

Grower registration scoping study

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Report for Grower Registration
Scoping Study
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Executive Summary

Horticulture Australia Limited has commissioned GHD to investigate the potential for a grower registration scheme to help address biosecurity issues in the vegetable industry. A national grower registration scheme would enable the collection of accurate and up-to-date information about the number and location of growers of different plant species.

Such a scheme could therefore have a potential role in improving biosecurity by:

- ▶ Providing information on the distribution of the vegetable industry to inform biosecurity planning;
- ▶ Facilitating communication to growers to increase their awareness of biosecurity needs and to increase the adoption of behaviours that will mitigate the biosecurity risks; and
- ▶ Providing information on the location of vegetable properties and contact details to improve the ability to reach and communicate with growers during biosecurity responses.

A number of documents articulate the specific obligations of the Australian government, as well as those of state and territory governments and industry bodies in relation to each of these activities. The development of a national grower registration scheme would enable these obligations to be better met and also provide additional benefits to government, industry and individual growers. There are however several external factors that will influence how effective a grower registration scheme may be in limiting the spread or impact of a plant pest incursion. These include:

- ▶ the number of commercial growers likely to be affected and their geographic distribution;
- ▶ whether the potential host species are also grown outside the commercial situation;
- ▶ how the disease is spread;
- ▶ the rate of spread;
- ▶ the potential for growers to take measures to protect against it or eradicate it; and
- ▶ the potential economic impact.

Two case studies are presented of recent plant pest incursions in the horticulture industry – myrtle rust and chestnut blight. Both these diseases affect species which are grown in gardens and non-commercial situations as well as by commercial growers. As a result, whilst a grower registration scheme could potentially have improved the response in both cases (because it would have enabled commercial growers to have been more rapidly identified and contacted) this would not necessarily have been sufficient to limit the spread of the disease.

Two examples of grower registration schemes (the proposed Property Identification Code in Victoria and the register maintained by the Phylloxera and Grape Industry Board in South Australia) are examined to show how a grower registration scheme



managed by a state government agency or by a Board specifically constituted for the purpose of managing such a scheme can operate. Also examined is the GS1 System, an internationally accepted numbering and bar coding system which can be used for the tracking and tracing of fresh produce. The key driver for the GS1 System is food safety, but the system could potentially also be used to respond to biosecurity issues.

Based on the examination of these schemes and of grower registration schemes in use in other agricultural industries, a set of principles has been drawn up to guide the future development of a grower registration scheme for the vegetable industry.

The recommended next step for the study is to hold a workshop with the steering committee and peak (national and state) industry bodies and Australian and state government representatives to discuss the best way to implement the scheme.

The aim of the workshop is to discuss this report and to:

- ▶ Refine the guiding principles;
- ▶ Determine the most appropriate administrative structure for a grower registration scheme;
- ▶ Identify barriers to be addressed; and
- ▶ Agree to high level actions.



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1. Introduction

1.1 Background

The Australian vegetable industry is a large and diverse sector of horticulture in Australia. ABS data reports that the sector is valued at AUD \$2.4 billion¹ with just over 4,000 individual growers². The industry also has a large number of organisations that operate at commodity, national, state and regional levels and that represent various segments of the supply chain.

The complexity of the Australian vegetable industry and government legislation and policy, present significant challenges to the efficient and effective function and maintenance of industry biosecurity, QA, food safety, chemical user safety and accreditation, market transparency, and ultimately consumer confidence and demand for locally produced product.

In 2009, Horticulture Australia Limited (HAL) commissioned GHD to investigate the potential applicability of a national grower registration scheme to the Australian vegetable industry to proactively address these issues. The project is overseen by a steering committee consisting of industry and HAL representatives.

1.2 Approach

An initial scoping study was undertaken through carrying out targeted interviews with key industry informants (see Appendix A). Each of these informants was asked the following questions:

- ▶ Which registers currently collect grower information?
- ▶ Does the Australian vegetable industry need a grower registration scheme?
- ▶ Who should own and manage the scheme?
- ▶ What information needs to be registered?
- ▶ Who should access/use the scheme?
- ▶ How should it be implemented?
- ▶ What are the challenges and opportunities?

The responses were collated and presented in a discussion paper which was submitted in April 2010. There was widespread agreement amongst those interviewed that a grower registration scheme would benefit not only the vegetable industry but the whole horticulture sector. Also included in the initial discussion paper were a series of five case studies of relevant grower registration schemes in the horticulture and other sectors.

¹ ABS data from 2003-04.

² ABS data from 2004-05.

The discussion paper identified four types of grower registration schemes which may be applicable to the Australian vegetable industry:

- ▶ Supply chain register – product/grower register on a voluntary (e.g. Freshcare) or mandatory (e.g. National Livestock Identification System) basis;
- ▶ Biosecurity register – grower register for a particular crop/risk (e.g. mandatory phylloxera register) or to improve response capability to a pest incursion (e.g. voluntary Victorian property ID code);
- ▶ Grower services register – grower contact database to facilitate industry and government information dissemination; and
- ▶ Single register – grower register capable of performing all the above functions (none currently exist).

Of these, a national biosecurity register was considered to have the greatest potential for the vegetable industry in the immediate future. The steering committee therefore requested that remaining project funds should be used to investigate this option further. In particular to:

- ▶ Expand on the reasons why, and how, a grower registration scheme will address the biosecurity driver;
- ▶ Provide two illustrative case studies of how a grower registration scheme would have improved [the response to] recent biosecurity incursions;
- ▶ Provide benefit statements for growers, industry and government; and
- ▶ Clarify industry and government roles in the scheme.

This report presents the findings of this additional work. It sets out the biosecurity obligations of the industry and the potential role for a grower registration scheme in enabling industry to meet these obligations. It provides two case studies of recent incursions in the horticulture industry and discusses whether a grower registration scheme would have improved the response. It provides an analysis of two grower registration schemes designed to address biosecurity issues and finally provides a set of principles that can be used to guide the future development of a grower registration scheme for the vegetable industry

2. Biosecurity obligations

2.1 Introduction

Within the Australian Government, responsibility for managing Australia's biosecurity and minimising the impact of pests, diseases and contaminants on Australian agriculture rests with the Biosecurity Services Group which is part of the Department of Agriculture, Fisheries and Forestry (DAFF). The Biosecurity Services Group was formed in 2009 to improve biosecurity risk management and improve service delivery along the biosecurity continuum from pre-border to border to post-border.

Previously responsibility for plant biosecurity lay with three different organisations:

- ▶ Pre-border - Biosecurity Australia was responsible for undertaking Import Risk Analyses;
- ▶ Border - the Australian Quarantine and Inspection Service managed quarantine controls to minimise the risk of exotic pests and diseases from entering the country; and
- ▶ Post-border – the Office of the Chief Plant Protection Officer co-ordinated plant pest management strategies in conjunction with the relevant Australian and State Government agencies.

These responsibilities now all lie with the Plant Division within the Biosecurity Services Group.

There are two different approaches that can be used to enhance biosecurity in Australia's plant industries:

- ▶ a proactive approach which is aimed at mitigating the likelihood of plant pest incursions through, for example, running grower education and awareness campaigns; and
- ▶ a reactive approach which is aimed at effectively managing the response to any incursions which do occur in order to reduce their potential impact.

There are a number of documents that articulate the specific obligations of the Australian government, as well as those of state and territory governments and industry bodies in implementing both these approaches.

The National Plant Health Status Report provides an overview of Australia's plant biosecurity system, including roles and responsibilities for undertaking post-border activities.

PLANTPLAN and the Emergency Plant Pest Response Deed (EPPRD) are both national in focus and deal with the way in which responses to plant pest incursions are managed. PLANTPLAN details the roles and responsibilities of the various parties at each stage of an incursion, whilst the EPPRD describes the way in which the costs of dealing with an incursion are shared according to the level of public and private benefit.

In addition to the response management procedures outlined at national level in PLANTPLAN, some of the states have also developed their own state-specific emergency response plans. These include South Australia's Plant Health – Emergency Plant Pests Response Plan and Tasmania's Biosecurity Emergency Preparedness Program.

Like PLANTPLAN, the National Vegetable Industry Biosecurity Plan (NVIBP) is also national in focus but unlike PLANTPLAN, which is generic in nature, the NVIBP is specific to the one industry. It deals with the actions required for both mitigation and response to an incursion.

Not only does the vegetable industry have existing biosecurity obligations as set out in these documents, but it may also be subject to future additional requirements. Both the National Biosecurity Strategy Framework and the recently released Draft National Plant Health Strategy, for example, identify the need for a registry of producers to be developed and regularly updated.

The following sections describe in more detail the relevant content from the key documents mentioned above.

2.2 National Plant Health Status Report

The National Plant Health Status Report 2008/09 (Plant Health Australia, 2009) provides a synopsis of Australia's plant biosecurity system and describes the organisations and processes involved in managing the pest status of Australia's agricultural industries.

The status report describes pre-border, border and post-border activities and their role in maintaining Australia's plant health status. Post-border activities include the development of biosecurity plans for plant industries; measures to increase awareness of plant pest risks; and the use of targeted surveillance programs.

Industry Biosecurity Plans (including the National Vegetable Industry Biosecurity Plan - see Section 2.5) are facilitated by PHA in collaboration with an Industry Biosecurity Group comprising representatives from industry, government and research and development organisations.

The report considers that biosecurity communication activities are important both for risk mitigation and for responding to any incursions. Responsibility for these activities varies across jurisdictions. "The Australian Government is primarily responsible for presenting messages about quarantine and border protection, while state and territory governments, together with industry, focus on regional and on-farm biosecurity messages". (PHA 2009)

The report identifies three roles for targeted surveillance activities:

- ▶ To enable early detection of new pests to increase the chances of eradication or effective containment;
- ▶ To demonstrate absence of pests to support continued market access; and

- ▶ Following a pest incursion, to provide information on the spread to inform response management or confirm eradication.

Whilst the Australian Government supports some national surveillance programs and some industries undertake targeted surveillance for pests of concern, most post-border surveillance is undertaken by state and territory governments.

2.3 PLANTPLAN

PLANTPLAN – Australian Emergency Plant Pest Response Plan was released in May 2010 (Plant Health Australia 2010a). It provides a set of nationally consistent guidelines for a response plan for dealing with emergency plant pest incursions. It was developed by PHA and endorsed by PHA members.

PLANTPLAN outlines the phases of an incursion (investigation, alert, operational and stand down), as well as the key roles and responsibilities of industry and government during each of these phases. It describes generic emergency response procedures in the event of an incursion of an emergency plant pest and will be updated regularly to incorporate new information or to address any gaps identified by reviews into emergency plant pest incidents.

2.3.1 Investigation phase

During the investigation phase of an incursion, once a potential emergency plant pest has been detected, the Chief Plant Protection Officer will immediately notify the Chief Plant Health Managers from other states and territories, PHA, members of the Plant Health Committee, the Domestic Quarantine and Market Access Working Group, Biosecurity Australia, AQIS and peak industry body(s) of the detection. The Chief Plant Health Manager in the Lead Agency will also advise relevant senior industry representatives of the detection.

2.3.2 Alert phase

During the alert phase, decisions need to be made about whether the incursion can be effectively contained and eradicated, and what the potential is for the incursion to spread rapidly and lead to significant losses to industry, wider economic and trade losses, or environmental consequences.

Most of the actions to be taken during the alert phase are the responsibility of either the State or Australian Government but the declaration of an incursion is jointly managed by the State Government, Australian Government and peak industry bodies.

The Chief Plant Health Manager in the State is responsible for:

- ▶ coordinating initial surveys and inspections to determine the extent of the incursion;
- ▶ conducting trace backs to determine where the pest might have come from; and
- ▶ conducting trace forwards exercises to identify where the pest might have spread to.

Once the detection has been confirmed, the Chief Plant Protection Officer will advise the peak industry bodies and notify them that they are required to participate in the Consultative Committee on Emergency Plant Pests (CCEPP). The CCEPP will then start the process of determining as much information as possible about the emergency plant pest. If eradication is considered to be economically and technically feasible then the Chief Plant Health Manager in the Lead Agency will develop the emergency plant pest response plan.

2.3.3 Operational phase

The aim of the operational phase is eradication of the plant pest in accordance with the response plan. During this phase, the role of the peak industry body(s) will be to communicate the response and to assist in the implementation of the agreed communication strategy.

If the eradication is successful then industry, together with the Lead Agency, can submit a request for area freedom. Subject to receiving technical advice from the CCEPP, the National Emergency Plant Pest Management Group (NMG) will then declare the area free from the plant pest.

2.3.4 Stand down phase

The stand down phase commences if the presence of an emergency pest is not confirmed, the pest is confirmed but eradication is not considered cost beneficial, or the NMG declares that the emergency is over. The peak industry bodies have no responsibilities during this phase.

2.3.5 Communications

PLANTPLAN highlights the need for a communication strategy to be developed to ensure that information about the incursion is widely disseminated.

The Plan envisages that media releases, newspaper articles and television and radio announcements will be used to keep the public informed about the incursion. However, it is seen as the responsibility of the appropriate agriculture department as well as of national grower bodies and grower networks to provide information to growers and industry representatives to assist in the early detection of new outbreaks and to keep them informed about the quarantine requirements.

2.3.6 Delimiting surveys

One of the key activities in the event of an emergency plant pest incursion is carrying out surveys to determine the extent of the incursion and to set up quarantine zones to limit future spread. Starting from the property where the plant pest was originally confirmed and using trace back and trace forward information it should be possible to identify properties which have come into direct or indirect contact with an infected property or infected plants, as well as properties which may have been exposed to the emergency plant pest. A restricted area will then be created to include all these properties.

A buffer zone or control area will then be established around the restricted area to control the movement of susceptible hosts and other regulated materials until the extent of the incursion is determined. One of the factors to be taken into account in designing the delimiting surveys is the extent of the range of the host plant and the distribution of host plants around the restricted and control areas.

Once the restricted and control areas have been defined, then surveys will need to be undertaken to identify pest free areas to facilitate international trade. One of the items required to inform the design of these surveys will be detailed maps showing known commercial production areas.

2.3.7 Industry roles and responsibilities

PLANTPLAN envisages that industry representatives will be involved in the management of emergency pest plant incursions at several different levels:

- ▶ As industry representatives on the National Management Group;
- ▶ As industry representatives on the CCEPP, making recommendations about the technical feasibility of emergency plant pest response plans;
- ▶ As the Industry Liaison Officer (ILO) at the regional level in the Local Pest Control Centre; and
- ▶ As the Industry Liaison Coordinator (ILC) at the state or territory level in the State Pest Control Headquarters.

One of the key responsibilities of both the ILO and the ILC is to “prepare comprehensive advice on the affected industry, including advice on its size, distribution, sources of supply, marketing practices, industry organisations and all other factors which may affect the eradication/control program (ie assist with risk assessment”. (PHA 2010a).

2.4 Emergency Plant Pest Response Deed

The Emergency Plant Pest Response Deed (EPPRD) is a formal legally binding agreement between Plant Health Australia (PHA), the Australian Government, all state and territory governments and national plant industry body signatories including AUSVEG, Queensland Fruit and Vegetable Growers, and the Australian Onion Industry Association.

It covers the management and funding of responses to emergency plant pest incidents, including the potential for owner reimbursement costs for growers. It also formalises the role of plant industries' participation in decision making as well as their contribution towards the costs related to EPP responses. (Plant Health Australia – EPPRD)

Only the response to pests formally categorised as emergency plant pests are covered by the EPPRD. The document sets out how the costs of eradicating an emergency plant pest are to be shared, based on an assessment of the relative public and private benefits (see Table 1). If more than one industry is likely to be affected, then the



private funding contribution will be shared between them in accordance with weighting calculations.

Table 1 Cost sharing categories

Category	Description	Funding share
Category 1 – very high public benefits	Pest which if not eradicated would cause major environmental damage, affect human health, or cause major damage to amenity flora but would have little impact on commercial crops	100% public funding
Category 2 – high public benefits	Pest which if not eradicated would cause major disruptions to trade and/or major adverse consequences for national or regional economies and would also impose major costs on industry	80% public funding 20% private funding
Category 3 – moderate public benefits	Pest which if not eradicated would primarily harm the industries concerned but there would also be moderate public costs	50% public funding 50% private funding
Category 4 – mostly if not wholly private benefits	Pest which if not eradicated would have little or no economic, human or environmental impact	20% public funding 80% private funding

Based on the Vegetable Industry Biosecurity Plan

In accordance with the EPPRD, the Australian government, state and territory governments and industry bodies have joint responsibility for managing the response to an emergency plant pest. As soon as an emergency plant pest is reported, a NMG and a CCEPP are formed to coordinate the response. The structures and roles of both the NMG and the CCEPP are set out in Schedule 8 of the EPPRD.

The NMG is responsible for making the key decisions in relation to the response plan. It is chaired by DAFF and comprises members from each of the state and territory governments as well as the President or Chairman of the industry organisations representing each of the affected industries. The Chairman of PHA is also on the NMG but as a non-voting member.

The CCEPP is responsible for coordinating the technical response to the emergency plant pest and providing advice to the NMG in relation to the implementation of the response plan. It is chaired by the Chief Plant Protection Officer and comprises the Chief Plant Health Managers from each state and territory, one representative from each of Biosecurity Australia, AQIS and PHA and two representatives from each affected industry.

Each party to the EPPRD agrees to use personal information as defined in the *Privacy Act, 1988* only for fulfilling its obligations under the EPPRD.

2.5 National Vegetable Industry Biosecurity Plan

The National Vegetable Industry Biosecurity Plan (Plant Health Australia, 2007) was developed by an Industry Biosecurity Group which was created with the assistance of AUSVEG and supported by PHA.

Key steps in the development of the Plan included:

- ▶ Identifying and documenting key threats to the vegetable industry and developing an emergency plant pest priority list;
- ▶ Developing an industry risk mitigation plan;
- ▶ Developing a generic incursion response plan;
- ▶ Agreeing on and documenting the roles and responsibilities of stakeholder groups; and
- ▶ Developing appropriate communication and consultation strategies.

The Plan defines emergency plant pests as those that meet one or more of the following criteria:

- ▶ “It is a known exotic plant pest, the economic consequences of an incident of which would be economically or otherwise harmful for Australia, and for which it is considered to be in the regional or national interest to be free of the plant pest.
- ▶ It is a variant form of an established plant pest which can be distinguished by appropriate investigative and diagnostic methods, and which if established in Australia, would have a regional or national impact.
- ▶ It is a serious plant pest of unknown or uncertain origin which may, on the evidence available at the time, be an entirely new plant pest, and which if established in Australia would have an adverse economic impact regionally and or nationally.
- ▶ It is a plant pest of potential economic importance to the area endangered thereby and not yet present there or widely distributed and being officially controlled, but is occurring in such a fulminant outbreak form, that an emergency response is required to ensure that there is not either a large scale epidemic of regional or national significance or serious loss of market access” (Plant Health Australia, 2007).

By identifying emergency plant pests, the vegetable industry is able to minimise the risk of such pests and to respond effectively to any pest incursions. The industry is able to develop targeted education programs for growers to increase their awareness of possible risk and to also develop pest-specific contingency plans. These contingency plans contain background information on biology, surveillance, control measures and destruction strategies and enable the quick development of an effective response plan in the event of an incursion.

Under the Plan, AUSVEG is nominated as the national communications co-ordinator with various and multiple state and regional organisations listed as points of contact in the event of a pest incursion emergency response. However AUSVEG does not have the ability to directly contact vegetable growers in the immediately affected region, nor

to quickly distribute relevant alerts to the national industry due to the lack of a national database.

Vegetable industry representative organisations vary in their approach to membership criteria and requirements. The national industry representative body, AUSVEG, has traditionally been a federated organisation with only state groups as members. Much effort and industry funding has been expended on improving the national grower communications database. Despite this, surveys designed to evaluate the effectiveness of communication efforts have consistently shown that significant gaps exist in the coverage of the national industry, particularly in areas with high percentages of LOTE³ growers.

State farming organisations that are broadly agricultural in their membership base and generally more structured require a greater level of information from growers. Unfortunately, these groups have traditionally attracted few vegetable growers. The majority of growers are either loosely affiliated with a regional grower group or completely unattached to any organisation. The one notable exception is the Western Australian vegetable industry which has a state based vegetable grower 'levy'. This has been implemented under state legislation and effectively captures all growers and gives access to their identity to the state vegetable grower organisation, Vegetables WA.

2.6 Biosecurity Communications and Awareness Program

The Beale Review into Australia's quarantine and biosecurity arrangements (Beale et al 2008) identified the need for a broader approach to biosecurity awareness.

PHA and the Cooperative Research Centre for Plant Biosecurity also identified that "a robust and viable communications framework spanning plant industries and the general community is essential to manage disease or pest incursion risks and control measures" (McGrath et al, 2008a).

In response, a Biosecurity Communications and Awareness Program has been established at PHA and a National Communications Network has been set up in order to streamline the communications channels. The network meets regularly and includes representatives from:

- ▶ Australian Government;
- ▶ State Government Departments of Primary Industries;
- ▶ Animal Health Australia;
- ▶ PHA;
- ▶ the Australian Local Government Association; and
- ▶ agricultural industry organisations.

The National Biosecurity Strategy Framework considers that "**there is value in obtaining and maintaining databases of each industry's** preferred communications

³ Language other than English

methods, key contacts and **distribution lists** [our emphasis] etc. and [making] the necessary arrangements to ensure they can be used when required” (McGrath et al, 2008a).

2.7 National Plant Health Strategy

The Draft National Plant Health Strategy was released for public comment in May 2010 (Plant Health Australia 2010b). The draft strategy analyses the current plant health system in Australia and makes recommendations to guide the future development of Australia’s plant health over the next ten years.

One of the issues raised in the draft strategy is that of engaging all commodity groups and the wider community in the efforts to address biosecurity risk. In many cases, these are the people best placed to detect a pest incursion soon after its arrival. Since the chances of containing or eradicating a plant pest increase significantly with early detection, they therefore play a critical role in Australia’s biosecurity system.

The draft strategy highlights the need to identify target groups (for example large scale commercial growers; urban and peri-urban producers; and lifestyle farmers with small rural holdings who are not typically members of peak bodies) and to develop biosecurity messages specifically tailored to those groups.

The draft strategy considers that by delivering effective messages to all producers in commercial agricultural production it should be possible to bring about behavioural change, where such change is required, and to also close gaps in Australia’s biosecurity system. One of the recommended actions in the draft strategy is therefore to “develop processes that support the identification and characterisation of small and large agricultural enterprises in Australia..... **A registry of producers would be a useful tool for effectively disseminating information** [our emphasis].” (PHA 2009).

2.8 Summary

Table 2 provides an overview of the current biosecurity obligations of the Australian government, state and territory governments and industry bodies for both mitigation and response activities. In the following section, the potential role for a grower registration scheme in helping industry to meet these obligations is discussed.

Table 2 Biosecurity obligations

	Australian Government	State Government	Industry
Mitigation			
Communication activities	Messages about quarantine and border protection	Regional and on-farm biosecurity messages	Regional and on-farm biosecurity messages
Surveillance activities	National surveillance programs	Majority of post-border surveillance	Targeted surveillance for pests of concern



Response			
Planning	PLANTPLAN	State specific response plans	NVIBP and pest-specific response plans
Representation on decision making bodies	Represented on NMG and CCEPP	Represented on NMG and CCEPP	Represented on NMG and CCEPP
Determination of scale of incursion		Coordinate surveys to determine extent and conduct trace backs and trace forwards	Provide advice about the size and distribution of the affected industry
Communication	Keep the public informed about the incursion	Provide information to growers and industry representatives	Provide information to growers and industry representatives

3. Potential for a grower registration scheme

3.1 Potential role

3.1.1 Biosecurity planning

Both government and industry require information on the distribution of the vegetable industry to inform their long-term biosecurity planning. Planning at this scale requires information which characterises the industry (e.g. location, crop types, volume, value and number of enterprises) rather than information about individual growers.

Currently this level of information is only available through grower/industry surveys, market reports and land use mapping. An accurate, up-to-date, national database containing this information would enable potential biosecurity risks to be more accurately identified and more detailed response planning to be undertaken prior to any plant pest incursion.

3.1.2 Biosecurity risk mitigation

A mandatory grower registration scheme that included information on all growers across Australia would enable communication activities aimed at mitigating the biosecurity risk to be better targeted. Material could also be tailored to meet the needs of specific audiences including commercial scale, urban/peri urban, lifestyle and LOTE growers.

Improving the reach and the relevance of communication material should mean that it is more effective at raising awareness amongst the whole range of growers about:

- ▶ the need for vigilance and how they should respond in the event that they detect a possible plant pest on their property; and
- ▶ on-farm biosecurity measures to reduce the risk of plant pest incursions.

Currently targeted surveillance activities are also undertaken as part of the approach to biosecurity risk mitigation. If better information were available about the number and location of growers of different plant crops, it may help the accuracy and cost effectiveness of these surveillance activities and potentially lead to quicker detection of any plant pest incursions.

3.1.3 Response to plant pest incursion

In the event that a plant pest incursion occurs, the availability of a national database containing information about all growers of potential host species would be invaluable.

The potential for eradication or effective containment of a plant pest is increased if the response plan can be quickly acted upon. Rapid communication with all growers who may potentially be affected will be crucial, both to gain an accurate understanding of the extent of the incursion and to notify growers to undertake quarantine measures to limit its spread.

One of the key concerns for commercial growers in the event of a plant pest incursion will be the rapid identification of pest free areas so that market access can be retained. The ability to generate maps of known commercial areas based on information gained from a grower registration scheme would be invaluable in this process.

3.2 Potential benefits for growers, industry and government

At present grower registers are mostly developed organically as individual grower organisations develop and maintain databases based on their industry knowledge and networks. The effectiveness of these registers is constrained by the fact that not all commercial growers are members of their industry organisation. It is also constrained by the fact that some of the smaller industry organisations have limited resources and are not therefore able to keep their registers updated. The information contained in most industry grower registers is also usually limited to information about commercial scale growers and the registers are unlikely to contain information about the location of smaller scale, urban or peri-urban growers.

The existence of a national grower register rather than the current distributed and incomplete grower registers held by individual government and industry organisations would therefore be of benefit to growers, industry and government.

Although growers would incur additional mandatory costs as a result of annual registration fees, those fees are likely to be offset by the benefits of a national grower register. Such a scheme has the potential to reduce the number of future plant pest incursions and to limit the extent of those which do occur. By so doing, it also has the potential to ensure the maintenance of pest free status and hence continued access to overseas markets.

Each industry organisation is currently responsible for the collection of information on their grower members and for the continual updating of this information. Provided they could have ready access to information about their growers, a national database would relieve them of this responsibility and hence reduce their administration costs.

It would also help the industry organisations to meet their obligations under PLANTPLAN and the NVIBP for both mitigation and response activities. In particular it would help meet their obligations in relation to the provision of advice about the size and distribution of the industry and in relation to their communication with growers.

Currently, in the event of a plant pest incursion, the government has to first use a networking approach to expand and update the information from the grower registers. If all the information was available in a national database, the process of developing and implementing a response plan would be streamlined. Potentially, one of the greatest risks of a plant pest incursion is seen to be from an “outlier” i.e. a small grower who does not belong to an industry organisation and who is unaware of potential biosecurity threats or of on-farm activities to minimise such threats. If the details of all growers were captured through a national grower registration scheme, the potential for such people to remain unaware of biosecurity issues would be reduced, since they would be included in any grower communication campaigns.

Aside from the biosecurity benefits of a grower registration scheme, there could potentially be other benefits associated with having an up-to-date national database of growers. Government and industry could use the database to target the sending of other information to growers. Individual property information could also be made available to meet supply chain traceability requirements where agreed to by industry and government.

3.3 Potential limitations

Although the creation of a national database containing information obtained through a grower registration scheme will potentially improve biosecurity planning, mitigation and response in the vegetable industry, there are some limitations.

Once a plant pest incursion has been detected, the effectiveness of the response to that incursion will depend on a number of factors including:

- ▶ the number of commercial growers likely to be affected and their geographic distribution;
- ▶ whether the potential host species are also grown outside the commercial situation;
- ▶ how the disease is spread,
- ▶ the rate of spread,
- ▶ the potential for growers to take measures to protect against it or eradicate it; and
- ▶ the potential economic impact.

If the number of commercial growers is small or the host species is grown in a limited geographic area then the rapid identification and notification/survey of those growers should be possible. If however, the host species is grown by a large number of commercial growers throughout Australia, even if details of those growers are available through a national database, the time necessary to notify all of them may mean that the disease has already spread.

If the potential host species are also grown outside of the commercial situation, for example in home gardens or occurring naturally in the bush, then even a comprehensive database of all growers above a particular size will not identify the location of all host plants.

The effectiveness of the response will also depend on how the disease is spread, the rate of spread, and the potential for growers to take measures to protect against it or to eradicate it on their properties. If it is spread through wind, water or birds, then the presence of plants susceptible to the disease in home garden situations or in the bush will increase the risk of spread. However, if the disease is only spread through the exchange of plant material or through direct contact then biosecurity/quarantine measures adopted at commercial sites should be adequate to prevent the spread of the disease.

The ability to communicate rapidly with all commercial growers about a pest incursion will only be of benefit if there is some action they can take to prevent the spread of the disease or to eradicate it if it is found on their property.



Similarly, even if it were possible as a result of the grower registration scheme to notify all commercial growers about a potential plant pest, their willingness to take action to prevent or eradicate that plant pest will depend on the potential for the plant pest to adversely affect their business. If the cost of prevention or eradication is greater than the cost to the business, then they are unlikely to take any action.

4. Case studies of recent incursions

4.1 Introduction

The steering committee has requested that two illustrative case studies be provided to show how a grower registration scheme would have improved [the response to] recent biosecurity incursions.

Australia provides Official Pest Reports to the International Plant Protection Convention (IPPC) and since November 2006, a total of 40 such reports have been submitted. Only a few of these however, are of relevance to the vegetable industry and of these, most determined that eradication was either not possible, or necessary.

The two case studies selected are therefore both recent examples from the broader horticulture industry, one for myrtle rust and the other for chestnut blight. These two case studies though are sufficiently different to illustrate the range of issues that might face the vegetable industry in the case of an emergency plant pest incursion.

Myrtle rust is a disease which has a large number of potential host species. These potential hosts are commercially grown but are also widely planted in private gardens as well as being commonly found in native bushland. The host species are widespread across Australia.

Chestnut blight is a disease which affects only two host species - chestnuts and oak trees. Although there are some street and amenity plantings, the majority of chestnuts are commercially grown and with only 340 growers, it is a relatively small industry. Although there are some plantings in other states, the majority of commercial plantings are within a relatively small area of Victoria.

4.2 Myrtle rust

4.2.1 Nature of the incursion

Myrtle rust (*Uredo rangelii*) was first detected in Australia in April 2010 at a cut flower growing facility on the central coast of NSW. This fungus is identified as a disease of significance in the Nursery Industry Biosecurity Plan and this is the first time it has been discovered in Australia.

Myrtle rust is closely related to guava rust (eucalyptus rust) and it is part of a complex of rusts that infect the Myrtaceae family which includes many Australian native species. Rusts are easily transportable and their spores can be spread via contaminated clothing, infected plant material and on equipment as well as by insect and wind dispersal.

Myrtle rust therefore has the potential to affect native ecosystems as well as commercial plant growing operations.

4.2.2 Current extent

The Australian Department of Agriculture, Fisheries and Forestry (DAFF) is releasing regular Communiqués to report on the progress of the myrtle rust incursion. By 3 September, Myrtle rust had been confirmed on fourteen sites in NSW extending from inland of Gosford to north of Wollongong (DAFF 2010b). By 15 September the rust had been confirmed on thirty two sites and although the majority of affected properties were still in the Gosford/Wyong area and Sydney basin, there was some trace forward along the mid north coast and south as far as Nowra.

With two exceptions, the infected sites are all retail garden centres, wholesale nurseries or cut flower facilities. To date there have been no confirmed sites in native forest or bushland.

The disease is currently affecting ten Myrtaceae species including willow myrtle, turpentine, tea tree, lilly pilly, water gum, bottle brush and *Austromyrtus*. (DAFF 2010c).

4.2.3 Response

Activities to manage myrtle rust are being implemented under the EPPRD.

On 30 April the Nursery and Garden Industry Australia (NGIA) issued a national pest alert together with a fact sheet providing information on how to identify and report the disease. These were distributed nationally to encourage the nursery industry to inspect their stock for signs of the disease and hence improve the chances of further infected sites being quickly detected. .

A myrtle rust National Management Group (NMG) was established and they implemented an interim response plan on 2 July with the intent of suppressing the disease and possible eradication in the long term. Actions in the interim response plan included:

- ▶ Host testing to determine which Myrtaceae species may be susceptible to the fungus;
- ▶ Surveillance of known infected properties and the natural environment;
- ▶ Destruction of host material; and
- ▶ Ongoing suppression activities at known infected properties.

On 23 July, NSW declared the Gosford and Wyong Local Government Areas to be a Quarantine Area. As a result, “the movement of any host plant material and any covering, packaging, machinery or thing which is carrying myrtle rust and which has been used in the culture, harvesting or packing of host plant material out of the Quarantine Area is prohibited” unless the consignment meets the required movement conditions. (DPI, 2010)

Additional sites were identified through tracing the movement of plants to and from infected properties and through surveillance activities.

On 17 August, the NMG agreed on a series of new measures to help limit the extent of the disease including:

- ▶ The destruction and disposal of all commercial Myrtaceae plants on the two properties most seriously affected;
- ▶ Spraying fungicide on a buffer zone around each property;
- ▶ Increased surveillance of all commercial nurseries with Myrtaceae within the Quarantine Area;
- ▶ Inspection of Myrtaceae on domestic properties within the Quarantine Area; and
- ▶ Targeted communication activities in NSW including the distribution of educational materials to commercial nurseries and road signage in the Quarantine Area (DAFF 2010a).

Given the increase in new infected sites and the onset of warmer spring weather which means that host plants are now actively growing, the NMG now recognises that the effective containment and eradication of the disease will be difficult, if not impossible. Lois Ransom, the then Chief Plant Protection Officer, was quoted in a Senate Estimates Committee Transcript (25th May 2010) as saying:

“The first infected property has about 1,000 Agonis plants and the majority of those were infected. We know that there were spores from that property uncontrolled for about a month, so there will have been spore movements in the area. There has been material that has gone out through the Sydney market. Given that rusts are incredibly difficult to control-they do spread readily-and the affected area is surrounded by native bush, which of course is full of Myrtaceae, the consultative committee advising the national management group considered it was not technically feasible to eradicate.”

In an attempt to prevent the spread of the disease across State and Territory borders, Western Australia, Victoria, South Australia and Tasmania have all placed restrictions on the import of:

- ▶ Agricultural equipment used in the cultivation, harvesting or packing of myrtle rust host material; and
- ▶ Plants and plant material from the Myrtaceae family.

In Victoria for example, plants or plant material can not be imported unless it is

- Covered by an area freedom certificate issued by the local Department of Agriculture for Myrtle rust; or
- Certified to have been inspected within the previous 10-15 days by a person authorised to do so by the Department of Agriculture with no myrtle rust detected; and
- Treated with a chemical registered or approved for control of myrtle rust.

The other states have imposed similar conditions.

4.2.4 Potential role for a grower registration scheme

One grower on the mid north coast of NSW who has both a wholesale and retail nursery specialising in native plants including Myrtaceae species remained unaware of the myrtle rust outbreak when questioned in early October. This grower is not a

member of the NGIA and had not seen or heard any of the media reports about the outbreak. A grower registration scheme would have ensured that this grower and others like him could at least have been made aware of the outbreak and could have adopted any necessary precautions to prevent its spread.

However, a register of growers of Myrtaceae species would only have identified those who are currently growing the species on a commercial scale. Given that the plants identified as susceptible to myrtle rust include many that are grown either as garden plants or that occur naturally in native bushland, plants grown in a commercial situation are likely to represent only a small proportion of existing plants.

Since myrtle rust spores are transportable by insect and wind, restrictions on the movement of plant material and equipment between commercial growers may have only limited success in controlling the extent of the outbreak.

4.3 Chestnut blight

4.3.1 Nature of the incursion

An Official Pest Report for suspected chestnut blight was submitted to the IPPC on 21 September following discovery of what was thought to be the disease on chestnut trees on a property near Myrtleford in Victoria. Chestnut blight (*Cryphonectria parasitica*) is a serious fungal disease which primarily affects chestnut trees but oak trees are also a confirmed host. The disease mostly affects the trunk and branches, causing cankers that can grow rapidly. In most cases, these cankers continue to develop until the stem or branches are girdled and the tree is entirely colonised and eventually dies.

The disease can be spread through budding material or any infected trees or cuttings. It can also be spread by spores of the fungus. There are two spore types:

- One is ejected from infected wood and spread by air;
- the other is exuded from infected wood onto the surface where it can be spread by rain splash, water, or any object such as clothing, tools or equipment that comes into contact with it.

Cut branches with the disease present a serious risk of spread as the fungus grows more rapidly on dead wood and can produce spores for a year after cutting (DPIV 2010a).

Chestnut blight is considered a significant and damaging disease of chestnut and is a quarantine pest for Australia. The disease has not been found in Australia before and it is considered to pose a threat to Australia's small but locally important chestnut industry. Chestnut trees also offer significant amenity value as street and garden trees in southern areas of Australia.

4.3.2 Current extent

On 28 September, the Victorian Department of Primary Industries (DPIV) confirmed that they had inspected over 40 chestnut groves within the restricted area and detected

suspect blight on five of these, all within the Ovens Valley in north east Victoria. Of these, two have so far tested positive for chestnut blight.

On 1 October the DPIPV issued the first of a series of weekly updates. By this stage a total of nearly 106,000 trees had been surveyed on 81 properties. One hundred and fifty five samples had been submitted and four properties had been confirmed as having the disease.

4.3.3 Response

An Incident Control Centre has been set up at the offices of the DPIV in Ovens. Staff at the Control Centre have been:

- ▶ working with the owners of suspect properties to contain the disease to the infected trees;
- ▶ tracing the movement of grafting material to and from the suspect properties; and
- ▶ surveying other groves and nurseries in the area for the presence of the disease.

All infected material on trees at suspect properties has been removed pending destruction and the remaining trees have been treated with fungicide spray.

The infected properties have been quarantined and north-east Victoria has been declared a 'restricted area' under the state *Plant Health and Plant Products Act 1995*. As a result, restrictions have been placed on the movement of chestnut and oak trees, plant materials and associated equipment and packaging. These restrictions apply to movement out of the area, as well as movement off any property within the area.

No plant material can be moved from infected properties. However, plant material can be moved under permit if the property has been inspected and found to show no disease symptoms

All chestnut growers within the area are required to treat their trees with an approved fungicide. Since the disease could affect not only commercial chestnut groves but also family growers and backyard trees – all individuals with chestnut trees are being asked to contact the DPIV to arrange an inspection .

The DPIV has prepared a fact sheet on chestnut blight (DPIV 2010b) which provides advice for growers on:

- ▶ what to look for;
- ▶ what to do if their property is affected; and
- ▶ how to manage farm and personal hygiene including protecting healthy trees, restricting movement on farm and managing farm operations.

This fact sheet is posted on the DPIV website and was also distributed at the grower nights (see below), on the website of Chestnuts Australia Inc (CAI) and through drops to chemical resellers, the shire council etc.

CAI has appointed a Chestnut Blight Incursion Taskforce which is working closely with the DPIV to ensure that the industry responds quickly and effectively to eradicate the disease. CAI is displaying information about the incursion prominently on the front

page of its website, together with links to other relevant materials. CAI also wrote to all members/levy payers to notify them of the suspected incursion and to invite them to a public information meeting which was held in Myrtleford on 16 September. There are an estimated 340 chestnut growers Australia wide and 80 community members and growers attended the meeting.

A further growers meeting was held in Beechworth on 22 September to update growers on the chestnut blight incursion. The meeting was arranged by Premium Chestnuts Australia, a growers' cooperative that represents a large number of growers in NSW and Victoria.

4.3.4 Potential role for a grower registration scheme

At the present time 70 to 80 % of Australian production is located in the North East of Victoria - Bright, Myrtleford, Buckland Valley, Harrietville, Beechworth, Stanley. Chestnuts are also grown in the High Country of Victoria and the Macedon Ranges.

Producers are also located in NSW (around Orange, Canberra, and the Northern Tablelands), Southern Queensland, South Australia, Western Australia and Tasmania (CAI, 2010)

Approximately 100 of the total number of 340 chestnut growers are currently members of the CAI (Tanya Edwards, Office Manager CAI pers. comm.) These tend to be the larger growers and it is unlikely that people with fewer than 20-30 trees will be members. As well as the growers who are not members of CAI, the locations of chestnut trees in gardens and streetscapes are also not known.

In dealing with the current incursion, the DPIV started with the CAI database to identify major growers and then used local knowledge to identify further trees. Each time a property was visited the owners were asked whether they knew of anyone else in the vicinity who grew chestnuts. Despite the fact that the chestnut industry is relatively small and most growers are located in a fairly discreet geographical area, this was a laborious and time consuming process. It would have been even more so if the host species had been one which was grown more widely and by a much larger number of growers.

When asked whether a grower registration scheme would have helped in the response to the chestnut blight incursion, Brendan Ralph from the Incident Control Centre at DPI Ovens said "if the chestnut people had done it [upgraded their industry database] it would have made our lives a lot easier". However, even if an accurate database had existed of all commercial chestnut growers, this would still not have included trees planted for non-commercial purposes or oak trees which are another identified host for the disease.

5. Existing or proposed grower registration schemes

5.1 Introduction

This section provides two examples of grower registration schemes where the primary driver for their development has been to address biosecurity issues. In Victoria, a property identification code system is currently being proposed to improve the ability of the Department of Primary Industries Victoria (DPIV) to respond rapidly to new detections of plant pests and diseases.

In South Australia, the register maintained by the Phylloxera and Grape Industry Board is focused on controlling a specific plant health threat to a single industry.

These two examples show how a grower registration scheme managed by a state government agency or by a Board specifically constituted for the purpose of managing such a scheme can operate.

The final example is of an international scheme, where the primary driver has been to improve tracking and traceability to improve food safety, but where the scheme may also have the potential to assist with the response to biosecurity issues.

5.2 Victorian property identification code (PIC)

5.2.1 Drivers and purpose

Victoria's speed of emergency response to plant pest incursions is currently handicapped by lack of access to an accurate farm property database.

Each time the DPIV initiates a response to the detection of a plant pest or disease, DPIV officers must first take time to contact and gather critical information from industry organisations, local DPIV officers and other sources to determine properties at risk within the vicinity of the detection. The DPIV also has a responsibility to notify growers of any restrictions on the movement of plant material and/or equipment to limit the extent of the incursion.

In the event of the detection of a plant pest or disease it will also be necessary for the DPIV to:

- ▶ collect data about the movement of host material to and from the infected property (trace-forwards and trace backs);
- ▶ identify production areas for host material; and
- ▶ conduct surveys to determine whether properties are infected or free of pests etc to improve market access for grower products.

Depending on the nature of the pest or disease, any delays in the information gathering process can have a significant impact on the success of containment and eradication actions.

In 2009, the Victorian Government released an Exposure Draft of the Plant Biosecurity Bill. The intent of the Bill is to update and streamline the existing *Plant Health and Plant Products Act 1995* to enable the DPIV to more effectively respond to detections of pests and diseases. One of the proposed enhancements is the provision of powers for property identification codes (PIC) to be allocated to growers. This will improve the ability of the DPIV to locate and contact growers that may be impacted by a new pest or disease.

5.2.2 What is it used for?

The PIC database will be used solely for improving the DPIV's response when there is a biosecurity emergency affecting plants or plant products. It will enable the DPIV to: rapidly identify properties where the relevant crop is grown; notify growers; organise surveillance if necessary; find out where boundaries are; and provide mapping facilities.

Similar arrangements are already in place for livestock under Victoria's *Livestock Disease Control Act (1994)*. These ensure a rapid response to disease detections in livestock and enable the DPIV to confidently determine, within 24 hours, all locations where suspect livestock have resided during the previous 30 days.

5.2.3 Coverage

There are 11,000 producers in Victoria, and the DPIV expect to capture half of them. The key sectors DPIV believe to be interested are:

- ▶ Vegetable industry (potato growers were specifically mentioned)
- ▶ Citrus in the Sunraysia region
- ▶ Wine/grape industry
- ▶ Dried fruits
- ▶ Stone fruit

If other industries wish to be included, they can be, however it is not compulsory.

5.2.4 Participation – is it voluntary or mandatory?

For the system to work effectively, every plant industry would need to support the mandatory issuing of a PIC to each of its growers. However, the current proposal is for the system to be introduced over time on an industry-by-industry basis, which means that the legislation would be applied to a particular plant industry only after evidence of widespread grower agreement has been demonstrated.

However, if the Bill is passed and an industry signs up, then it will be mandatory for the growers of that industry to apply for a PIC.

5.2.5 What information is registered?

For each PIC the database will include details of any prescribed plants grown and the name and contact details of the property owner or manager including the shire, parish,



rural address and council property number. The information captured will trigger government mapping capabilities when needed. No sensitive information will be captured.

5.2.6 Who can use/access the information?

Only authorised DPIV inspectors or someone authorised by the Secretary in writing will be able to access and use the information in the database and only when doing so for the purposes of administering the Act.

Some industries have expressed an interest in accessing the information in the database for marketing and supply purposes. This will not be possible short term, however extending its use and purpose could possibly be considered long term, subject to further legislative change, industry demand and funding support.

5.2.7 Who is responsible and how does it work?

The DPIV will be the responsible authority and the database will be managed by the Plant Standards Branch. The intention, if the Bill goes through, is that the database for plant pest and disease control will operate alongside the existing livestock database, using the same web-based approach.

The DPIV will cover any costs associated with maintaining the database and there will be no charge to growers applying for a PIC. The fact that there is no cost involved should provide an incentive for industry uptake.

In accordance with Clause 15 of the Plant Biosecurity Bill Exposure Draft (p13-14) anyone who owns or occupies a property on which a prescribed plant is grown will need to notify the Secretary within 30 days of the plant being prescribed or starting to be grown. If the property does not already have a PIC, then the owner or occupier will also need to apply for one.

The Secretary will keep a database of all details of properties where a PIC has been issued and an owner or occupier must notify the Secretary of any changes in their contact details within 30 days of any change.

5.2.8 SWOT analysis

Strengths and weaknesses

The database will improve the ability of DPIV to deliver a timely response to the detection of a pest or plant disease. However the effectiveness of the database will depend on how many industries agree to participate and how long it takes for the information from growers to be collected and linked to each PIC. The benefits of the database won't be seen until there is a disease outbreak or pest incursion.

Since the database will only record the contact details of owners or occupiers of properties where plants prescribed under the Act are currently grown, it will only improve the response to a pest or plant disease that affects a prescribed plant.

A further limitation to the proposal is that the legislation will not apply to growers outside Victoria and hence grower details for other States and Territories will not be included in the database. Any disease outbreak or plant pest incursion requiring a national response will therefore need to be handled differently outside Victoria, unless complementary legislation is introduced in other states.

Opportunities and threats

The PIC database could also have other valuable applications in plant industries. For example, it could be used:

- ▶ By government and industry to support national or supply-chain initiatives. Following the livestock model, plant property data could be used by horticultural industries for product tracing and quality assurance systems.
- ▶ To assist in market-access negotiations. For example, surveillance history and pest-free status can be documented for individual properties within a production area.
- ▶ As a basis for national certification systems for horticultural industries.

5.3 Phylloxera and grape industry register

5.3.1 Drivers and purpose

Phylloxera (*Daktulosphaira vitifoliae*), is a yellow aphid that lives and feeds on vine roots and leaves. Phylloxera originates from eastern North America, where it lives on grapevines. It was first detected in Australia in 1877 and was responsible for almost destroying the Victorian wine industry in the 1880s. Phylloxera is spread through the movement of infested grapevines. The aphid pest will gradually destroy the vine's root system, leaving the plant unable to draw the water and nutrients it requires for survival.

Studies have found that phylloxera infested vineyards can lose up to 20 per cent of production within the first year of becoming infected and they become uneconomic within 3 to 10 years after initial infection. There is currently no effective and economic long term way of managing phylloxera on ungrafted vines.

Phylloxera can be spread in a number of different ways, including through:

- ▶ grapevine materials;
- ▶ soil;
- ▶ machinery and vehicles;
- ▶ people; and
- ▶ grape products such as must and juice.

As the industry expands, there is an increased risk of spreading the phylloxera pest via any one of the above methods. South Australia has a world class reputation for producing high quality wines for both domestic and international markets. In order to ensure that South Australia remains phylloxera free, a concerted effort was required and this culminated in a vineyard registration scheme being established.

5.3.2 What is it used for?

Under the *Phylloxera and Grape Industry Act, 1995*, the Phylloxera and Grape Industry Board of South Australia (the Board) is required to 'maintain a register of persons who own vineyards comprising 0.5 hectares or more of planted vines.' Through registration, growers in South Australia are kept informed about phylloxera and other pests and diseases and are provided with information about how to protect their vineyard.

In the event of an outbreak of phylloxera, the Board can contact all growers in or near the quarantine zone. The register also allows for up to date statistical information to be provided on vineyard plantings, including areas, varieties and age of vines.

5.3.3 Coverage

The Mission of the Board is 'to protect South Australian vineyards from phylloxera and other major pests and diseases and assist and support the grape industry in its initiatives (2009a).'

Australia remains one of the few countries in the world that is relatively free of phylloxera. Within Australia there are three distinct phylloxera management zones:

- ▶ Phylloxera Exclusion Zones (South Australia, Western Australia, Tasmania, Northern Territory and parts of New South Wales),
- ▶ Phylloxera Infested Zones (Southeast New South Wales, Sydney basin, central and northeast Victoria); and
- ▶ Phylloxera Risk Zone (Victoria and Queensland).

Each state has laws and associated regulations which restrict the movement of phylloxera risk vectors. However the register only applies to South Australia.

5.3.4 Participation – is it voluntary or mandatory?

All vineyard owners with more than an acre (0.5ha) are required by law to register with the Board and complete an accurate vineyard return each year. The levy for each individual grower is based on the area of planted vines. This was originally based on grower estimates as a percentage of the paddock size. However in 2001, the Board started to obtain aerial photography which allowed for a more accurate cross check to be made of the planted area.

5.3.5 What information is registered?

As part of the register, all vineyard owners are required to register⁴:

- ▶ The location of the vineyard (including section number, district and hundred)
- ▶ The varieties of vines planted
- ▶ The area of each variety planted
- ▶ The age of vines

⁴ In accordance with Part 3 The Register *Phylloxera and Grape Industry Act 1995*.

- ▶ The source of the vines, and
- ▶ Any information relating to returns obtained by transferring or acquiring ownership of a vineyard.

5.3.6 Who can access/use the information?

The process for accessing information at the moment is quite unwieldy. Growers can currently call the Board and enquire about varieties being grown and areas planted in particular regions. Information is provided on an aggregated basis only.

In the event that a winery wishes to speak to growers of certain varieties then they have to supply the Board with the required information and the Board then sends this information out to the relevant growers and is reimbursed by the winery for any expenses incurred in doing so. It is then up to the growers if they wish to contact the winery concerned.

5.3.7 Who is responsible and how does it work?

The Board is constituted under South Australian legislation and Board members are appointed by the Minister for Agriculture Food and Fisheries. The Board has a dedicated staff.

The Board's activities are funded through grower contributions, payable on a per hectare basis. The contribution is currently \$9.50 per hectare with a minimum of \$50.

5.3.8 SWOT analysis

Strengths and weaknesses

As growers are required to provide a return on an annual basis, the Board is able to collect up to date information on growers every year. It also allows for the Board to keep track of growers and be able to follow up with those who do not produce a return. Currently there are about 10 out of 3,600 growers who have not submitted returns from the previous year. Most growers now submit returns as a matter of practice.

The Board is collecting a large volume of information from growers on an annual basis, however there is not currently the mechanism to store this historical information. The database at this stage does not include historical information in relation to pest and diseases in particular regions.

Opportunities and threats

The primary purpose of the phylloxera registration scheme was to record the location of all growers to facilitate a rapid response in the event of a disease outbreak. With phylloxera reasonably under control in Australia, opportunities exist to expand the scope of services that the Board currently offers to growers. These include:

- ▶ An online database of grower registrations could allow for the publication of historical information, allowing for growers to see trends, prices and also make forecasting decisions. This may also result in improved data sharing between states.

- ▶ As some varieties are more susceptible to exotic pests, the Board could incorporate more site specific information into their database. One option is to undertake soil sampling of vineyards, analyse the DNA of those samples and then populate these into spatial data. These then could become available to the Board for review.

5.4 GS1 System - Global Location Numbers

5.4.1 Drivers and purpose

The GS1 System is a series of standards designed to improve supply chain management.

The proponents anticipate that industry-wide adoption of the GS1 System will deliver the following benefits:

- ▶ Ability to track and trace products through business processes;
- ▶ More efficient stocktake and inventory control;
- ▶ Reduction in paper based transactions;
- ▶ Minimising of manual data entry;
- ▶ Provide industry with a solid foundation to enhance other eCommerce initiatives and applications; and
- ▶ Improved data integrity between trading partners.

Most of these benefits relate to improved business efficiency, however the ability to track and trace produce may potentially also have benefits for biosecurity.

5.4.2 What is it used for?

The GS1 System is a product identification system which has been set up to provide a common approach to tracking and tracing of produce by means of an internationally accepted numbering and bar coding system.

Part of the GS1 System enables a unique Global Location Number (GLN) to be included on the bar code affixed to a product. It therefore provides a means for companies to meet the traceability objectives defined in food safety and quality standards such as ISO 9001, ISO 22005, HACCP and GLOBALGAP.

5.4.3 Coverage

The GS1 System has been adopted around the globe. There are GS1 member organisations in 108 countries including Australia and each administers the GS1 System on behalf of the parent organisation which is based in Brussels.

In Australia, 800 fresh fruit and vegetable producers currently have GLNs assigned to their business entity address, however many don't use them (Rachel Kairuz pers.comm.).



5.4.4 Participation – is it voluntary or mandatory?

Participation in GS1 is voluntary. However the use of GS1 GLNs is being promoted on a number of fronts by organisations which see the potential benefits of widespread adoption of a single system. GLOBALGAP for example is currently investigating the option of requiring businesses certified under their QA system to adopt a GS1 GLN. If this occurs, then it is likely that other QA systems will follow suit (Richard Bennett, Horticulture Australia, pers. comm.)

In February 2010 GLOBALGAP had nearly 100,000 certified producers in 100 countries (Nigel Garbutt, GLOBALGAP Chairman speaking at GLOBALGAP Trial Conference, Berlin 2010). Although only 108 of those businesses are in Australia, there are an estimated 11,500 horticulture businesses in Australia that are certified to one or more QA program (Richard Bennett, Horticulture Australia, pers. comm.) If all of these producers were required to adopt a GS1 GLN, then it may achieve a reasonable degree of penetration in the Australian horticulture industry.

The use and adoption of the GS1 System by the Australian fresh produce industry is also being promoted by the Australian Produce Identification Committee, which is an industry representative group including growers, wholesalers and major retailers including Coles and Woolworths.

5.4.5 What information is registered?

GS1Locatenet is a central electronic directory of GS1 GLNs, supported and administered by GS1 Australia. The system was developed initially for the Healthcare sector, but the service is available to all users of GLNs, across all industries.

For each GLN, GS1Locatenet contains: general details of the company; contact details; any functions assigned to the GLN; and the physical location, which is shown on an interactive map.

5.4.6 Who can access/use the information?

Access to GS1Locatenet is only available to parties which have registered to use the service and paid the requisite fee. Anyone needing access to location data for biosecurity purposes, for example State Primary Industry Departments or AQIS, could register. They would then be able to search the data, either for a specific GLN or across all GLNs. Search filters are available to enable refinement of a particular search.

5.4.7 Who is responsible and how does it work?

In Australia, the GS1 System is administered by GS1 Australia, a not for profit organisation. In order to use the GS1 System of numbering and barcoding, a grower has to be a financial member of GS1 Australia and comply with the GS1 License Agreement.

Before a company can begin using a barcode, they must first create the GS1 Identification Keys that make up the numbers inside that barcode. The first step is to



obtain a GS1 Company Prefix from GS1 Australia. GS1 Company Prefixes are unique numbers which are used to identify over one million companies globally.

Once a GS1 Company Prefix has been obtained, then additional identification numbers can be assigned to trade items (products or services), locations, logistic units, company assets, and returnable assets (pallets, tubs etc). The barcode or Global Trade Item Number (GTIN) is then made up of the Company Prefix and the assigned reference numbers. Each company can create as many GTINs as necessary.

Global Location Numbers (GLNs) which form part of the barcode, can be used to identify anything that can be addressed. In the case of a vegetable producer, a single GLN could be used to relate to the property as a whole, or for larger producers different GLNs could be used to identify produce from different paddocks, storage sheds or even different shelves in each storage shed.

The choice of what numbers are included in the GTIN is up to the individual producer, but a GTIN for a tomato producer, for example, could include: the Company prefix; a number that indicates that the product in the carton is 5kg packs of tomatoes; a number indicating the pack date; and the GLN indicating which greenhouse the tomatoes originated from.

Once the GTINs have been created, the producer will need to provide those GTINs and corresponding data to their buyers. The producer will then need to encode the GTIN in a barcode and print and affix that barcode to each case of product in accordance with the GS1 application standards.

The idea is that the producer should read and store information on all outbound cases and that each subsequent handler should have the capability to read and store the GTIN from each case of produce received.

5.4.8 SWOT analysis

Strengths and weaknesses

The GS1 System is a global system which has direct links to e-commerce. One of its key functions is to provide an effective and cost-efficient traceability system to address problems relating to food safety. Through the use of GLNs it can pinpoint any such problems to a specific region, packing facility, group of growers, a grower or even a paddock, rather than to an entire commodity group. Narrowing the potential scope of a problem in this way can reduce the negative economic impact on the supply chain participants who are not responsible for its occurrence.

Improving the speed and accuracy of tracking and tracing implicated food items can also help limit the public health risks in the event of a food safety issue.

If widely adopted, the GS1 System has the potential to deliver similar benefits in relation to biosecurity issues. According to ABS data, in 2007/08 there were a total of just over 20,000 horticultural businesses in Australia (ABS, 2009). If there is a general move by QA programs to require their participants to adopt GS1 GLNs, then approximately half of Australian horticulture businesses would be required to participate in the system as a condition of their QA approval.



Additional market penetration could well occur if the major retailers also start demanding that their suppliers use the GS1 System. However, since participation is not mandatory, the system is unlikely to ever capture all growers.

There are other limitations associated with using the GS1 System in place of a purpose designed grower registration scheme to address biosecurity issues. Locatenet, for example, has been designed to enable searches of companies by GLN, but it is not currently possible to distinguish producers of different products through the system. In the event of a plant pest or disease affecting a particular plant, being detected on-farm, it would therefore not be possible to use Locatenet to identify other growers of the same plant within the vicinity.

Opportunities and threats

In the meat industry, AQIS requires that a Meat Transfer Certificate is completed and submitted to them every time export eligible meat is transferred from one registered establishment to another. Since this is a fairly time consuming process if undertaken manually, Meat and Livestock Australia, together with AQIS, GS1 Australia and industry participants has developed an electronic version of the Meat Transfer Certificate and the system can be used free of charge by industry, provided they meet the necessary requirements.

Similar opportunities exist within the horticulture industry to develop electronic processes based on the GS1 System to manage produce certificates for export for example or for interstate transfer.

Opportunities also exist for the horticulture industry to work with GS1Australia to specify information to be captured on Locatenet. If it is important to be able to search for all producers in a particular region who are selling a particular product then an additional search field could be added to the system to enable this to occur.

6. Guiding principles for a grower registration scheme

6.1 Introduction

Based on the review of grower registration schemes either in use or proposed for different agricultural industries, the scoping study report identified a set of principles that can be used to guide the future development of a grower registration scheme for the vegetable industry. These principles are set out below.

6.2 What information will be registered?

- ▶ The register will be based on vegetable produce and the property where it is grown.
- ▶ Each vegetable property will be registered and will be linked to state based property identification codes. Information will include vegetable property identification code, lot number, Australian Map Grid Reference, proposed vegetable crops for coming year and contact details.
- ▶ All produce leaving growers' properties will be labelled with the property identification code.
- ▶ The property based grower registration scheme will provide information on the distribution and quantity of vegetable crops to be mapped and monitored for trends over time to inform biosecurity and industry policy. It also has the potential to provide supply chain traceability to improve biosecurity responses and meet current and future market driven requirements.

6.3 What are the key features of the scheme?

The grower registration scheme will need to be mandatory to ensure that the majority of growers participate and that the information is of sufficient quality to meet its intended uses. The key features of the scheme will be:

- ▶ Compulsory national registration for all vegetable properties;
- ▶ Condition of sale that all produce has a vegetable property identification code;
- ▶ Annual register services – property registration and issuing of property identification codes; and
- ▶ Future option of collecting produce-property identification code in supply chain, e.g. at the same time as the collection of levies by wholesalers.

6.4 Who can access the information?

Provided the grower information is collected specifically for the purpose of improving biosecurity management, rather than obtained through an amalgamation of information collected by industry groups for other purposes, there should not be any issue with privacy legislation restricting the usage of that information.

Access to and use of data from the grower registration scheme will be controlled as follows:

- ▶ Aggregate industry information (e.g. number of properties, vegetable crops and volumes in a locality) will be available to industry bodies and government organisations to inform their planning;
- ▶ Individual property information (e.g. contact details, vegetable crops and volumes) will be available to industry bodies and government organisations during biosecurity responses;
- ▶ Individual property information (e.g. contact details, vegetable crops and volumes) will be available to meet supply chain traceability requirements where agreed to by industry and government.

6.5 How will the scheme be implemented?

6.5.1 Establishment

The distributed and collective nature of the benefits of establishing a national grower registration scheme means that a user-pays approach will not be feasible in the establishment phase. Start-up investment from both industry and government will therefore be needed.

Legislation will be required to establish the mandatory requirement for grower registration. Separate legislation will need to be established in each state and territory since it is not possible to mandate grower registration under Australian Government legislation. This will create a challenge in establishing eight separate, yet consistent, pieces of legislation.

It is recommended that a working group be established with membership from the vegetable industry, nursery and gardens industry, Australian government and each state and territory government. The working group will be responsible for scoping the proposed legislation in each jurisdiction and ensuring consistency between jurisdictions. The working group will track the overall development of the legislation and also provide an on-going coordination function once the legislation has been passed.

Once the legislation has been passed, a grower registration scheme will be established in each state and territory.

6.5.2 On-going management

Once the legislation has been established, a targeted program to implement the grower registration scheme in each state and territory will be required. This may include:

- ▶ Preparation – broad scale industry engagement to communicate the benefits of the grower registration scheme and required changes
- ▶ Supporting registration – provide support for growers to register; and
- ▶ Follow-up – identify and address issues influencing growers not registering.

The on-going management of the scheme will be financed by the annual registration fees paid by growers.

The responsibility for administering each scheme will be set out in the legislation but is likely to lie either with a state government agency or with a Board or other similar structure constituted specifically for that purpose. The administrative functions of each scheme will be informed by the legislation and will include the following:

- ▶ Registration – registering each grower, collecting registration fees and issuing registration numbers;
- ▶ Compliance – following up with growers who are yet to register;
- ▶ Data management – storage and updating of grower information;
- ▶ Communications - with growers on all aspects of the scheme; and
- ▶ Reporting – providing grower information to industry and government as defined by the legislation.



7. Next steps

The recommended next step for the study is to hold a workshop with the steering committee and peak (national and state) industry bodies and Australian and state government representatives to discuss the best way to implement a grower registration scheme.

The aim of the workshop is to discuss this report and to:

- ▶ Refine the guiding principles;
- ▶ Determine the most appropriate administrative structure for a grower registration scheme;
- ▶ Identify barriers to be addressed; and
- ▶ Agree to high level actions.



Appendix A
Key informants consulted



- ▶ Richard Bennett – Horticulture Australia Limited
- ▶ Danny De Ieso – Industry
- ▶ Delia Dray – NSW Department of Industry and Investment
- ▶ Clare Hamilton-Bate – Freshcare
- ▶ Rowena Giles – Department of Primary Industries Victoria
- ▶ Rachel Kairuz – GS1 Australia
- ▶ Jeff McSnedden - Industry
- ▶ Alan Nankivell, Phylloxera and Grape Industry Board of SA
- ▶ Debbie Newmarch - National Grower Register
- ▶ Kris Newton – Horticulture Advisory Committee
- ▶ Robert Prince – Nursery and Gardens Industry Association
- ▶ Jo Quigley - National Livestock Identification System
- ▶ Roberta Rossely – Department of Agriculture Fisheries and Forestry



Appendix B

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