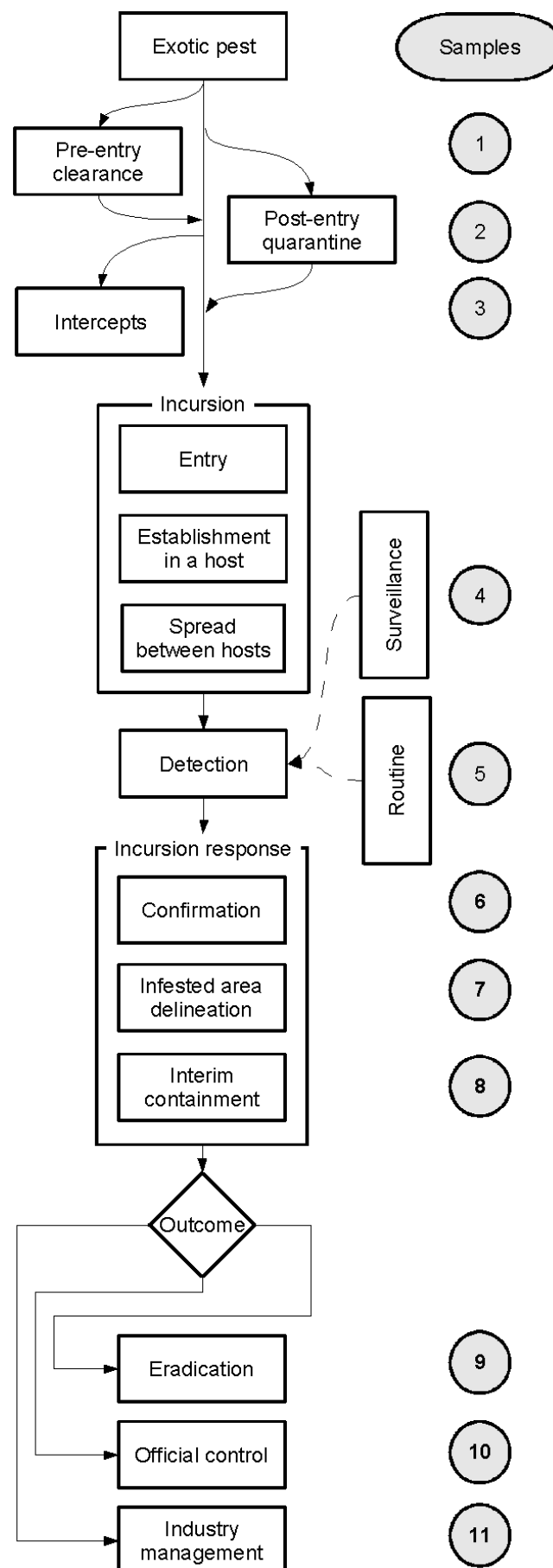
If an EPP enters, it must establish. This requires finding a suitable host and if the environment is conducive, it will multiply and spread until it is detected either by a surveillance program (Sample 4) or by an individual recognising that the organism / plant symptoms were unsure e.g. a primary producer, consultant etc (Sample 5). If a sample is sent to a diagnostic laboratory for identification the emergency response process outlined in PlantPlan will be triggered. Specimens (Sample 6) will be sent to a reference laboratory for confirmation. Surveys will be conducted (Sample 8) to define the infestation, and an interim containment zone established. A decision will then be made to attempt eradication or

contain the infestation to slow further spread; both options may generate further samples (Samples 9 & 10). These will have a high probability of containing the EPP. If the infestation is too widespread quarantine restrictions will be lifted and EPP status removed. Farmers will then need to implement management strategies, which may generate routine diagnostic samples (11).

Routine diagnostic samples may come from unrestricted regions within a state to be delivered to a local laboratory (unrestricted), or to an interstate laboratory (restricted), and from a region quarantined to contain or eradicate an EPP (restricted/prohibited). Restricted and prohibited samples need to be accompanied by Plant Health Certificates or Written Approval notices.

Since there are no surveillance programs for many EPPs, the routine diagnostic samples play an important role in detecting incursions early, which is critical if eradication is to be achieved. The WA Department of Agriculture and Food has recognised the value of utilising the producer and agronomist networks to help in early detection of EPPs and have established Grain-Guard and Hort-Guard; a range of sample kits have been developed to encourage samples of unusual insects or diseased plants to be sent to the Department for identification.

Figure 1: Flow diagram for incursion, detection and management of EPPs



Summary of survey on packaging of samples that may contain EPPs.

A cross-section of people involved in collecting, transporting and processing diagnostic samples that may contain EPPs were surveyed to identify weaknesses that need to be addressed (Appendix 1).

Incursion Response Programs

People involved in EPP incursions generally felt the packaging and sample transport arrangements were adequate. Even though these samples had a relatively high chance of containing EPP, they were considered to present a low risk of dispersal relative to other means operating in the field.

Incursion programs generally have to respond very quickly. In the case of sample packaging, the bags need to be readily accessible. Current instructions usually specify the number and type of packaging layers required, but don't specify technical standards. This flexibility helps in rapid response, but could result in substandard packaging being used.

Future upgrades to packaging standards are needed to ensure appropriate packaging is readily available, including retailer outlets.

Routine samples from incursion response zones.

State Quarantine regulations require a higher standard of packaging for routine diagnostic samples from an incursion, eradication or containment zone. However, these additional requirements take time to implement. This was highlighted in the recent sugarcane smut incursion in Queensland. When quarantine exclusion zone was established, no diagnostic samples including those from unrelated industries could leave until eradication was considered impossible and the restrictions lifted.

The agronomist interviewed by this project, operating in the branched broomrape quarantine zone went to some trouble to ensure the samples were well packaged and accompanied by the appropriate certificates. However, these restrictions did impact on the number sent, particularly when some laboratories charge more to receive quarantined samples.

A minimum standard of packaging approved by State Quarantine Authorities would enable the flow of routine diagnostic samples to continue when an exclusion zone is established. Standardising the packaging requirements would simplify the process and should improve adoption. This should also eliminate the need for Plant Health Certificates to accompany samples sent to approved laboratories.

Routine plant disease and insect diagnostic samples.

The decision by most primary producers and agronomists to send pest and disease samples, is often made on the "spur of the moment". These samples are usually packed using the nearest available packaging. WA Department of Agriculture provides kits. Other diagnostic laboratories provide packaging guidelines.

The number of routine diagnostic samples is relatively small, 1000s per annum. There appears to be a growing number sent to interstate laboratories due to declining specialist expertise. Often these samples are not accompanied by the appropriate certificates.

Diseased plant specimens were the most problematic; up to 10% arrive in poor condition. This is in part because they are perishable and degrade easily; however poor packaging is a contributing factor.

People send diagnostic samples because they are unfamiliar with the specimen. Occasionally these turn out to be EPPs. Encouraging the flow of samples is important for early detection of potential EPP incursions.

Routine non-diseased plant and soil samples

This is the largest sector of diagnostic samples, >100,000 per year nationally. It includes soil and plant samples for nutrient analysis, soil samples for DNA analysis, seed certification and phytosanitary samples e.g. hay. The samples support efficient farm management, facilitate export trade and research. Private and government laboratories provide these services and generally aim to achieve full cost recovery.

Sample kits are usually provided by the laboratories. These have often evolved to meet the needs of individual samples and laboratories. Few if any have been formally approved by the transport industry, but obviously all comply with the specifications in Australia Post, *Post Guide, Parcels within Australia, 2005*.

Issues confronting these laboratories include:

- Most labs need to receive samples from interstate to achieve economies of scale.
- Price sensitive market; packaging and transport costs need to be reasonable.
- Most interstate samples are classified as restricted and should be accompanied by Plant Health Certificates, but many don't.
- Samples from Quarantine areas require written approval notices from eradication and containment programs to send samples. Some labs charge up to \$200 surcharge to process these samples.
- Improvised kits vary in quality and are most likely to break.

Summary:

- Diagnostic samples are considered to be a minor means of dispersing EPPs compared to other methods of dispersal by staff involved in incursion programs.
- The most problematic samples are plant specimens arriving in poor condition.
- Samples lost in transit were not a significant issue, though some arrive late.
- Most diagnostic samples arrive intact, however packaging breaches do occur in a small proportion of samples, usually soil samples submitted in improvised packaging.
- Plant health certificates often do not accompany restricted samples from interstate.
- Restrictions imposed on producers within exclusion zones discourage sampling.

Regulations

Transport industry regulations

Transport of diagnostic samples is subject to international, national and State regulations. Those that apply in Australia are summarised in the Australia Post Dangerous & Prohibited Goods & Packaging Post Guide, 2005.

International regulations set the standards for air cargo and the emphasis is on minimising risk to humans, animal, property and the environment. Nine classes of dangerous goods have been developed by the United Nations; 'Recommendations on the transport of dangerous goods'. This is the model for the International Air Transport Association (IATA) Dangerous Goods Regulations. Individual countries set regulations for dangerous goods transported by road; in Australia this responsibility falls to the Federal Department of Road Transport and Regional Services (DOTARS). The Guidance Notes for the transport of Class 6.2 (Infectious Substances) Dangerous Goods (DOTARS) classifies infectious substances (Class 6.2) into risk groups. Plant industry samples fall into Risk Group 1 that *"includes micro-organisms that are unlikely to cause human or animal disease (i.e., no or very low, individual, or community risk). Substances containing only such micro-organisms are not considered infectious substances for purposes of the Regulations or the ADG Code."* Since samples that travel by road may also travel by air, domestic regulations generally conform to IATA regulations.

PlantPlan Version 1, 2007 indicates samples likely to contain EPPs need to be packaged in accordance with Category B of the IATA Dangerous Goods Regulation 2005 and draft Australian Standard DR 05023. This was not flagged in the draft version of the standard DR 05023 nor is it required by the IATA regulations. However, the draft standard was recently published as AS 4834-2007, and in it the definition of infectious substances has been expanded to include infectious agents of plants. It recommends that samples which may contain EPPs should be packaged in accordance with Category A. This will include samples collected by incursion, eradication and containment programs, as well as reference cultures sent between laboratories. Category A samples are required to be packed by an IATA accredited packer.

AS 4834 also recommends that samples which may contain plant infectious agents that are not EPPs, should be packaged in accordance with Category B specifications. This includes most routine diagnostic samples.

Category A & B standards were developed to protect transport workers from medical and veterinary samples. These standards were not designed for use by the agricultural sector, where sourcing the appropriate kits will be difficult and the additional cost will be a significant disincentive.

It should be noted that compliance with Australian Standards is voluntary unless mandated by industry / government regulations.

Plant health regulations

Routine samples

Samples generated within a state, from non-quarantined regions, can be sent to local laboratories without restriction.

Samples from quarantined regions, and those sent to interstate laboratories are subject to State or Territory and Federal Plant Quarantine Regulations. These samples may be classified as unrestricted, restricted or prohibited. Samples sent to approved interstate laboratories or local and interstate laboratories from quarantine exclusion zones need to be accompanied by a plant health certificate or a written approval notice, respectively. Approved laboratories require permits to receive the samples, and these permits specify packaging requirements.

The laboratory permits are issued by State Quarantine Authorities and AQIS if samples are received from other countries. While these permits usually describe the type of packaging required they do include technical specification. For example, a permit to import soil containing devitalised Phylloxera species, *“Individual samples (no greater than 600g) to be sealed in air-tight plastic bags and placed in an unbreakable plastic container. Lids will be sealed with packing tape”*. Under AS4834 these samples would need to be packed by an IATA accredited packer using Category A packaging and labelling.

Australia Post requirements for plant diagnostic samples

Plant infectious substances are not included in the Australia Post definition of infectious substances (section D2.6.2 Australia Post Dangerous Goods Prohibited Goods & Packaging Post Guide 2005). However these samples are subject to the following sections:

- Section 5 Interstate Prohibitions and Restrictions summarises individual State Quarantine regulations on the movement of plant, fruit, vegetable, grain and soil samples. These generally require certification to move between states.
- Section 9 Senders responsibilities:
 1. D9.1.1 Any non-letter article that requires carriage by air must bear a signed Aviation Security and Dangerous Goods Statement declaring that the article does not contain any dangerous or prohibited goods.
 2. D9.2.3 Australia Post may destroy or dispose of any article that becomes physically offensive in the post, e.g. decomposing samples.
- Section D10.0 General Principles. Postal articles must be prepared and made up to:
 1. Prevent injury to any person handling the article
 2. Prevent the contents escaping and causing damage to other postal articles
 3. Prevent damage to equipment and vehicles, particularly aircraft, during carriage
 4. Protect the contents from loss or damage arising from handling stresses and pressure to which the article is unavoidably subject to during postal carriage
 5. Protect the contents from the effects of climate, including changes in atmospheric pressure during air carriage and extremes of temperature.

Note: there are no technical specifications to achieve the outcomes of Section 10. However, Australia Post, Post Guide, Parcels within Australia 2005, Section P15.5 lists the specifications required for plastic wrapping and covers based on Australian Standards. These specifications include minimum thickness for the weight of the article, impact strength and tearing resistance. Australia Post offers a testing service for the suitability of polyethylene products.

Emergency response samples

PlantPlan is the reference document for all emergency response plans. Standards specified in PlantPlan form the basis of the contingency plans for specific EPPs. These standards will be implemented by government agencies managing emergency response programs.

Discussion

All plant related diagnostic samples could contain EPPs, however, their contribution to spread of EPPs is very low, especially compared to other means of dispersal. Even the EPP incursion response samples that are the most likely to contain EPPs, were considered to pose a low risk by staff managing the incursion programs. The main concerns were that samples arrived in good condition for diagnosis.

There is merit in establishing minimum standards for the broad range of diagnostic samples that diagnostic laboratories receive. These standards need to consider the requirements of the transport industry and ensure samples arrive in good diagnostic condition.

Each sample type has specific requirements; some examples include:

- Plant leaf samples; packaging layers may include an absorbent layer, possibly inside a press-seal bag, posted in a standard envelope or courier pouch. Large samples may need to be sent in a mailing tube.
- Diseased fruit and vegetable samples; Packaging may need an insulated outer box to minimise exposure to high temperatures, possibly including a disposable ice brick and absorbent material to regulate excess moisture, and one or more air-tight layers to contain the sample if it degrades and becomes offensive.
- Grain samples; packaging needs to be strong to prevent bursting on impact, be air-tight if the EPP occurs in the dust fraction, and insect proof if weevils may be present as they can chew through some packaging.
- Insect specimens; PlantPlan provides a comprehensive list of processing and packaging of specimens to be sent by post or courier. Australia Post will accept samples preserved in small volumes of 65% ethanol.

AS 4834 recommends adopting standards developed for medical samples for plant related specimens. This decision does not seem to have considered the wide range of agricultural samples that need to be packaged or the impact of the higher courier and packaging costs will have on demand. If adopted, approved medical packaging will need to be evaluated to determine which is suitable for each type of agricultural samples. Arrangements will also have to be made to ensure the packaging is readily available in regional areas.

It is worth exploring simpler options based on packaging that is already available in country areas. The temptation to over-engineer the packaging should be avoided, yet be adequate to allow movement of routine diagnostic samples to approved laboratories from incursion, eradication and containment programs without Plant Health Certificates or written approval notices. Approved laboratories will be those issued with appropriate permits from State Quarantine Authorities (and AQIS) to process the specific types of samples.

PlantPlan is a logical vehicle to record the packaging standards. The specifications should be described in sufficient detail and include a list of suppliers to minimise the risk of substandard components being used. Permits issued to approved laboratories by State Quarantine Authorities should then refer to PlantPlan, and standards included in the Australia Post Dangerous & Prohibited Goods & Packaging Post Guide.

Encouraging people to send diagnostic samples should be an important objective of new packaging standards. Keeping the whole process as simple as possible will be important.

Appendix 1: Summary: key personnel surveyed to examine packaging standards for samples that may contain EPPs.

Sample type	Operation Category	Name	Position	Organisation	Location
4	Former Grain-Guard co-ordinator	Greg Shea	Former Grain-Guard co-ordinator	D Ag, WA	Perth WA
5	Diagnostics, plant pathology	Chris Wilmshurst	Diagnostician	SARDI	Adelaide SA
5	Diagnostician	Edward Liew	Plant Pathologist	Botanic Gardens Trust	Sydney NSW
5	Diagnostics	Heidi Martin	Horticulture Diagnostician	QDPI	Brisbane Qld
6 - 8	Sugar cane smut incursion	Dr Rob Magarey	Senior plant pathologist	Bureau Sugar Experimental Stations.	Tully Qld
4 - 9	Apple scab	Satendra Kumar & Nuccia Eyres	Plant Quarantine, WA	D Ag, WA	South Perth
6 - 9	Sugar Cane Smut, Lupin anthracnose, Ascochyta blight of chickpeas, Brown rot of stone fruit, downy mildew of grapevine and fire blight.	Dr Ian Riley	Plant Pathologists	SARDI (formerly A Ag, WA)	Adelaide SA
6 - 9	Grapevine leaf rust	Dr Barry Conde	Plant pathologist	DPIF (NT)	Berrimah, Darwin, NT
9 -10	Branched Broomrape containment	Philip Warren	Manager, Branched Broomrape	DWLBC, Waite Campus	Adelaide SA
10	PCN containment	Craig Murdoch	Plant Standards	DPI Vic	Knoxfield Vic
11	Agronomist operating in BBR containment zone	Steve Hein	Senior sales agronomist	Mypolonga Traders	Mypolonga SA
9 to 11	DNA assessment of general and quarantine soil samples for range of plant pathogens	Dr Alan McKay	Leader, Root disease testing service	SARDI.	Adelaide SA
10 & 11	Nutrient Lab – general and quarantine soil and plant samples	Dr Geoff Proudfoot	Manager, CSBP Lab	CSBP	Perth WA

Appendix 2: Reference material

AUSTRALIAN AND AUSTRALIAN/NEW ZEALAND STANDARDS

Standards Australia
GPO Box 5420
SYDNEY NSW 2001
Website address: <http://www.standards.org.au/>

AUSTRALIAN DANGEROUS GOODS CODE (ADG CODE)

Website address: http://www.dotrs.gov.au/transreg/str_dgoodsum.htm

AUSTRALIAN GOVERNMENT, DEPARTMENT OF HEALTH AND AGEING PUBLICATIONS

The reference 'Infection Control guidelines for the prevention of transmission of infectious diseases.

Website address: <http://www.health.gov.au/internet/wcms/publishing.nsf/Content/icg-guidelines-index.ht>

AUSTRALIA POST POST GUIDES

General Post Guide, 2004

Dangerous & Prohibited Goods & Packaging Post Guide, 2005

Parcels within Australia Post Guide, 2005

Australia Post Headquarters

GPO Box 1777

Melbourne VIC 3001

Web address: <http://www.auspost.com.au>

DEPARTMENT OF TRANSPORT AND REGIONAL SERVICES

Land Transport of dangerous goods

Web address: <http://www.dotars.gov.au/transport/australia/dangerous/index.aspx>

Guidance notes for the transport of class 6.2 (Infectious Substances) Dangerous Goods

Web address: http://www.dotars.gov.au/roads/publications/pdf/roads_guidnote-class62.pdf [41k - pdf]

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA) PUBLICATIONS

Dangerous Goods Regulations, 48th ed.

Infectious Substances Shipping Guidelines, 8th ed.

Website address:

https://www.iataonline.com/Store/Products/Product+Detail.htm?cs_id=9065%2D45&CS_catalog=Publications

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) PUBLICATIONS

Website address: http://www.icao.int/icao/en/m_publications.html

OFFICE OF GENE TECHNOLOGY REGULATOR (OGTR) PUBLICATIONS

The Office of Gene Technology Regulator

Website address: <http://www.ogtr.gov.au>

UNITED NATIONS (UN) PUBLICATIONS

Website address: <http://www.unece.org/trans/danger/danger.htm>

WORLD HEALTH ORGANIZATION (WHO) PUBLICATIONS

The WHO reference 'Guidelines for the Safe Transport of Infectious Substances and Diagnostic Specimens. WHO/EMC/97.3.'

Website address: <http://www.who.int/emc/pdfs/emc97.3.PDF> (accessed March 2004).

Federal Agriculture Authorities

DEPARTMENT OF AGRICULTURE, FISHERIES AND FORESTRY (DAFF);

Website address: <http://www.daff.gov.au>

Biosecurity Australia; Plant Biosecurity

Website address: <http://www.daffa.gov.au/ba>

Australian Quarantine and Inspection Service (AQIS)

Website address: <http://www.daffa.gov.au/aqis>

PLANT HEALTH AUSTRALIA

Website address: <http://www.planthealthaustralia.com.au>

PlantPlan – Australian Emergency Plant Pest Response Plan, 2007 – Version 1 as at 14 March 2007.

Plant Health Australia Ltd

Suite 5, FECCA House

4 Phipps Close

Deakin ACT 2600

Website address:

[http://www.planthealthaustralia.com.au/our_projects/display_projects.asp?category=2s:](http://www.planthealthaustralia.com.au/our_projects/display_projects.asp?category=2s)

State Agriculture Authorities

NSW

NSW Dept of Primary Industries

Website address: <http://www.dpi.nsw.gov.au/>

Queensland

Dept of Primary Industries and Fisheries; Biosecurity

Website address: <http://www.dpi.qld.gov.au>

Grow Help Australia

Website address: <http://www2.dpi.qld.gov.au/horticulture>

South Australia

Primary Industries and Resources SA

Website address: <http://www.pir.sa.gov.au>

Plant Quarantine Standard, Version 3.0 July 2006. Conditions of Entry outlines in detail the entry requirements for all diagnostic material into SA.

Website address: <http://www.pir.sa.gov.au/sqs>

Tasmania

Dept of Primary Industries and Water; Biosecurity

Web address: <http://www.dpiw.tas.gov.au>

Victoria

Dept of Primary Industries, Victoria; Biosecurity Victoria

Plant Health and Plant Products Act 1995, Version No. 024; Plant Health and Plant Products Regulations 2006, Version No. 001
Web address: <http://www.dpi.vic.gov.au/dpi>

Western Australia

Dept of Agriculture and Food, Western Australia;
Website address: <http://www.agric.wa.gov.au>

Western Australian Quarantine Inspection Service (WAQIS)

Website address:

http://www.agric.wa.gov.au/pls/portal30/docs/FOLDER/IKMP/PW/biosecurity_index.htm -
35k -