

VICTORIA

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Auditor General

Victoria

**Beating the bugs:  
Protecting Victoria's  
economically significant  
crops from pests and  
diseases**

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AUDITOR GENERAL  
VICTORIA

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Parliament House  
MELBOURNE

The Hon. Judy Maddigan MP  
Speaker  
Legislative Assembly  
Parliament House  
MELBOURNE

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my performance audit report on *Beating the bugs: Protecting Victoria's economically significant crops from pests and diseases*.

Yours faithfully

JW CAMERON  
*Auditor-General*

22 April 2004



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# Foreword

In today's busy world where global travel and trade are a part of everyday life, we must be increasingly on the watch against unwanted pests and diseases. Victoria's "clean and green" reputation is an important economic asset well worth guarding. At the same time, trading agreements increasingly demand that quarantine and other barriers to trade be based on good science.

Victoria's plant-based industries contribute over \$3 200 million annually to the state's economy. To maintain markets, and to develop new ones, our growers must be able to produce quality product that is free of pests and diseases.

This audit examines how well Victoria's Department of Primary Industries protects our economic crops from plant pests and diseases.

Crop protection activities carried out by the department cost about one-tenth of one percent of the contribution that these industries make to the state economy. The outcome of these activities, together with prevention and control measures taken by the industries, has meant that Victoria has not lost any significant economic markets due to pests and diseases.

Consequently, we can conclude that the department is carrying out its work well, within its limited resources.

I urge you to read this audit report and take note of how Victoria is managing this complex area of plant biosecurity.



JW CAMERON  
*Auditor-General*

22 April 2004





# 1. Executive summary





## 1.1 Introduction

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Plant pest and disease management in Victoria occurs in a national context. While the Australian Government Department of Agriculture, Fisheries and Forestry is responsible for preventing exotic pests and diseases from entering Australia, the Victorian Department of Primary Industries (DPI) is responsible for ensuring that market access for Victorian produce is maintained.

As part of this responsibility, DPI manages the system for prevention, detection and control of plant pests and diseases in Victoria. Annual funding for the plant health area in DPI is around \$3.3 million. The value of the plant industry for Victoria is \$3 200 million. Farmers, the Commonwealth Government and industry organisations also have a role to play in managing any plant pest and diseases that may occur.

These pests and diseases may originate externally to Australia, be present in Australia but absent in Victoria, or be present in parts of Victoria and not present elsewhere in Victoria. To date, DPI has managed to prevent significant spread to areas free of pests and diseases, and to maintain access to all significant markets despite periodic outbreaks of these pests and diseases.

The audit found DPI to have a professional and competent approach to managing pests and diseases in Victoria's plant-based industries. DPI's performance, however, could be improved by:

- developing ways to improve surveillance and early detection of new and emerging plant pest and disease threats
- improving direct lines of communication with industry and other parts of DPI
- documenting the range of internal procedures and policies better, from threat priorities to funding arrangements, contingency planning and enforcement
- identifying and reporting on meaningful performance targets and introducing consistent monitoring procedures across the state
- reviewing the need for adequate succession planning to sustain scientific expertise
- developing specific emergency response training for staff and industry.

DPI uses its current \$3.3 million funding for plant health to capacity. Its work in plant health is targeted and is delivered through a number of essential programs. To make the improvements suggested in this audit report, DPI will need to review the plant health program and the resources allocated to it.

## 1.2 Is the legislation working properly?

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DPI and the Department of Sustainability and Environment (DSE) administer nine main Acts (as well as associated amendments, minor Acts and Regulations) that relate to biosecurity for plants, animals, forestry or the environment.

In examining whether the legislation was working properly, we reviewed whether the current legislation met biosecurity needs and if it was being enforced efficiently.

We concluded that a review of the various Acts could lead to more comprehensive biosecurity legislation and that DPI's enforcement policy needed to be clarified. These conclusions and recommendations are set out below.

### 1.2.1 Does current legislation meet biosecurity needs?

DPI's ability to manage incursions is not seriously compromised by nine different Acts, each with differing powers and different departmental groups responsible for administering them.

However, different Acts have different ways of declaring threats, and different powers for managing incursions. Staff are expected to operate under several Acts and can potentially be confused about what powers to use, in what circumstances.

DPI could manage incursions and enforce legislation more consistently if it reviews all Acts as a body of legislation, with an eye to reducing the multiplicity of ways of declaring threats and empowering officers. There do not appear to be good reasons for these variations, only historical ones.

#### Recommendation

1. That DPI, in partnership with the Department of Sustainability and Environment, reviews all legislation relating to plant biosecurity with a view to streamlining the legislative framework.

### 1.2.2 Is legislation being enforced efficiently?

Enforcement is part of ensuring compliance with any legislation. It can help ensure that growers take their responsibilities seriously, vigilantly monitor for pests and diseases, treat produce before sale, and report suspected incursions. In the last three years there has been seven prosecutions, a low level given the many thousands of industry operators.

DPI needs a comprehensive enforcement policy that applies to all sections. DPI's Plant Standards Branch (PSB) needs guidelines about how this policy will be implemented.

The Offence Management Unit is the department's unit with the most expertise in collecting evidence and initiating prosecutions. It is best placed to provide training and administration processes for PSB's enforcement activities.

Field staff need to be given the support that clear organisational policy about enforcement provides. This will enable them to distinguish better when a situation requires a regulatory approach, education, or both. The Offence Management Unit should coordinate development of a DPI enforcement policy and ensure that it is implemented consistently across all divisions.

There are efficiencies to be gained by DPI ensuring that all Acts it administers use the Penalty Enforcement Registration Infringement Notices (PERIN) system to issue on-the-spot fines.

## Recommendations

2. **That DPI develops a department-wide enforcement policy and specific guidelines for PSB.**
3. **That PSB's enforcement procedures are consistent with those of the rest of the department.**
4. **That the *Agricultural and Veterinary Chemicals (Control of Use) Act 1992*, *Plant Health and Plant Products Act 1995* and *Livestock Disease Control Act 1994* be registered with the Department of Justice's PERIN system.**

## 1.3 Are prevention and control measures in place?

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There are potentially hundreds of different plant pests and diseases that might threaten crops in Victoria<sup>1</sup>. The types and impacts of threats are constantly changing and trends point to an increase in national outbreaks of exotic threats.

In examining whether adequate prevention and control measures were in place, we reviewed whether DPI's plans identified and prioritised potential threats and were linked to government policy, if systems were in place to support prevention and control of priority threats, and whether plant pests and diseases were detected.

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<sup>1</sup> The grains industry alone has identified over 300 species that are potential threats.

We concluded that known threats to Victoria's plant industries from pests and diseases were well controlled and successfully detected, but surveillance activity for threats not known to occur in Victoria is very limited. DPI could target its work better through improved threat assessment processes and detailed strategic, business unit and contingency planning, at all levels.

Details of these conclusions and recommendations are set out below.

### 1.3.1 Does DPI's planning identify and prioritise potential threats and link to government policy?

DPI has more than one priority threat list. These lists should be amalgamated and reprioritised using consistent assessment criteria and methods. The criteria and methods used should be consistent with those used by Plant Health Australia<sup>2</sup> at the national level. This will enable DPI to use a standard list of prioritised threats to guide its strategic and business planning.

#### Recommendation

- 5. That DPI develops a consistent process to identify, assess and prioritise potential plant pest and disease threats, and aligns it with prioritisation processes used at the national level by Plant Health Australia.**

The various business unit and incursion management plans are not clearly linked with each other, or to government objectives, in ways that give sufficient support and direction to officers who are operating with growers or other parts of the industry.

The plans that Plant Standards Branch uses have come down the line from the Regional Services and Agriculture division, but are not sufficiently detailed or comprehensive to provide management with information that accurately reflects performance. Nor can PSB adequately demonstrate to the public how well it is meeting the government's policy objectives.

PSB's strategic intentions are most clearly set out in its various service (purchaser-provider) agreements with other parts of DPI. These could be improved further through clear descriptions of expected outputs and performance criteria, definition of roles and responsibilities of both the purchaser and provider, and formalising the planning cycle.

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<sup>2</sup> A non-profit company charged with developing a whole-of-industry and whole-of-government approach to the development, coordination and implementation of plant health policies and management programs.

The development of the Victorian plant biosecurity strategy presents an opportunity to comprehensively set the direction for biosecurity in DPI and in Victoria. It also provides PSB with an opportunity to link the various operational plans with corporate and government policy. Lists of high priority threats should be used to guide strategic and business unit planning. Performance indicators, against which DPI reports its performance in addressing biosecurity policy priorities, need to be developed.

Specific plans will not be needed for all species, as the Victorian plant biosecurity strategy and Plant Health Australia's PLANTPLAN should provide general guidance for managing an incursion.

However, to respond better to an incursion, PSB should consider developing incursion management plans for groups of threats (such as a plan for types of insects and another for nematodes<sup>3</sup>). These generic incursion management plans could be supplemented by specific plans for high priority threats.

The Weed Alert Rapid Response Plan should be considered as a model when developing the response section of the Victorian plant biosecurity strategy.

The Victorian plant biosecurity strategy needs to define better chains of command and responsibilities during incursions than does the current Incident Action Plan.

## Recommendation

6. **That DPI, as part of the development of the Victorian plant biosecurity strategy, undertake a strategic review of its plant health planning framework so that:**
  - **corporate and business unit plans at all levels of the department align to each other and to government policy so that staff have a coherent frame of reference to guide their work**
  - **performance indicators are developed, used, reported against and evaluated regularly**
  - **all plans (including service agreements with other parts of DPI) are communicated to staff and implemented in their day-to-day activities and responsibilities.**

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<sup>3</sup> Worms such as roundworms or hookworms.

### **1.3.2 Are systems in place to support detection of plant pests and diseases?**

DPI needs to work more closely with industry to overcome the generally low level of awareness about the national certification and verification system, and industry's roles and responsibilities under it. One way to do this would be to develop an education module about the system that could be incorporated into industry-run quality assurance programs.

The success of DPI's monitoring and surveillance efforts is difficult to establish as we cannot know how many threats were not detected. DPI's efforts to detect known threats such as fruit fly and phylloxera have been successful if judged by the measures of continued market access and the reduction in fruit fly detections at the Melbourne Markets (wholesale fruit and vegetable market).

One other means of assessing the department's performance in early detection is through the success of eradication programs<sup>4</sup>. Eradication data exists for some species and the department should consider collecting performance information on the success of eradication programs for all threats in its monitoring and surveillance program.

DPI has improved the monitoring and detection of fruit fly by using contract labour. There could be more use of contract labour for routine tasks such as fruit fly trap monitoring. Contract management processes need to be improved. Clearer contract management protocols, longer-term contracts and a preferred contractor system may have prevented the response delays that occurred in 2003.

Contract labour needs to be balanced with a professional permanent work force. The high turnover of newer staff should be investigated and issues to do with job satisfaction at entry levels addressed.

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<sup>4</sup> The earlier a pest or disease is detected, the greater the chance of successful eradication. Early detection should be established as a key objective or milestone indicator to measure successful surveillance and monitoring programs.

## Recommendations

7. That DPI works with industry to develop a training module on the certification and verification system for inclusion in industry quality assurance programs.
8. That DPI develops a consistent approach to recording and enforcing breaches of the certification and verification system.
9. That DPI makes arrangements to use contract labour for fruit fly trap monitoring and surveillance before the predicted fruit fly outbreak season.
10. That DPI reviews the work of entry level graduates to ensure career paths are clear and encourage the retention of staff.

### 1.3.3 Are new plant pests and diseases detected?

DPI currently does not undertake surveillance or monitoring for some high priority threats such as fire blight. Without acceptable surveillance programs (such as those carried out for fruit fly), DPI is vulnerable should it have to prove an area is free of a particular threat.

This audit has already identified the need for DPI to better prioritise and plan its work. Its current monitoring and surveillance programs result from the need to respond to current market access threats. DPI should be pro-active and identify the high priority threats for which monitoring and surveillance should be conducted.

Plant Standards Branch should improve how it assures the Commonwealth that a pest or disease is present or absent in Victoria.

The potentially high cost of monitoring and surveillance programs can be reduced by improving how information is gathered to detect and report exotic threats early. Significant work is needed to tell industry participants about their responsibility to report new threats, and about how to report them.

DPI should explore ways to provide better incentives for reporting, and should clarify how it compensates growers for reporting. It should also investigate other potential reporting sources such as at grain silo sites.

## Recommendations

11. That DPI improves monitoring and surveillance of high priority threats and improves the quality of information provided to the Commonwealth.
12. That DPI effectively communicates to all sectors of the industry their responsibilities to report new threats, and how to report them.

## 1.4 Are incursion responses effective?

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In examining whether incursion responses were effective, we reviewed whether diagnostic services and emergency responses were conducted well.

We concluded that incursion responses are effective with diagnostic services working well and emergency responses are well conducted. However, there are a range of issues that, if addressed, would improve diagnostic capability and scientific infrastructure. Similarly, targeting communication with industry, and training of both DPI staff and industry, should improve emergency responses to incursions.

Details of these conclusions and recommendations are set out below.

### 1.4.1 Do diagnostic services work well?

Diagnoses are likely to be much quicker and more accurate if scientists have experience with a wide range of threats. Under the purchaser-provider system of contestable funding for core diagnostic expertise and funding for research projects that help improve diagnostic procedures and protocols, management has not secured the necessary expertise to fully support responses to possible incursions by high priority exotic pests and diseases. It is only when diagnostic activity is part of a funded project that expertise can be maintained.

DSE's Forest Science Centre's forest health scientists should have access to Primary Industries Research Victoria's (PIRVIC) facilities. This could be achieved through a service agreement, by collocating the scientists with PIRVIC or by incorporating them into PIRVIC. Collocation or incorporation would increase professional interaction for all scientists and increase the use of facilities. The nematology expertise in the Forest Science Centre would also bolster PIRVIC's skill base.

There appear to be potential benefits, which should be explored, of linking the Victorian Museum reference collection, academic collections and the PIRVIC collection. Industry support for the PIRVIC reference collection should be canvassed, as the collection benefits industry.

DPI should review plant laboratory accreditation levels to ensure that it maintains its nationally recognised status for plant health diagnostics.

## Recommendations

13. **That the model for state funding be reviewed to ensure that DPI can confidently build and maintain a core level of diagnostic expertise and research capability.**
14. **That better use be made of PIRVIC's facilities by strengthening links with relevant groups of expertise, such as the Forest Science Centre.**
15. **That the recommendations of the 2000 DPI report into the reference collection's storage facility be implemented, to secure the collection in a purpose-built facility.**
16. **That DPI maintains ISO 9000<sup>5</sup> accreditation for at least one laboratory and seeks NATA<sup>6</sup> accreditation for key diagnostic tests. This should be done in combination with Plant Health Australia's laboratory accreditation project.**
17. **That DPI negotiates access, as and when required, to an AQIS PC4 accredited<sup>7</sup> laboratory.**

DPI successfully diagnoses endemic pest and disease species. Diagnosis of species that are new to Victoria takes longer. This is because scientists are less familiar with the organisms and, unless they are using an established protocol, they have to develop a new methodology.

Suitable protocols need to be established for all high-priority threats so that DPI is prepared for all high-priority pest and disease incursions. This will be costly, but the benefits will flow to other states and to industry. DPI should investigate funding from both industry and the Commonwealth to develop these protocols.

Samples in transit, and being handled, must be secure for legal and biosecurity reasons. PSB has a security system, but it is inconsistently applied. Adequate security measures for the transport and handling of samples need to be developed and implemented in all laboratories. Sample security is a national issue. Plant Health Australia is developing a transport standard and DPI should make sure that its security system is consistent with that standard.

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<sup>5</sup> International Organization for Standardization: quality systems.

<sup>6</sup> National Australian Testing Authority: proficiency and technical competency.

<sup>7</sup> Australian Quarantine and Inspection Service accreditation for handling airborne organisms.

The Crop Health Services diagnostic database should be a front line for detecting possible incursions. It is not at present, because it is not sophisticated enough to raise the necessary alarms, nor is it linked to other PIRVIC diagnostic databases around the state.

Accurate costing, and reimbursement of costs, are important elements of a fair and transparent purchaser-provider funding model. PIRVIC's testing costs should be reimbursed through those who purchase its services.

## Recommendations

- 18. That DPI develops diagnostic protocols for high-priority threats, in conjunction with other jurisdictions and industry, as soon as practicable.**
- 19. That DPI establishes a system to ensure the security of all samples at all times, but particularly during their handling and transport.**
- 20. That DPI upgrades the Crop Health Services diagnostic database so that it alerts PSB and PIRVIC to the receipt of samples from nearby areas with similar symptoms and can be linked to other PIRVIC diagnostic databases.**
- 21. That PSB and PIRVIC review their service agreement to ensure that PIRVIC is compensated for its costs in providing PSB with the specified level of service.**

### **1.4.2 Are emergency responses conducted well?**

Plant Standards Branch officers have little contact with growers or other industry parties except during an outbreak, when their level of contact is high. However, other DPI research and extension staff from Catchment and Agriculture Services have extensive contact with growers, and are DPI's main resource for educating growers. Formal arrangements, such as a service agreement, could be made for these research and extension staff to cover plant health issues.

Industry organisations and consultants are favoured sources of information. A more strategic approach for DPI would be to provide plant health information through them to industry.

PSB needs to develop and implement a comprehensive outbreak strategy (before, during and after an outbreak) for communicating with industry organisations, growers and other parts of DPI.

Compared with non-agricultural industries, rates of internet use to gain information appear high among growers and other industry parties<sup>8</sup>. This is a good reason for DPI to improve its website to make accurate, timely and useful information easily available. Two areas of particular need are plant health and incursion (including post-incursion) information. Despite the plant industry's relatively high general use of the internet, there are still many growers that do not use this form of communication. Regular updates could also be sent to industry groups for inclusion in their newsletters, and checks made that this information is communicated widely.

## Recommendations

- 22. That DPI formalises agreements within the Regional Services and Agriculture Division to ensure that plant health information is included in extension programs.**
- 23. That DPI develops a comprehensive strategy for communicating to industry their rights and responsibilities in relation to threats, incursions, outbreaks and post-outbreak; and also for communicating internally.**

Limited understanding by research and field staff about how the Australian Interservice Incident Management System (AIIMS) operates for incursions can delay responses as staff may question decisions and the authority of the person who makes them.

Debriefs are an opportunity for both DPI staff and industry to learn from incursions, and to better understand their role. People directly involved in the incursion, and those in support and peripheral roles, should attend debriefs. Debriefs should be conducted after all incursions, whether small or large.

Experience with outbreaks provides useful on-the-job training, however, rigorous simulation exercises can provide staff with a wide range of possibilities to test in controlled circumstances. Simulation exercises are particularly useful as training exercises for new staff where the added stress of being involved in a real outbreak is removed.

Staff availability to respond to outbreaks currently depends on personal relationships and goodwill, rather than on formal arrangements (such as in the case of wildfires, where incident response duties are included in DPI and DSE staff duty statements).

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<sup>8</sup> Victorian Auditor-General's Office, survey of crop growers. January 2004.

The adoption of AIIMS is commendable, but it needs to be better implemented across DPI. All staff involved in responding to incursions need to be trained to use the system, particularly to understand who is authorised to make certain communications, such as to the media, and undertake relevant procedures, such as ordering a specific crop treatment.

DPI should ensure that the person responsible for communicating with the public during an outbreak is an excellent communicator who can manage any sensitivities that arise.

The proposed Emergency Plant Pest Cost Sharing Agreement will share the costs of managing outbreaks between industry and governments. Once the agreement is in place DPI will need to develop internal funding guidelines to ensure that funding is available for owner-reimbursement costs when required.

## Recommendations

24. That DPI provides plant incursion-specific AIIMS training for anyone who might be involved in, or providing resources for, an incursion response. This includes senior management, field and research staff, contractors and industry participants.
  25. That DPI ensures that AIIMS training includes information to ensure that everyone understands their roles, and how information will be managed internally and externally, in the event of an incursion.
  26. That DPI conducts and documents debriefs after all incursions, and adopts any improvements that are identified through debriefs.
  27. That DPI formalises agreements between divisions and groups that allow staff to be involved in incursion responses and reflects this requirement in individual duty statements.
  28. That DPI prepares guidelines, both internally and externally with Treasury, about funding arrangements for an outbreak.
-



## **2. Protecting economic crops from incursions**





## 2.1 Introduction

Victoria's thriving plant-based agricultural industry contributes over \$3 200 million to the state's economy each year<sup>1</sup>. The Victorian Department of Primary Industries (DPI) spends around \$3.3 million each year ensuring market access for crops and protecting them from exotic plant pests and diseases. In contrast, DPI spends \$14 million on protecting the \$4 000 million animal industry.

Plant based industries are a major source of export income for Victoria. For example, grain exports earned about \$1 000 million and fresh fruit \$184 million in 2001<sup>2</sup>. Victoria's reputation as a "clean, green" food producer is a major factor in its export success. This reputation is based on us being free of many of the world's serious plant pests and diseases.

Plant pests and diseases are an ongoing threat to this reputation, and to the industry's ability to produce crops and maintain access to domestic, national and international markets. There are many potential threats. The grains industry alone has identified over 300 potential threats<sup>3</sup>. In contrast, the animal health area has identified 63 key disease threats, including the well-known foot and mouth, mad cow disease and anthrax.



*Fruit fly sign in northern Victoria.*

<sup>1</sup> Australian Bureau of Statistics, *Australian Commodities, Australia*, cat. no. 7121.0, ABS, Canberra.

<sup>2</sup> Department of Primary Industries, Victoria, <[www.dpi.vic.gov.au](http://www.dpi.vic.gov.au)>.

<sup>3</sup> Plant Health Australia project to identify threats to various plant industries.

**FIGURE 2A: TRADE IMPACTS OF KNOWN PESTS AND DISEASES****Queensland fruit fly**

The Sunraysia citrus trade is worth \$50 million a year. If a citrus consignment bound for the United States of America was found to have Queensland fruit fly, it would be banned. Future consignments would be prevented from export until Victoria could show that its citrus was free of fruit fly and had been treated chemically.

**Asparagus rust**

The Victorian fresh asparagus trade was worth around \$78 million in 2000. In 2003, there was an outbreak of asparagus rust in Queensland. Victoria, which supplies 80 per cent of the Australian asparagus market, is free of the rust. To keep us rust-free, DPI required every consignment of Queensland asparagus to be checked for rust before being exported to Victoria. Western Australia then required Victoria to demonstrate that its asparagus was rust-free. The national certification and verification system was used in all instances.

**Western flower thrips**

These thrips are widespread in Victoria. Produce infected with these thrips can enter Victoria. However, Victoria must demonstrate that produce is thrips-free to export it to Tasmania that is thrips-free.

## 2.1.1 Conduct of the audit

The audit examined DPI's ability to prevent and manage plant pest and disease outbreaks in economically-significant crops (such as grains, pulses, fruit, vegetables, nuts and berries).

We did not consider Victoria's pasture, forestry, cut flower or nursery industries; nor did we examine issues relating to the monitoring and management of chemical residues in agricultural produce.

### Method

The audit examined DPI's information and management systems, interviewed key management and operational staff, compiled observations of fieldwork, conducted independent research and a survey of growers and industry associations.

The audit was performed in accordance with the Australian Auditing Standards applicable to performance audits and, accordingly, included such tests and procedures considered necessary in the circumstances.

### Assistance to the audit team

A steering committee was established to provide specialist assistance to the audit. Membership included:

- Dr Simon McKirdy, Program Manager, Plant Health Australia
- Dr Stephen Beare, Research Director, Australian Bureau of Agricultural Resource Economics
- Dr Graeme Hamilton, Chief Plant Protection Officer, Department of Agriculture, Fisheries and Forestry, Australia

- Mr Barry Windle, Executive Director, Agriculture, Food and Fisheries, Department of Primary Industries and Resources SA
- Mr Keith Holden, National Audit Office, United Kingdom.

Wallis Consulting Group Pty Ltd assisted the audit in preparing, administering and analysing the grower survey.

Smart Strategic Services Pty Ltd provided assistance in structuring and editing the audit report.

## 2.1.2 Terms and abbreviations used in the report

There are several ways of referring to plant pests and diseases, and their consequences. Figure 2B shows how the terms are used in this report and also includes a list of abbreviations of organisations.

**FIGURE 2B: TERMS AND ABBREVIATIONS**

| Term                         | What it means  |
|------------------------------|--|
| Biosecurity for plants       | Protection from risks posed by plant pests and diseases through actions such as exclusion, eradication and control.  |
| Containment                  | Restriction of an incursion to a limited area, generally with quarantine measures enforced to prevent further spread. Often used as part of an eradication campaign.   |
| Control                      | Bringing a pest or disease incursion to a level that is manageable and unlikely to spread further. May include quarantine or other management activities.  |
| Endemic                      | Naturally occurring in an area.  |
| Eradication                  | The removal of a pest or disease incursion so as it is not detected within defined confidence limits.  |
| Exotic (suspect or declared) | Pest or disease that does not normally occur in an area; is non-native to Victoria, and where the consequences of an incursion would have adverse economic or other harmful effects. Exotics may be prescribed under the under the Plant Health and Plant Products Act and must be reported immediately. |
| Incursion                    | Detection of a threat, which triggers a DPI control response.  |
| Notifiable                   | A pest or disease that is declared as notifiable under the Plant Health and Plant Products Act. Detection of such a pest or disease must be reported within one week.  |
| Outbreak                     | When an incursion has escalated and meets the defined limits for declaring an outbreak of a particular pest or disease, for example, detection of five Queensland fruit flies within one kilometre and a two week period, constitutes an outbreak of Queensland fruit fly.                               |
| Quarantine                   | Official confinement of plants or plant products in accordance with international regulations for further inspection, observation, testing and or treatment.   |
| Threat                       | A confirmed endemic or exotic pest or disease declared under the Plant Health and Plant Products Act. Could be an existing pest or disease, or one of the many hundreds of potential pests or diseases that could threaten Victoria's crops.   |

**FIGURE 2B: TERMS AND ABBREVIATIONS - CONTINUED**

| Abbreviation | Organisation  |
|--------------|---|
| AFFA         | Department of Agriculture, Fisheries and Forestry – Australia |
| AIIMS        | Australian Interservice Incident Management System            |
| AQIS         | Australian Quarantine and Inspection Service                  |
| CSIRO        | Commonwealth Scientific and Industrial Research Organisation  |
| DPI          | Department of Primary Industries                              |
| DSE          | Department of Sustainability and Environment                  |
| PHA          | Plant Health Australia  |
| PHC          | Plant Health Committee  |
| PIRVIC       | Primary Industries Research Victoria                          |
| PSB          | Plant Standards Branch  |
| RDCs         | Research and Development Corporations                         |
| WTO          | World Trade Organization                                      |

*Source:* Victorian Auditor-General's Office, from information supplied by the Department of Primary Industries.

## 2.2 The role of governments

### 2.2.1 Why are governments involved in plant biosecurity?

Effective biosecurity programs rely on close cooperation between governments and industry. The two approaches taken to ensuring biosecurity are a government inspection service, and an industry self-regulation system with frequent government auditing. Traditionally, governments have relied on their inspection services. However, in recent years, DPI has concentrated on implementing an industry self-regulation scheme – the national certification and verification system – that requires fewer government resources and much greater involvement by industry.

Governments are involved in plant biosecurity for three reasons.

The first is the requirement under the International Plant Protection Convention<sup>4</sup> for government to be involved in issuing phytosanitary certification of consignments to international markets. Many international markets will not accept the assertions of an industry-regulated system that a consignment is pest or disease free. For example, the United States of America, Japan and many European Union countries will only accept produce that has been inspected and certified by the Australian Government. The Commonwealth Department of Agriculture, Fisheries and Forestry provides this endorsement.

<sup>4</sup> Food and Agriculture Organization of the United Nations.

The Commonwealth relies on state and territory departments to implement plant health programs that also fulfil Commonwealth certification needs. States need to demonstrate that certain pests or diseases are not present, as opposed to not knowing of them. A state can only demonstrate that it is free of a pest if it has an active surveillance program.

Without this government involvement, Australia would lose access to important and lucrative markets. For example, citrus exports to overseas markets in 2000-01 were worth \$37 million<sup>5</sup>. Citrus could not be exported to the United States of America without DPI's comprehensive pest monitoring programs that are the basis of Commonwealth certification that they are pest-free.

Second, many pests and diseases are spread by travellers. Industry says that they have no control over the movement of travellers, and that governments are in a better position to regulate the movement of people and products at national and state borders.

Third, there is a public good that results from preventing pests and diseases. The maintenance of strong export markets, and the general development of the industry, benefits all Australians by protecting and creating jobs, building rural communities and generating tax revenue. There are quality of life and amenity issues that flow from preventing pests and diseases such as the ability to readily establish public and private gardens and backyard vegetable patches.

## 2.2.2 Commonwealth Government responsibilities

Under the Constitution, states and territories are responsible for agriculture, and the Commonwealth for trade and international relations. The key relevant international trade agreements managed by the Commonwealth Government are:

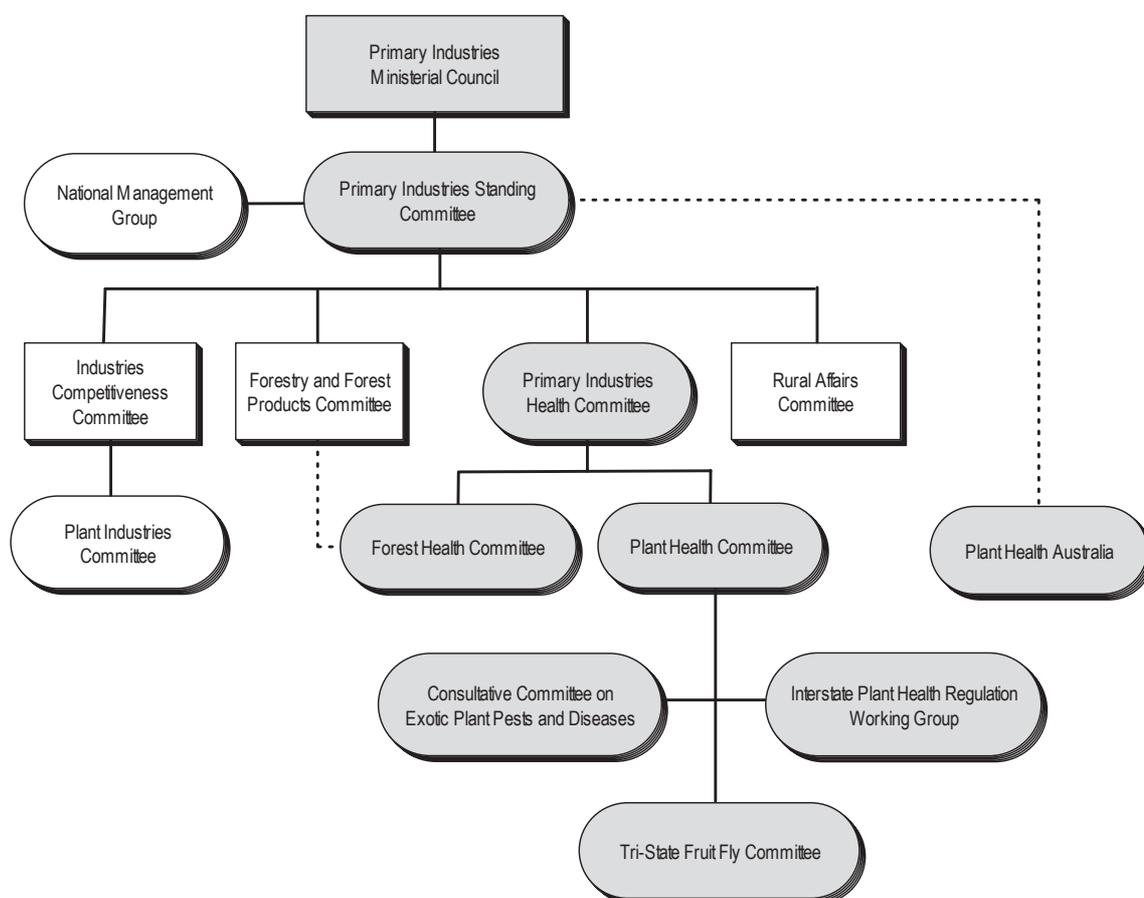
- the Sanitary and Phytosanitary Agreement (with the World Trade Organization)
- the International Plant Protection Convention (with the Food and Agriculture Organization)
- the Cartagena Protocol on Biosafety (with the United Nations Environment Program).

States and territories are bound by these agreements under Commonwealth-state arrangements. Figure 2C shows the national committee structure that manages plant health issues and ensures communication between industry and governments. There is a similar structure for incursions that have an environmental impact.

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<sup>5</sup> <[http://www.austcitrus.org.au/internal.php?page\\_id=6](http://www.austcitrus.org.au/internal.php?page_id=6)>. Victoria produces 19 per cent of Australia's total citrus output.

**FIGURE 2C: COMMONWEALTH PLANT HEALTH COMMITTEE STRUCTURE**



*Note:* Shaded boxes have representation from DPI.

*Source:* Plant Health Structures in Australia, Commonwealth Department of Agriculture Fisheries and Forestry, August 2003.

Figure 2D shows Commonwealth, state and industry responsibilities. The Consultative Committee on Exotic Plant Pests and Diseases provides a forum for consultation during an emergency, makes judgements that confirm the extent of an exotic outbreak and then initiation of Commonwealth-state financial arrangements, and advises state authorities on eradication and control methods for confirmed exotic pest or disease incursions. The Interstate Plant Health and Regulation Working Group develops and maintains market access for plant products both nationally and internationally and is a reference point for industry consultation on market access and quarantine issues. Both committees report to the Plant Health Committee.

The Plant Health Committee considers and advises the Primary Industries Standing Committee on how an exotic plant pest or disease is being managed and the need for new or altered international or interstate quarantine action. It also makes recommendations to governments on plant health research, extension, training and regulatory issues and provides technical and administrative advice on the implications of government policies as they apply to the plant health area.

**FIGURE 2D: RESPONSIBILITIES FOR THE MANAGEMENT OF PLANT PESTS AND DISEASES**

| Issue  | Commonwealth Government  | State and territory governments  | Industry   |
|--|--|--|--|
| Quarantine   | Quarantine both pre-border and at the border   | Quarantine post-border   | Farm-level pest management   |
| Standards  | Development of national standards.<br>Harmonisation of national and international standards                    | Development and maintenance of jurisdictional standards  | Compliance with national, state and territory standards  |
| Incursion management   | National coordination of pest incursions   | Management of pest and disease incursions, including prevention, detection and control<br><br>Timely reporting of suspected incursions to the Commonwealth | Local surveillance of crops<br><br>Future role in incursion management will be defined by agreed cost-sharing arrangements |
| Key organisations  | Department of Agriculture, Fisheries and Forestry, which incorporates Australian Quarantine Inspection Service | DPI is responsible for managing biosecurity<br><br>Department of Sustainability and Environment provides technical input                                   | Various industry groups (e.g. Australian Citrus Growers Inc.)  |
| Plant Health Australia, a not-for-profit organisation and an industry-government (Commonwealth and state) partnership; provides a greater voice for industry |  |  |  |

Source: Department of Agriculture, Fisheries and Forestry presentation, Tatura 21/9/03.

The Department of Agriculture, Fisheries and Forestry incorporates the Australian Quarantine Inspection Service (AQIS). AQIS provides quarantine inspection services for the arrival of international passengers, cargo, mail, animals and plant or their products into Australia. It also inspects and certifies a range of animal and plant products exported from Australia.

### 2.2.3 Victorian Government responsibilities

DPI's strategic objective for plant health is to "minimise the impact of plant pests and diseases to maintain and expand domestic and overseas markets"<sup>6</sup>. The *Plant Health and Plant Products Act 1995* provides for the monitoring, control and eradication of plant pests and diseases, as well as the packaging, labelling and description of plants and plant products. DPI is responsible for administering this legislation.

The Plant Standards Branch (PSB) administers the legislation on behalf of DPI. The branch is part of DPI's Agriculture Quality Assurance group. PSB is responsible for managing incursions of notifiable pests and diseases (as listed in the Act) and for ensuring that surveillance and inspection systems are in place to meet the requirements of international agreements.

DPI allocates about \$14.3 million a year to manage pest and disease incursions in animals, and \$3.3 million to managing incursions in plants<sup>7</sup>. This difference has existed for years, and is in part due to concerns about the potential for some animal diseases to transfer to humans. In the case of plants, the risks to human health may result from certain control measures, such as the use of penicillin to fight a bacteria, rather than the actual pest or disease (where the impact is usually reduced crop productivity and/or restricted market access).

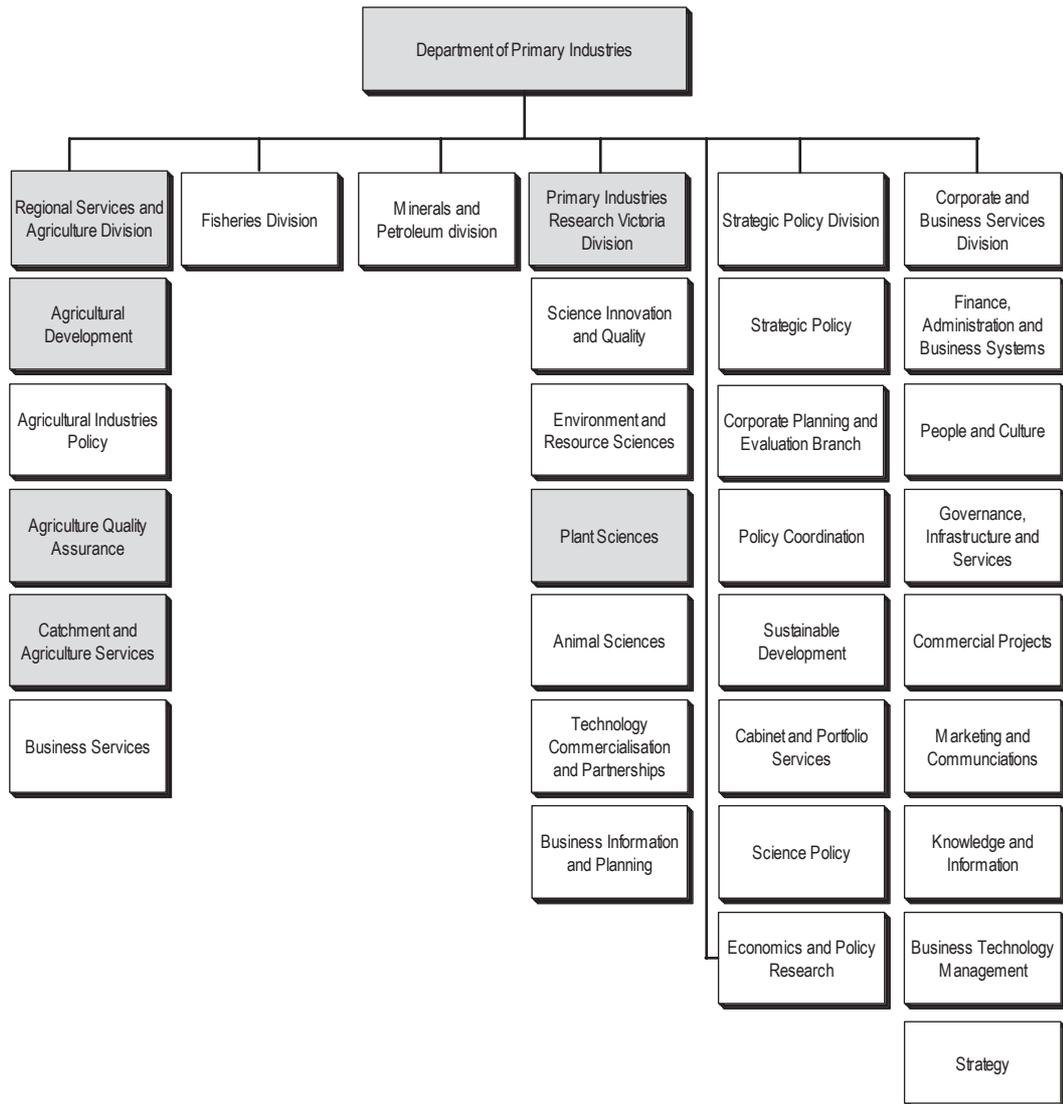
Figure 2E shows the organisational structure of DPI.

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<sup>6</sup> DPI's Agriculture Program Business Plan for 2003-2004, Regional Services and Agriculture Division.

<sup>7</sup> Department of Primary Industries. Plant Protection Budget 2002-03.

FIGURE 2E: DEPARTMENT OF PRIMARY INDUSTRIES, VICTORIA

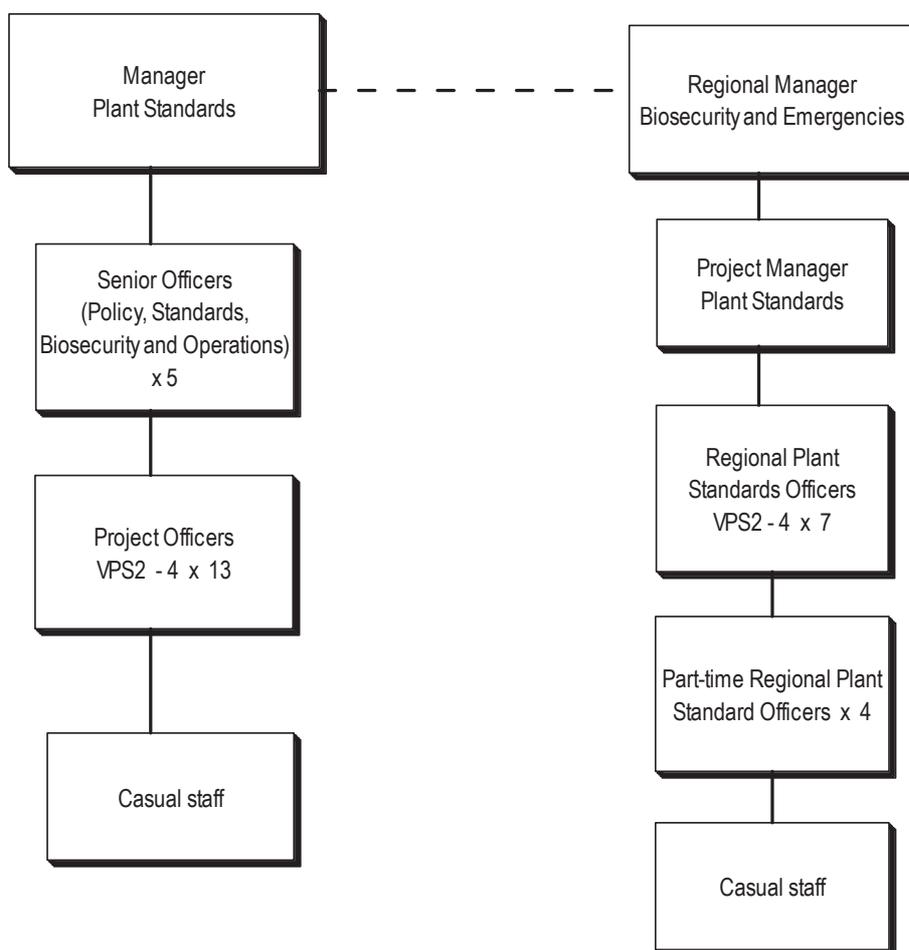


*Note:* Shaded boxes are those areas of DPI that currently have some input to the Plant Standards Branch program either through policy development, funding of research or delivery of services.

*Source:* Victorian Auditor-General Office, from information supplied by the Department of Primary Industries.

Figure 2F shows the organisational structure of PSB. The branch has 40 permanent staff, including 10 regional positions and about 10 casual field positions depending on the season. This works out to be 37.5 full-time positions.

**FIGURE 2F: PLANT STANDARDS BRANCH, DEPARTMENT OF PRIMARY INDUSTRIES, VICTORIA**



*Source:* Victorian Auditor-General's Office, with information provided by DPI.

PSB's main tasks are:

- routine pest surveillance and monitoring to facilitate international and interstate trade by confirming that an area is free of pests or diseases under international agreements
- maintaining systems to prevent pest and disease incursions and associated regulatory programs
- certifying that Victorian produce meets other state's legislative requirements
- responding to pest and disease incursions to keep trade flowing with as few restrictions as possible.

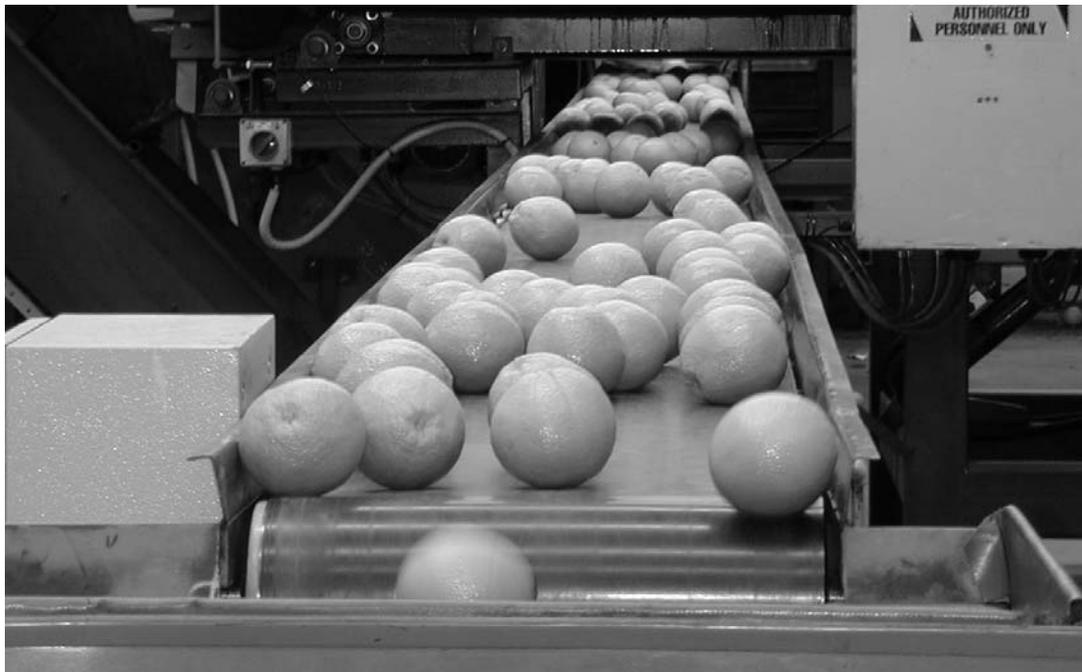
The Commonwealth Department of Agriculture, Fisheries and Forestry relies heavily on PSB for the monitoring, surveillance and sampling needed to ensure market access and compliance with the international agreements to which Australia is signatory.

## 2.3 Plant industry responsibilities

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The plant industry in Victoria comprises many commodity-based groups, such as fruits, nuts, vegetables and grains. Industry aims to produce healthy, pest and disease free products. Industry must, by law, report any actual or suspected exotic pest or disease incursion to DPI. Industry organisations help DPI to manage outbreaks by communicating information between government and their members. In an outbreak, industry also helps by observing produce treatment and movement protocols as required by legislation or by voluntary agreements.

Some industries are well-coordinated and prepared to help government manage an outbreak. Others have unrealistic expectations about the ability of AQIS to prevent pests entering Australia (particularly where there is a natural pathway, such as the wind) and about what is possible by way of eradication<sup>8</sup>.



*Oranges being processed and packed at a Mildura packing shed.*

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<sup>8</sup> *Stocktake of Existing Systems for Contingency Planning and Response Action and Consideration of their Adequacy Part II*, Plant Health Australia, Canberra, February 2000.

## 2.4 Community responsibilities

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The community is not aware generally of its quarantine responsibilities, particularly when travelling between states within Australia. There are regular Commonwealth and Victorian public education campaigns to alert the general community to their responsibilities. States and territory conduct the Quarantine Domestic campaign, which tells people not to transport fresh fruit, vegetables and plant material, such as cuttings and nursery stock, across state and national borders or into pest-free areas. AQIS, a division of the Commonwealth Department of Agriculture, Fisheries and Forestry, also conducts public awareness campaigns for international travellers.

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### **3. Is the legislation working properly?**





### 3.1 Does current legislation meet biosecurity needs?

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We examined whether the current legislation enabled the Department of Primary Industries (DPI or the department) to consistently manage incursions.

DPI and the Department of Sustainability and Environment (DSE) administer nine main Acts (as well as associated amendments, minor Acts and Regulations) covering biosecurity for plants, animals, forestry or the environment. These are:

- *Plant Health and Plant Products Act 1995*
- *Catchment and Land Protection Act 1994*
- *Forests Act 1958*
- *National Parks Act 1975*
- *Flora and Fauna Guarantee Act 1988*
- *Fisheries Act 1968*
- *Livestock Disease Control Act 1994*
- *Biological Control Act 1986*
- *Agricultural and Veterinary Chemicals [Control of Use] Act 1992.*

These Acts contain powers for quarantine, exotic incursion management or the declaration of exotic species or threatening processes (such as weeds or foxes). Victoria's *Emergency Services Act 1987* identifies agency responsibilities and provides a framework for managing resources during state emergencies.

The *Plant Health and Plant Products Act 1995* is the main Act governing agricultural plant biosecurity in Victoria. Its regulations are the Plant Health and Plant Products Regulations 1996. DPI's Plant Standards Branch (PSB) administers this Act. All states and territories have equivalent plant health legislation.

Each of the nine main Acts has its own history and implementation procedures. Each Act is administered by a different section of the department, and each has its own protocols. Some are managed by DSE. A joint DPI-DSE Invasive Species Task Force is proposed to improve authorisation and coordination procedures for managing incursions.

Different Acts can be used to respond to the same incursion. For example, an exotic pest is usually declared under the Plant Health and Plant Products Act. A noxious weed is usually declared under the Catchment and Land Protection Act, but could also be deemed an exotic pest under the Plant Health and Plant Products Act.

In practice, when managing an incursion, a DPI officer who may not have the necessary power under one Act will seek it from another. Some examples are provided in Figure 3A.

### FIGURE 3A: PRAGMATIC USE OF THE LEGISLATION

DPI's Catchment and Agriculture Services Group recently used the Plant Health and Plant Products Act to gain access to Victorian properties when surveying for the presence of branched broomrape weed (none was found). The powers of entry for the Plant Health and Plant Products Act are more streamlined than those of the Catchment and Land Protection Act, normally used for weeds.

The Forest Act's disease regulations sunsetted in January 2004. DPI and DSE now use the powers in the Plant Health and Plant Products Act to manage pest and disease incursions in forests. While DSE officers can (and have been) empowered at times to also work under this Act, DPI is now responsible for managing commercial forests and incursions are dealt with through the Plant Health and Plant Products Act.

Field staff today are responsible for administering more Acts than previously. Although PSB staff understand the Plant Health and Plant Products Act, other departmental staff who might be involved in an incursion response might not understand the Act and its implementation procedures.

DPI has not reviewed how all Acts operate together, with a view to improving the legislative framework for Victoria's biosecurity. Rather, small legislative amendments are regularly made to address deficiencies uncovered by field officers applying legislation, or by legal officers identifying gaps in the Acts for which their section is responsible.

### Conclusion

DPI's ability to manage incursions is not seriously compromised by nine different Acts, each with differing powers and different departmental groups responsible for administering them.

However, different Acts have different ways of declaring threats, and different powers for managing incursions. Staff are expected to operate under several Acts, and can potentially be confused about what powers to use, and in what circumstances.

DPI could manage incursions and enforce legislation more consistently if it reviews all Acts as a body of legislation, with an eye to reducing the multiplicity of ways of declaring threats and empowering officers. There do not appear to be good reasons for these variations, only historical ones.

## Recommendation

1. That DPI, in partnership with the Department of Sustainability and Environment, reviews all legislation relating to plant biosecurity with a view to streamlining the legislative framework.

### **RESPONSE provided by Acting Secretary, Department of Primary Industries**

Agree.

DPI will discuss with the Department of Sustainability and Environment, the formation of a working group of relevant officers from both departments to review the various Acts relating to plant biosecurity with a view to getting consistency across this range of legislation.

### **RESPONSE provided by Secretary, Department of Sustainability and Environment**

Agree in principle.



*DPI vehicle used at roadblocks for inspecting vehicles transporting fruit across the border.*

## 3.2 Is legislation being enforced efficiently?

We examined whether there was a consistent and adequate approach to enforcement, in line with departmental policy and practices.

Attitudes toward enforcement of legislation vary markedly within DPI. The department does not have an enforcement policy, and enforcement activity is inconsistent both within the department and across the state. For example, the Offence Management Unit has detailed enforcement procedures, but PSB does not have them for all situations. The branch has recently increased its emphasis on prosecution at the Melbourne Markets (wholesale fruit and vegetable market), but not at other locations.

There are no criminal or indictable offences under the Plant Health and Plant Products Act, and penalties for summary offences are low.

In the last five years, PSB has successfully managed 15 prosecutions (from two to five each year) and issued three penalty infringement notices (all in 2002-03). A further 20 non-compliance issues were investigated, and 10 warning letters issued. This is a low level of enforcement activity, given the many thousands of industry operators. Figure 3B compares the branch's enforcement activity with that of other Acts.

**FIGURE 3B: ACTS AND THE LEVEL OF PROSECUTION, 2001 TO 2003**

| Act   | Charges laid | Offenders |
|---|--------------|-----------|
| Catchment and Land Protection (a)                           | 90           | 70        |
| Livestock Disease Control (a) (b)                           | 20           | 7         |
| <b>Plant Health and Plant Products (a)</b>                  | <b>13</b>    | <b>12</b> |
| Environment Protection Authority (non-metropolitan regions) | 271          | 142       |
| Forests   | 618          | 157       |
| Fisheries   | 1 786        | 384       |
| National Parks  | 49           | 29        |

(a) These Acts specifically deal with farmers and are comparable; others provide contrast.

(b) This is only for twelve months - a lesser time frame than the two years for other Acts.

Source: Victorian Auditor-General's Office, based on data provided by Department of Primary Industries and the Environment Protection Authority.

DPI's approach to enforcement is a result of the historical preference by agriculture staff for education and cooperation with industry, rather than enforcement.

DPI uses the Department of Justice's Penalty Enforcement Registration Infringement Notices (PERIN) system to issue on-the-spot fines under most of the Acts it administers. The system increases the efficiency, consistency and timely resolution of infringements. The three agriculturally-related Acts (Agricultural and Veterinary Chemicals [Control of Use] Act, Plant Health and Plant Products Act and Livestock Diseases Control Act) are not registered with PERIN. This means that infringements of three important Acts are not subject to on-the-spot fines through the PERIN system, and that PSB staff must manually administer responses to infringements of these Acts.

## Conclusion

Enforcement is part of ensuring compliance with any legislation. It can help ensure that growers take their responsibilities seriously, vigilantly monitor for pests and diseases, treat produce before sale, and report suspected incursions.

DPI needs a comprehensive enforcement policy that applies to all sections. PSB needs guidelines about how this policy will be implemented.

The Offence Management Unit is the department's unit with the most expertise in collecting evidence and initiating prosecutions. It is best placed to provide training and administration processes for PSB's enforcement activities.

Field staff need to be given the support that clear organisational policy about enforcement provides. This will enable them to distinguish better when a situation requires a regulatory approach, education, or both. The Offence Management Unit should coordinate development of a DPI enforcement policy and ensure that it is implemented consistently across all divisions.

There are efficiencies to be gained by DPI ensuring that all Acts it administers use the Penalty Enforcement Registration Infringement Notices (PERIN) system to issue on-the-spot fines.

## Recommendations

2. That DPI develops a department-wide enforcement policy and specific guidelines for PSB.
3. That PSB's enforcement procedures are consistent with those of the rest of the department.
4. That the *Agricultural and Veterinary Chemicals (Control of Use) Act 1992*, *Plant Health and Plant Products Act 1995* and *Livestock Disease Control Act 1994* be registered with the Department of Justice's PERIN system.

**RESPONSE provided by Acting Secretary, Department of Primary Industries**

**Recommendation 2**

Agree.

Plant Standards Branch, which has a strong customer focus in the agriculture industries, places a high priority on education, industry co-regulation and use of penalty infringement notices to ensure a satisfactory level of compliance. Prosecutions are used for recalcitrant or repeat offenders. Some other DPI branches may use prosecutions as a higher priority because of the nature of their business and the clientele with which they deal.

DPI would see Plant Standards Branch and other DPI regulatory branches taking a bottom-up approach to development of enforcement guidelines that are directly relevant to their businesses.

The various DPI branches will work with the department's Offence Management Unit to develop a broad policy framework that covers the range of enforcement options needed by them to achieve satisfactory compliance outcomes.

**Recommendation 3**

Agree.

Plant Standards Branch has already adopted procedures developed by DPI's Offence Management Unit (OMU) for the management of offence files and issue of penalty infringement notices.

Plant Standards Branch will seek to adopt additional procedures currently being developed by OMU so as to ensure consistency across the various DPI business units.

**Recommendation 4**

Agree in principle.

DPI will assess the advantages and disadvantages of the PERIN system for each of its businesses and have them adopt the system if the assessment concludes that the PERIN system delivers more effective compliance outcomes for the particular business.

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## **4. Are prevention and control measures in place?**



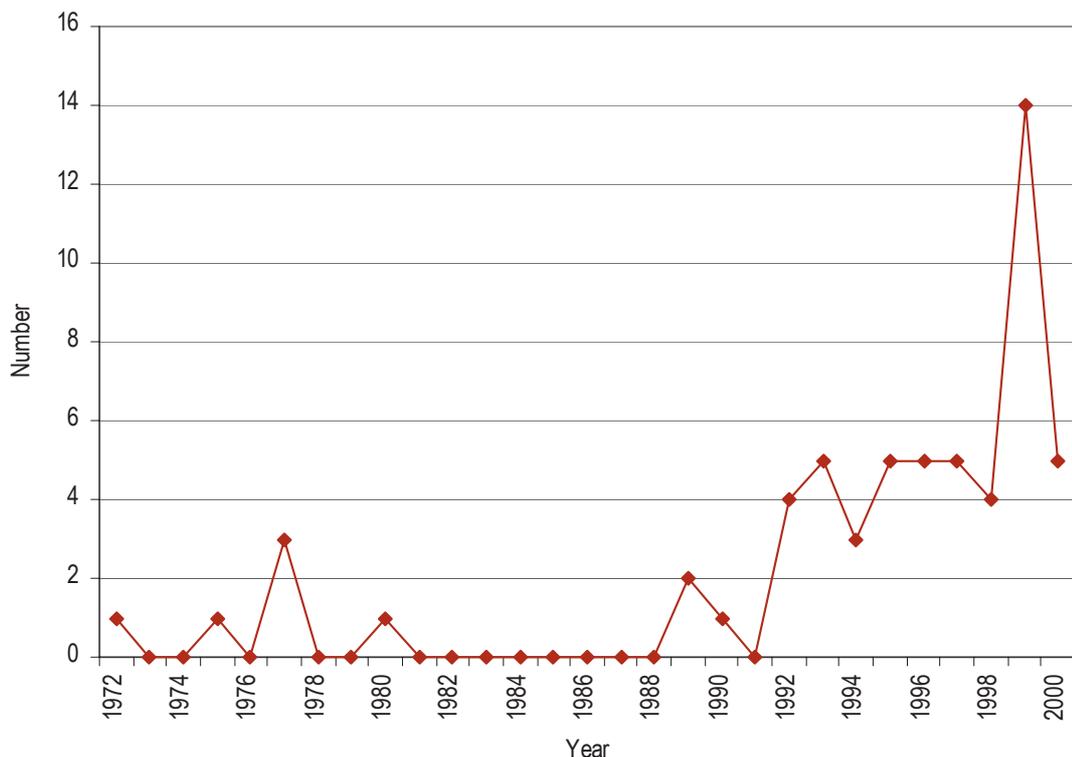


## 4.1 Does DPI’s planning identify and prioritise potential threats and link to government policy?

### 4.1.1 Are potential threats identified and prioritised?

There are potentially hundreds of different plant pests and diseases that might threaten crops in Victoria<sup>1</sup>. As Figure 4A shows, the types and impacts of threats are constantly changing and trends point to an increase in incursions of exotic threats particularly in the last 10 years.

FIGURE 4A: INSECT INCURSIONS TO AUSTRALIA SINCE 1972



Source: Australian Government Department of Agriculture, Fisheries and Forestry.

We examined whether the Department of Primary Industries (DPI) had established priorities for pest and disease threats; whether these priorities were consistently applied; and whether processes to identify and prioritise threats were adequate.

<sup>1</sup> The grains industry alone has identified over 300 species that are potential threats.

DPI's research division, Primary Industry Research Victoria (PIRVIC), has undertaken only one comprehensive assessment of plant pest and disease threats in the last five years. PIRVIC's scientists used their combined experience to evaluate and rank pest and disease threats. Five criteria were used: the international seriousness of the pest or disease in terms of yield/productivity; seriousness of threat to market access; the difficulty of control strategies; whether there were sources of resistant stock; and if there would be an adverse environmental impact. A prioritised list of 142 species was produced, of which 16 were identified as high priority threats.

This work enabled DPI to include prioritised threats as notifiable exotics under the Plant Health and Plant Products Act. Inclusion allows for the Act's quarantine provisions to be invoked immediately if any of these threats are found in Victoria.

DPI's Agriculture Quality Assurance Group, as well, has identified 20 high priority threats<sup>2</sup> in its risk strategy. These threats were prioritised because of their potential impacts on market access. Standard risk management assessments of likelihood, consequence, control and treatment options were used.

That group's risk strategy listing of priority threats is not the same as that developed by PIRVIC. Nor is it the same as the threats listed in Figure 4B, which identifies Plant Standards Branch's (PSB's) current monitoring and surveillance programs. The monitoring and surveillance priorities are in part influenced by the Commonwealth Government. The Commonwealth provides specific funds to monitor for exotic fruit flies and Asian gypsy moth.

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<sup>2</sup> These are plant pests and diseases endemic to Victoria both regulated (phylloxera, potato cyst nematode and western flower thrips) and non-regulated (light brown apple moth); plant pests and diseases present in Australia but exotic to Victoria (Queensland fruit fly, Mediterranean fruit fly, lupin anthracnose, annual ryegrass toxicity, asparagus rust and blueberry rust); and plant pests and diseases exotic to Australia (fire blight, Pierce's disease, sharka, melon fly, Karnal bunt, Asian gypsy moth, chestnut blight, Asian long-horned borer, guava rust and citrus canker).

**FIGURE 4B: PSB'S MONITORING AND SURVEILLANCE PROGRAMS (AT FEBRUARY 2004)**

| Main aim  | Species under monitoring or surveillance  |
|---|---|
| To prove property or area freedom status for interstate/ international market access purposes   | Mediterranean and Queensland fruit flies<br>western flower thrips<br>European red mite<br>Argentine ants<br>silver leaf white fly<br>melon thrips<br>chrysanthemum white rust<br>olive knot<br><i>pythophthera</i> species in carrots<br>phylloxera<br>potato virus Y<br>potato cyst nematode |
| To prove pest area freedom status to justify Victorian import restrictions mostly against other states, using World Trade Organization requirements | blueberry rust<br>daylily rust<br>lupin anthracnose<br>asparagus rust<br>asparagus blight<br>boil smut  |
| Exotic pest surveillance  | exotic fruit flies (i.e. other than Mediterranean and Queensland fruit flies)<br>Asian gypsy moth   |
| Environmental protection  | red imported fire ants  |

Source: Victorian Auditor-General's Office, from information provided by Department of Primary Industries.

DPI uses qualitative methods (the insights and opinions of experienced scientists) to prioritise pests and diseases. It considers that although quantitative assessment methods (such as an analysis of the economic impact of threats to Victoria) are desirable, they are too expensive and time consuming, given the hundreds of potential threats that would need to be prioritised. DPI is investigating other quantitative methods, such as those used in ecological forecasting and risk analysis of invasive species<sup>3</sup>. Plant Health Australia<sup>4</sup> is developing a semi-quantitative prioritisation methodology – a Pest Threat Questionnaire.

<sup>3</sup> David Lodge, University of Notre Dame, United States of America, presented a new method for ecological forecasting and risk analysis of invasive species at a biosecurity forum organised by DPI in November 2003.

<sup>4</sup> A non-profit company with responsibility for developing a whole-of-industry and whole-of-government approach to the development, coordination and implementation of plant health policies and management programs.

There is little agreement between the Commonwealth, states and industry on how to prioritise threats. For example, assessments of the economic impact of potential threats are not standardised. The Commonwealth Government does not prioritise threats by economic impact: it merely assesses the quarantine risk of a pest or disease as high, medium or low.

Plant Health Australia is working with states to address this inconsistency. It has commissioned the Australian Bureau of Agricultural Resource Economics and Monash University to develop a standard methodology for evaluating the impact of a pest or disease outbreak on a local and regional economy. The methodology is being modelled using the wheat disease Karnal bunt. The result will be a quantitative assessment tool that is not too expensive or time consuming to use, and will allow for the economic impact of a pest or disease to be assessed consistently across Australia.

Plant Health Australia, in conjunction with the Commonwealth and state governments and industry, is also developing lists of priority pests and diseases for specific crops of economic significance. It has specified four risk criteria: entry potential, establishment potential, spread potential and economic impact.

## **Conclusion**

DPI has more than one priority threat list. These lists should be amalgamated and reprioritised using consistent assessment criteria and methods. The criteria and methods used should be consistent with those used by Plant Health Australia at the national level. This will enable DPI to use a standard list of prioritised threats to guide its strategic and business planning.

## **Recommendation**

- 5. That DPI develops a consistent process to identify, assess and prioritise potential plant pest and disease threats, and aligns it with prioritisation processes used at the national level by Plant Health Australia.**

### **RESPONSE provided by Acting Secretary, Department of Primary Industries**

Agree.

The DPI Plant Biosecurity Strategy project team is currently reviewing processes to identify, assess and prioritise potential plant pest and disease threats. Processes developed as a result of the review will be harmonised with those of Plant Health Australia and Commonwealth agencies such as Biosecurity Australia.

## 4.1.2 Does departmental planning link with policy to assist prevention and control?

We examined whether strategic and business unit plans were consistent within the branch, group, division and department; and whether these plans linked operations to government policy objectives. We also examined whether these plans included meaningful performance indicators against which performance is regularly reported.

DPI's strategic and business unit plans are based on its corporate objectives, which are to strengthen economic activity, protect Victoria's high-quality natural resources and encourage resilient industries and communities. These objectives, set out in the department's corporate plan, are linked to the outcomes in the government's major policy statement *Growing Victoria Together*.

There is a direct link between the corporate objective of strong economic activity and the business unit plans of the Regional Services and Agriculture Division and the division's Agriculture Quality Assurance Group. The division's business unit plan includes strategic objectives and key deliverables for PSB, but they are not specific or detailed and do not include performance indicators<sup>5</sup>.

The Regional Services and Agriculture Division is responsible for some of the department's outputs. DPI uses performance measures to report on its outputs, for example, "response time for pest disease and disaster incidents". However, neither DPI's corporate plan nor any of the division's business unit plans have performance indicators to measure operational performance against government objectives. Apart from the service agreements mentioned below, we found no performance indicators in the various planning documents.

The Agriculture Quality Assurance Group has service agreements with other parts of the department for research and regional plant standards officers to undertake field operations. These agreements include performance indicators. However, the tri-monthly reports required under the field operations service agreement do not report against the performance indicators.

Plant Standards Branch does not have a strategic or business unit plan, although a strategic plan was drafted in October 2000. Instead, it operates under the business unit plans of the Regional Services and Agriculture Division and the Agriculture Quality Assurance Group. The branch holds planning sessions to address operational matters rather than strategic issues.

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<sup>5</sup> The Victorian Auditor-General has reported three times on progress in implementing Victoria's Performance Management and Reporting Framework. Each report has identified the failure of government agencies to develop performance indicators. We noted in our November 2002 report that "Performance indicators form the keystone for accountability in Victoria's Performance Management and Reporting Framework, linking government policy outcomes with public sector outputs and the budget process". (Victorian Auditor-General, *Performance management and reporting: Progress report and a case study*. November 2002, p. 3).

The branch has not specified its relationships with other DPI branches, groups and divisions, or with members of the plant industry or with state agencies (such as the Department of Human Services, where relationships may address the use of off-label chemicals). Some of these relationships were specified in the draft 2000 strategic plan, but that plan was not finalised.

PSB is currently developing a plant biosecurity strategy for Victoria with additional funds provided by the government in the 2003-04 Budget. This biosecurity strategy will be completed in 2004 and is intended to be reviewed annually. This plan has potential as a framework for better integration of strategic and operational planning.

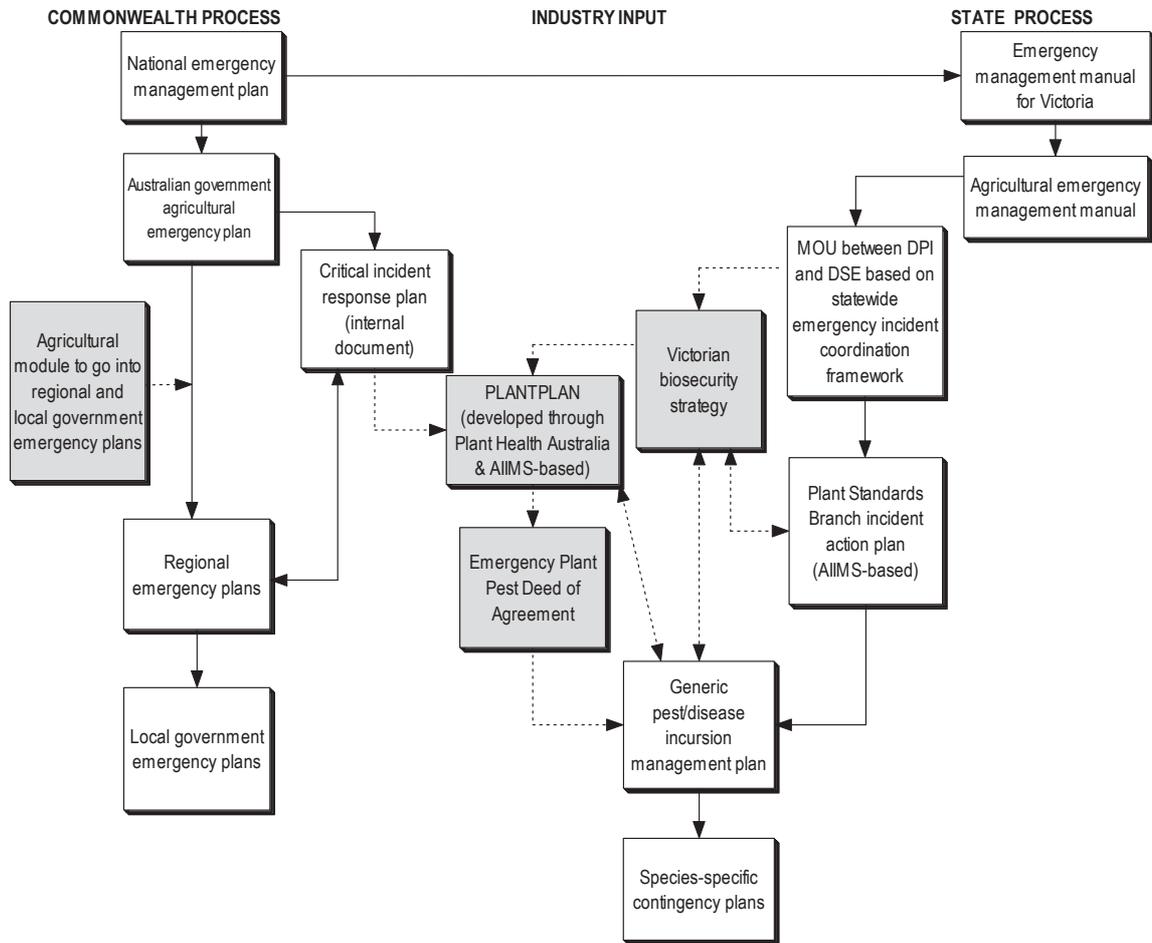
### **Are incursion management and response plans adequate?**

We examined whether there were specific incursion management plans for identified high priority threats.

Nationally, there are 28 species-specific incursion management plans. Their level of sophistication varies. DPI has developed three specific incursion management plans, for fire blight, fruit fly and Dutch elm disease. DPI has no system for deciding which species should have a contingency plan. As noted above, opinions vary within DPI as to which species should be listed as high priority threats, and the priority order of threats.

Figure 4C shows how state, industry and Commonwealth processes interact to manage emergencies.

FIGURE 4C: PLANNING HIERARCHY FOR EMERGENCY RESPONSE



Note: Shaded boxes indicate documents under development. These will supersede some existing documents.

Source: Victorian Auditor-General's Office, from information provided by Department of Primary Industries.

As part of the Commonwealth and state arrangements for managing emergencies, Plant Health Australia is developing PLANTPLAN, a generic incident response plan. However, where a threat is considered to be a very high priority, a species-specific incursion management plan may also be developed. This mixing of generic and specific approaches occurs in the sugar industry, where the 1 500 different species of borer identified as threats have been distilled into three types. Three, rather than 1 500, incident response plans will then be prepared.

Primary Industries Research Victoria (PIRVIC) has a draft generic incursion management plan and PSB has the Incident Action Plan. Another section of DPI, in conjunction with the Department of Sustainability and Environment, developed the Weed Alert Rapid Response Plan (weed equivalent of the PSB pest and disease incident action plan), which is closely based on the Australian Interservice Incident Management System. This system, an emergency management command and control system, also is used by DSE and DPI to fight bushfires. It has clearly established roles and responsibilities.

The Victorian plant biosecurity strategy, referred to above, is intended to replace both the generic incursion management plan and the Incident Action Plan.

#### **FIGURE 4D: THE DRAFT FIRE BLIGHT CONTINGENCY PLAN PROVIDES CALM IN A CRISIS**

Fire blight is a bacterial disease, *Erwinia amylovora*. It is native to North America. It is found in 44 countries and is now spreading throughout Europe. It has been in New Zealand since 1919. The disease causes blight and canker in blossoms, shoots and roots. In 2001-02, the farm gate value of the apple and pear (excluding nashi pears) industry in Australia was \$380 million. Fire blight would devastate this industry, and require the introduction of new management procedures. It would also end Australia's fire blight-free export status.

In 1996, DPI drafted a national contingency plan for fire blight. The value of this contingency plan was demonstrated when fire blight was first identified in Australia on cotoneaster plants in the Royal Botanic Gardens, Melbourne in April 1997. Government, industry and gardens' staff used the contingency plan to respond to the outbreak.

The plan guided staff through the steps to take, providing a well-thought-through guide to action which otherwise might have been ad hoc and not comprehensive. Apple and Pear Australia (the peak organisation for these growers) praised the fire blight contingency plan and DPI's response to the outbreak. The plan's main weakness was that it had been intended for an outbreak in a rural area (such as the Goulburn Valley), and not for a dense urban area.

Losses from this small outbreak have been estimated by industry at \$16.5 million over the period 1997 to 1999. Industry also estimates that a major outbreak in the Goulburn Valley would see growers' farm income reduce by at least \$20 million, the loss of around 5 000 permanent and casual jobs and bankrupt an estimated one in three growers nationally if yields were reduced by 50 per cent – a worst case scenario.

## **Conclusion**

The various business unit and incursion management plans are not clearly linked with each other, or to government objectives, in ways that give sufficient support and direction to officers who are interacting with growers or other parts of the industry.

The plans that Plant Standards Branch uses have come down the line from the Regional Services and Agriculture division, but are not sufficiently detailed or comprehensive to provide management with information that accurately reflects performance. Nor can PSB adequately demonstrate to the public how well it is meeting the government's policy objectives.

PSB's strategic intentions are most clearly set out in its various service (purchaser-provider) agreements with other parts of DPI. These could be improved further through clear descriptions of expected outputs and performance criteria, definition of roles and responsibilities of both the purchaser and provider, and formalising the planning cycle.

The development of the Victorian plant biosecurity strategy presents an opportunity to comprehensively set the direction for biosecurity in DPI and in Victoria. It also provides the PSB with an opportunity to link the various operational plans with corporate and government policy. Lists of high priority threats should be used to guide strategic and business unit planning. Performance indicators, against which DPI reports its performance in addressing biosecurity policy priorities, need to be developed.

Specific plans will not be needed for all species, as the Victorian plant biosecurity strategy and Plant Health Australia's PLANTPLAN should provide general guidance for managing an incursion.

However, to respond better to an incursion, PSB should consider developing incursion management plans for groups of threats, such as a plan for types of insects and another for nematodes such as parasitic worms for example, roundworms and hook worms. These generic incursion management plans could be supplemented by specific plans for high priority threats.

The Weed Alert Rapid Response Plan should be considered as a model when developing the response section of the Victorian plant biosecurity strategy.

The Victorian plant biosecurity strategy needs to define better chains of command and responsibilities during incursions than does the current Incident Action Plan.

## Recommendation

6. **That DPI, as part of the development of the Victorian plant biosecurity strategy, undertake a strategic review of its plant health planning framework so that:**
  - **corporate and business unit plans at all levels of the department align to each other and to government policy so that staff have a coherent frame of reference to guide their work**
  - **performance indicators are developed, used, reported against and evaluated regularly**
  - **all plans (including service agreements with other parts of DPI) are communicated to staff and implemented in their day-to-day activities and responsibilities.**

**RESPONSE provided by Acting Secretary, Department of Primary Industries**

Agree.

The DPI Plant Biosecurity Strategy project team is examining the current plant health planning framework with a view to recommending improvements to business planning processes and performance review and evaluation methods.

## **4.2 Are systems in place to support detection of plant pests and diseases?**

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Victoria imports more Queensland fruit fly host material than any other state. Most states have a government inspection service to check for infected produce. The department has chosen to rely on industry self-regulation rather than on government inspection, arguing that too much produce enters Victoria to be efficiently checked by the small number of staff available.

### **4.2.1 Are surveillance systems for known pests and diseases operating well?**

We examined whether there were monitoring systems in place, and operating efficiently, to detect and report threats of known pests and diseases early enough to minimise the risk of outbreaks. “Known pests and diseases” are those that are known to occur in Victoria and are a threat to market access or to the environment.

#### **National certification and verification system**

The national certification and verification system is the main way of detecting known pests and diseases. The system is one of industry self-regulation. It requires growers to thoroughly check their own produce for pests and diseases, apply any pre-sale treatments that may be required (such as dipping in dimethylate to destroy fruit fly larvae) and correctly label all consignments.

The system, set out in Figure 4E, comprises two complementary schemes:

- the Interstate Certification Assurance (ICA) Scheme (for producers, processors and packers that export produce), under which exporting businesses are accredited
- the Compliance Agreement (CA) Scheme (for importers of produce from interstate<sup>6</sup>), under which importing businesses are accredited. This scheme provides verification that the certification scheme is operating effectively and hence that produce is free from pests or diseases.



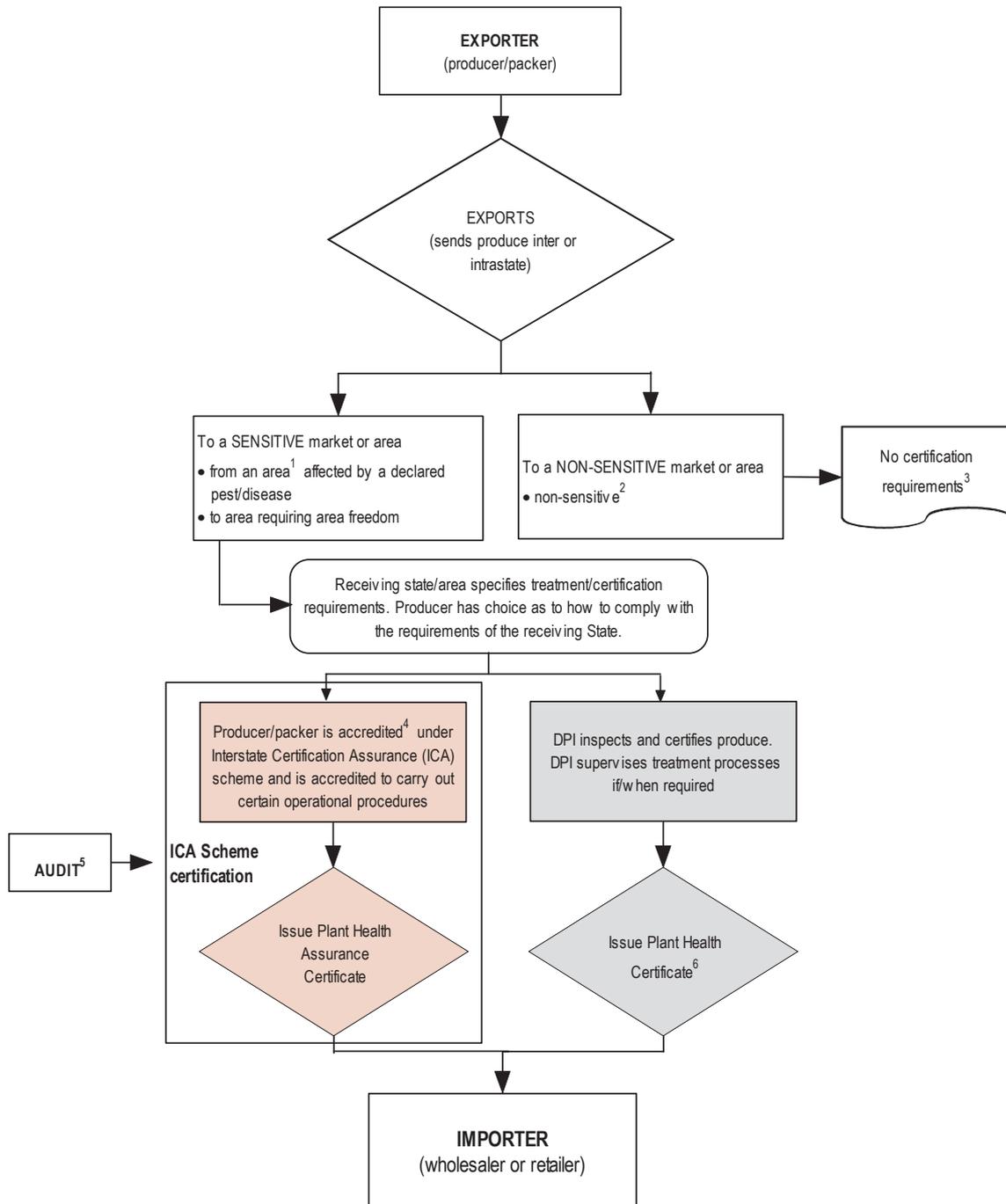
*DPI staff inspect fruit and carton labels at Melbourne Markets (wholesale fruit and vegetable market).*

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<sup>6</sup> Imports from overseas are inspected by AQIS.

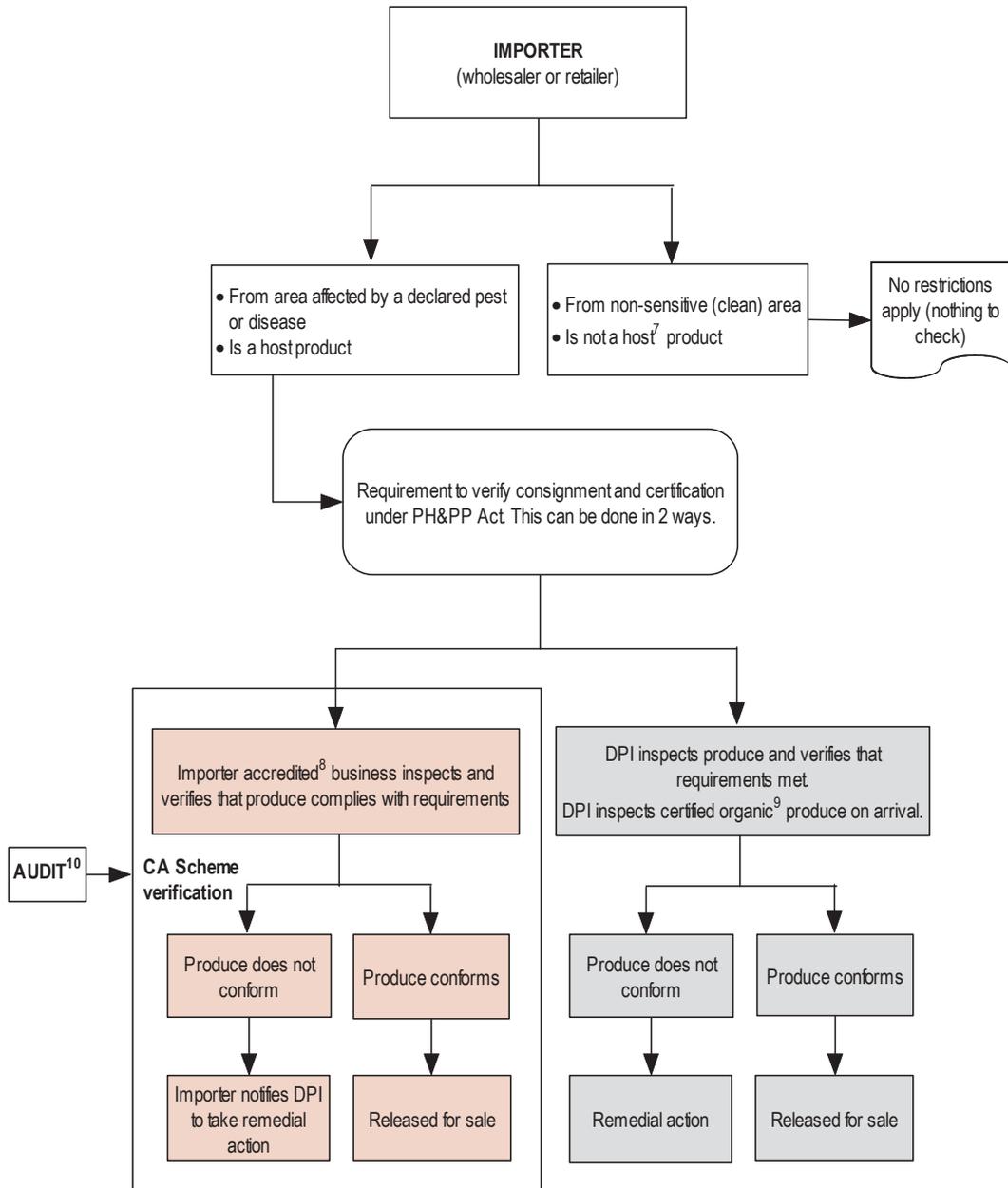
FIGURE 4E: CERTIFICATION AND VERIFICATION SYSTEM

Certification scheme



Source: Victorian Auditor-General's Office from information provided by Department of Primary Industries.

## Verification scheme



Source: Victorian Auditor-General's Office from information provided by Department of Primary Industries.

### Legend:

- Industry self-regulation. For large numbers of consignments it is cheaper for the importer/exporter to be accredited under the CA/ICA scheme. Accredited businesses.
- Government inspection service. DPI charges on a user pays basis of fee per 15 minutes inspection time. Non-accredited businesses.

#### CERTIFICATION – EXPORTER

1. Produce is from an area either permanently or temporarily affected by a declared pest or disease. An area may permanently harbour a prescribed endemic species for example, Queensland fruit fly is permanently in Queensland but may only temporarily affect say, Mildura, during an outbreak and can then be eradicated.
2. Pests and diseases already present or produce is not a host that particular pest or disease.
3. Must still comply with required trade descriptions, package/box labelling specifications, weights and measures requirements.
4. The accredited business must apply for accreditation every year (DPI sends out a reminder letter and new application form to all those on their database).  
Failure to reapply means that the accreditation lapses. DPI produces a monthly ICA status report for its own staff and for other state departments that lists all renewed, cancelled and lapsed businesses.  
Status reports are distributed monthly to the interstate equivalents (other state plant health departments). If an accredited business breaches the ICA system, its accreditation is suspended or cancelled.  
Exporter must then use DPI (government) certification inspection service.  
Every accredited business has a unique interstate produce (IP) number e.g. VXXXX.  
Boxes must also be labelled: meets ICAXX, date code, IP number. Allows DPI to trace produce and match it against the relevant certificate.
5. Exporter (producer/packer) is audited by DPI at least every 6 months during the season.
6. Certificate accompanies the consignment of produce.

#### VERIFICATION – IMPORTER

7. Host produce is product that can carry prescribed pests/diseases of concern to Victoria.
8. Importers are accredited under a Victorian Compliance Agreement (CA) and under section 43 of the Plant Health and Plant Products Act.
9. All organic produce is inspected by DPI or the third party auditor for the presence of fruit fly because there are no chemical treatments suitable for this type of produce.
10. The accredited business is audited regularly by DPI staff, or a third party auditor, to ensure compliance with Compliance Agreement.  
Importers with a good record of compliance are audited less often than people with a poor compliance history.  
Very poor performers will have their accreditation suspended or cancelled. The importer will then be requested to use the DPI (government) verification inspection service on a fee-for-service basis.  
The importer must keep records of what they have received. These records are audited by DPI.  
DPI audits importer (accredited business) at least once every 6 months.

#### FINDING IMPORTERS

Importer must register with DPI. Discussion between importer and DPI means that DPI then has a record of who is importing produce and the importer understands that they must have their produce verified.

The importer is given a list of host produce if they import a range of materials. Or, if they only import say mangoes, they are advised of any treatment requirements for mangoes. DPI does one-on-one training to ensure that the importer understands the verification system.

New importers are picked up through market patrols, on a transport company manifest or via the compliance system.

Many importers are outside the market system (for example, a specialist importer may pick up produce direct from airport). DPI must also find these businesses.

Since 1999, the department has developed this fledgling Queensland system further by adding treatment protocols<sup>7</sup> for specific produce and threats, and by taking a systematic audit approach.

The department uses an independent third party auditor to audit the system. Plant Standards Branch staff randomly check this auditor's work. All consignments of high risk imports (such as organic produce and fire ant host material) are checked by PSB staff. Non-organic produce is checked using a statistically valid sample of 600 pieces of fruit per consignment.

The integrity of the certification scheme is ensured by regular audits of each state's system. These are done by an audit team selected by the Interstate Certification Assurance Working Group that reports to the Interstate Plant Health Regulation Working Group (see Figure 2C). When breaches are found, incident reports must be provided to exporting quarantine authorities.

Incident reports and follow-up of breaches of the scheme (whether they occur in Victoria or interstate) are not recorded consistently. This results in the legislation being applied differently by different officers across the state, there being no clear record of follow-up action taken after a breach, and the file of the offender not always being up-to-date.

Other quality assurance schemes for the fruit and vegetable industries address food safety and quality, rather than freedom from pests and diseases. Our survey of growers found that many do not fully understand the purpose of the certification and verification system, how it operates or how it links with other quality assurance schemes.

## **Other monitoring and surveillance of known pests and diseases**

Plant Standards Branch undertakes regular surveillance and monitoring for the known threats listed in Figure 4B. The surveillance and monitoring programs are designed to provide a 95 per cent likelihood of detecting a pest or disease infestation that is present at the five per cent level or greater. The programs are carried out in locations of highest risk using various methods such as visual inspection of crops and trapping for specific pests. The aim of these programs is to protect both market access and the environment.

The known threats in Figure 4B do not map clearly to either the department's list of priority threats (as identified by PIRVIC) or the priority threats in the Agriculture Quality Assurance Group's risk management strategy.

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<sup>7</sup> Treatment protocols describe how produce must be treated, using a documented operational procedure, for a particular pest or disease prior to its sale.

PSB's monitoring and surveillance programs are based on pests and diseases that have a proven adverse impact on market access, or that have been specifically funded (as in the case of exotic pest surveillance that is funded by the Commonwealth).

The purpose of these programs is either to issue area freedom certification for exports, such as fruit fly, phylloxera and potato cyst nematode, or to fulfil World Trade Organization (WTO) requirements for imports.

The department's monitoring and surveillance of fruit fly is conducted in accordance with the WTO Sanitary and Phytosanitary Agreement. It is widely considered by equivalent agencies to be professionally conducted.

Fruit fly interceptions at the Melbourne Markets (wholesale fruit and vegetable market) have declined significantly since the introduction of the certification and verification system. Almost all fruit fly interceptions in 2001 and 2002 were in produce that was not subject to the system.



*DPI officer holding up fruit fly bait and fruit fly trap.*

Surveillance of other threats is undertaken in accordance with established protocols, where these exist. Otherwise precedent is used, or Plant Standards Branch develops a new surveillance method in consultation with PIRVIC research scientists. Where the threat is national, Plant Standards Branch carries out surveillance programs under guidance from the national consultative committee.

#### FIGURE 4F: TRADE CONTINUES DESPITE LUPIN ANTHRACNOSE OUTBREAK

South Australian producers grow and export lupins to Europe on consignment. These lupins are processed in, and exported from, Victoria by a Horsham-based company. In 2001, an outbreak of the disease, lupin anthracnose in South Australia triggered quarantine arrangements in Victoria where the disease was not known to exist. Victorian growers were upset at the prospect of having contaminated lupins transported past their disease-free properties.

DPI negotiated extensively with the South Australian Government and with local industry to maintain market access and to protect the livelihood of the growers and processor. An elaborate quarantine system was established, whereby the Department of Primary Industries and Resources South Australia inspected all lupins leaving the infected areas for Victoria. Lupins that were found to be contaminated were transported along a designated route, under DPI observation, in leak-proof containers and on hygienically-cleaned and certified trucks. The contaminated lupins were processed at the Horsham plant under DPI supervision and exported to Europe where the disease was already widespread and therefore not a barrier to trade.

The department has been able to maintain access to all significant markets over the past five years. It has successfully eradicated outbreaks of most known pests and diseases identified in Figure 4B and has introduced suitable quarantine protocols for handling those outbreaks that have not been eradicated.

#### Resourcing of fruit fly surveillance

In 2003-04, the department will permanently monitor about 5 500 fruit fly traps. Permanent monitoring ensures that a property or area can prove that it is free of pests or diseases for market access purposes. Almost all monitoring is done by the department's field staff. Less than one per cent of traps are monitored by contractors.

Supplementary monitoring takes place during an outbreak, to track the spread and extent of pests or diseases. Contractors undertake about 80 per cent of supplementary monitoring. The supplementary monitoring workload is highly variable (due to the unpredictability of outbreaks) and suits the use of contract labour, which is available in the quantity, and for the term, required.

In the last 10 years, PSB has tended to employ graduates for field officer/inspector roles. Graduates are able to do more strategic work, such as planning and extension activities. However, many graduates find the ongoing monitoring of fruit fly traps monotonous and tedious. Greater job satisfaction is needed to retain high-calibre staff and reduce turnover at this level.

DPI staff need skills and experience in both contract management and in fruit fly monitoring and surveillance procedures. This enables them to engage and supervise contractors, and audit contractors' systems against documented procedures and performance. Skills and experience take time to acquire, and newer staff generally do not have them. Thirty-five per cent of PSB staff have been with the branch for less than two years, and 73 per cent for less than 10 years. Staff turnover is highest among base grade plant standards officers.

In 2003, the department was still engaged in the tendering process for contract labour two weeks after an outbreak had been declared, despite this contract labour being urgently needed on-the-ground to deal with the outbreak.

## **Conclusion**

DPI needs to work more closely with industry to overcome the generally low level of awareness about the national certification and verification system (for agricultural produce) and industry's roles and responsibilities under it. One way to do this would be to develop an education module about the system that could be incorporated into industry-run quality assurance programs.

The success of DPI's monitoring and surveillance efforts is difficult to establish as we cannot know how many threats were not detected. DPI's efforts to detect known threats such as fruit fly and phylloxera have been successful if judged by the measures of continued market access and the reduction in fruit fly detections at the Melbourne Markets (wholesale fruit and vegetable market).

One other means of assessing the department's performance in early detection is through the success of eradication programs<sup>8</sup>. Eradication data exists for some species. The department should consider collecting performance information on the success of eradication programs for all threats in its monitoring and surveillance program.

DPI has improved the monitoring and detection of fruit fly by using contract labour. There could be more use of contract labour for routine tasks such as fruit fly trap monitoring. Contract management processes need to be improved. Clearer contract management protocols, longer-term contracts and a preferred contractor system may have prevented the response delays that occurred in 2003.

Contract labour needs to be balanced with a professional permanent work force. The high turnover of newer staff should be investigated and issues to do with job satisfaction at entry levels addressed.

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<sup>8</sup> The earlier a pest or disease is detected, the greater the chance of successful eradication. Early detection should be established as a key objective or milestone indicator to measure successful surveillance and monitoring programs.

## Recommendations

7. That DPI works with industry to develop a training module on the certification and verification system for inclusion in industry quality assurance programs.
8. That DPI develops a consistent approach to recording and enforcing breaches of the certification and verification system.
9. That DPI makes arrangements to use contract labour for fruit fly trap monitoring and surveillance before the predicted fruit fly outbreak season.
10. That DPI reviews the work of entry level graduates to ensure career paths are clear and encourage the retention of staff.

### **RESPONSE provided by Acting Secretary, Department of Primary Industries**

#### Recommendation 7

Agree.

Plant Standards Branch already implements one-on-one training for industries undertaking certification and verification programs.

This will be developed into a documented training module that can allow, where appropriate, departmental certification and verification systems to be incorporated into industry quality assurance programs.

#### Recommendation 8

Agree.

Plant Standards Branch is developing documented procedures based on nationally-agreed protocols for recording and enforcing breaches of legislation. The DPI Plant Biosecurity Strategy project team is examining the need for the further development of quality and information management systems, which would ensure greater consistency in recording and enforcement of breaches across the state.

#### Recommendation 9

Agree.

DPI supports the use of contract labour for routine surveillance and monitoring, and for emergency response. DPI regional services (CAS) has already developed and implemented processes to ensure appointment of contractors before the commencement of the outbreak season. However, it will be necessary to review these procedures and the cost-effectiveness of using contract labour for all such functions on a regular basis.

#### Recommendation 10

Agree in principle.

DPI will review current work duties of graduates entering the Plant Standards workforce to ensure entry level requirements are appropriate and examine staffing structures with a view to improving career paths. This will be done within the guidelines of DPI public sector employment conditions.

#### FIGURE 4G: KARNAL BUNT – PLANNING FOR AN EXOTIC DISEASE

A fungal disease, *Tilletia indica* was first identified in Karnal, India in 1930. It affects bread wheat and durum wheat (and has been found on triticale) at flowering, especially in cool, humid conditions. It does not infect the entire head, nor reduce yield significantly, but the diseased grains produce a foul-smelling, black powder. When the wheat (or triticale) is milled, the black powder gives the flour an offensive fishy smell. The disease is currently found in India, Afghanistan, Iraq, Nepal and Mexico. An outbreak occurred in Arizona, New Mexico and Texas in 1996. It was also recorded in South Africa in 2000.

In the mid-1990s, Karnal bunt was identified by Commonwealth and state agencies as a high-priority threat. In 1996-97, the Australian Quarantine Inspection Service organised a national conference and workshops to produce a Karnal bunt response strategy. These meetings were held, but a strategy was not produced. Only a fact sheet has been produced. DPI does not have a Karnal bunt-specific response plan.

In 2003, Plant Health Australia commissioned an economic analysis of Karnal bunt. An incident response plan is being developed, and a nationally accepted diagnostic protocol has been developed.

In the absence of a specific Karnal bunt incident response plan, DPI would use its Incident Action Plan in combination with the draft generic incursion management plan for plant industries, as a starting point if an outbreak occurs.



*Grains of wheat infected with Karnal bunt. (Photo courtesy of Plant Health Australia.)*

#### **4.2.2 Are new plant pests and diseases detected?**

“New pests and diseases” are those that are believed not to exist in Victoria. We examined whether programs were in place (and operating efficiently) to detect and report threats early enough to minimise outbreaks.

DPI does not have specific monitoring or surveillance programs to detect new threats. It considers that the costs of such programs far outweigh the benefits. There are potentially hundreds of pests and diseases for which programs could be established. The department has confined its monitoring and surveillance programs to known pests and diseases that have a demonstrated impact on market access for Victoria, and those that are specifically funded from another source, such as Asian gypsy moth and exotic fruit flies.

Pakistan recently refused to allow a shipment of Australian wheat to be unloaded, claiming it was infected with Karnal bunt. Tests have conclusively shown that the ships and Australia are free of this serious threat. Karnal bunt has been identified as a high priority threat and a concern to the wheat industry. The department only conducts informal surveillance programs for pests not listed in Figure 4B. There are no programs in the cereal industry, a significant income earner for Victoria. In response to Pakistan’s rejection of the consignment, Australia may need to provide surveillance and test data to verify area freedom and maintain market access.

Quarantine authorities in other countries do not consider that data gathered through informal surveillance is enough to prove the absence of a pest or disease. They require specific surveys, or organised inspections, performed in accordance with international agreements that define how an area can be shown to be free of a pest or disease threat.

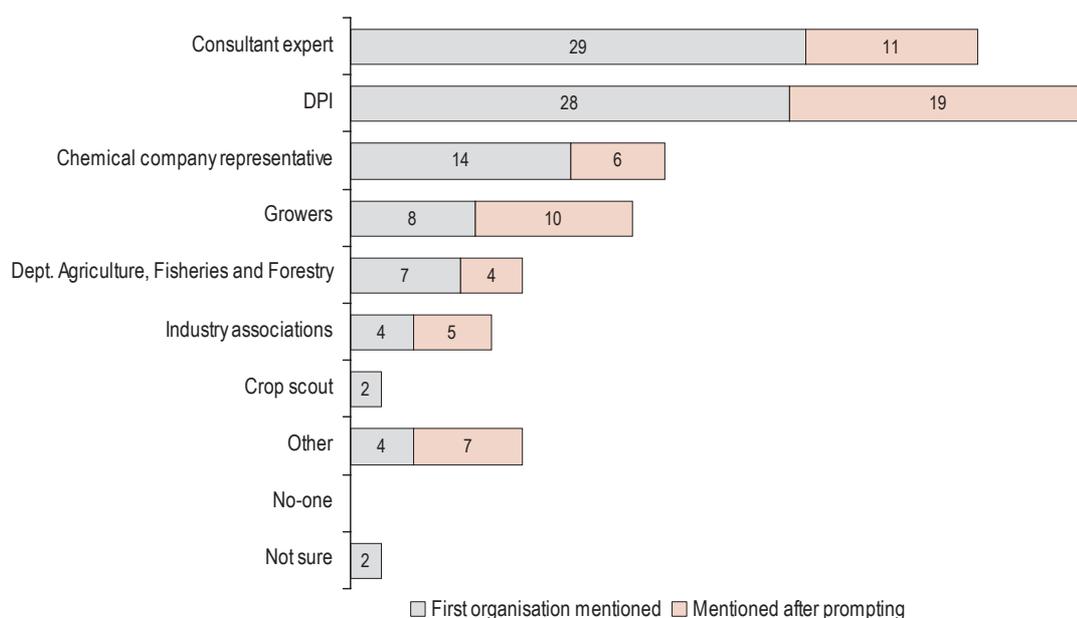
## Early detection

DPI's ability to detect new plant and pest threats early is affected by the diffuseness of the industry and the great many growers, processors, packers, wholesalers and retailers. In the animal industry, a sick animal is most likely to be taken to a veterinarian who would immediately report a new pest or disease to the authorities. In the plant industry, there are many more people in a position to identify and report a plant pest or disease.

There is also a much wider range of professionals, such as agricultural and horticultural consultants, chemical resellers, crop scouts and private laboratories, to whom a sample might be taken. There is a requirement under the Plant Health and Plant Products Act to report any new pest or disease incursion.

Figure 4H shows to whom respondents to our grower survey would report a new pest or disease. Although six in 10 growers would report to DPI, four in 10 would not.

**FIGURE 4H: TO WHOM GROWERS WOULD REPORT A NEW PEST OR DISEASE**



*Note:* Responses to question: "If you suspected that you might have a plant pest in your crop which is new to your property who would you contact?"

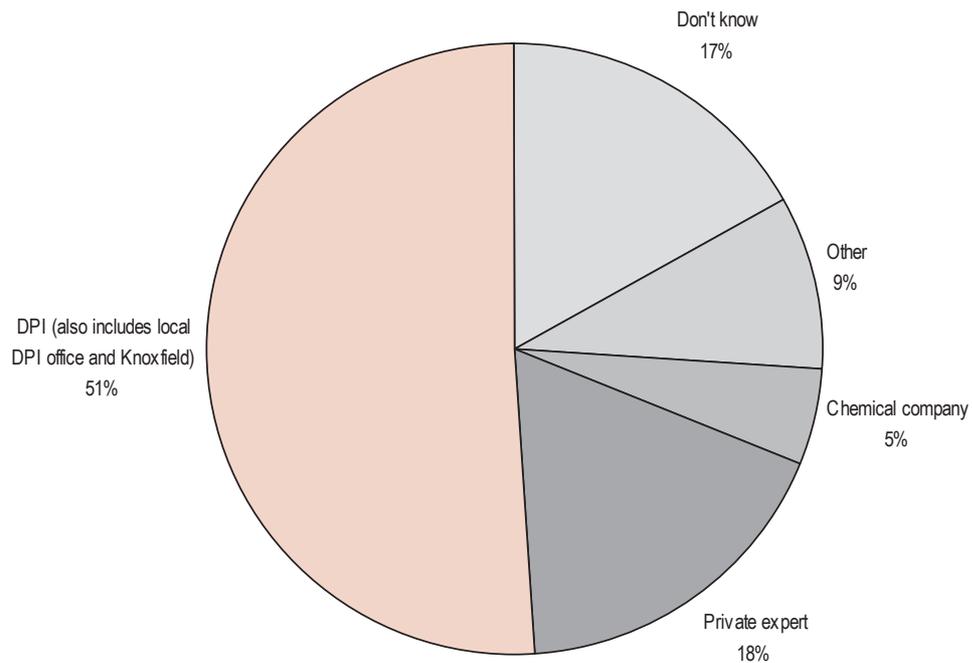
*Source:* Victorian Auditor-General's Office.

DPI has three ways of detecting new threats. First, most are detected through the department’s Crop Health Services’ sample analysis service. This is a user pays service that usually costs from \$90 to \$200 per sample. No fee is charged if the sample reveals a new pest or disease. Crop Health Services process around 4 000 samples each year and less than one per cent of these reveal a new pest or disease.

Since fees were introduced for sample analysis, fewer samples have been submitted for analysis and the mix has changed. Before fee-for-service, more samples came from urban backyard gardeners: now, most samples come from businesses. The consequences of this change are not clear as there has been little trace-back analysis of pest and disease incursions that would suggest whether an incursion is more likely to start in an urban area or a commercial property.

Figure 4I shows that almost one in five grower survey respondents do not know where to send a sample for analysis.

**FIGURE 4I: PLACES WHERE GROWERS WOULD SEND SAMPLES**

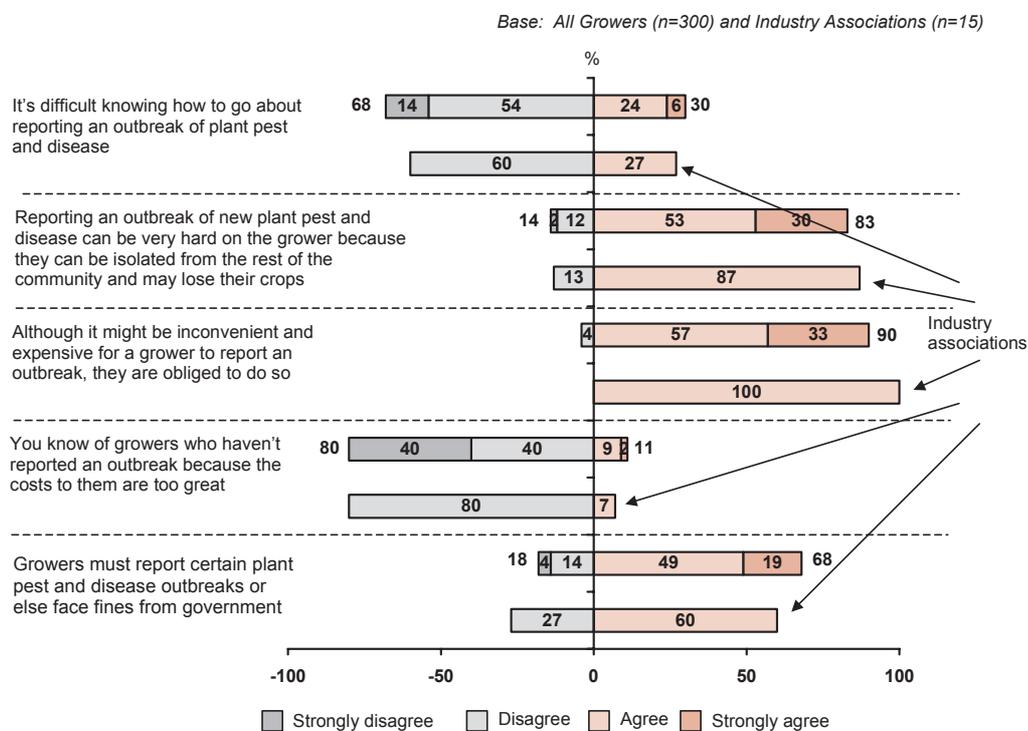


*Note:* Response to question, “If you detected a pest or disease and decided to send a sample of it for testing, where would you send it?”

*Source:* Victorian Auditor-General’s Office.

Figure 4J shows that over a quarter of respondents do not know that they can be fined for not reporting an incident.

**FIGURE 4J: UNDERSTANDING OF REPORTING ISSUES**



Note: Response to question, "Now I'm going to read you some statements that growers have made about dealing with plant pests and diseases and I'd like you to tell me how much you agree or disagree with each of them".

Source: Victorian Auditor-General's Office.

A second way DPI detects new threats is through informal surveillance programs. These include a mix of formal and informal research or extension surveys, and information from reports of pests and symptoms by the public and industry. Detections are recorded in the Victorian component of the national pest database and are used to confirm the presence or absence of specific pests in Victoria for market access certification purposes, or to justify Victorian import quarantine restrictions.

The third way DPI detects new threats is through referrals from the Australian Quarantine Inspection Service and other agencies. Plant Standards Branch is required to tell the Commonwealth about the presence or absence of many pests and diseases. As Figure 4B shows, PSB undertakes specific surveys for a relatively small number of threats. This means that when the Commonwealth requests information from Victoria about the presence or absence of other threat species not listed in Figure 4B, the department must rely on informal surveillance techniques, the results of which, may not be adequately supportable.

When detected, PSB quickly reports new threats to the Commonwealth. PSB must do so to alert other states and territories to potential threats, and to seek funds under Commonwealth-state cost sharing arrangements for incursion control.

## **Conclusion**

DPI currently does not undertake surveillance or monitoring for some high priority threats such as fire blight. Without acceptable surveillance programs (such as those carried out for fruit fly), DPI is vulnerable should it have to prove an area is free of a particular threat.

This audit has already identified the need for DPI to better prioritise and plan its work. Its current monitoring and surveillance programs result from the need to respond to current market access threats. DPI should be pro-active and identify the high priority threats for which monitoring and surveillance should be conducted.

Plant Standards Branch should improve how it assures the Commonwealth that a pest or disease is present or absent in Victoria.

The potentially high cost of monitoring and surveillance programs can be reduced by improving how information is gathered to detect and report exotic threats early. Significant work is needed to tell industry participants about their responsibility to report new threats, and about how to report them.

DPI should explore ways to provide better incentives for reporting, and should clarify how it compensates growers for reporting. It should also investigate other potential reporting sources such as at grain silo sites.

## Recommendations

- 11. That DPI improves monitoring and surveillance of high priority threats and improves the quality of information provided to the Commonwealth.**
- 12. That DPI effectively communicates to all sectors of the industry their responsibilities to report new threats, and how to report them.**

### **RESPONSE provided by Acting Secretary, Department of Primary Industries**

#### Recommendation 11

Agree.

The issue of monitoring and surveillance is being examined, as a high priority, by the DPI Plant Biosecurity Strategy project team. The project team will make recommendations about how DPI can improve its early detection and reporting systems, including reporting to the Commonwealth.

#### Recommendation 12

Agree.

The DPI Plant Biosecurity Strategy project team is investigating options to improve reporting of new and existing pests of economic and environmental importance to Victoria.

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# 5. Are incursion responses effective?





## 5.1 Do diagnostic services work well?

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### 5.1.1 Does DPI have access to diagnostic expertise?

We examined whether the Department of Primary Industries (DPI) had access when and as required to internal or external scientific expertise, and to reference collections and laboratory facilities that can provide for the diagnostic challenges it is likely to face.

#### **PIRVIC's scientific expertise**

Most of the research scientists that DPI employs to support plant health sciences are located at Primary Industries Research Victoria's (PIRVIC) Knoxfield laboratory. They are recognised nationally and internationally for their scientific publications and invited to give presentations at scientific forums and other professional conferences. They have good relationships with their counterparts in other countries, thereby allowing increased access to scientific knowledge and skills outside Australia.

In 2003, Plant Health Australia reviewed diagnostic resources around Australia. Victoria was found to have a good level of scientific expertise, but lacked expertise in forest health, biosystematics<sup>1</sup>, nematology<sup>2</sup> and to a lesser extent entomology. As a follow-up to this review, Plant Health Australia is working to develop a national diagnostic network.

DPI uses the purchaser-provider model to fund plant health diagnostics and research through PIRVIC. PIRVIC funding is fully contestable and obtained through projects or service agreements from four sources: state budget appropriation and initiatives; rural industry research corporations; Commonwealth funding; and commercial activities. Consequently, funding will fluctuate from year to year depending on the success of project bids, particularly initiative and rural research funding.

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<sup>1</sup> The science of naming or taxonomy.

<sup>2</sup> The branch of biology that deals with nematodes or worms such as roundworms or hookworms.

PIRVIC's state government funding comes from a number of projects that support its general diagnostic capability and research and development function. These projects are funded from two groups within the department. The Agriculture Quality Assurance Group, which provides funds for a core capability for pest and disease diagnosis, and the Agriculture Development Group, which provides funds for plant health research projects. Both groups have a service agreement with PIRVIC. Under the project funding model, PIRVIC's capacity (or otherwise) to investigate possible threats is determined by the priorities of the funded projects.

PIRVIC's income from its commercial diagnostic service also fluctuates greatly. In 2003-04, there is a projected shortfall of 25 per cent in the budgeted income in commercial diagnostic services.

The resultant fluctuation in staff numbers has an effect on PIRVIC's overall capability and its capacity to respond to outbreaks and to provide surveillance and monitoring expertise, particularly for high priority threats. The contestable funding model does not currently provide resources for scientists to investigate possible threats where the work is not part of a funded project.

### **Access to other scientific expertise**

The Plant Standards Branch only has diagnostic service agreements with PIRVIC. This means that if the branch needs forest health expertise to diagnose a forest pest and disease incursion, it cannot be obtained through its service agreement with PIRVIC because this expertise is in the Department of Sustainability and Environment's Forest Science Centre. Neither the branch nor PIRVIC have a service agreement with the centre.

Consequently, the Forest Science Centre's forest health scientists need access to secure quarantine glasshouses and an insectary. There are no such facilities at the centre, however, there are such facilities at Knoxfield, and they are underused.

### **Reference collection**

PIRVIC holds a reference collection of exotic (non-native) pests and diseases. This extensive collection was begun over a hundred years ago, and has samples of fungi, insects, bacteria and nematodes of agricultural importance (compared with the Victorian Museum's reference collection, that has a vast number of Australian native species).

**FIGURE 5A: DPI REFERENCE COLLECTION**

The DPI reference collection is an invaluable aid to diagnostic staff, industry and trade negotiators. Recently, a specimen collected in the 1880s was reviewed and found to have been falsely identified. This led to a reopening of trade with the United States of America worth around \$60 million. Over the last ten years, the collection has increasingly been used to provide forensic proof as required under World Trade Organization agreements. Industry is the main beneficiary of this type of work.

The department provided around \$109 000 in 2003-04 to PIRVIC through the Horticulture Industry Program. These funds covered part of the salaries of the fungal and insect taxonomists. This is less than the full cost of maintaining the collection. The collection is also used by other sections of DPI (such as the Dairy Industry Program) as well as by industry. Neither helps fund the collection.

In 2000, the department commissioned a report that found that the collection's storage facility was too small, and that the building in which it was housed was inadequate<sup>3</sup>. The report was accepted by the department but funds are yet to be allocated to implement the report's recommendations. The department is preparing a business case to improve its metropolitan infrastructure, but this does not explicitly include a purpose-built facility for the collection, which was one of the recommendations of the 2000 report.

**Accreditation of laboratory facilities**

Plant diagnostic laboratories can be accredited under International Organization for Standardization (ISO), National Australian Testing Authority (NATA) and Australian Quarantine and Inspection Service (AQIS) standards. Some of the department's plant laboratories are accredited under ISO 9000, which assure there are quality systems in place for the laboratory. NATA accreditation is for proficiency and technical competency of specific diagnostic tests. The department's plant health diagnostics do not have any NATA accreditation.

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<sup>3</sup> P Hunt *Institute for Horticultural Development Agriculture Victoria Collection Storage Survey*. Report prepared by the Conservation Centre. Melbourne, 2000.



*Quarantine glasshouse at DPI Frankston.*

The AQIS PC4 laboratory standard accredits laboratories to work with live airborne organisms. Diagnostic tests for some diseases (such as fire blight) need to work with live cultures of the disease<sup>4</sup>. The department cannot work with live cultures because it does not have access to a PC4-accredited laboratory. The Australian Animal Health Laboratory (managed by the Commonwealth Scientific and Industrial Research Organisation [CSIRO] at Geelong) is the only laboratory in Victoria that meets the PC4 standard, but is not used by the department for plant pests and diseases. It would cost at least \$850 000 to bring PIRVIC's plant pest and disease laboratory at Frankston up to PC4 standard.

This means that diagnostic tests that rely on the use of live cultures must be developed overseas and not under Australian conditions. There has been at least one instance of an overseas test not returning an accurate result because it was not developed under Australian conditions.

As there is no accredited Australian laboratory, scientists must take samples overseas for testing. However, this is not possible during an outbreak, because the scientists are required here. CSIRO has spare capacity at its Geelong laboratory that could be used for plant health research. Plant Health Australia is investigating such use and its report is due to be released in June 2004. Plant Health Australia is also developing a plant-specific laboratory accreditation system for Australia.

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<sup>4</sup> The importation of live cultures for scientific research is contentious, with industry generally not supporting such research.

## Conclusion

Diagnoses are likely to be much quicker and more accurate if scientists have experience with a wide range of threats. Under the purchaser-provider system of contestable funding for core diagnostic expertise and funding for research projects that help improve diagnostic procedures and protocols, management has secured the necessary expertise to fully support responses to possible incursions by high priority exotic pests and diseases. It is only when diagnostic activity is part of a funded project that expertise can be maintained.

DSE's Forest Science Centre's forest health scientists should have access to PIRVIC's facilities. This could be achieved through a service agreement, by collocating the scientists with PIRVIC or by incorporating them into PIRVIC. Collocation or incorporation would increase professional interaction for all scientists and increase the use of facilities. The nematology expertise in the Forest Science Centre would also bolster PIRVIC's skill base.

There appear to be potential benefits, which should be explored, of linking the Victorian Museum reference collection, academic collections and the PIRVIC collection. Industry support for the PIRVIC reference collection should be canvassed, as the collection benefits industry.

DPI should review plant laboratory accreditation levels to ensure that it maintains its nationally recognised status for plant health diagnostics.

## Recommendations

13. **That the model for state funding be reviewed to ensure that DPI can confidently build and maintain a core level of diagnostic expertise and research capability.**
14. **That better use be made of PIRVIC's facilities by strengthening links with relevant groups of expertise, such as the Forest Science Centre.**
15. **That the recommendations of the 2000 DPI report into the reference collection's storage facility be implemented, to secure the collection in a purpose-built facility.**
16. **That DPI maintains ISO 9000 accreditation for at least one laboratory and seeks NATA accreditation for key diagnostic tests. This should be done in combination with Plant Health Australia's laboratory accreditation project.**
17. **That DPI negotiates access, as and when required, to an AQIS PC4-accredited laboratory.**

## **RESPONSE provided by Acting Secretary, Department of Primary Industries**

### **Recommendation 13**

Agree.

The DPI Plant Biosecurity Strategy project team is examining the current and future requirements for DPI in this area. The team is developing processes to determine the requirements for diagnosis and other science capability. The state funding model can be reviewed in the context of national (e.g. Plant Health Australia) initiatives that seek to develop and implement national accreditation and diagnostic networks. DPI sees the development of a national network of diagnosticians as a means to reduce the need for each state department to maintain a full suite of research and diagnostic expertise.

### **Recommendation 14**

Agree.

A 2002 Plant Health Australia report identified that resources for forest health are at low levels nationally. It would be a very difficult task indeed to succession plan for forest health in isolation from the broader plant health community. The same report identified the critically low levels of nematology expertise nationally.

DPI will look at options to improve linkages with other groups such as forestry health in areas of joint project planning and staff colocation so as to improve overall technical expertise, capability and cooperation between the groups.

### **Recommendation 15**

Agree.

The reference collections are vital for enabling Australia's international trade by the provision of the technical evidence required for bilateral trade negotiations.

DPI will examine options to improve the storage facilities for collections to ensure they are adequate in terms of security, capacity and accessibility to both taxonomic and diagnostic staff.

### **Recommendation 16**

Agree.

The diagnostic service is committed to maintaining its ISO accreditation and is actively investigating NATA accreditation. A budget strategy to enable this is currently being developed.

**Recommendation 17**

Agree in principle.

There is only one PC4 laboratory in Victoria and that is the AAHL facility at Geelong. This facility is inadequate for handling large numbers of plant samples. Another containment facility at the DPI Frankston campus would be able to handle such specimens, however, it does not currently have PC4 status.

DPI will examine with relevant Victorian government departments, CSIRO and national quarantine counterparts, options that enable DPI plant health staff to have access to appropriate PC4 level facilities when required.

**RESPONSE provided by Secretary, Department of Sustainability and Environment**

**Recommendation 14**

Agree in principle.

## **5.1.2 Does DPI have appropriate diagnostic processes?**

We examined whether diagnostic protocols were in place for identified high priority threats, and that samples were received and processed efficiently.

### **Diagnostic protocols**

A diagnostic protocol states clearly the tests to be used to determine whether a particular disease or pest is present or not. There is often more than one test to identify a particular disease or pest, and different states use different tests to identify the same diseases or pests. There are a number of accredited national protocols for threats such as Karnal bunt and glassy-winged sharpshooters. Plant Health Australia is currently funding the development of over 30 more protocols.



*Glassy-winged sharpshooter. (Photo by Wayne Hunter, USDA, ARS, courtesy of DPI.)*

DPI developed a diagnostic protocol for fire blight as a result of the 1997 incursion. Since then, the department has developed four<sup>5</sup> more protocols under the Victorian Government's Science Technology and Innovation Program. The four species were chosen because of their potential to do major economic damage to the industry. Although the department's motivation is to use them to address incursions in Victoria, it intends to have the protocols accredited nationally.

#### **FIGURE 5B: RAPID DIAGNOSIS OF PLUM POX VIRUS (SHARKA) SAVES THE DAY**

In 2000, DPI used a Science Technology and Innovation Program grant to develop a diagnostic test for plum pox virus that causes the disease, sharka, in plums.

The department investigated all available diagnostic tests for plum pox virus from around the world, and chose the tests most suitable for Australian conditions. Crucially, the chosen tests (ELISA and PCR [molecular] test) were also accepted by Australia's trading partners. The work involved overseas study of the disease and its symptoms in orchards.

This development work soon proved its value. In September 2000, an AQIS sniffer dog, Sally, raised the alarm about suspicious luggage at Sydney Airport. An AQIS officer found 5 kilograms of smuggled fresh plums and a stick of budwood (used for propagation). AQIS, which knew of DPI's project to develop a test for plum pox virus, invited a DPI scientist to test the samples at AQIS' Eastern Creek laboratories.

The scientist confirmed plum pox virus on the illegally-imported plums within 36 hours. This was a major breakthrough. In 1998, Goulburn Valley fruit had been suspected of carrying plum pox virus and it had taken DPI five weeks to confirm that the virus was not present. Had the virus been present in the Goulburn Valley, a five week wait to find out (as opposed to 36 hours) could have been disastrous for the industry, and cost it millions of dollars.

PIRVIC provides a quick and accurate diagnostic service for most endemic species. For example, Queensland fruit fly can be diagnosed in half an hour if the entomologist is available and the sample arrives promptly.

<sup>5</sup> Plum pox virus, potato ring rot, Pierce's disease, barley stripe rust.

Diagnosis takes longer for exotic species because scientists do not have the same level of knowledge and experience with these species. The accurate diagnosis of fire blight in 1997 took about three weeks because there was no agreed diagnostic protocol. The longer the delay in diagnosis, the more likely an outbreak is to spread, with increased costs to control it and more damage to the industry.

## **Sample submission procedures**

Samples sent to DPI from the public, growers, other states, the Commonwealth and departmental staff can be received at any of the department's research institutes. The majority of samples come to PIRVIC's Knoxfield Laboratory. There are no security measures (including anti-contamination measures) for samples in transit, except for samples that might be used as evidence in a prosecution. For these samples, PSB has a security system for their transit from the Melbourne Markets (wholesale fruit and vegetable market) to Knoxfield.

On receipt at Knoxfield, samples are recorded on a work order and details entered into the Crop Health Services diagnostic database. The database does not provide the department with accurate information about the number of samples being processed, because one work order can cover multiple samples.

Also, the database does not link work orders that are received at different times. That is, if two samples from nearby properties have the same symptoms, the Crop Health Services diagnostic database does not trigger an alarm about a possible incursion. Any alarm relies on the vigilance of the administrative officer accepting the samples, or on scientists happening to discuss their work. This diagnostic database is not linked with other similar DPI databases at other research institutes around the state.

Although one sample will often need multiple tests, the current service agreement between PIRVIC and PSB only reimburses PIRVIC for the cost of one result. That is, PIRVIC's costs are greater than what they are paid under the service agreement.

## **Conclusion**

DPI successfully diagnoses endemic pest and disease species. Diagnosis of species that are new to Victoria takes longer. This is because scientists are less familiar with the organisms and, unless they are using an established protocol, they have to develop a new methodology.

Suitable protocols need to be established for all high-priority threats so that DPI is prepared for all high-priority pest and disease incursions. This will be costly, but the benefits will flow to other states and to industry. DPI should investigate funding from both industry and the Commonwealth to develop these protocols.

Samples in transit, and being handled, must be secure for legal and biosecurity reasons. PSB has a security system, but it is inconsistently applied. Adequate security measures for the transport and handling of samples need to be developed and implemented in all laboratories. Sample security is a national issue. Plant Health Australia is developing a transport standard and DPI should make sure that its security system is consistent with that standard.

The Crop Health Services diagnostic database should be a front line for detecting possible incursions. It is not at present, because it is not sophisticated enough to raise the necessary alarms, nor is it linked to other PIRVIC diagnostic databases around the state.

Accurate costing, and reimbursement of costs, are important elements of a fair and transparent purchaser-provider funding model. PIRVIC's testing costs should be reimbursed through those who purchase its services.

## Recommendations

18. **That DPI develops diagnostic protocols for high-priority threats, in conjunction with other jurisdictions and industry, as soon as practicable.**
19. **That DPI establishes a system to ensure the security of all samples at all times, but particularly during their handling and transport.**
20. **That DPI upgrades the Crop Health Services diagnostic database so that it alerts PSB and PIRVIC to the receipt of samples from nearby areas with similar symptoms and can be linked to other PIRVIC diagnostic databases.**
21. **That PSB and PIRVIC review their service agreement to ensure that PIRVIC is compensated for its costs in providing PSB with the specified level of service.**

**RESPONSE provided by Acting Secretary, Department of Primary Industries**

### **Recommendation 18**

Agree.

The DPI Plant Biosecurity Strategy project team is developing processes to determine exotic threats and suggest arrangements that would enable the development of diagnostic protocols for the key pests associated with high priority threats.

### **Recommendation 19**

Agree.

Protocols for handling and transporting samples are being developed at the national level in response to the Radcliff Review of Plant Biosecurity. DPI will adapt this protocol for the state's biosecurity needs.

### **Recommendation 20**

Agree.

The DPI Plant Biosecurity Strategy project team is examining information system requirements for plant biosecurity and will make recommendations about these requirements. DPI considers it appropriate to wait for the recommendations of the project team before committing to the upgrade of the Crop Health Services diagnostic database.

### **Recommendation 21**

Agree.

The service agreement between Plant Standards Branch and PIRVIC will be reviewed to ensure that PIRVIC is appropriately remunerated by Plant Standards Branch for technical and diagnostic services it contracts to deliver to Plant Standards Branch.

## **5.2 Are emergency responses conducted well?**

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### **5.2.1 Are communications with industry and within DPI adequate?**

We examined whether industry participants know what they need to know about their legislative responsibilities, and about helping control incursions. We also examined whether or not other sections of DPI have adequate knowledge to help control incursions.

Plant standards officers have little contact with growers or other industry parties except during an outbreak, when their level of contact is high. PSB attributes the low level of everyday contact to monitoring and surveillance workloads, and to the workload required to audit the certification and verification system.

PSB's role in plant health is not well-understood within the department or by growers, industry representatives and the public. However, it is well-understood by those at the Melbourne Markets (wholesale fruit and vegetable market), where branch officers patrol regularly, have an onsite office and are highly visible.

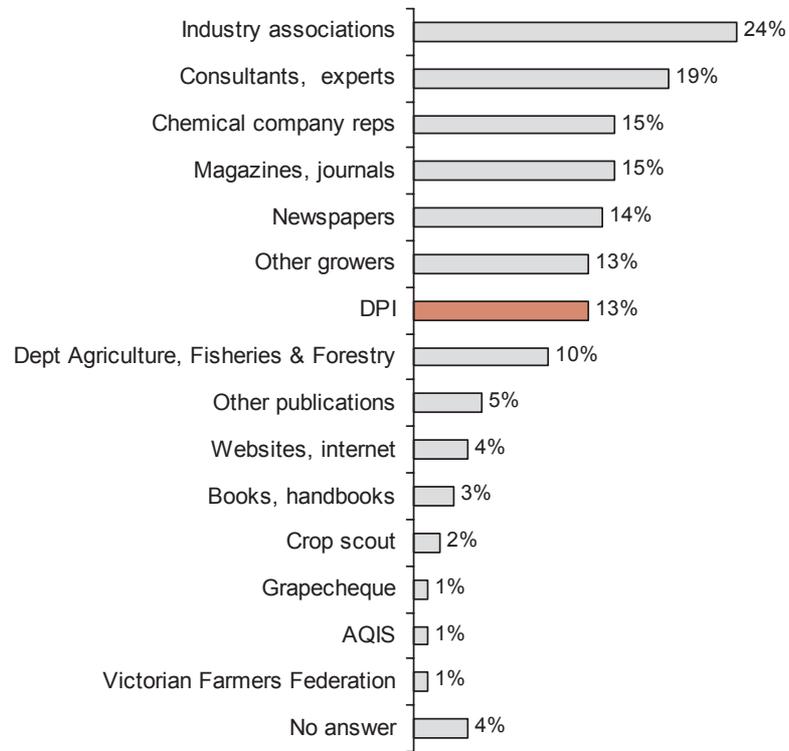
Catchment and Agriculture Services staff have high levels of contact with growers through extension programs (such as Grapecheque and Cropcheque) that deal with productivity issues. Our grower survey showed that 36 per cent of respondents had attended formal talks or seminars provided by Catchment and Agriculture Services in the last year. These programs do not formally include plant health information, or information about PSB. There is no service agreement between Agriculture Quality Assurance Group (for PSB) and Catchment and Agriculture Services (for Practice Change Branch) to deliver this information. When information is provided, it is as a result of an extension officer's initiative or a working relationship between an extension officer and a local PSB officer.

Figure 5C shows that one in four grower survey respondents obtain information about plant pests and diseases from industry associations. One in five obtains information from consultants and one in seven from chemical company representatives. About one in eight respondents obtain information from the department.



*Grape vine leaf infected with Pierce's disease. (Photo courtesy of UC Statewide IPM Project © Regents, University of California.)*

**FIGURE 5C: SOURCES OF INFORMATION ON PLANT PESTS AND DISEASES**



*Note:* Response to question, “What sources of information, if any, do you use to keep informed about plant pests and diseases that can affect your crop?”

*Source:* Victorian Auditor-General’s Office.

Figure 5D shows that DPI information is considered by grower survey respondents to be accurate and reliable, but not as timely as information from consultants or industry associations. While industry associations rated highly for accurate information, Figure 4J in Part 4 of this report shows that these organisations sometimes give out inaccurate information. For example, some organisations disagreed with the statement that growers must report certain plant pest and disease outbreaks or else face fines from the government. This statement is true.

**FIGURE 5D: RATING OF RELIABILITY, TIMELINESS AND ACCURACY**

| <b>Base = mentioned more than one information source (n=109)</b> | <b>Reliable</b> | <b>Timely</b> | <b>Accurate</b> |
|--|-----------------|---------------|-----------------|
|  | %               | %             | %               |
| Industry associations  | 19              | 17            | 18              |
| Chemical company representatives                                 | 10              | 10            | 12              |
| Consultant, expert   | 17              | 20            | 18              |
| Newspapers   | 3               | 7             | 0               |
| Growers  | 13              | 15            | 9               |
| <b>DPI</b>   | <b>16</b>       | <b>10</b>     | <b>16</b>       |
| Dept Agriculture, Fisheries and Forestry                         | 7               | 6             | 9               |
| Books  | 5               | 2             | 4               |

*Note:* Response to question, "Which of these do you consider offers the most reliable, timely, accurate information?"

*Source:* Victorian Auditor-General's Office.

PSB staff understand that all communication during an incursion should be through a nominated person. This centralisation of communication is the result of previous experience with the fire blight outbreak in 1997. Neither research staff nor staff from other sections of the department share this understanding.

In the 1997 outbreak, PSB had a high-profile manager who represented the department to the public. The branch considers that this was a key element in effective communications, which directly contributed to successful management of the outbreak.

Although PSB has some procedures for communications during and after an outbreak, there is anecdotal evidence that they are not effective. For example, industry associations were not aware of post-outbreak information that had been sent to them.

Thirty-six per cent of grower survey respondents had used the internet to obtain information about plant pests and diseases, and the internet was a primary source of information for four per cent of respondents (compared with less than one per cent common in equivalent surveys in other industries).

PSB provides information mostly on paper and not on the internet. Growers do not have ready access to up-to-date information during outbreaks. For example, maps of the latest outbreak area can only be provided in hard copy by contacting PSB.

## Conclusion

Plant Standards Branch officers have little contact with growers or other industry parties except during an outbreak, when their level of contact is high. However, other DPI research and extension staff from Catchment and Agriculture Services have extensive contact with growers, and are DPI's main resource for educating growers. Formal arrangements, such as a service agreement, could be made for these research and extension staff to cover plant health issues.

Industry organisations and consultants are favoured sources of information. A more strategic approach for DPI would be to provide plant health information through them to industry.

PSB needs to develop and implement a comprehensive outbreak strategy (before, during and after an outbreak) for communicating with industry organisations, growers and other parts of DPI.

Compared with non-agricultural industries, rates of internet use to gain information appear high among growers and other industry parties<sup>6</sup>. This is a good reason for DPI to improve its website to make accurate, timely and useful information easily available. Two areas of particular need are plant health and incursion (including post-incursion) information. Despite the plant industry's relatively high general use of the internet, there are still many growers that do not use this form of communication. Regular updates could also be sent to industry groups for inclusion in their newsletters, and checks made that this information is communicated widely.

## Recommendations

- 22. That DPI formalises agreements within the Regional Services and Agriculture Division to ensure that plant health information is included in extension programs.**
- 23. That DPI develops a comprehensive strategy for communicating to industry their rights and responsibilities in relation to threats, incursions, outbreaks and post-outbreak; and also for communicating internally.**

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<sup>6</sup> Victorian Auditor-General's Office, survey of crop growers. January 2004.

## RESPONSE provided by Acting Secretary, Department of Primary Industries

### Recommendation 22

Agree in principle.

Currently Plant Standards Branch uses PIRVIC and CAS communication channels to deliver plant health information on an occasional but ad hoc basis.

Plant Standards Branch will seek to coordinate dissemination of plant health information, where appropriate, through existing DPI extension channels and formalise these arrangements.

### Recommendation 23

Agree.

Plant Health Australia is currently developing biosecurity plans for primary producers in the various agricultural industries. Plant Standards Branch, in consultation with DPI Regional Services, will seek to develop communication strategies to inform growers and DPI field staff of biosecurity issues and responsibilities that are complementary to PHA programs.

## FIGURE 5E: PHYLLOXERA – GOOD COMMUNICATION IS VITAL FOR GOOD PEST RESPONSE

Phylloxera (*Daktulospharia vitifolia*) is an aphid-like insect native to North America. It feeds on vine roots and leaves, and produces galls that eventually kill a vine. Symptoms may not be detectable for up to two years. However, phylloxera is manageable through the use of resistant root stocks and good farm hygiene.

Phylloxera was first recorded in Australia in 1877, but we are now considered relatively free of the pest. When it occurs, it is mainly in Victoria and NSW. Victorian outbreaks have been in the King Valley (1991, 1994-95) and Upton in Central Victoria (2000). Grape-growing areas throughout Australia are designated as phylloxera-infested zones, phylloxera exclusion zones or phylloxera risk zones.

In April 2000, phylloxera was recorded in a vineyard in the Upton area. The property was quickly surveyed, suspect samples analysed by PIRVIC and phylloxera confirmed. A quarantine area was established and legislation enacted to extend the phylloxera-infested zone from Nagambie to include Upton. An infested land notice was issued to the vineyard owners and permits issued to move low-risk produce from the Avenel area to Melbourne. Neighbouring vineyards were surveyed (and re-surveyed in 2001) and phylloxera was not at a detectable level.

The minister was briefed and a press release issued. Local growers were kept informed by DPI through meetings in the area. Growers said that DPI's response was quick and that staff did a good job.

## 5.2.2 Are systems in place to support outbreak responses?

We examined whether there were effective systems supporting outbreak responses.

### **Australian Interservice Incident Management System**

DPI uses the Australian Interservice Incident Management System (AIIMS) to manage emergency responses (such as firefighting, managing weed incursions and animal pest and disease outbreaks). The system provides a framework for organising resources and communications, for delegating responsibilities and for reviewing responses to incidents.

Plant Standards Branch has used AIIMS since 2002. At a plant health conference in 2003, an outbreak response exercise revealed that there is little understanding among research and Catchment and Agriculture Services staff about how AIIMS operates for plant disease and pest incursions. Staff did not understand the authority of the nominated incident controller, who is usually the branch manager.

AIIMS has a strict command and control hierarchy that comes into effect at the start of an incident. To effectively use AIIMS, staff must be well-trained and understand the chain of command. Plant Standards Branch has not formally trained field staff to use the system. Only one plant standards officer has been formally trained to use AIIMS, and this was at his own instigation as part of regional training offered to firefighters.

In 2001, a simulation exercise was successfully used by the Agriculture Quality Assurance Group to test its animal health emergency response plans. The Commonwealth-coordinated Operation Minotaur simulated an outbreak of foot and mouth disease. This exercise both raised staff awareness and expertise, and revealed weaknesses in the department's plans that have since been addressed. Plant Standards Branch has not conducted a similar simulation, but believes that the regular small (yet real) outbreaks that staff deal with provide them with enough hands-on experience.

The department does not always conduct post-incursion debriefs, and has not involved industry personnel when they do.

## Resources available for outbreak responses

Plant Standards Branch relies on support from PIRVIC and Catchment and Agriculture Services staff to manage many outbreaks. There are no formal arrangements between the branch, PIRVIC and Catchment and Agriculture Services to make staff available when required, and at short notice. Such support is not part of the formal requirements of staff under industry-funded contracts. These contracts do not provide for any project downtime staff may experience when required to help in a pest or disease outbreak. However, the informal understanding with industry is that incursion response is a necessary part of the department's role and that industry will accept delays to projects if staff are needed to help with an outbreak. In practice, staff simply make themselves available and sort out funding later.

Governments currently pay most of the cost of controlling outbreaks. Plant Health Australia is brokering an Emergency Plant Pest Cost Sharing Agreement between governments and industry. The agreement will mean that costs are shared using a model that takes into account the benefits of eradication to the public and to industry. Figure 5F shows the model. As far as possible, the intention is that no individual or organisation will be financially better or worse off from an eradication<sup>7</sup> effort.

**FIGURE 5F: PLANT HEALTH AUSTRALIA COST-SHARING MODEL**

| Category | Cost borne by -                           |          | Criteria                                      | Example            |
|----------|---|----------|---|--------------------|
|          | Government<br>(Commonwealth<br>and state) | Industry |   |                    |
|          | (%)                                       | (%)      |   |                    |
| 1        | 100                                       | –        | High trade impact<br>Human health<br>Industry | Guava rust         |
| 2        | 80  | 20       | Trade impact and industry                     | Asian gypsy moth   |
| 3        | 50  | 50       | Less impact on trade                          | False codling moth |
| 4        | 20  | 80       | Greater impact on industry                    | Asparagus rust     |

*Source:* Victorian Auditor-General's Office, from information provided by Plant Health Australia and DPI.

<sup>7</sup> The decision to eradicate or control is difficult and there is currently no framework for making this decision outside the Commonwealth process where industry and governments decide jointly. In many cases, industry seeks support for eradication, but these costs can be excessive.

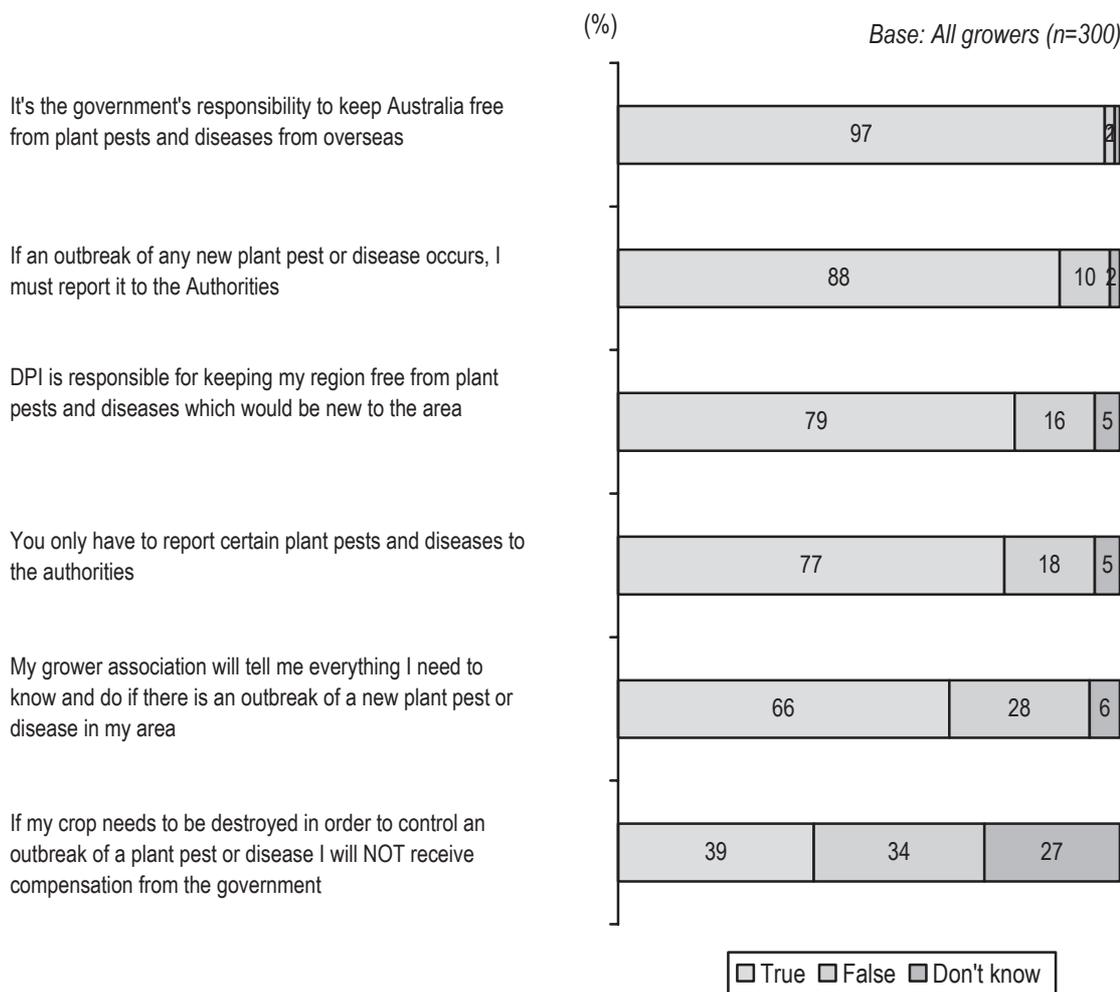
Commonwealth-state cost-sharing agreements are currently negotiated through the Consultative Committee on Exotic Plant Pests and Diseases. The committee recommends whether or not the Commonwealth and states will share 50:50 the costs of managing an outbreak in Victoria. It will only recommend so if it considers that a threat can be eradicated, and that there is a national benefit (such as continuing market access) in eradicating it.

The committee's starting position is that a threat can be eradicated. The 50:50 cost-sharing ceases when the committee decides that eradication is no longer possible and (or) that the threat is only to a particular state or territory. Responsibility for funding further control or eradication work then falls to the particular state or territory.

In Victoria, there is no documentation or agreement about funding arrangements to manage an outbreak. Arrangements depend on the experience and relationships that individual departmental officers have built up over the years, and on accepted rules of thumb. If the cost of control is expected to be less than \$50 000, it is paid from the Plant Standards Branch budget. If costs are to be over \$50 000, further funds are sought from within the Regional Services and Agriculture Division. If the cost of control is over \$500 000, DPI considers a request to Treasury.

There are no compensation arrangements for growers whose crops are destroyed as a result of a control or eradication program. As Figure 5G shows, two-thirds of respondents in the grower survey thought they would be compensated, or did not know if they would be compensated, if their crop had to be destroyed. The proposed Emergency Plant Pest Cost Sharing Agreement will reimburse affected growers. This will also give growers an incentive to report any pests and diseases that they might detect.

**FIGURE 5G: UNDERSTANDING OF RIGHTS AND RESPONSIBILITIES**



*Note:* Response to question, “Now I’d like to read you some statements about your rights and responsibilities as a grower (of crop). Please tell me whether you think each is true or false”.

*Source:* Victorian Auditor-General’s Office.

## Conclusion

Limited understanding by research and field staff about how the Australian Interservice Incident Management System (AIIMS) operates for incursions can delay responses as staff may question decisions and the authority of the person who makes them.

Debriefs are an opportunity for both DPI staff and industry to learn from incursions, and to better understand their roles. People directly involved in the incursion, and those in support and peripheral roles, should attend debriefs. Debriefs should be conducted after all incursions, whether small or large.

Experience with outbreaks provides useful on-the-job training, however, rigorous simulation exercises can provide staff with a wide range of possibilities to test in controlled circumstances. Simulation exercises are particularly useful as training exercises for new staff where the added stress of being involved in a real outbreak is removed.

Staff availability to respond to outbreaks currently depends on personal relationships and goodwill, rather than on formal arrangements (such as in the case of wildfires, where incident response duties are included in DPI and DSE staff duty statements).

The adoption of AIIMS is commendable, but it needs to be better implemented across DPI. All staff involved in responding to incursions need to be trained to use the system, particularly to understand who is authorised to make certain communications, such as to the media, and undertake relevant procedures, such as ordering a specific crop treatment.

DPI should ensure that the person responsible for communicating with the public during an outbreak is an excellent communicator who can manage any sensitivities that arise.

The proposed Emergency Plant Pest Cost Sharing Agreement will share the costs of managing outbreaks between industry and governments. Once the agreement is in place DPI will need to develop internal funding guidelines to ensure that funding is available for owner-reimbursement costs when required.

## Recommendations

24. That DPI provides plant incursion-specific AIIMS training for anyone who might be involved in, or providing resources for, an incursion response. This includes senior management, field and research staff, contractors and industry participants.
25. That DPI ensures that AIIMS training includes information to ensure that everyone understands their role, and how information will be managed internally and externally, in the event of an incursion.
26. That DPI conducts and documents debriefs after all incursions, and adopts any improvements that are identified through debriefs.
27. That DPI formalises agreements between divisions and groups that allow staff to be involved in incursion responses and reflects this requirement in individual duty statements.
28. That DPI prepares guidelines, both internally and externally with Treasury, about funding arrangements for an outbreak.

### **RESPONSE provided by Acting Secretary, Department of Primary Industries**

#### Recommendation 24

Agree.

The DPI Plant Biosecurity Strategy project team is examining, as a high priority, the implementation of AIIMS training for relevant government and industry personnel involved with an incursion response.

#### Recommendation 25

Agree.

DPI has well established information management procedures for dealing with incursions, especially for the animal health sector. These will be reviewed and adopted, where appropriate, for the plant health sector.

#### Recommendation 26

Agree.

Plant Standards Branch has conducted debriefs on a few key pest incursions and adopted improvements identified by the process. However, many responses such as to fruit fly incursions are routine and would not merit individual debriefs.

The branch will extend debriefs to cover all new pest incursions of significance and implement seasonal debriefs for routine responses such as fruit fly.

#### **Recommendation 27**

Agree.

The DPI Plant Biosecurity Strategy project team is reviewing staffing agreements between the various units within DPI and other departments that would be involved with emergency response.

Recommendations from the review will be used to draw up formal intra and inter agency agreements for staffing emergency responses, including the identification of key response personnel and incorporation of their duties into duty statements, as appropriate.

#### **Recommendation 28**

Agree in principle.

DPI will develop internal guidelines on funding arrangements for emergencies between DPI businesses and with other departments.

The department will also seek to hold discussions with Treasury on funding arrangements to meet large-scale emergencies, especially involving legal deeds of agreement for responses with other agencies, such as Plant Health Australia.

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(a) This report is included in Part 3.2, Human Services section of the *Report on Ministerial Portfolios*, June 2001.

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