



Department of Agriculture
Government of Western Australia



CANOLA INDUSTRY BIOSECURITY PLAN



PERPETUAL DRAFT

DECEMBER 2005



Canola Industry Biosecurity Plan

FOREWORD

Developing a Canola Industry Biosecurity Plan to address the biological risks has been both a challenge and an achievement. The development of joint strategies by government, growers, processors and other industry-affiliated organisations has been vital. The importance of defining clear roles for all parties, establishing cost sharing arrangements and planning for high-risk threats cannot be overstated.

This Plan represents a new approach in Western Australia. It deals with the broad issues as well as specific operational detail relating to biological threats to the canola industry and associated industries. It can be applied to all potential threats and situations.

The Plan would not exist without the dedication and commitment of many people from both industry and government who have pooled their collective knowledge and expertise. It was developed by a planning group comprising canola industry representatives and Department of Agriculture staff.

All canola and associated industry members are encouraged to take up opportunities outlined in the Plan to protect the future of the canola industry, to understand their respective roles and support the principles agreed to in the Plan. Let us all work together to protect the canola industry. Protecting the canola industry is everyone's business.

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CHAIR CANOLA STEERING GROUP

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Farmnote

General

- 71/2002 Farm Biosecurity
- 41/2003 Practical farm biosecurity advice for keeping the plant industries safe from biological threats.

Diseases

- 6/2003 Blackleg control

Invertebrates

- 45/1999 (R01) Managing aphids in canola
- 20/1992 Aphids in canola
- 140/2000 Managing diamondback moth in canola
- 77/1999 Warehouse beetle
- 32/2002 Bronzed field beetle attacking canola seedlings in southern Australia

Weeds

- 51/1998 Skeleton Weed
- 33/1998 Using twist fungus to reduce the risk of ARGV

Threat data summary have been completed primarily in response to national threats for:

- **Corynetoxin contamination of grain associated with the causal agents of Annual Ryegrass Toxicity**
- **Verticillium wilt**
- **Cabbage seedpod weevil**
- **Red dodder, small seeded dodder, alfalfa dodder (in draft)**
- **Branched broomrape**

Threat Data Sheets (TDS) are comprehensive information sources on national threats prepared in response to priorities identified by the Canola industry working group. With national threats now under the responsibility and management of Plant Health Australia previously prepared TDSs are available on request from:

Frances Casella, GrainGuard® Coordinator, Department of Agriculture, on (08) 9368 3600, e-mail: fcasella@agric.wa.gov.au

or

at the GrainGuard website <http://www.agric.wa.gov.au>. Once at the site, search under the term 'grainguard'.

Please note that the biosecurity plans are evolving documents and as such, there may be changes made or actions underway since the plan was printed. The Canola Industry has agreed to review the Plan annually.

Glossary of terms

Acronyms

APC	Agricultural Produce Commission
DAWA	Department of Agriculture Western Australian
PHA	Plant Health Australia
AQIS	Australian Quarantine and Inspection Service
GIMP	Generic Incident Management Plan
WA	Western Australia

Definition of terms

The Department	The Department of Agriculture, unless otherwise specified.
Endemic threats	Also known as established threats. See below.
Established threats	Weeds, diseases, pests and animal threats present in the industry biosecurity plan.
Exotic threats	Weeds, diseases, pests and animal threats not present in the industry biosecurity plan.
Regional threats	Weeds, diseases, pests and animal threats present in a part of WA other than the industry defined in the biosecurity plan.
National threats	Weeds, diseases, pests and animals not present in Australia.
WA exotic threats	Weeds, diseases, pests and animals established on the eastern seaboard but not found in WA.
Incursion	An exotic weed, disease, pest or animal outbreak.
Incident	An agriculturally significant event, which impacts upon an industry, localised community or geographical area requiring the coordination and significant Departmental management activities at a district or State level.
PTQ/DTQ	An internet database of questionnaires used to collate unbiased, semi quantitative responses from industry and government experts around the world to cumulatively rank the perceived relative potential threat posed by the incursion of exotic plant pests and diseases.

Role of Plant Health Australia

Plant Health Australia (PHA) has recently been established as a company, which represents a partnership between industry, and State/Commonwealth governments to take responsibility for the strategic direction, management and delivery of nationally coordinated plant health services. One of PHA's first actions involved the establishment of a consultancy to explore the funding options available for the eradication of exotic pest incursions.

The following broad principles for cost sharing arrangements have been published in a Discussion Paper by the Centre for International Economics, titled, *et al.*

“Funding and compensation for emergency eradication of exotic plant pests and diseases”.

1. Immediate reporting of, and rapid response to, suspected disease, insect, weed and animal threats.
2. Incursion capable of being eradicated and/or contained.
3. Beneficiary contributes.
4. Equitable sharing of financial burden.
5. No one better or worse off as a result of reporting an incident.
6. Certainty in funding and compensation.
7. Certainty, consistency, integration and efficiency of structure and processes.
8. Stakeholders who share the costs of incursion management should have a role in decision making.
9. Accountability to stakeholders who fund incursion management.
10. Simplicity; and
11. ‘Risk creator contributes’ – major contributors to incursion risk should contribute to the funding of eradication programs.

For further information regarding developments by Plant Health Australia, please refer to their web site at www.planthealthaustralia.com.au.

Whilst PHA will negotiate funding arrangements for threats exotic to Australia, there is a need in Industry Biosecurity Plans to develop specific arrangements for threats from other States.

Funding principles

The issue of funding for any industry or regional biosecurity plan is central to the ability of the committee to be able to undertake many of the actions agreed to in the regional plan.

A funding mechanism is necessary to respond and manage an incursion that can include employing short-term staff or local industry officers.

There is presently no cost sharing arrangement between the Canola Industry and the Government for activities such as targeted surveillance and eradication of incursions of major threats.

Where cost sharing between Government and Industry needs to occur, it is expected to be based on the principle of 'beneficiary pays'. This principle includes the need for stakeholders to accept responsibility for protection of agriculture in proportion to the benefit gained and their ability to manage the risk. Potential threats could be allocated one of four proposed categories ranging from:

Category 1 – Where the main beneficiaries are the public and government has responsibility for funding.

Category 4 – Where the benefit and funding responsibility lies with the industry.

Allocations of a threat to a cost-sharing category may occur as each threat is assessed and is considered by industry and government (for an example category table refer to Table 1).

As most agricultural threats have some degree of impact on producers and the wider community, it is likely that very few threats, if any, will be classified as Category 1 or Category 4. It is therefore envisaged that industry and government will have joint responsibility for protection funding for most threats. For this reason it is essential that both industry and government develop and maintain the means to effectively manage the risk of incursion in all cases where the risk can be effectively managed.

Management of the risk of incursion at the national, state and farm levels will reduce the likelihood of significant incident response expenditure. Effective risk management by government (e.g. barrier quarantine) and industry (e.g. farm biosecurity) is essential in order to reduce the expected liability of both parties. A more detailed description of applicable farm biosecurity practices is given in Appendix 3.

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Table 1. Example of National cost-sharing model categories

Category	Description	Cost shares Public:Private	Adjusted cost shares Public:Private*
1.	If not eradicated, organisms would cause major environmental damage and/or affect human health and/or cause major amenity loss and have little impact on commercial crops.	100:0	100:0
2.	If not eradicated organisms would cause significant public losses – amenities, environment, and severe economic losses through large trade losses; and inflict major costs on the industries affected.	80:20	90:10
3.	If not eradicated, organisms would primarily harm industries concerned but with significant public sector costs as well.	50:50	60:40
4.	Organisms would adversely affect susceptible industries with little if any public sector costs.	20:80	30:70

* Adjusted for 'risk creator contributes' if there are reasonable grounds for believing that the source of incursion was incoming traveller's, containers or mail.

Canola Industry Biosecurity Plan

PLAN OVERVIEW

This Canola Industry Biosecurity Plan developed under GrainGuard sets out how the Western Australian Government, through the Department of Agriculture and the Canola Industry, will cooperate to assess and respond to new pest, disease, insect, weed and chemical residue threats by prevention of entry, early detection and prompt incident response action.

GrainGuard®

GrainGuard was initiated to improve agricultural industry protection through strengthened risk assessment, quarantine and incident (emergency) response. GrainGuard is supported by the Agriculture Protection Board.

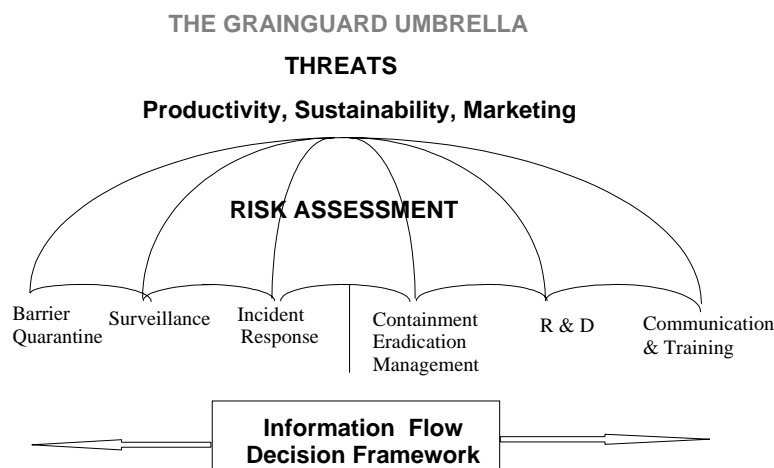
GrainGuard builds on the four levels of protection available to Western Australia's grain industry:

- ◆ **National** – Threat identification and quarantine.
- ◆ **State** – Quarantine surveillance, incident (emergency) response, eradication and research solutions.
- ◆ **Industry** – Importers, agri-business, produce handlers and exporters all play a key role in protecting broad acre businesses.
- ◆ **Farm level** – Where every grower plays a key role in protecting their own and neighbours' businesses.

The GrainGuard® umbrella of protection

It is widely recognised that effective industry protection can best be achieved by close integration of all elements of the 'protection continuum'.

GrainGuard is an umbrella initiative which brings together the Department of Agriculture's quarantine protection, surveillance, incident (emergency) response, research & development, and communication programs, industry and grower initiatives, and the activities of other organisations and government agencies.



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GrainGuard® focuses on the following key strategies:

Threat identification and risk assessment

A primary task under GrainGuard is to coordinate identification of threats to productivity, sustainability, marketability and assessment of the potential impact on local industries. GrainGuard strengthens work already being done in State, interstate and international threat identification and risk assessment programs.

Borders

Improved threat identification and communication under GrainGuard® assists the Australian Quarantine & Inspection Service (AQIS), the Department of Agriculture and the Canola industry to ensure that the entry, establishment and spread into Western Australia of exotic plant pests, diseases, insects and weeds is minimised.

Surveillance

Under GrainGuard®, targeted surveillance programs are identified for serious threats. Canola growers and the community play an important role in reporting new or unusual pests, diseases, insects and weeds.

Incident response

Industry specific incident response plans are developed incorporating valuable lessons learnt from previous outbreaks of pests and diseases. Priority is given to those threats with the greatest return on investment to industry and government.

Research and development

GrainGuard® helps identify priority areas for research relevant to the protection of the Canola industry and encourages national development and integration of protection-based research.

Communications and training

A GrainGuard® communication plan is used to promote key messages to those who can contribute to the protection of the broad acre industry. It also identifies training needs and develops training programs.

What is covered in the Canola Industry Biosecurity Plan?

- The plan follows the GrainGuard® framework outlined above.
 - Threat identification and risk assessment.
 - Borders requirements.
 - Surveillance needs.
 - Incident response.
 - Containment, eradication and management.
 - Research and development; and
 - Communication and training.

Canola Industry Biosecurity Plan

- It lists desired outcomes and agreed roles and responsibilities for the Department of Agriculture and industry in each of the key areas. It outlines principles for:
 - cost sharing the agreed actions;
 - funding mechanisms; and
 - grower support.
- A program of initial actions is outlined for completion, these items will be actioned at the discretion of the working group.

The plan is a living document and will be reviewed annually with agreed actions for each financial year.

A number of components of the present plan, for example, incident response relate to exotic threats to the Western Australia Canola industry rather than to the national Canola industry. (National incursions are addressed jointly by the Commonwealth and State governments and national industry.)

Where is the Plan available?

The latest version of the Plan is available from the Canola Industry associations and at the GrainGuard® website - <http://www.agric.wa.gov.au>. Once at the site, search under the term 'grainguard'.

For further information regarding the Plan contact:

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Canola Industry Biosecurity Plan

Canola Industry Working Group

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THREAT IDENTIFICATION AND RISK ASSESSMENT

Issues

There are five categories of threats to the Canola Industry in Western Australia. These include animal pests, diseases, insects, weeds, and chemical (residue) threats. Within each group there are many potential threats. The most serious threats have been identified through qualitative risk assessment and others may be added as a continual watch is kept for development of threats throughout the world.

Insect, disease, weed, animal pest and chemical (residue) threats

Key considerations:

- What is the entry, establishment and spread probability in Western Australia for certain threats?
- What are the consequences?
- What is the impact of the threat on cost of production, productivity and market access and how difficult is it to control?

State-based threats

Threats to the Western Australian industry from within Australia are the direct responsibility of the Department and industry.

Selected key threats to the Western Australian canola industry have been identified in Table 2.

A list of existing State-based threats is provided in Appendix 1.

National threats

The establishment of Plant Health Australia (PHA) has meant that pest threats that are exotic to Australia will be dealt with under a national approach. This has the benefit of allowing state based plans to focus on the pest issues that are most relevant to that state.

National threats that have been identified by the industry are listed in Appendix 2.

Established threats

The existing pest threats to the Western Australian Canola Industry have been assessed and are listed in Table 3.

Canola Industry Biosecurity Plan

Table 2. Selected key State exotic threats to WA's Canola Industry

Common name (scientific name)	Threat type	Present in Eastern States (not WA)	Primary host crop or weed of	Alternate host crop or weed of	Previously eradicated from WA	Description of damage	Economic impact
Stem nematode <i>Ditylenchus dipsaci</i>	Nematode	Yes	Faba beans, cereals, lucerne, field peas, potato	Many other crop and weed species			Moderate
Spiralling whitefly <i>Aleurodicus dispersus</i>	Bug	Qld	Pph Wide host range	N/A			
Soyabean looper <i>Chrysodeixis includensis</i>	Moth	Yes	Pph Wide host range	N/A			
Flax caterpillar <i>Thysanoplusia orichalcea</i>	Moth	Yes	Pph Nearest <i>Brassica</i> spp.	N/A			

For full threat lists of the Canola Industry in Western Australia refer to Threat Summary Tables in the appendix..

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Table 3. Established canola threats of economic importance

Scientific name	Common name	Information available	Action required	Comments
Diseases <i>Leptosphaeria maculans</i>	Blackleg	6/2003 Blackleg control		
<i>Luteovirus</i>	Beet Western Yellow		Develop Farmnote from Roger Jones' article in Australian Grains on BWY.	BWY recently recognised as an increasing problem.
Invertebrates <i>Myzus persicae</i>	Green peach aphid	45/1999 (Rev. 2001) - Managing aphids in canola		Since 1980s, green peach aphid developing more resistance. Reduced tillage and stubble retention increasing bryobia mite, bronzed field beetle, snails and slugs in canola.
<i>Plutella xylostella</i>	Diamondback moth	140/2000 - Managing diamondback moth in canola		Diamondback moth developing resistance and control failures in canola.
<i>Sminthurus viridis</i> (springtails)	Lucerne flea			Lucerne flea threat across all crops as not controlled by synthetic pyrethoid sprays used for other pests.
Trogoderma variable		77/1999 Warehouse beetle	This farmnote does not address canola management.	Warehouse beetle potential problem for canola as hard to fumigate.
Weeds <i>Lolium rigidum</i>	Herbicide resistant annual ryegrass	22/2002 - Field guide for using the twist fungus 33/1998 - Using twist fungus to reduce the risk of ARGT		
<i>Chondrilla juncea</i>	Skeleton weed	51/1998 - Skeleton Weed	Been subject to much attention.	
	Various green bridge grasses		Much written in crop updates and in farmnotes on managing green bridges.	
Vertebrate pests None identified				

Chemical threats

Agricultural chemicals have a number of potentially adverse effects on the production and marketing of canola products and must therefore be included in any plan that aims to ensure continued production of safe produce.

The adverse impacts include:

- chemical residue in produce which may limit market access;
- chemicals used in management of pests may become unavailable for a variety of reasons, necessitating the development and registration of new products; and
- chemical resistance may develop in target pests and management strategies to prevent resistance development are essential.

The use of chemicals late in the growing season where withholding periods may not be adhered to and which may result in residues in the harvested grain. These chemicals in question are insecticides associated with locust and armyworm control. The list of chemicals used for this purpose is available from the AGVET chemical encyclopaedia (Department of Primary Industries, Queensland). The withholding periods are stipulated and it is recommended that growers follow these in all circumstances. Growers can use windrowing as an alternative way of minimising the damage from armyworm and this message needs to be taken up by industry.

For all information regarding chemical registration and residue levels contact the responsible authority the National Registration Authority (NRA). Contact details: phone (02) 6272 5158 or through their website at: <http://www.nra.gov.au>.

Seek advice from the Department of Agriculture on what alternative chemicals or strategies can be used for controlling the pest or disease.

Genetically modified organisms

The issue of Genetically Modified Organisms (GMO's) is gaining increasing publicity and is a potential biosecurity issue for the future for all agricultural industries.

Potentially adverse effects on the production and marketing of Canola products and must therefore be included in any plan that aims to ensure continued production of safe produce.

The adverse impacts include:

- rejection of GMO produce which may limit market access;
- transfer of chemical resistance genes between varieties.
- the development of new management strategies in response to chemical resistant produce.

Marketing to convince consumers of the benefits and safety of GMO technology.

Canola Industry Biosecurity Plan

Actions

Table 4 lists the desired outcomes and agreed actions relating to threat identification and risk assessment.

Table 4. Desired outcomes and agreed actions
Threat identification and risk assessment

Desired outcomes	Actions, roles and responsibilities	Responsible party
A prioritised table of industry threats	The Department of Agriculture to undertake threat identification, risk assessment, economic assessment and prioritisation of threats.	The Department of Agriculture and AQIS
	INDUSTRY contributes knowledge and experience.	INDUSTRY in kind
Cost effective allocation of resources across the protection continuum for selected high priority threats.	The Department of Agriculture to undertake detailed risk assessment of selected high priority threats and recommend the most cost effective allocation of resources across the protection continuum.	The Department
	INDUSTRY contributes knowledge and experience.	INDUSTRY in kind
Agreed cost sharing arrangement in place for priority threats.	The Department of Agriculture and INDUSTRY to continue development of agreed cost sharing arrangements.	The Department and INDUSTRY

BORDERS

Issues

National border

The current national quarantine restrictions set up by AQIS provide control over product and equipment that may introduce new animal pests, diseases, insects or weeds.

These restrictions will be regularly reviewed to ensure they provide the necessary level of protection. The canola industry has the opportunity to raise issues of concerns with AQIS through the Department of Agriculture.

State border

The current state quarantine barrier policed by the Department of Agriculture provides control over goods and equipment that may introduce new animal pests, diseases, insects and weeds from interstate.

These restrictions will be regularly reviewed to ensure they provide the necessary level of protection.

Farm border

The greatest risk of spreading pests and diseases on the farm is when machinery, livestock, fodder or seed moves from farm to farm and region to region. It is the responsibility of the owner/manager to ensure these risks are minimised.

In response to the need for farm level protection, the following **farm biosecurity** (farm hygiene) plan has been developed to minimise risks by:

- ◆ using pest, disease and weed free seed;
- ◆ inspecting all incoming vehicles and equipment for signs of contaminating soil or plant material, and enforcing biosecurity standards;
- ◆ having a concrete washdown area near the main buildings with a sump that can be readily inspected for signs of weeds and pests;
- ◆ isolating new livestock in holding paddocks for 7-14 days and regularly check holding paddocks for exotic weeds;
- ◆ undertaking a hygiene/quarantine education and training program for employees and related personnel;
- ◆ having a planned, effective monitoring and pest management program;
- ◆ reporting suspect weeds, pests and diseases to Department of Agriculture for identification;
- ◆ including farm biosecurity in quality assurance systems (e.g. GrainCare);
- ◆ training staff in correct use of farm chemicals;
- ◆ managing people movement around the farm by using vehicles that remain on the property;
- ◆ erecting informative signs at the entrance of the property that outline the basic biosecurity requirements for all visitors.

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Actions

Table 5 lists the desired outcomes and agreed actions related to barrier quarantine.

Table 5. Desired outcomes and agreed actions
Borders

Desired outcomes	Actions, roles and responsibilities	Responsible party
NATIONAL BORDER		
Maintain quarantine awareness of international air passengers.	AQIS to provide generic quarantine information and display at the departure area of international terminals.	AQIS
STATE BORDER		
Increased quarantine awareness of interstate air passengers.	WAQIS to maintain quarantine information and display at the departure area of interstate terminals.	WAQIS
FARM BORDER		
Biosecurity plans implemented on all farms to ensure early detection and minimise threat establishment and spread.	Department of Agriculture to develop model biosecurity plan for adoption by growers.	The Department of Agriculture
Prevent the establishment of seed borne canola disease from imported canola (e.g. Verticillium wilt)	Canola importers are made aware of the potential for Verticillium wilt to infect canola and a Code of Practice is implemented by them to minimise the risk of establishment.	Oilseeds WA and the Department

SURVEILLANCE

Issues

There is a need for surveillance activities to detect incursions early enough to enable eradication or the development of management strategies.

General surveillance

Canola growers, agri-business and the community can assist in reporting new or unusual insects, diseases, or weeds.

Sample kits and identification aids for exotic threats are required for use by commercial growers and agri-business.

Exotic pest survey

There has not been a recent comprehensive survey to establish which pests and diseases are already present on farms in Western Australia.

An Exotic Pest Survey involving entomologists, plant pathologists and weed scientists in conjunction with industry agronomists/consultants is required. There are efficiencies from having all weeds, pests and diseases, etc. surveyed at the one time.

Targeted surveillance

Verticillium wilt and Branched broomrape has been identified as a high risk threat. However, there has been no targeted surveillance in Western Australia to confirm the State's freedom or act as an early warning for an incursion.

Where funding is required for preventative actions such as surveillance, the industry's preferred mechanism will be: *In kind services*.

The triggers and limits for preventative issues will be determined by industry.

Actions

Targeted surveillance program and funding assessments are to be further discussed and a position established between Industry and the Department of Agriculture.

Table 6 lists desired outcomes and agreed actions related to surveillance activities.

Canola Industry Biosecurity Plan

Table 6. Desired outcomes and agreed actions
Surveillance

Desired outcomes	Actions, roles and responsibilities	Responsible party
GENERAL		
Sample kits, identification material and diagnostic services are available for commercial growers and agri-business.	The Department of Agriculture to produce identification material for six threats.	The Department of Agriculture
	INDUSTRY to distribute identification material to growers and agri-business.	INDUSTRY
	The Department of Agriculture to produce sample kits. Completed	The Department
	INDUSTRY to distribute sample kits to commercial growers and agri-business.	INDUSTRY
	The Department of Agriculture to provide diagnostic and reporting services for suspect exotic threats.	The Department
EXOTIC PEST SURVEY		
Up-to-date pest and disease records. System in place for efficient receipt and identification of suspect material.	INDUSTRY to provide information from their crop pest and disease monitoring activities (crop scouts).	INDUSTRY
	Conduct exotic pest survey involving approximately 2% of growers.	The Department of Agriculture
TARGETED		
The Department of Agriculture and INDUSTRY to support national surveillance programs.	Carry out field surveys and sampling as part of national surveillance programs.	The Department and INDUSTRY

INCIDENT RESPONSE

Issues

From previous threat incursion responses it is evident that there is a need for a single point of contact within the industry through which communication from the Department of Agriculture to industry can be passed.

An industry media spokesperson is also needed who can work in conjunction with the Department of Agriculture media staff in the case of major incidents.

Industry membership of initial incident meetings and any subsequent eradication committee also needs to be addressed. The development of an incident response plan was identified as a requirement for improved efficiency of response to incursions. This should also be integrated with the existing Department of Agriculture incident response plan.

Actions

The Department of Agriculture's Incident (Emergency) Response Plan lays out in detail the actions needed once an exotic threat has been detected. The Department of Agriculture in consultation with Industry will manage this incident definition phase. Such things as an agenda of the first incident meeting and procedures that will be followed by staff of the Department, including communication systems and procedures for redirection of Department resources during an incident are all covered.

An Incident Committee consists of key industry representatives and the Department of Agriculture specialists. The committee meets as soon as practical after the confirmation of a serious threat. The role of the committee is to make decisions regarding the actions to be taken based on the best information available at the time.

While the Department of Agriculture will co-ordinate the incident definition phase, every grower and industry manager has a role during this phase. These roles are explained in detail in Figure 1 as it is essential for all to understand the process and play their part when required.

Canola Industry Biosecurity Plan

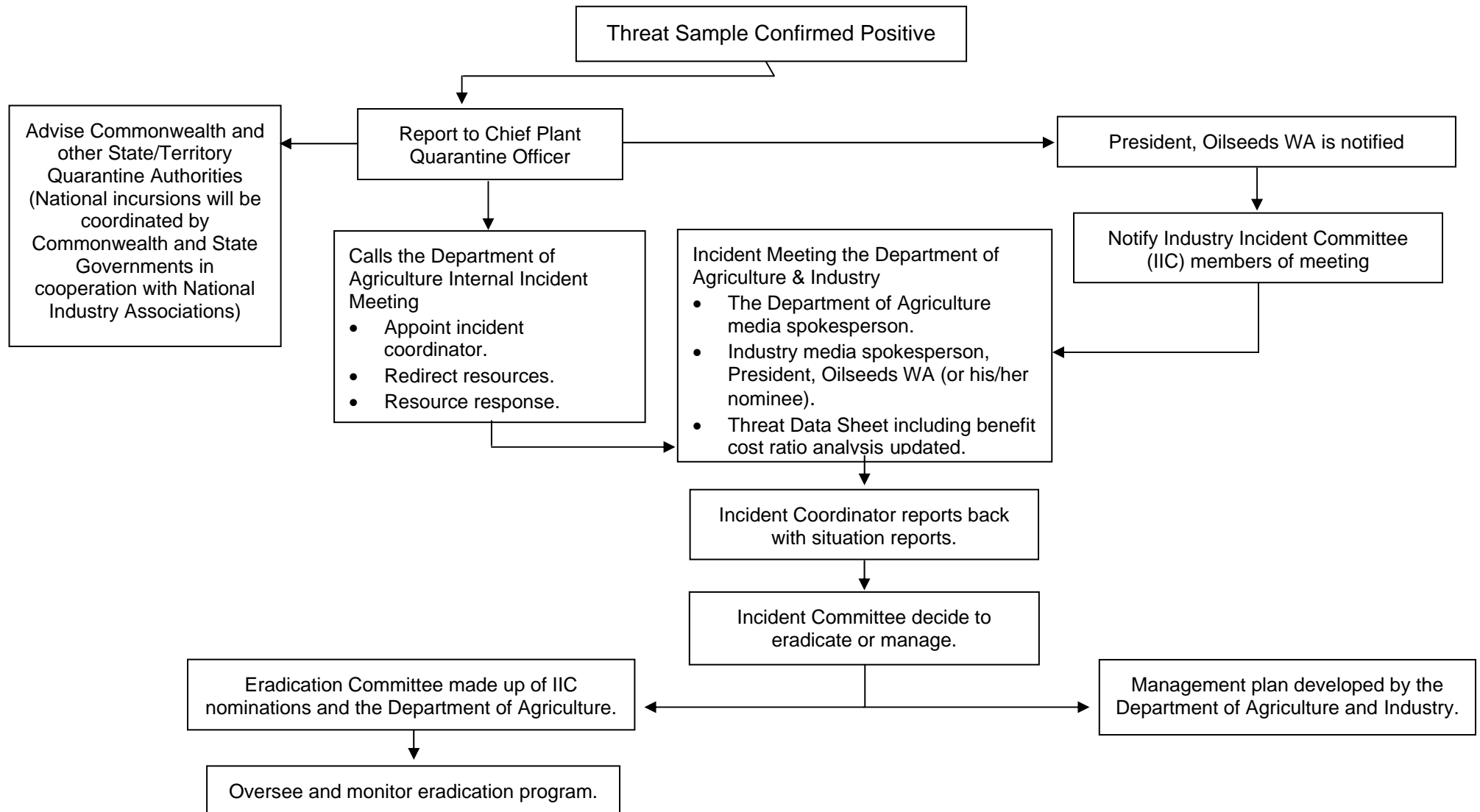


Figure 1. Incident definition response flow chart for exotic animal, insect, disease or weed incursion.

Single point of contact for Industry and Government

Industry

In the event of an exotic pest incursion the GrainGuard coordinator will contact the individual(s) identified as the first points of contact by the GrainGuard Committee. Those nominated will ensure updated contact details are available to the Chief Plant Quarantine Officer of Western Australia.

Name Mr Ron Creagh, Agriculture Protection Board
Business phone: (08) 9046 5014
Mobile phone: 0429 465 086 OR 0429 465 014
Fax: (08) 9046 5086
E-mail: rcreagh@wn.com.au
Postal address: C/ Post Office, Nungarin WA 6490

Name Mr Barry Large, PGA Grains Representative
Business phone: (08) 9654 9023 OR PGA (08) 9479 4599
Mobile phone: 0427 549 023
Fax: (08) 9277 7311
E-mail: moreland@comswest.net.au
Postal address: PO Box 25, Miling WA 6575

Name Mr Ray Marshall, Snr Vice President Grains Council, WAFarmers
Business phone: (08) 9887 9034 OR WAFF (08) 9486 2100
Mobile phone: 0429 887 903
Fax: (08) 9887 9030 OR WAFF (08) 9361 3544
E-mail: julianbreheny@waff.org.au
Postal address: PO Box 106 Pingelly WA 6308

Name John Bostock – Oilseeds WA OR John Duff (EO Oilseeds WA)
Business phone: 9887 7043 9475 0753
Mobile phone: C/ John Duff 0417 183 330
Fax: 9887 7943
E-mail: jbstock@westnet.com.au
Postal address: PO Box 61 Pingelly WA 6308

Note: During an incident with the potential for market impact AWB/CBH GrainGuard representatives should be involved at the outset, regardless of the grain involved.

Government

The Chief Plant Quarantine Officer, Department of Agriculture is the government contact and will ensure their contact details are available to the President, Oilseeds WA.

Shashi Sharma: Chief Plant Quarantine Officer Department of Agriculture
Business phone: (08) 9368 3717
Mobile phone: 0428 935 741
Fax: (08) 9368 2958
E-mail: ssharma@agric.wa.gov.au
Postal address: Locked Bag No. 4, Bentley Delivery Centre WA 6983

Industry Incident Committee

The GrainGuard representatives/members who may represent the industry at Industry Incident Committee meetings include:

Name/Title: Mr Ron Creagh, APB
Business phone: (08) 9046 5014
Mobile phone: 0429 465 086 OR 0429 465 014
Fax: (08) 9046 5086
E-mail: rcreagh@wn.com.au
Postal address: C/ Post Office, Nungarin WA 6490

Name/Title: Mr Ray Marshall, Snr Vice President Grains Council, WAFarmers
Business phone: (08) 9887 9034 OR WAFF (08) 9486 2100
Mobile phone: 0429 887 903
Fax: (08) 9887 9030 OR WAFF (08) 9361 3544
E-mail: julianbreheny@waff.org.au
Postal address: PO Box 106 Pingelly WA 6308

Name/Title: Mr Barry Large, PGA Grains Rep
Business phone: (08) 9654 9023 OR PGA (08) 9479 4599
Mobile phone: 0427 549 023
Fax: (08) 9277 7311
E-mail: moreland@comswest.net.au
Postal address: PO Box 25, Miling WA 6575

Name/Title: Mr Paul Ryan, Senior Industry Relations Manager AWB Limited
Business phone: (08) 9318 8290
Mobile phone: 0429 856 883
Fax: (08) 9218 9045
E-mail: pryan@awb.com.au
Postal address: PO Box 7467, Cloisters Square WA 6850

Name/Title: Mr David Capper, CBH Limited
Business phone: (08) 9454 0356
Mobile phone: 0427 080 373
Fax: (08) 9454 9001
E-mail: david.capper@cbh.com.au
Postal address: GPO Box L886 Perth WA 6842

Name/Title: Mr John Bostock, Oilseeds WA
Business phone: (08) 9887 7043
Mobile phone:
Fax: (08) 9887 7043
E-mail: jbstock@westnet.com.au
Postal address: PO Box 61, Pingelly WA 6308

Name/Title: Mr Merv McDougall, Pulse Australia
Business phone: (08) 9823 5035
Mobile phone: 0429 101 359
Fax: (08) 9823 5030
E-mail: mmcdougall@bigpond.com
Postal address: RMB 327 Katanning WA 6317

Name/Title: Mr Andrew Roberts, Western Oat Alliance
Business phone: (08) 9651 4154

Canola Industry Biosecurity Plan

Mobile phone: 0427 574 127
Fax: (08) 9651 4127
E-mail: kayanaba@agn.net.au
Postal address: C/ Post Office, Dandaragan WA 6507
Name/Title: Mr Garry Hine – Western Malting Barley Council
Business phone: 9847 2035
Mobile phone: 0427 472 035
Fax: 9847 2035
E-mail: g.sonshine@westnet.com.au
Postal address: PO Box 110 Wellstead WA 6328

Incident response

An incident response proceeds through four phases.

- **Identification Phase.** A pest is detected and reported to the Chief Plant Health Manager (CPHM). The process of identification is initiated and the industry is notified via the single point of contact of the suspect detection via the HortGuard/GrainGuard coordinator.
- **Alert Phase.** Identification of the pest is confirmed and an incident is declared. The CPHM will appoint an incident co-ordinator and through the GrainGuard/ HortGuard™ process will identify an incident committee comprising government specialists and a representative from the affected industry. This may also include processing, marketing and secondary industries. Details on the role of the incident committee are given below.
- **Operational Phase.** If eradication response is recommended, the incident committee dissolves and an eradication committee is formed which may include some former incident committee members. The Eradication committee manages the operational phases and develops a written eradication plan which includes, where necessary, procedures for eradication, disposal and sanitising, movement, trade and legal protocols.

A scientific advisory panel should be established to evaluate the effectiveness of the response and its implications.

- **Stand Down Phase.** This phase occurs when the co-ordinated response is complete or if a review determines that eradication is no longer technically or cost beneficial. The Stand Down phase involves a review of the outbreak and the recovery actions taken. For example, counselling for affected parties, an impact assessment of industry and the regional economy, on-going monitoring of the affected properties and the disposal sites, liaison with shires, etc). Reports and records of expenditure are provided during this phase.

The incident coordinator will arrange for an incident debriefing to industry and government.

Alert phase

The Alert Phase follows on from the Identification Phase during which a pest is positively identified and an incident is declared. During the Alert Phase government and industry will form an incident committee.

Incident Committee responsibilities

Role

The role of the Incident Committee is to make a recommendation to the Manager of Plant Health to undertake one of four options in the advent of a pest incursion.

1. No action to be taken.
2. Management of the pest by providing industry with the latest best practice management guidelines.

3. Containment or Control of the pest to a geographic area or region by movement restrictions/protocols and developing treatment options to restrict spread of the pest.
4. Eradication of the pest.

The incident committee will operate from the time of the incursion up to and including the decision to move to one of the four possible outcomes.

It is the responsibility of the incident co-ordinator to ensure that the following documents are prepared.

1. A threat data sheet (TDS) that details information about the biology and control of the pest.
2. An economic assessment of the impact of the pest.
3. Situation reports on the pest distribution in the State.

Arrange an Incident Committee Meeting

Once the relevant information is prepared the single point of contact for industry and the incident coordinator will arrange an Incident Committee meeting. The Industry Incident Committee and government representatives respectively are notified by phone, fax or e-mail as soon as practical. The Department of Agriculture will initiate the incident response plan that specifies the agenda and membership of this meeting.

The role of the incident committee is to determine which actions are biologically and technically feasible and economically justifiable.

Categorise incident

One of the most important tasks of the incident committee is to determine the level of resources that are allocated to the incident response.

It is necessary to categorise the incident so that all Departmental personnel clearly understand the priority to be given to the incident depending on the magnitude of the response required. Incidents may be declared Category 0, 1, 2, 3 or 4.

Canola Industry Biosecurity Plan

Table 7. Incident response categories and resource allocation

Category	Resource allocation	Management approval
0	Any incident necessitating an initial incident meeting even though no further resources or reporting is required.	Program or Regional Manager
1	The incident will be confined to one region, and have limited impact on the Department's activities or industry. A limited number of selected staff funded by affected programs will be required by the Incident Manager to manage the incident.	Program or Regional Manager
2	Such incidents will be considered to have the potential to have a significant effect on the local industry and community and may have ramifications for other regions. All staff working in the affected Program(s) in the region will be required to work on the incident as a priority above all other work.	Joint Program Managers approval is required to initiate the response or Executive Director
3	Such incidents are likely to have widespread impact on the industry or community and all staff as required, working in the region and for the relevant Program(s) Statewide would make the incident a work priority. Some other agency may be the lead Hazard Management Authority.	Program Managers and relevant Executive Directors. Director General approval required for protracted involvement.
4	All staff as required, working for the Department would be expected to work on the incident as a priority. More than one region is likely to be involved.	Director General authorisation on Executive Director(s) recommendation will be required.

The above table represents the resources that will be allocated from the Department of Agriculture in the advent of an emergency plant pest incident. Industry should consider the resources that can be made available and contribute to the incident.

In general, incidents are most likely to be Category 0, 1 or 2 incidents. At the same time that the agreement on the Category rating of the response is determined, management and staff are to be informed as to how long their services may be expected to be needed. Therefore, at the outset, when a commitment is made to categorise an incident, the length of the response **must** be determined. In practical terms this will probably be a commitment of 1, 2 or 3 weeks, depending on the incident. As the size of an incident cannot usually be determined at its outset, the need for an ongoing commitment by staff will be reviewed or re-assessed periodically.

Decision making criteria

Once a threat is detected and resources allocated, a delimiting survey is usually conducted to establish the extent of spread. Once details of the pest's biology, economic impact and distribution are known the incident committee must decide whether to eradicate or manage the threat. The Incident committee, in conjunction with specialist input where necessary, makes a decision based on the following criteria:

Is it technically feasible to eradicate?

If not, then threat management is the only option.

Is it economically justifiable?

Is the cost of eradication greater than managing/controlling the threat?

If the management cost is less, than it would normally be advisable not to proceed to eradication.

Is the industry affected able to raise funds to support the eradication and if so how much?

Even if it is technically feasible and economically justifiable, the costs involved and disruption to other enterprises may still put eradication out of reach from a practical perspective.

Growers may decide that they would prefer to live with the threat than contribute to the cost of eradication. Eradication costs may include compensating for loss of crop, as well as helping to resource the eradication campaign itself.

Growers will need to consider the fund raising mechanisms available for response and recovery after an incident outbreak. Some options are outlined below for consideration by the canola industry.

In the case of eradication, the incident co-ordinator will assess the skills required to achieve a successful eradication and will form an eradication committee to oversee the eradication program. It is likely that the eradication committee will include some previous incident committee members as well as industry representation.

The incident committee becomes disbanded at this juncture, however, industry will continue to have input into the operational plan and through industry liaison with affected growers.

Confidentiality

Confidentiality is important until the first meeting is held and the incident committee is briefed as a group on the actual nature of the incident. Until the incident committee approves the public release of information through a media release, knowledge of the incident must remain confidential. This prevents speculation and undue alarm by growers and the public.

Other actions

Industry may engage an independent consultant to review the benefit cost ratio study conducted by the Department by contacting the Manager of Economics and Marketing in the Department of Agriculture (9368 3333) who will assist the industry to find consultants with the necessary skills for the task.

Communication between Industry and Government

All growers will be given a set number of days in which to check their crops and report suspect finds of the threat to the Department of Agriculture.

The President, Oilseeds WA and the Chief Plant Quarantine officer will arrange for a situation report to be sent out by fax or e-mail to all Oilseeds WAs and key government representatives as the Incident Coordinator determines.

The Industry Incident Committee members will make decisions on behalf of the industry based on the information available to them at that time.

Where broad industry liaison is required the President, Oilseeds WA and Incident Committee will determine the most appropriate communication system and will notify relevant grower groups.

A final decision by industry on any issue lies with the Industry Incident Committee.

Industry media spokesperson

The President, Oilseeds WA (or his/her nominee) is the single point of contact between industry and the media, unless the Incident Committee appoints someone else.

Media strategy by industry

The industry media spokesperson, in liaison with the Department of Agriculture media liaison officer for the incident and the Incident Committee will determine the media strategy for the particular incident.

The industry and the Department of Agriculture media spokesperson are to remain in close contact throughout the incident (emergency) to allow proper coordination.

Table 8 lists the desired outcomes and agreed actions relating to incident response, industry contacts and coordination.

Table 8. Desired outcomes and agreed actions
Incident response

Desired outcomes	Action, roles and responsibilities	Responsible party
Up to date information on contacts and membership of positions outlined in the Canola Industry Biosecurity Plan are available through the President, Oilseeds WA.	INDUSTRY to ensure up-to-date lists of positions and members be maintained at all times and are available to the industry delegates.	INDUSTRY
Incident Coordinator familiar with the Canola Industry Biosecurity Plan is available.	The Department of Agriculture to allocate and train one Incident Coordinator for each of the Department of Agriculture regions.	The Department of Agriculture

CONTAINMENT, ERADICATION AND MANAGEMENT

Issues

The following needs were identified:

- Detailed information regarding high risk threats is held in several areas and it would be more efficient to collate it into one document/data base.
- A policy statement is required regarding support for individual growers/businesses affected by eradication activities.
- To oversee and resource eradication activities, an Eradication Committee should be formed between the Department of Agriculture and Industry.
- Trained staff are needed to manage eradication programs.

Having determined that it is technically and economically possible to eradicate and industry have supported this decision, the incident committee will disband and an eradication committee will be formed.

Eradication Committee

The Eradication Committee coordinates the operational phase.

Tasks include:

- developing an incident action plan for field operations;
- reviewing incident response category to ensure resources are adequate;
- ensuring program managers and other necessary staff are informed of the incident and the resources required;
- where required, providing a briefing to local government, police and industry;
- keeping the Manager, Plant Health informed of progress through regular progress updates;
- maintaining accurate file records.

The Eradication Committee will deal with issues pertaining to finance and physical and human resources. These include the following matters:

- triggers and limits;
- fund raising;
- budgets;
- loss assessment and support; and
- counselling.

Triggers and limits

Criteria are required so that growers and the Department are aware of the **trigger** to commence an eradication response and the **limit** at which it becomes uneconomic to continue eradication activities.

In the case of the high priority threats identified in the GrainGuard plans it may be possible for industry to identify a trigger and limit for action before a key threat is identified.

Triggers and limits criteria will assist the decision making process when an incident occurs. An informed decision based on previously agreed to criteria increases the chance of success during eradication or the application of management strategies.

The triggers and limits for response activities will include: **(industry to nominate)**

1. **Where _____ cents per unit of production is not exceeded or % of crop value.**
2. **Total cost not to exceed \$**
3. **Other - please state.**

The pests and diseases which most concern industry are those that:

- are difficult and/or expensive to control;
- cause large reduction in yield and quality; and
- prevent market access.

To achieve the optimal level of investment in protection growers, industry and government should only invest in a protection activity where it is economically justified.

Risk assessment can indicate those threats which pose the highest expected cost (probability x consequences). Cost benefit analysis and economic impact assessments can point to the level of response activities that may be justified. The Department can provide a cost benefit analysis and similarly, industry may wish to arrange for an independent crop/market loss assessment and determine the level of industry support for impacted growers.

Fund raising

Where funding is required for preventative actions such as surveillance, the industry's preferred mechanism will be:

1. **Voluntary**
Collection of funds through a State producers' association outside of the Agriculture Produce Commission. This mechanism would be restricted to voluntary contributions only.
2. **Agricultural Produce Commission (APC)**
Collection of funds by a growers' committee under the Agricultural Produce Commission (APC), created for the purpose of providing services that are widely shared throughout the industry.
3. **In kind services.**

Industry will raise funds for response and recovery before an incursion:

Industry **has/has not** negotiated a loan to fund activities such as eradication and grower support (**industry to nominate**).

The formula for loss of production area and crop loss will be: **(industry to nominate)**

1. **Where _____ cents per unit of production is not exceeded or % of crop value.**
2. **Where the time frame doesn't exceed _____ years.**
3. **Other - please specify.**

The formula for increased management costs aimed at eradication will be:

1. Pay ____% of increased chemical and other additional management costs over and above standard operating outgoings for the property.
2. Please specify other options if more appropriate to your industry.

The policies for losses outside the industry include: **(industry to nominate)**

Budget and costs

Monitor the budget and expenditure as the program proceeds.

Arrange access to resources (human, physical) through local authorities, other government agencies and determine issues in relation to in-kind support, cost sharing, etc.

Deal with issues regarding funding and resourcing of the program through to completion, including when and where payments will be made.

Loss assessment and support

Arrange for an independent analysis of crop loss assessment and determine the level of support for affected growers.

Counselling

Financial and psychological support is available to growers and other directly affected people.

Rural Financial Counselling Services and their counsellors can help primary producers, fishing enterprises and small rural businesses in rural areas that are experiencing financial hardship and have no other sources of financial assistance or information. Counsellors can provide their clients with:

- assessment of the enterprise's current financial position and cash flow;
- reviews of contracts and loan applications with lending institutions;
- communication and facilitation of meetings with lenders and financial institutions;
- information on government and industry assistance schemes;
- information on, and referral to, Centrelink and other relevant services;
- assistance with business decision making in relation to their rural enterprise;
- assistance in considering a range of options for the future; and
- collection and provision of data on client-related activities.

Note: Rural Financial Counselling Services and their counsellors do not provide personal or succession planning services but can provide referrals and information.

The service is free and independent of financial institutions, welfare agencies or government.

Access a counselling service by contacting:

Rita Rosman
 Rural Counselling Liaison Officer
 Department of Agriculture
 Tel: (08) 9368 3160 OR 1800 198 231
 Fax: (08) 9367 4265
 E-mail: rrosman@agric.wa.gov.au

Grower support

Industry may wish to consider a policy for grower support. For example:

“Ideally no affected grower shall be better or worse off as a result of the incident and support received.”

Refer to Table 8 for a summary of desired outcomes and agreed actions related to containment, eradication and management.

Table 8. Desired outcomes and agreed actions
Containment, eradication and management

Desired outcomes	Actions, roles and responsibilities	Responsible party
Eradication program manager available.	The Department of Agriculture to make available an eradication program manager with the appropriate management and technical skills for the particular threat incursion.	The Department
Industry support policy for individual growers.	Develop details of support system for individual growers.	INDUSTRY
Industry fund raising mechanism in place.	Canola industry to develop and implement fund raising mechanisms.	INDUSTRY
25% of the 5 million ha of land infected with the causal organisms for ARGT to be treated with Twist Fungus.	ARGT target shires identified. Promotion of twist fungus to Canola growers in target shires	The Department Canola INDUSTRY
Due to market access reasons, this section is unavailable.		
Minimise the risk of high erucic acid varieties being grown in 'uncontrolled' fashion.	Industry leaders to communicate to growers the risk of admixture to canola quality. Promote identity preservation of new varieties in the Canola industry.	Oilseeds WA
Early reporting and biosecurity measures to prevent infestations of small-seeded dodder.	Oilseeds WA, WAFF and PGA to encourage growers to look for weed and employ biosecurity measures. ID material produced.	INDUSTRY The Department

RESEARCH AND DEVELOPMENT

Issues

With rapid changes in trade, travel and technology there needs to be a constant monitoring of interstate and overseas research on high risk threats to Western Australia.

Actions

Refer to Table 9 for a summary of desired outcomes and agreed actions related to research and development.

Table 9. Desired outcomes and agreed actions
Research and development

Desired outcomes	Actions, roles and responsibilities	Responsible party
Technical knowledge to be abreast of international and interstate research developments.	The Department of Agriculture to monitor interstate and overseas research on high risk threats.	The Department
	INDUSTRY to contribute knowledge and experience.	INDUSTRY in kind
Reduced entry, spread and economic impact of threats through research.	INDUSTRY to support research funding into protection issues associated with high risk threats to Western Australia through the Grains Research and Development Corporations and other organisations.	INDUSTRY

COMMUNICATION AND TRAINING

Issues

A communication program specific to the Canola industry is needed to operate alongside general publicity on the need to protect the whole of agriculture from exotic threats. Importers and people entering Western Australia need to be frequently reminded about the importance of quarantine.

Individual industry members will play a vital part in educating customers and employees through point of sale posters and brochures showing a commitment to 'clean and green' production systems made possible by planned threat management. These personal contacts will complement general publicity.

All people working on farms as employees, advisers, suppliers and contractors need training in appropriate biosecurity procedures and recognition of suspect pests, diseases, insects and weeds.

Consultants and industry agronomists need training to accept a front-line role in surveillance for exotic pests, diseases, insects and weeds.

Actions

To demonstrate its commitment to appropriate standards the Department of Agriculture is training its staff in biosecurity awareness (farm hygiene) because staff frequently move from property to property in the course of their duties.

Training of industry personnel should primarily be the responsibility of the industry but the Department of Agriculture will provide technical advice.

Consultants, suppliers and contractors have a responsibility to adopt codes of practice for biosecurity to meet industry and individual property standards. The Department of Agriculture may assist in developing these codes. Ultimately the individual grower must establish and enforce appropriate standards for all visitors.

A Farmnote titled "Practical farm biosecurity advice for keeping the plant industries safe from biological threats" outlines effective on-farm strategies.

Development of appropriate identification guides and other literature will play an essential part in this, and agri-business should seek further training where required.

Refer to Table 10 for a summary of desired outcomes and agreed actions related to Communication and Training.

Canola Industry Biosecurity Plan

Table 10. Desired outcomes and agreed actions
Communication and training

Desired outcomes	Actions, roles and responsibilities	Responsible party
Up to date Canola Industry Biosecurity Plan available over the Internet.	Maintain the GrainGuard website to allow access to the Canola Industry Biosecurity Plan and other relevant information.	The Department
All commercial growers to play their part in protecting the Canola industry as outlined in the Canola Industry Biosecurity Plan.	The Department of Agriculture to produce a leaflet for members of the Canola industry explaining the Canola Industry Biosecurity Plan.	The Department
	INDUSTRY to distribute leaflets explaining the Industry Biosecurity Plan to all members.	INDUSTRY
Biosecurity plans in place on commercial properties.	INDUSTRY to provide knowledge on existing and possible future farm practices.	INDUSTRY
All commercial growers to be familiar with GrainGuard objectives for their industry.	The Department of Agriculture to conduct biosecurity/GrainGuard field days.	The Department

APPENDICES

LEGEND

Entry potential

The probability of entry of a pest depends on all pathways from the exporting country to the destination, and the frequency and quantity of the pests associated with them. The higher the number of pathways, the greater the probability of the pest entering the State.

- *Probability of the pest being associated with the pathway at origin* – e.g. prevalence in the source area, occurrence of life stages that would be associated with the commodity, volume and frequency of movement along the pathway, seasonal timing, pests management, cultural and commercial procedures applies at the place of origin.
- *Probability of survival during transport or storage* – e.g. speed and conditions of transport and duration of the lifecycle, vulnerability of the life-stages during transport or storage, prevalence of the pest, commercial procedures applied.
- *Probability of pest surviving existing pest management procedures.*
- *Probability of transfer to a suitable host* – e.g. dispersal mechanisms, whether the imported commodity is sent to few or many destination points in the State, time of year at which import takes place, intended use of the commodity, risks from by-products and waste.

Based on this information a ranking is developed:

H = High - Very likely to occur; M = Moderate - Occurs with even probability;
L = Low - Unlikely to occur; VL = Very Low - Very unlikely to occur; EL = Extremely low - Extremely unlikely to occur; and N = Negligible - Almost certainly will not occur.

Establishment potential

Probability of establishment

In order to estimate the probability of establishment of a pest, reliable biological information (life cycle, host range, epidemiology, survival, etc.) should be obtained from the areas where the pest currently occurs.

Factors to consider are:

- Availability, quantity and distribution of hosts in the State.
- Environmental suitability in the State.
- Potential for adaptation of the pest.
- Reproductive strategy of the pest.
- Method of pest survival.
- Cultural practices and control measures.

Based on this information a ranking should be developed:

Please enter H = High - Very likely to occur; M = Moderate - Occurs with even probability; L = Low - Unlikely to occur; VL = Very Lo-Very unlikely to occur; EL = Extremely low - Extremely unlikely to occur; and N = Negligible - Almost certainly will not occur.

Spread potential

Factors to consider

In order to estimate the probability of spread of the pest, reliable biological information should be obtained from areas where the pest currently occurs. The situation in the PRA area can then be carefully compared with that in the areas where the pest currently occurs and expert judgement used to assess the probability of spread. Factors to consider are:

- Suitability of the natural and/or managed environment for natural spread of the pest.
- Presence of natural barriers.
- The potential for movement with commodities or conveyances.
- Intended use of the commodity.
- Potential vectors of the pest in the State.
- Potential natural enemies of the pest in the State.

Based on this information a ranking is developed:

Please enter H = High - Very likely to occur; M = Moderate - Occurs with even probability; L = Low - Unlikely to occur; VL = Very Lo-Very unlikely to occur; EL = Extremely low - Extremely unlikely to occur; and N = Negligible - Almost certainly will not occur.

APPENDIX 1. CANOLA INDUSTRY - STATE EXOTIC THREATS

Canola Industry Threat Summary Table for State Exotic Invertebrates

Last updated: November 2003

This document is a basic overview and assessments may change given more detailed research.

Common name	Life form	Scientific name	Primary host or weed of	Entry probability	Establish probability	Spread probability	PTQ/DTQ	Human health consequences	Environmental consequences	Socio-economic consequences	Economic consequences
Spiralling whitefly	Bug	<i>Aleurodicus dispersus</i>	Polyphage	H*	M*	H*		\$	\$	\$	\$
Garden slug	Slug	<i>Arion hortensis</i>	Pph	M	M	M					
Hedgehog slug		<i>Arion intermedius</i>		M	M	M					
Garden springtail	Springtail	<i>Bourletiella hortensis</i>	Pph	H	H	H					
Soyabean looper	Moth	<i>Chrysodeixis includensis</i>	Pph	M	H	H					
Chocolate-band snail	Snail	<i>Eobania vermiculata</i>	Pph	M	H	M					
Barley thrips	Thrip	<i>Limothrips denticornis</i>	Pph	H	M	M					
Flax caterpillar	Moth	<i>Thysanoplusia orichalcea</i>	Pph. Nearest Brassica spp.	M	H	H					

* Values for whole of state. Spiralling whitefly is a tropical pest and would not establish in the canola regions of the south west of WA.

Canola Industry Biosecurity Plan

Insect legend

Btle	= Beetles (weevils, etc.) (COLEOPTERA)
Bug	= Stink bugs, aphids, mealy bugs, scale, white flies and hoppers (HOMOPTERA)
But	= Butterflies (LEPIDOPTERA)
Ewig	= Earwigs (DERMAPTERA)
Fly	= Flies and midges (DIPTERA)
Locu	= Locusts and grasshoppers (ORTHOPTERA)
Mite	= Mites, e.g. spider and gall mites (ACARI)
Moth	= Moths (LEPIDOPTERA)
Slug	= Slugs (GASTROPODA)
Snail	= Snails (GASTROPODA)
Springt	= Springtails (COLLEMBOLA)
Thrip	= Thrips (THYSANOPTERA)
Wasp	= Bees & wasps (HYMENOPTERA)

** Indicate Australian States and territories outside WA as Q = Queensland, NSW = New South Wales, V = Victoria, ACT = Australian Capital Territory, SA = South Australia, Tas = Tasmania, and NT = Northern Territory , or 'unknown' if distribution in Australia is not known.

Pest Threat Questionnaire (Emery and Hardie) Score to be developed later.

Canola Industry Threat Summary Table for State Exotic Invertebrates

Last updated: November 2003

This document is a basic overview and assessments may change given more detailed research.

Common name	Life form	Scientific name	Primary host or weed of	Entry probability	Establish probability	Spread probability	PTQ/DTQ	Human health consequences	Environmental consequences	Socio-economic consequences	Economic consequences
Stem nematode	Nem	<i>Ditylenchus dipsaci</i>	Faba bean, cereals, lucerne, field peas, potato and many other crop and weed species	M	M	M		\$	\$	\$	\$

* Disease Threat Questionnaire (Emery and Hardie) Score to be developed later.

Canola Industry Threat Summary Table for State Exotic Vertebrates

Last updated: November 2003

This document is a basic overview and assessments may change given more detailed research.

Common name	Life form	Scientific name	Primary host or weed of	Entry probability	Establish probability	Spread probability	PTQ/DTQ	Human health consequences	Environmental consequences	Socio-economic consequences	Economic consequences
*House sparrow	*Bird	* <i>Passer domesticus</i>	*	*H	*H	*H	*(est) Extreme	\$	\$	\$	\$
Canada Goose	Bird	<i>Branta canadensis</i>		M/H	M	M	Serious				
Monk Parakeet	Bird	<i>Myiostitta monachus</i>		L/M	H	H	Extreme				
Indian Myna	Bird	<i>Acridotheres tristis</i>		H	H	H	(est) Extreme				
Tree sparrow	Bird	<i>Passer montanus</i>		H	H	H					
Sky Lark	Bird	<i>Alauda arvensis</i>		L/M	H	H					
Common Starling	Bird	<i>Sturnus vulgaris</i>		H	H	H					
Indian Ringneck	Bird	<i>Psittacula krameri</i>		H	H	H	Extreme				
Sambar Deer	Mammal	<i>Cervus unicolor</i>		L/M	H	H					
Chital Deer	Mammal	<i>Axis axis</i>		L/M	H	H	Extreme				
Hare	Mammal	<i>Lepus europaeus</i>		L/M	H	H	(est) Extreme				
Red Deer	Mammal	<i>Cervus elaphus</i>		L/M	H	H	Extreme				

APPENDIX 2. CANOLA INDUSTRY - NATIONAL EXOTIC THREATS

Canola Industry Threat Summary Table for State Exotic Invertebrates

Last updated: February 2004

This document is a basic overview and assessments may change.

Common name	Life form	Scientific name	Primary host (Polyphage = Pph)	Targeted survey options?	Entry	Establishment	Spread	Economic impact	Risk	PTQ Score
Cabbage seed weevil	Btle	<i>Ceutorhynchus assimilis</i>	<i>Brassica</i> spp.	Y	M	M	M	H	H	37
Rape stem weevil	Btle	<i>Ceutorhynchus napi</i>	Pph Brassicaceae, Fabaceae	U	M	M	M	H	M	31
Cabbage stem weevil	Btle	<i>Ceutorhynchus pallidactylus</i>	<i>Brassica</i> spp.	U	M	M	M	H	M	31
Rape beetle	Btle	<i>Meligethes aeneus</i>	Turnip rape, Indian mustard, rutabaga	U	M	M	M	M	M	31
Brassica pod midge	Fly	<i>Dasineura brassicae</i>	<i>Brassica</i> spp.	Y	M	M	M	M	M	26
Black slug	Slug	<i>Arion ater</i>	Pph	U	M	M	M	M	M	26
Turnip moth	Moth Noctuid	<i>Agrotis segetum</i>	Pph in more than 5 Families	Y	M	M	H	M	M	25
Rape winter stem weevil	Btle	<i>Ceutorhynchus picitarsis</i>	Brassicaceae	U	M	M	M	M	L	24
Wireworm	Btle	<i>Agriotes lineatus</i>	Pph in more than 5 Families	U	M	M	M	L	L	23
Turnip gall weevil	Btle	<i>Ceutorhynchus pleurostigma</i>	Brassicaceae	U	M	M	M	L	L	23
Blue stem weevil	Btle	<i>Ceutorhynchus sulcicollis</i>	Brassicaceae	U	M	M	M	L	L	23
Mustard sawfly	Dip	<i>Athalia proxima</i>	<i>Brassica</i> spp.	U	M	M	M	L	L	23
Arionid slug	Slug	<i>Arion circumscriptus</i>	Pph	U	M	M	M	L	L	23
Arionid slug	Slug	<i>Arion distinctus</i>	Pph	U	M	M	M	L	L	23
Arionid slug	Slug	<i>Arion fasciatus</i>	Pph	U	M	M	M	L	L	23
Arionid slug	Slug	<i>Arion lusitanicus</i>	Pph	U	M	M	M	L	L	23
Arionid slug	Slug	<i>Arion subfuscus</i>	Pph	U	M	M	M	L	L	23

Canola Industry Biosecurity Plan

Common name	Life form	Scientific name	Primary host (Polyphage = Pph)	Targeted survey options?	Entry	Establishment	Spread	Economic impact	Risk	PTQ Score
Boettgeriid slug	Slug	<i>Boettgerilla patens</i>	Pph	U	M	M	M	L	L	23
Limacid slug	Slug	<i>Deroceras laeve</i>	Pph	U	M	M	M	L	L	23
Budapest slug	Slug	<i>Tandonia budapestensis</i>	Pph	U	M	M	M	L	L	23
Giant African snail	Snail	<i>Achatina</i>	Pph	U	M	M	M	L	L	23
Giant East African snail	Snail	<i>Achatina fulica</i>	Pph	U	M	M	M	L	L	23
Bush snail	Snail	<i>Bradybaena ravida</i>	Pph	U	M	M	M	L	L	23
Achatinid snail	Snail	<i>Limacolaria martensiana</i>	Pph	U	M	M	M	L	L	23
Cabbage leaf sawfly	Wasp	<i>Athalia rosae</i>	Brassicaceae, Chenopodiaceae	Y	M	M	M	L	L	23
Painted bug	Hem	<i>Bagrada hilaris</i> syn. <i>B. cruciferarum</i>	Mainly <i>Brassica</i> spp. but pph	U	M	M	M	L	L	21
Weevil	Btle	<i>Baris coerulescens</i>	Brassicaceae	U	M	M	M	L	L	19
Weevil	Btle	<i>Baris laticollis</i>	Brassicaceae	U	M	M	M	L	L	19
Red turnip beetle	Btle	<i>Entomoscelis americana</i>	Brassicaceae		M	M	M	L	L	19
Arhap blister beetle	Btle	<i>Mylabris pustulata</i>	<i>Brassica</i> spp. Some Fabaceae	U	M	M	M	L	L	19
Crucifer flea beetle	Btle	<i>Phyllotreta cruciferae</i>	Range of <i>Brassica</i> spp.	U	M	M	M	L	L	19
Large striped flea beetle	Btle	<i>Phyllotreta nemorum</i>	Range of <i>Brassica</i> spp.	U	M	M	M	L	L	19
Cabbage flea beetle	Btle	<i>Phyllotreta striolata</i>	Brassicaceae	U	M	M	M	L	L	19
Barley flea beetle	Btle	<i>Phyllotreta vittula</i>	Pph Brassicaceae, Fabaceae	U	M	M	M	L	L	19
Cabbage stem flea beetle	Btle	<i>Psylliodes chrysocephala</i>	Brassicaceae	U	M	M	M	L	L	19
Tarnished plant bug	Bug	<i>Lygus lineolaris</i>	Pph eg. cotton, strawberry, lucerne, peach	Y	L	M	M	L	L	19
Mustard white	But	<i>Pieris napi</i>	<i>Brassica</i> spp.	U	L	M	M	L	L	19
Pea leafminer	Dip Agromyzid	<i>Chromatomyia horticola</i>	Pph Asteraceae, Brassicaceae, Fabaceae	U	M	M	M	L	L	19
Swede midge	Dip	<i>Contarinia nasturtii</i>	Brassicaceae	U	M	M	M	L	L	19

Canola Industry Biosecurity Plan

Common name	Life form	Scientific name	Primary host (Polyphage = Pph)	Targeted survey options?	Entry	Establishment	Spread	Economic impact	Risk	PTQ Score
Cabbage leaf miner	Dip	<i>Phytomyza rufipes</i>	Brassicaceae	U	M	M	M	L	L	19
Leaf miner	Dip	<i>Scaptomyza pallida</i>	Brassicaceae	U	M	M	M	L	L	19
Turnip maggot	Fly	<i>Delia floralis</i>	<i>Brassica</i> spp.	Y	L	M	M	L	L	19
Cabbage root fly	Fly	<i>Delia radicum</i>	Brassicaceae	Y	L	M	M	L	L	19
Clover cutworm	Moth	<i>Hadula trifolii</i>	Pph Asteraceae, Brassicaceae, Chenopodiaceae, Fabaceae	Y	L	M	M	L	L	19
Bright-line brown-eye moth	Moth	<i>Lacanobia oleraceae</i>	Brassicaceae, Solanaceae	U	M	M	M	L	L	19
Beet webworm	Moth	<i>Loxostege sticticalis</i>	Pph Asteraceae, Brassicaceae, Chenopodiaceae	Y	L	M	M	L	L	19
Bertha armyworm	Moth	<i>Mamestra configurata</i>	Flax, lucerne, maize, kale	Y	L	L	M	L	L	19
Pearly underwing moth	Moth	<i>Peridroma saucia</i>	Pph. Asteraceae, Brassicaceae, Fabaceae, Solanaceae	Y	M	M	M	L	L	19
Cabbage caterpillar	Moth	<i>Pieris brassicae</i>	Brassicaceae	Y	L	M	M	L	L	19
Cabbage looper	Moth	<i>Trichoplusia ni</i>	Brassicaceae	Y	L	H	H	L	L	19
Limacid slug	Slug	<i>Limacus pseudoflavus</i>	Pph	U	M	M	M	L	L	19
Bean slug	Slug	<i>Sarasinula plebeia</i>	Pph	U	L	M	M	L	L	19
Vaginulid slug	Slug	<i>Veronicella moreleti</i>	Pph	U	M	M	M	L	L	19
French escargot	Snail	<i>Helix pomatia</i>	Pph	U	M	M	M	L	L	19
Spanish edible snail	Snail	<i>Otala lactea</i>	Pph	U	L	M	M	L	L	19
Field thrips	Thri	<i>Thrips angusticeps</i>	Pph	U	L	M	M	L	L	19

Table compiled from data supplied by Dr J. Botha and Dr D. Hardie, Department of Agriculture. Western Australia.

Reference:

Alford, D.V. 2003. Biocontrol of Oilseed Rape Pests. Blackwell Science. Oxford, UK.

Canola Industry Threat Summary Table for National Exotic Diseases

Last updated: January 2003

This document is a basic overview and assessments may change given more detailed research.

Common name	Life form	Scientific name	Present in Aust. (outside WA)	Primary host, weed or contaminant of	Targeted surv. Option available	Erad. requires loss of crop or prod. area	Entry probability	Establish probability	Spread probability	Economic impact
*	*	*	*	*	*	*		*	*	\$
Verticillium wilt	Fungus	<i>Verticillium longisporum</i> (syn. <i>V. dahliae</i> var. <i>longisporum</i>)	No Europe, USA and Japan	<i>Brassica napus</i> (canola). May also affect other Cruciferous species.			M Seedborne in many species	H <i>V. dahliae</i> (but not <i>V. longisporum</i> is already in WA on other crops, but has done little damage and shows no signs of spread.	H Spread efficiently in soil and with seed. <i>V. dahliae</i> may also spread naturally in weed seeds and with soil.	M A <i>Verticillium</i> isolate obtained from horseradish was described by Stark (1961) as <i>V. dahliae</i> var. <i>longisporum</i> because the conidia were significantly larger than that typical for the species. Isolates having large conidia and other characters have been obtained commonly from oilseed rape in Sweden, Germany, France and Poland, and from other Brassica species in Japan and the USA. The variety has recently been proposed as a new species: <i>V. longisporum</i> . Losses of up to 55% have been recorded for var. <i>longisporum</i> when plants are also infected with nematodes

Canola Industry Biosecurity Plan

Common name	Life form	Scientific name	Present in Aust. (outside WA)	Primary host, weed or contaminant of	Targeted surv. Option available	Erad. requires loss of crop or prod. area	Entry probability	Establish probability	Spread probability	Economic Impact
*	*	*	*	*	*	*	*	*	*	\$
Fusarium wilt	Fungus	<i>Fusarium oxysporum</i> f.sp. <i>conglutinans</i> race 1	No Russia	Brassicas, including <i>B. napus</i> (canola)			M Probably seedborne but data are not yet available.	H	H If soil and seedborne but L if only soilborne.	M Investigations into the host range of vascular wilt fusaria was originally conceived by Snyder and Hansen (1940). <i>Fusarium oxysporum</i> forma speciales <i>conglutinans</i> (originally regarded as infecting all Brassicas) has now been divided into a number of sub races based on pathogenicity and other characters such as vegetative compatibility tests. The first report of a Fusarium wilt of Canola comes from Russia (1998). A related race is damaging on turnip rape.
Gall smut	Fungus	<i>Urocystis brassicae</i>	No	Brassicas, including <i>B. napus</i> (canola)			L	L	L	L
Radish mosaic virus	Virus	comovirus.	No	Turnip rape, <i>Brassica napus</i> (canola), cabbage, cauliflower, radish.			L	L	L	L

NOTES