



## National Onion Industry Biosecurity Plan

### RISK MITIGATION PLAN





Plant Health Australia is a peak national coordinating body for plant health in Australia. We commission projects and work with members to coordinate the development of national policy and capability to enhance the ability of Australian agriculture to respond effectively to plant pests, weeds and diseases.

**For more information on Plant Health Australia**

**Location:** Suite 5, FECCA House  
4 Phipps Close  
DEAKIN ACT 2600

**Phone:** +61 2 6260 4322

**Fax:** +61 2 6260 4321

**E-mail:** [admin@phau.com.au](mailto:admin@phau.com.au)

**Visit our web site:** [www.planthealthaustralia.com.au](http://www.planthealthaustralia.com.au)

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Communications Manager  
Plant Health Australia  
Suite 5, FECCA House  
4 Phipps Close  
DEAKIN ACT 2600

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## APPENDICES

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## Acronyms

APVMA	Australian Pesticides and Veterinary Medicines Authority
AQIS	Australian Quarantine and Inspection Service
BA	Biosecurity Australia
DAFF	Department of Agriculture, Fisheries and Forestry
DQMAWG	Domestic Quarantine and Market Access Working Group
EPP	Emergency Plant Pest
EPPRD	Emergency Plant Pest Response Deed
GIMP	Generic Incursion Management Plan
IBG	Industry Biosecurity Group
IBMP	Industry Best Management Practice
IBP	Industry Biosecurity Plan
IPM	Integrated Pest Management
IRA	Import Risk Analysis
NAQS	Northern Australian Quarantine Strategy
OA	Onions Australia
OCPPPO	Office of the Chief Plant Protection Officer
PHA	Plant Health Australia
QA	Quality Assurance
SPS	Sanitary and Phytosanitary
WTO	World Trade Organization

**Note:** The definition of a pest as adopted by the International Plant Protection Convention (any species, strain or biotype of plant, animal, or pathogenic agent, injurious to plants or plant products) is used throughout this plan.

## Introduction

There are a number of strategies that can be adopted to help protect and minimise the risks of exotic and emergency plant pests.

Many pre-emptive practices can be adopted to reduce the risk of exotic plant pest movement for the onion industry. Such risk mitigation practices are the responsibility of governments, industry and the community.

A number of key risk mitigation areas are outlined in this guide, along with summaries of the roles and responsibilities of the Australian Government, state/territory governments, and onion industry members. Risk mitigation activities include:

- surveillance, awareness and training activities
- exclusion activities (e.g. restricting movement of planting material and machinery)
- selection and preparation of appropriate planting materials
- destruction of crop residues
- control of vectors
- control of alternative hosts and weeds
- produce transport procedures
- use of warning and information signs
- use of dedicated equipment when working in high risk areas
- restricting the use of high risk vehicles during high risk times
- reporting suspect pests to appropriate authorities
- including farm biosecurity in Industry Best Management Practice (IBMP) and Quality Assurance (QA) schemes.

## Barrier quarantine

Barrier quarantine should be implemented at all levels of the onion industry including at the national, state, regional, and farm levels.

### National level – importation restrictions

<b>Responsibility</b>	▪ Australian Government
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The Department of Agriculture, Fisheries and Forestry (DAFF) is the Australian Government Department responsible for maintaining and improving international trade and market access opportunities for agriculture, fisheries, forestry, and food industries. DAFF achieves this through establishment of scientifically based quarantine policies, provision of effective technical advice and export certification services, negotiations with key trading partners, participation in multilateral forums and international sanitary and phytosanitary (SPS) standard setting organisations and collaboration with portfolio industries and exporters. DAFF also undertakes research to improve policies and procedures for protecting Australia's animal and plant health and natural environment, and provides technical assistance to further Australia's export market access program.

Biosecurity Australia (BA) is a part of DAFF and plays a key role in import regulation. BA undertakes Import Risk Analyses (IRAs) to determine which products may enter Australia, and under what quarantine conditions. BA also consults with industry and the community, conducting research and developing policy and procedures to protect Australia's animal and plant health status and natural environment. In addition, BA assists Australia's technical market access program by negotiating quarantine conditions to meet other countries' import requirements for Australian animals and plants.

Administrative authority for national quarantine is vested in the Australian Quarantine and Inspection Service (AQIS) under the *Quarantine Act 1908*. Quarantine policies are developed on the basis of an IRA process outlined in the report of the Australian Quarantine Review Committee (Nairn *et al.*, 1996). The management of quarantine policy, as it relates to the introduction into Australia of fruit, seed, or other plant material, including any onion plants material, is the responsibility of AQIS Operations.

AQIS Operations maintains barrier quarantine services at all international ports and in the Torres Strait region.

A range of import conditions apply to the variety of *Allium* commodities imported into Australia. For details on specific commodities refer to the AQIS Import Conditions Database (ICON) available at [www.aqis.gov.au](http://www.aqis.gov.au). A significant quarantine risk is associated with the import of fresh bulbs and plant material, and as a result import permits are required. Particular restrictions apply to fresh onions imported from the Netherlands, New Zealand, USA, or China which require phytosanitary certificates to accompany the consignment. Appendix 1 contains a summary of the import requirements for *Allium cepa* taken from the ICON database.

AQIS operates the Post Entry Plant Quarantine Program, the primary function of which is to facilitate the safe (pest and disease screened) importation of plants and plant material intended for propagation, into Australia through the Commonwealth and State government managed plant quarantine stations. Meetings of the Post-Entry Plant Industry Consultative Committee (PEPICC) are a key mechanism for consultation between the Australian government, State governments and industries using this service.

More information on AQIS and import/export quarantine requirements is available on the internet at [www.aqis.gov.au](http://www.aqis.gov.au)

If there is any uncertainty, contact AQIS on (02) 6272 3933 or 1800 020 504.

## State level – movement restrictions

<b>Responsibility</b>	▪ state and territory governments
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Each state has quarantine legislation in place to control the importation of plant material and to manage agreed pests if an incursion occurs (refer to Table 1). Further regulations have been put in place in response to specific pest threats and these are regularly reviewed and updated by the Domestic Quarantine and Market Access Working Group (DQMAWG).

**Table 1:** Controls on interstate and interregional movement of onions

State	Legislation	Administering authority
ACT	<i>Plant Diseases Act 2002</i>	Environment ACT
NSW	<i>Plant Diseases Act 1924</i>	New South Wales Department of Primary Industries
NT	<i>Plant Diseases Control Act</i>	Department of Primary Industry, Fisheries and Mines, Northern Territory
Qld	<i>Plant Protection Act 1989</i>	Department of Primary Industries and Fisheries, Queensland
SA	<i>Fruit and Plant Protection Act 1992</i>	Primary Industries and Resources South Australia
Tas	<i>Plant Quarantine Act 1997</i>	Department of Primary Industries and Water, Tasmania
Vic	<i>Plant Health and Plant Products Act 1995</i>	Victorian Department of Primary Industries
WA	<i>Plant Diseases Act 1914 and Regulations 1989, Agriculture and Related Resources Protection Act 1976</i> <b>Note - A new Biosecurity and Agricultural Management Act is likely to be passed in 2007 which will provide increased legislative power for biosecurity management.</b>	Department of Agriculture and Food, Western Australia

  

State	Administering authority	Links to quarantine manual
ACT	Environment ACT	See NSW conditions.
NSW	New South Wales Department of Primary Industries	<a href="http://www.agric.nsw.gov.au/reader/interstate-trade">http://www.agric.nsw.gov.au/reader/interstate-trade</a>
NT	Department of Primary Industry, Fisheries and Mines, Northern Territory	See the quarantine section, under Biosecurity and product integrity at: <a href="http://www.primaryindustry.nt.gov.au/">http://www.primaryindustry.nt.gov.au/</a>

State	Administering authority	Links to quarantine manual
Qld	Queensland Department of Primary Industries and Fisheries	<a href="http://www2.dpi.qld.gov.au/health/4058.html">http://www2.dpi.qld.gov.au/health/4058.html</a>
SA	Primary Industries and Resources of South Australia	<a href="http://www.pir.sa.gov.au/pages/agriculture/horticulture/fruitfly/plant_quarant_stand.pdf">http://www.pir.sa.gov.au/pages/agriculture/horticulture/fruitfly/plant_quarant_stand.pdf</a>
Tas	Department of Primary Industries and Water, Tasmania	Go to DPIW home page at: <a href="http://www.dpiwe.tas.gov.au/">http://www.dpiwe.tas.gov.au/</a> Or go to: <a href="http://www.dpiw.tas.gov.au/inter.nsf/Publications/RPIO-52B3FX?open">http://www.dpiw.tas.gov.au/inter.nsf/Publications/RPIO-52B3FX?open</a>
Vic	Victorian Department of Primary Industries	Go to Plant Standards Branch at: <a href="http://www.dpi.vic.gov.au/dpi/nrenfa.nsf/">http://www.dpi.vic.gov.au/dpi/nrenfa.nsf/</a>
WA	Department of Agriculture and Food, Western Australia	See quarantine section of <a href="http://www.agric.wa.gov.au/">http://www.agric.wa.gov.au/</a>

Quarantine legislation currently in place provides a basis for regulating the movement of onion plants or onions between states. Before moving onion plants or onions interstate a permit may be required from the appropriate authority (Table 1). Advice can be obtained by contacting your local state or territory agriculture agency directly, or by telephoning the Quarantine Domestic Hotline on 1800 084 881.

### New South Wales/Australian Capital Territory

New South Wales does not have any specific requirements or restrictions on the import of *Allium* sp. other than those concerning vegetables and plant material in general. For further information view the movement and quarantine section of the NSW DPI website: <http://www.agric.nsw.gov.au/reader/interstate-trade>

### Northern Territory

The Northern Territory does not have any specific requirements or restrictions on the import of *Allium* sp. other than those concerning vegetables and plant material in general. For further information view the quarantine section of the NT DPIFM website: [http://www.nt.gov.au/dpifm/Primary\\_Industry/index.cfm?newscat1=Quarantine&newscat2=&header=Quarantine](http://www.nt.gov.au/dpifm/Primary_Industry/index.cfm?newscat1=Quarantine&newscat2=&header=Quarantine)

### Queensland

Queensland does not have any specific requirements or restrictions on the import of *Allium* sp. other than those concerning vegetables and plant material in general. For further information view the moving plants section of the Queensland DPIF website: <http://www2.dpi.qld.gov.au/health/4058.html>

### South Australia

Due to the presence of onion rust (*Puccinia allii*) in parts of Queensland and New South Wales, South Australian imports of *Allium* species require growers to provide proof (either a Plant Health Certificate or Plant Health Assurance Certificate) that their property is free of the disease. Depending on the condition of the imported good (fresh or cured) various inspection regimes are required of the growers. General plant quarantine requirements also apply.

For further information view the Department of Primary Industries and Resources of South Australia document on Plant Quarantine Standards:

[http://www.pir.sa.gov.au/byteserve/agriculture/horticulture/fruitfly/plant\\_quarant\\_stand.pdf](http://www.pir.sa.gov.au/byteserve/agriculture/horticulture/fruitfly/plant_quarant_stand.pdf)

### Tasmania

*Allium spp.* from any State or Territory of Australia in which the disease Onion Smut (*Urocystis cepulae*) is known to have occurred (such as South Australia), must be accompanied by a certificate signed by an approved person stating that the produce has been grown at least 3km from any outbreak area, as defined by Ministerial order. General plant quarantine requirements also apply.

For further information view the Tasmanian Department of Primary Industries and Water's Plant Quarantine Manual: <http://www.dpiw.tas.gov.au/inter.nsf/Publications/RPIO-52B3FX?open>

### Victoria

Victoria requires all imported *Allium spp.* to be accompanied by certification proving it has been grown in an area free of Onion smut (3km buffer zone). Alternatively a state may gain Area Freedom Certification in which case individual shipment certification is unnecessary. General plant quarantine requirements also apply.

For further information view the Victorian Department of Primary Industries Plant Quarantine Manual: <http://www.dpi.vic.gov.au/dpi/nrenfa.nsf/LinkView/9907FD43D194794DCA25718E001FE34C1892E532A4D4C566CA256F0B00018A21>

### Western Australia

Western Australia requires authorities of the originating State or Territory to inspect all shipments of onions, garlic, leek, chives, spring onions and shallots certifying it as free from Onion rust (*Puccinia allii*), White Rot (*Sclerotium cepivorum*), and Onion Smut (*Urocystis cepulae*). General plant quarantine requirements also apply.

For further information view the Western Australian Department of Agriculture and Food Plant Quarantine webpage: <http://www.agric.wa.gov.au/pls/portal30/docs/FOLDER/IKMP/PW/Q/importrequirements.htm>

## Regional level – movement restrictions

<b>Responsibility</b>	▪ state and territory governments
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Quarantine legislation currently in place provides a basis for regulating the movement of onion plants or onions between regions within states. Before moving onion plants or onions intrastate a permit may be required from the appropriate authority (see Table 1). Advice can be obtained by contacting your local state or territory agriculture agency directly, or by telephoning the Quarantine Domestic Hotline on 1800 084 881.

**Table 2** Notifiable onion pests for each state/territory

State	Notifiable pests
NSW	Onion smut ( <i>Urocystis cepulae</i> )
SA	Onion rust ( <i>Puccinia allii</i> ) Onion smut ( <i>Urocystis cepulae</i> ) - quarantine and movement restrictions within South Australia apply.
Tas	Botrytis leaf blight ( <i>Botrytis squamosa</i> ) Onion smut ( <i>Urocystis cepulae</i> ) Straw bleach (Iris Yellow Spot Tospovirus) Stem and bulb nematode ( <i>Ditylenchus dipsaci</i> ) Pink rot of onion ( <i>Pyrenochaeta terrestris</i> ) White rot ( <i>Sclerotium cepivorum</i> ) Onion rust ( <i>Puccinia allii</i> )
Vic	Onion smut ( <i>Urocystis cepulae</i> )
WA	Onion rust ( <i>Puccinia allii</i> ) White rot ( <i>Sclerotium cepivorum</i> ) Onion smut ( <i>Urocystis cepulae</i> )

## Farm level – exclusion activities

### Responsibility

- state/territory governments
- Industry/growers

The greatest risk of spreading pests between properties is when propagation material, people, machinery and equipment move from farm to farm and from region to region. It is the responsibility of the owner/manager of each property to ensure these risks are minimised.

It is in the interests of the industry to encourage and monitor the management of risk at the farm level, as this will reduce the probability of an incursion or outbreak and increase the probability of early detection. This should in turn reduce the likelihood of a costly incident response, thereby reducing costs to government, industry and the community.

## Surveillance, awareness and training

Surveys enhance prospects for early detection, minimise costs of eradication and are necessary to meet the treaty obligations of the World Trade Organization's (WTO) SPS Agreement with respect to the area freedom status of the Australian mainland.

The SPS agreement gives WTO members the right to impose SPS measures to protect human, animal and plant life and health provided such measures do not serve as technical barriers to trade. In simple terms, for countries such as Australia that have signed the SPS Agreement, imports of food, including fresh fruit and vegetables, can only be prohibited on proper, science based quarantine grounds. The agreement also stipulates that appropriate surveillance and monitoring are necessary to support claims of area freedom.

There are currently no international standards for structured pest surveys. Their planning and implementation depends on the risk involved, the resources available, and the

requirements of trading partners (particularly when Australia wishes to access overseas markets). The intensity and timing of surveys also depend on the spread characteristics of the pest and the costs of eradication.

Early detection of an exotic incursion can significantly increase the likelihood of a successful eradication campaign, and reduce the associated costs. Effective surveillance plays a critical role in working toward this goal. Surveillance can be either targeted toward specific pests, or general in nature. General non targeted surveillance is based on recognising normal versus suspect plant material. Targeted surveillance is important for establishing whether particular pests are present in each state, and if so, where these occur.

Industry personnel can provide very effective general surveillance as part of their normal management procedures, provided individuals are aware of what to look for and of reporting procedures. Producers, non commercial growers, staff, and consultants can provide valuable information as they are regularly in the field, and hence can observe any unusual pest activity or symptoms on plants.

Suitable awareness programs are required to support and encourage surveillance activities. These awareness programs can range from general information posters and sheets for tractor drivers, through to field day activities and professional courses. Awareness programs should also outline procedures (i.e. who to contact, where and how) so that industry personnel are able to have unusual plant symptoms or insects identified quickly. Promoting community awareness and reporting should be encouraged. Industry personnel need to be kept informed of areas within the local area where pest incursions exist so that they can take precautionary measures when working in or receiving produce from those areas.

## National surveillance programs

### Responsibility

- Australian Government
- industry (national associations)

AQIS maintains barrier quarantine services at all international ports and in the Torres Strait region. AQIS also surveys the northern coast of Australia, offshore islands and neighbouring countries for exotic pests that may have reached the country through other channels (e.g. illegal vessel landings in remote areas, bird migrations, wind currents), as part of the Northern Australian Quarantine Strategy (NAQS).

## State surveillance programs

### Responsibility

- state and territory governments
- Industry/growers

State level surveillance in the onion industry depends on the participation of all stakeholder groups, particularly state/territory agriculture departments, industry representative groups, agribusiness and growers.

Relevant state/territory agriculture departments are responsible for:

- planning and auditing surveillance systems
- coordinating surveillance activities with those of industry and interstate groups
- provision of diagnostic services
- providing field diagnosticians for special field surveillance
- surveillance of non commercial sites
- liaising with industry members
- developing communication, training and extension strategies with industry
- carrying out training
- reporting to all interested parties (e.g. AQIS, national bodies, trading partners and industry).

Various pest surveillance programs are managed by AQIS, and the state/territory agriculture departments.

### **New South Wales**

The New South Wales Department of Primary Industries surveys for Onion rust (*Puccinia allii*) and Iris yellow spot virus.

The New South Wales Department of Primary Industries also produces, and makes available, public awareness materials on pests of concern to the New South Wales onion industry. Several publications have been produced on onion thrips (*thrips tabaci*) including a Primer notes sheet on identification and monitoring.

Primer notes is a range of factsheets and research summaries on agricultural and natural resources topics and are available through the Queensland DPIF.

### **Queensland**

Surveillance is actively undertaken to monitor for Onion rust (*Puccinia allii*)

### **South Australia**

Surveillance is actively undertaken by Primary Industries and Resources of South Australia to quantify the status of Onion smut (*Urocystis cepulae*) within the state.

### **Tasmania**

The Quarantine Service in Tasmania conducts an annual survey for stem and bulb nematode (*Ditylenchus dipsaci*) in onion crops in Tasmania (which are all situated in the north west of the State). This nematode is known to exist in one area of Tasmania, and the survey is conducted to confirm that the nematode isn't spreading. The survey is normally conducted around September/October (after the two tiller leaf stage).

### **Western Australia**

As in the Northern Territory and Queensland, AQIS carries out general exotic pest and disease surveillance in the far northern coastal regions of Western Australia, between the Broome area and the Northern Territory border. Community awareness materials identifying target pests, including those that may affect onions, are provided through the NAQS "Top Watch" awareness campaign.

## Farm surveillance activities

<b>Responsibility</b>	▪ industry/growers
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Industry representative groups may contribute toward the provision of effective surveillance through a range of activities. Examples include:

- carrying out surveillance on commercial properties
- liaising with agriculture departments
- reporting suspect pests
- provision of farm surveillance records
- coordination of grower surveillance
- funding commercial surveillance activities
- working with agriculture departments to develop awareness, training and extension programs
- carrying out training.

Agribusinesses participate in surveillance by increasing general pest awareness and providing diagnostic services. Specific actions that contribute to surveillance include:

- distribution of extension materials
- assistance with training
- receiving suspect samples
- supplying surveillance equipment (e.g. traps and diagnostic kits)
- providing diagnostic services to growers.

Grower roles and responsibilities include:

- implementation of surveillance on properties (where possible)
- reporting suspect pests
- provision of records of farm surveillance
- attending training providing awareness and training to staff
- meeting state/territory agriculture department and industry surveillance requirements
- ensuring identification material and sampling kits are available for staff.

## Farm biosecurity/farm hygiene

The following sections of this document deal specifically with guidelines for farm biosecurity. Specific focus areas include:

- avoidance of pest spread by selecting appropriate planting materials;
- removing or reporting volunteer or neglected onion plants;
- control of pest vectors;
- control of alternative hosts;
- destruction of crop residues;
- integration of biosecurity awareness into post-harvest handling and transport procedures;

- use of warning and information signs for biosecurity awareness;
- use of dedicated equipment in high risk areas;
- restriction of people and vehicle movement in high risk areas;
- reporting suspect pests to appropriate authorities; and
- including farm biosecurity in Industry Best Management Practice (IBMP) and Quality Assurance (QA) schemes.

## Selection and preparation of appropriate planting materials

### *Obtaining pest and pathogen free planting material for crop production*

<b>Responsibility</b>	<ul style="list-style-type: none"> <li>▪ national border control (Australian Government)</li> <li>▪ intra- and interstate border controls (state and territory governments)</li> <li>▪ industry/growers</li> </ul>
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Onion plants and propagation material should not be distributed without screening for pests and diseases. Infected planting material can be the main source of spread for some serious diseases. Material from infected plants may appear healthy, so the outward appearance of planting material cannot be regarded as a reliable indicator of disease status. Soil carried on plants can harbour pathogens or pests, such as fungal spores or nematodes.

Planting material that has been certified as being free of pests and pathogens provides a useful safeguard for growers. Growers should seek out certified propagation material wherever possible. The value of certified planting material is enhanced if the parent crops have been grown in pest free areas.

Seed is the primary source for propagation of onion crops within Australia, and the vast majority is produced locally.

One of the main causes of disease in crops is the sowing of contaminated seed. *Botrytis allii* is an example of a seed borne disease which can have significant impacts on onion crops. Disease can be avoided by sowing disease-free seed harvested from healthy plants, and prevention measures such as fungicide treatments can further reduce the risk.

The Organisation for Economic Co-operation and Development (OECD) Agricultural seed scheme is a globally recognised framework for the certification of agricultural (including *Allium spp.*) seed moving through international trade. The scheme facilitates international trade through the simplification and organisation of documentary, inspection and testing procedures for seeds by encouraging the production and use of seeds or plants of consistently high quality for which trueness to name or source is guaranteed (OECD). This scheme does not include the testing or inspection for pest or disease.

Currently *Allium spp.* seeds imported into Australia do not require an import permit or phytosanitary certificate however a range of conditions apply, especially with regard to genetically modified seeds and the seed contamination tolerance, for full details view the AQIS website: [http://www.aqis.gov.au/icon32/asp/ex\\_querycontent.asp](http://www.aqis.gov.au/icon32/asp/ex_querycontent.asp).

A range of import conditions apply to nursery stock depending on the country of origin and growth medium, again full details are available on the AQIS website.

Quarantine restrictions on interstate movements may apply to nursery stock. See the barrier quarantine section for specific restrictions.

## Use of chemical control measures

### Responsibility

- industry – drawing on advice from government and non government research agencies

Agriculture departments and the onion industry should identify and list suitable chemical control measures for high priority exotic pests, and put into place procedures for the emergency registration of necessary chemicals that may be unavailable.

The Australian Pesticides and Veterinary Medicines Authority (APVMA) is the national authority responsible for registration and deregistration of chemicals and can be contacted by phone on (02) 6272 5852. The APVMA Permit Section deals specifically with emergency registrations for chemicals. Further information can be obtained from the APVMA web site at [www.apvma.gov.au](http://www.apvma.gov.au)

See Appendix 2 for detailed information on the chemical control and management of some of the major pests of onions.

## Control of vectors

### Responsibility

- industry – drawing on advice from government and non government research agencies

Many viruses and some bacteria require a vector to provide a means of dispersal. Vectors are commonly invertebrates such as insects and mites. Nematodes, fungi, birds, people and machinery can also serve as vectors of plant pathogens. The activity and mobility of the vector determines the rate and distance of dispersal.

Inspection and cleaning of vehicles, machinery and equipment (such as onion harvesters) helps to prevent pest spread, as does cleaning of footwear and restricting unnecessary people movements around the farm. Consideration should also be given to the control of known vectors of plant pathogens when new disease outbreaks are likely.

## Control of alternative hosts

### Responsibility

- industry – drawing on advice from government and non government research agencies

Some weed species can act as alternative hosts of crop pests. Where this is so, weed control practices can significantly contribute to limiting the survival of pests and reducing the potential for outbreaks. Australia has a number of endemic and naturalised species of *Alliaceae* which could potentially host a variety of pests. Listed below are some of the common weed species found in Australia:

Name	Description	Distribution
<i>Agapanthus praecox</i> <i>subsp. orientalis</i>	A rhizomatous, perennial herb with purple flowers in October.	WA, SA, NSW, Vic
<i>Allium ampeloprasum</i> (Great head garlic)	A bulbaceous, perennial herb, which grows up to 1.8 m high, with purple, pink, white, or red flowers in December.	WA, SA, NSW, Vic, Tas
<i>Allium neapolitanum</i> (Naples onion)	A bulbaceous, perennial herb, 0.15–0.3 m high, with white flowers in Aug–Sep.	WA, SA, NSW, Vic, Tas
<i>Allium oleraceum</i>	A bulbaceous, perennial herb growing up to 0.6 m, with white to pink flowers in July and August.	NSW, Vic, Tas, SA
<i>Allium paniculatum</i> (Mediterranean onion)	A bulbaceous, perennial herb growing up to 0.8 m high with white to purplish-pink flowers in November.	SA, Vic
<i>Allium porrum</i> L.	A bulbaceous, perennial herb growing up to 1 m, with white, pink or red flowers from October to December.	SA, Vic, WA
<i>Allium schoenoprasum</i> (Chives)	A bulbaceous, perennial herb which grows up to 0.4 m and produces little purple or lilac flowers in rounded umbels.	Widespread
<i>Allium scorodoprasum</i> (Sand leek)	A bulbaceous, perennial herb which grows up to 0.8 m high with dark reddish-purple flowers from October through to November.	SA
<i>Allium triquetrum</i> L. (Three-cornered garlic)	A bulbaceous, perennial herb growing up to 0.3 m high, with white flowers from August to October.	WA, Vic, SA
<i>Allium vineale</i> (Crow garlic)	A bulbaceous, perennial herb growing up to 1 m high, with white to pink flowers in summer.	SA, Vic, WA, Tas
<i>Ipheion uniflorum</i> (Spring star flower)	A bulbaceous, perennial herb, which grows to 0.3 m high. It produces white – blue flowers from September to November.	WA, Vic, Tas
<i>Nothoscordum</i> <i>borbonicum</i> (honeybells)	A bulbaceous, perennial herb, which grows to 0.6 m high. White flowers from September to December.	NSW, Vic,

Specific details of any alternative hosts will be included in pest specific contingency plans and awareness materials for high priority onion pests. Contingency plans and awareness materials are listed in later sections of this Industry Biosecurity Plan (IBP).

## Destruction of crop residues

<b>Responsibility</b>	<ul style="list-style-type: none"> <li>▪ industry – drawing on advice from government and non government research agencies</li> </ul>
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Protocols for the destruction or treatment of affected crop material should be developed for high risk pests and pathogens.

As many crop pests and pathogens are able to survive on crop residues and by-products these should be treated responsibly. Burying, burning or removing crop residues, and cleaning equipment and machinery are effective cultural practices that may be adopted if necessary. When developing protocols some issues that will determine the effectiveness of crop residue treatment will include:

- the extent of the cropping area
- the survival mechanism, dispersal ability, and host range of the pest or pathogen
- environmental constraints.

## Neglected crops and volunteer plants

<b>Responsibility</b>	<ul style="list-style-type: none"> <li>▪ government</li> <li>▪ industry</li> </ul>
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Neglected crops and volunteer plants potentially pose a high biosecurity risk to the onion industry, as they may allow pests to multiply, become established and spread. Suspected neglected crops or volunteer crops should be reported to one of the following authorities.

**Table 3** *Authorities responsible for dealing with neglected/feral/volunteer plants*

State	Authority
ACT	Environment ACT
NSW	New South Wales Department of Primary Industries
NT	Department of Primary Industry, Fisheries and Mines
Qld	Department of Primary Industries and Fisheries, Queensland
SA	Primary Industries and Resources of South Australia
Tas	Department of Primary Industries, Water and Environment - Tasmania
Vic	Victorian Department of Primary Industries
WA	Department of Agriculture and Food, Western Australia

After reporting, appropriate steps may be taken by the relevant authority to ensure that neglected plants do not carry pests or pose a risk to any nearby or adjacent farms. Table

4 summarises the actions that may be carried out in each state under relevant legislation.

**Table 4** State/territory legislation governing control of neglected crops

State	Legislation	Actions enabled
ACT	<i>Plant Diseases Act 2002</i>	The minister may direct, in writing, the owner or person in charge of premises to destroy or treat a stated plant, fruit or another stated thing at the premises.
NSW	<i>Plant Diseases Act 1924</i>	The Plant Diseases Act 1924 provides powers to require the owner to destroy neglected plants.
NT	<i>Plant Diseases Control Act</i>	Notification can be made to owners of neglected plants, requiring them to rectify the situation within a reasonable period with failure to do so making them liable to prosecution. Under a notice from the Chief Inspector, neglected plants may be destroyed and any costs incurred recovered.
Qld	<i>Plant Protection Act 1989</i> and associated regulations	The Queensland Department of Primary Industries and Fisheries has no particular powers on neglected plants, unless they are infested with a declared pest.
SA	<i>Fruit and Plant Protection Act 1992</i>	If a declared pest or disease has been detected in the vicinity, a Ministerial notice may be issued requiring specific control or eradication actions to be carried out.
Tas	<i>Plant Quarantine Act 1997</i>	Neglected plants should be reported to the Department of Primary Industries and Water. Neglected plants may be removed if they present a risk to adjacent plants by harbouring populations of pests or diseases on the “Annual List of List A and List B Declared Pests and Diseases”. Copies of these lists are available on request from Quarantine Services, Tasmania.
Vic	<i>Plant Health and Plant Products Act 1995</i>	If an inspector knows or reasonably suspects that land is affected by any plant pest or disease, this may be reported to the Secretary of the Department of Primary Industries. A notice may be issued requiring the owner or occupier to control or eradicate the pest or disease, or to destroy the affected plants and/or produce.
WA	<i>Plant Diseases Act 1914</i>	Neglected production plants in Western Australia can be removed or destroyed if required, under order by the Minister.

Growers wishing to remain anonymous when reporting suspected neglected or feral crops may report through their local or national grower association (for contact details refer to section 4 – contingency plans and response management arrangements).

## Post-harvest handling and produce transport procedures

### Responsibility

- industry – drawing on advice from government and non government research agencies

Vehicles that are used to harvest or to transport onions, particularly if moving between farms, should be cleaned to remove soil and plant matter. This will help to minimise the risk of pest spread. For this purpose, all farms should have access to a high pressure wash down facility that is associated with a concrete or tarmac pad.

It is preferable that wash down facilities are located on the property, or failing this, close to the property. At a minimum wash down facilities should be located within the same region as the property. Detergent based disinfectants should be considered. Water draining from the wash down facility should not be directed back into fields or the farm irrigation water supply.

Growers should maintain effective pest and disease monitoring and management programs. This includes keeping record of pest/disease outbreaks and the control measures used. Receivers should be informed of the source of the produce, and whether the material has come from an area experiencing a pest or disease outbreak.

Restrictions may be placed on the introduction or movement of onions by individual states or territories, for example, specifying the use of certain transport routes, container types or consignment management procedures. If proposing to move onions within or between quarantine areas or between states, transporters first should check with state authorities to find out which regulations apply (see Barrier Quarantine section). Onions should be transported securely to prevent spillage.

An identification and tracing system will assist in tracing produce consignments to their source if they are found to be contaminated with an exotic pest. Consignments should be clearly marked with the name of the grower, and a batch identification mark (date or other code). Growers should maintain a record of the source and destination of each batch, and identify separate growing areas on a property map.

Post-harvest handling and produce transport procedures that minimise the risk of pest movement should be developed further and promoted within the industry.

## Use of warning and information signs

### Responsibility

- industry

Placing warning and information signs on the entrances and gates of properties can help inform visitors of the biosecurity practices in place, and reminds industry personnel that farm biosecurity is a priority. Signs should also include up-to-date contact details for people to gain further information, as visitors to the area may not be aware of relevant biosecurity protocols.

All people entering the property should have a clear view of any information signs. Signs should contain clear and simple messages (e.g. do not enter the farm without prior approval, use wash down facilities for cleaning vehicles and machinery).

## Use of dedicated equipment when working in high risk areas

<b>Responsibility</b>	<ul style="list-style-type: none"> <li>▪ industry</li> <li>▪ state and territory governments</li> </ul>
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It may be practical to assign equipment (including clothing, tools and footwear) to be used in pest infected/infested areas only. This means that the equipment used in infected/infested farms or areas is not reused in clean areas – and *vice versa*.

## Restricting the movement of vehicles, equipment and people

A high risk of spreading pests comes from movements of people, machinery and equipment between regions and farms. This risk can be reduced by ensuring plant material and soil that may harbour pests is not moved to other properties or regions.

## National controls

<b>Responsibility</b>	<ul style="list-style-type: none"> <li>▪ Australian Government</li> </ul>
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The Australian Government is responsible for the inspection of machinery and equipment being imported into Australia. Administrative authority for national quarantine is vested in AQIS under the Quarantine Act 1908. Any machinery or equipment being imported into Australia must meet quarantine requirements. If there is any uncertainty, contact AQIS on (02) 6272 3933 or 1800 020 504.

## State controls

<b>Responsibility</b>	<ul style="list-style-type: none"> <li>▪ state and territory governments</li> </ul>
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Enquiries regarding interstate movements of plant material should be directed to your local state or territory agriculture agency, or by telephoning the Quarantine Domestic Hotline on 1800 084 881.

**Table 5** *State/territory restrictions on movement of machinery and equipment*

State	Legislation	Administering authority	Control procedures
NSW	Plant Diseases Act 1924	New South Wales Department of Primary Industries	Restrictions apply to movement of machinery that may have come into contact with potato cyst nematodes, or grapevine phylloxera. (While these are not onion pests the restrictions address the risk that farmers may move machinery from affected areas.)

State	Legislation	Administering authority	Control procedures
NT	Plant Diseases Control Act	Department of Primary Industry, Fisheries and Mines	There is a general requirement for machinery and equipment to be free of contamination by soil or weed seeds.
Qld	Plant Protection Act 1989	Department of Primary Industries and Fisheries, Queensland	Restrictions apply to the entry of machinery and equipment. Contact the QLD DPI&F Call Centre on (07) 3404 6999.
SA	Fruit and Plant Protection Act 1992	Primary Industries and Resources South Australia	All farm machinery and other associated equipment from any State or Territory must be thoroughly cleaned and inspected and found free of soil and plant residues
Tas	Plant Quarantine Act 1997	Department of Primary Industries and Water, Tasmania	The general requirements for the movement of agricultural machinery into the state is a freedom from soil, plant trash and plants, declared weed seeds and declared diseases or organisms.
Vic	Plant Health and Plant Products Act 1995	Victorian Department of Primary Industries	There are four Quarantine Zones in Victoria to prevent the spread of pest or disease throughout Victoria. As a result there are restrictions on the movement of certain plants, plant products and agricultural machinery in and around these zones. See the Victorian DPI website or contact the DPI Plant Standards Branch on (freecall) 1800 084 881
WA	Plant Diseases Act 1914 and Regulations, 1989	Department of Agriculture and Food, Western Australia	Machinery and equipment entering the state is subject to inspection on arrival and must be free from soil and plant material. No permit is required for WA.

## Farm/regional activities

**Responsibility**      ■ industry/growers

It is in the interests of industry to encourage and monitor the management of biosecurity risks at the farm level, as this will reduce the probability of an incursion or outbreak and increase the probability of early detection. This should in turn reduce the likelihood of a costly incident response, thereby reducing the costs to the industry, governments and the wider community.

Suggested practices for minimising pest spread at the farm level include:

- ensuring that all visitors to the farm report directly to the office on arrival
- checking that machinery, vehicles, and equipment (e.g. trailers, crates, bins) entering or leaving properties are free of soil and crop debris.
- visually inspecting machinery and equipment before it comes onto the property and denying access to any equipment that does not meet biosecurity standards

- restricting movements of vehicles and people (if possible) during high risk periods. This may include avoiding moving vehicles and machinery, particularly when roads are wet and muddy
- ensuring all visitors and employees are aware of the importance of keeping footwear and clothing free from loose dirt and vegetable matter before entering or leaving the property
- providing wash down facilities for both machinery and people (e.g. high pressure hose with a concrete or tarmac pad, scrubbing brushes and footbaths)
- providing a designated parking area and transporting visitors, contractors, employees and government officials using vehicles based permanently on the property
- minimising unnecessary entry of vehicles from outside the farm and movements of vehicles around the farm (especially when the soil is wet)
- reporting all suspected exotic pests to your relevant agriculture department.

## Including farm biosecurity in IBMP and QA schemes

### Responsibility

- industry

For farm level protection from pests, the following farm biosecurity (farm hygiene) measures are recommended:

- using pest- and disease-free propagating material and planting resistant cultivars where applicable;
- inspecting all incoming vehicles and equipment for signs of contaminated soil or plant material and enforcing biosecurity standards
- using high pressure wash down facilities associated with a concrete or tarmac pad for cleaning vehicles and equipment, with disposal of effluent away from plants and irrigation sources
- undertaking a biosecurity/quarantine education and training program for employees and related personnel
- having a planned, effective monitoring and pest management program
- erecting informative signs at the entrance of the property which outline the basic biosecurity requirements for all visitors
- reporting all suspect diseased plants and pests to the local state/territory agriculture department, for identification
- minimising vehicle movement around the farm (particularly when muddy)
- training staff in effective use of relevant chemicals
- disposing of unwanted plants and reporting neglected crops and volunteer plants to the local state/territory agriculture department
- managing visitor movement around the farm by using vehicles which remain on the property, and supplying footwear or footbaths
- minimising or keeping public sales and tourist activities separate from the farm area.

Including these measures in IBMP and QA schemes will strengthen the ability to rapidly detect, control and eradicate exotic pest outbreaks in the onion industry before extensive damage occurs.

## Reporting suspect pests

Any unusual plant pest should be reported immediately to the relevant state/territory agriculture agency. Early reporting enhances the chance of effective control and eradication.

Some onion pests are notifiable. Landowners and consultants have a legal obligation to notify the relevant state/territory agriculture department of the presence of those pests within 24 hours of detection.

Early reporting enhances the chance of effective pest control and/or eradication.

Reporting an exotic plant pest carries serious implications and should be done via the relevant state/territory agriculture department. Careless use of information, particularly if a pest has not been confirmed, can result in extreme stress for individuals and communities, and possibly damaging and unwarranted trade restrictions.

If you suspect a new pest, please call the Exotic Plant Pest Hotline on 1800 084 881 or contact one of the following state/territory authorities directly (refer to Table 6).

Suspect material should not generally be moved or collected without seeking advice from the relevant state/territory department, as incorrect handling of samples could spread the pest or render the samples unsuitable for diagnostic purposes. State/territory agriculture department officers will usually be responsible for sampling and identification of pests.

**Table 6** *Contacts for reporting suspected exotic pests*

State	Relevant authority	Contact
ACT	Environment ACT	<b>13 22 81</b>
NSW	New South Wales Department of Primary Industries	Phone <b>(02) 6394 3174</b> and ask for the Manager, Plant Biosecurity Risk Management
NT	Department of Primary Industry, Fisheries and Mines	Phone <b>(08) 8999 2337</b> and ask for the Manager of Plant Health
Qld	Department of Primary Industries and Fisheries, Queensland	DPI&F Call Centre on <b>(07) 3404 6999</b> or the Call Centre on <b>13 25 23</b> .
SA	Primary Industries and Resources of South Australia	<b>1300 666 010</b>
Tas	Department of Primary Industries and Water, Tasmania	<b>(03) 6233 3352</b>
Vic	Victorian Department of Primary Industries	<b>1800 084 881</b> or <b>(03) 8371 3500</b>
WA	Department of Agriculture and Food, Western Australia	Phone <b>(08) 9368 3333</b> and ask for the Manager of Plant Health

## References

Nairn, M.E., Allen, P.G., Inglis, A.R. and Tanner, C. (1996). Australian Quarantine; a shared responsibility. Report of the Australian Quarantine Review Committee. Department of Primary Industries and Energy, Canberra, ACT.